

**SKILLS NEEDED BY YOUTHS FOR SOY-BEANS PRODUCTION  
FOR ENHANCING FOOD SECURITY IN BENUE STATE, NIGERIA.**

**BY**

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***Abstract***

*The study identified skills needed by youths for soybeans production for enhancing food security in Benue State, Nigeria. Three research questions and three hypotheses guided the study. Survey research design was employed for the study. The study was carried out in Benue State, Nigeria. The target population was 210 youths and all the 44 Agricultural extension officers in Benue State. All the population was involved for the study hence there was no sampling. A 36-item requisite skill questionnaire on soy-beans production was the instrument used for data collection. Two hundred and fifty-four copies of the questionnaire were administered to the respondents while two hundred and forty were retrieved and analyzed using weighted  $\bar{x}$  (mean) and Requisite Skill Index (RSI). Cronbach Alpha reliability method was used to determine internal consistency of the instrument which yielded a reliability coefficient of 0.82. Findings from the study revealed that youths in Benue State need requisite skills in land and seed preparation, planting and post-planting operation, harvesting and marketing of soybeans. It was recommended amongst others that youths in Benue State should be trained by skill acquisition centres in soybeans production using the identified requisite skills.*

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***Keywords:*** Skills, youths, soy-beans production, food security.

**Introduction**

Soybean, *Glycine Max* is one of the major popular and leguminous crops grown in tropical and sub-tropical zones of the world. According to Pedersen and Palle (2008) soybeans have been cultivated in China for thousands of years, and soybeans also became popular in other Asian countries (especially Japan and Korea) over a thousand years ago (as early as the third and fourth centuries AD). It belongs to the family of leguminosae with 500 genera and

more than 12,000 species. United States Department of Agriculture, (USDA), (2005) observed that soybeans grow best in fertile, workable soil, loose and well-drained loamy soil with a pH of 6.0 and 7.0. USDA maintained that soybeans is a slow growing legume than most garden beans and produces beans in usable condition over a period of a week to 10 days and it takes about 3 to 5 months to mature.

Nutritionally, Ajay and Arvind (2009) stated that soybeans are perhaps best known for its fantastic blend of protein and fiber. But soybeans are also an excellent source of molybdenum and copper. They are a very good source of Iron, Omega – 3 fatty acids, dietary fiber, vitamin B<sub>2</sub>, Magnesium, Vitamin K, and Potassium. There are also a wide range of unique proteins, peptides, and phytonutrients contained in soy. According to the authors these nutrients include flavonoids and isoflavonoids (daidzein, genistein, malonyzgenistin, and malonyldaidzin), phenolic acids (caffeic, coumeric, ferulic, gallic and sinapic acids), phytoalexins (glyceollin I, glyceollin II, and glyceollin III), phytosterols (betasitosterol, beta-stigmasterol, campesterol), unique proteins and peptides (defensins, glycinin, conglycinin, and lunacin), and saponins (soyasaponins from group A and group B, and soyaapogenols).

Medically, Jenkins, Jones and Lamarche (2011) asserted that soybeans have positive impacts on blood fats, such as the lowering of triglycerides and total cholesterol or the raising of HDL cholesterol (the “good” cholesterol). Soy isoflavone genistein also helps in Hot flashes, which are very common symptoms of menopause and perimenopause in women (often called “night sweats” when they occur at night) can cause great suffering and can easily affect mood throughout the day and impair concentration. The author continued that increased protein intake has always been associated with suppression of appetite, and plant foods like soy that provide

concentrated amounts of protein have a research-based ability to help suppress appetite. USDA (2005) recommends 3 cups of legumes per week (based on a daily intake of approximately 2,000 calories). Because 1 serving of legumes was defined as ½ cup cooked, the dietary guidelines for Americans came very close to this as they recommend ½ cup of cooked legumes on a daily basis. Based on our research review, we believe that 4-8 cups of legume per week is a very reasonable goal for support of good health.

Youdeowei (2002) clarified that soybeans prevents a number of health conditions such as promoting digestive health and preventive colon cancer, soybeans are a source of insoluble fiber, which adds bulk to stool and helps waste pass quickly thorough the digestive tract. A high fiber diet normalizes bowel movements and promotes digestive health. Adding soybeans to your diet may prevent colon cancer, diverticular disease, constipation and hemorrhoids. Evans, Racettle and Van (2007) stated that soybeans supports bone density and ease symptoms of menopause, because it has a high concentration of calcium, which is a mineral crucial to bone health. Soybeans contain isoflavones, which are substances that have a chemical structure very similar to estrogen. During menopause, when estrogen level drops, isoflavones bind to the estrogen receptors in cells and ease the symptoms of menopause such as hot flashes. The isoflavones in soybeans increase bone density in women and offer protection against osteoporosis.

The author continued that replacing meat and dairy with soy would also lower total cholesterol intake by about 125 milligrams per day and saturated fat by about 2.4 grams per day. These nutritional changes, in turn, would lower risk of several chronic diseases including cardiovascular diseases. The idea of getting 10 grams of fiber and 25-30 grams of high quality protein for 300 calories (1 cup of soybeans) is somewhat amazing. On a diet of 1,800 calories, 300 calories would only represent 16-17% of the total calories of one day. Yet, while only taking up one sixth of days calories, a cup of soybean provides us with 40% of the daily value for fiber and 50-60% of the daily value for protein.

In BenueState soybeans is consumed as whole food and as forage and hay (with an abundance of stems and leaves) the whole food includes full fat, soy milk and powdered milk. The stems and leaves are used to feed animals. For this reasons, soybeans has a very good place in the locality and could engage youths for production. Summer (2003) stated that youth is the time of life when one is young, but often means the time between childhood and adulthood (maturity). Youths constitute a high percentage of Nigerian population. Ajayi, (2006) stated that if the energy and enthusiasm of youths are nationally guided for constructive work, they can help BenueState to become one of the prosperous states in the country and maintain the food basket of the Nation. Youths are one of Nigeria's most potent and

latent resources and it is necessary to organize them and channel their energy and skills towards desirable goals. Engaging the youths in production requires some requisite skills. Requisite skills according to Summer (2003) are skills required for a particular purpose. A skill is a learned capacity or ability to carryout predetermined tasks often with the minimum outlay of time, energy or both, in other words, the ability that one possesses. The author maintained that skill is a measure for the amount of worker's expertise, specialization, wages and supervisory capacity. According to the Business Dictionary, skill is an ability and capacity acquired through systematic and sustained effort to smoothly and adaptively carryout complex activities or job functions involving ideas (interpersonal skills). The youths in BenueState can invest their energy and enthusiasm in soybeans production to increase food security. Production as explained by Jhington in Uko (2003) is the rational combination of various input resources in order to create a stipulated output. It is the process of creating an output and making it get to the final consumers. Iwena (2008) referred to production as all economic activities which result in the creation of goods and services to certify human wants. Anyamouocha (2001) asserted that production is only said to be completed when the products gets to the final consumers.

Borlaug and Dowswell (2004) asserted that food security is a condition related to the ongoing availability of food. Originally,

food security was understood to apply at the national level, with a state being food secure when there was sufficient food to “sustain a steady expansion of food consumption and to offset fluctuations in production and prices.

Mkandawire (2004) maintained that food security exists when all people at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. The activities in soybeans production are grouped into land and seed preparation, planting and post-planting operation and harvesting and marketing.

Although, soybeans is an important food in the diet of most Nigeria citizen, yet, it’s production is still at subsistence level, not meeting the needs of the increasing population. In spite of the effort been made by soybeans farmers, its cultivation still appears low and despite the concerted effort by the government to make Benue State self-sufficient in production the achievement of the policy objectives has remained elusive. Most youths produce soybeans only for family use and very little for the market. Perhaps the low output produced by youths in Benue State may be due to low level of requisite skills in soybeans production, though soybeans contribute a significant proportion of the protein requirements of the population, production is far below the Nations requirements. Soybeans production in Benue State is likely to reduce drastically if

necessary actions are not taken. There is therefore the need for requisite skills by youths, be determined in other to increase and boost soybeans production in Benue State.

### **Purpose of Study**

The major purpose of the study was to identify the skills needed by youths for soybeans production for food security in Benue State. Specifically, the study sought to determine the skills needed by youths for soybeans production in;

- i. Land and seed preparation.
- ii. Planting and post-planting operation.
- iii. Harvesting and marketing operation.

### **Research Questions**

- i. What are the skills needed by youths in land and seed preparation of soybeans.
- ii. What are the skills needs by youths in planting and post- planting of soybeans.
- iii. What are the skills needed by youths in harvesting and marketing of soybeans.

### **Methodology**

Survey research design was used for the study Ali (2006) said survey research design is a planned structure that the investigator wants to adopt in other to obtain solution to research problems. The target population for the study was 210 Youths and 44 Agricultural Extension Officers in Benue State (Benue State Agricultural Rural Development Authority, BNARDA, 2014) The entire population

was used for the study, because of its manageable size hence they was no sampling.

The instrument for data collection was the structured questionnaire titled: Soybeans production for food security questionnaire (SPFSQ). A requisite skills item questionnaire was developed from reviewed literature and used for data collection. A-36 questionnaire item deals with requisite skills in various soybeans production activities. Data was collected by the use of questionnaire from youths and extension agents in Benue State. The questionnaire was divided into two categories of needed and performance. The needed categories has 4-point response scale of highly needed (4) averagely needed (3) slightly needed (2) and not needed (1) On the other hand, the performance category also has 4-point response scale of high performance (4) average performance (3), low performance (2), and no performance (1). The questionnaire was subjected to face validation by three experts; one from the Department of Agricultural Education, One from Crop Production Department and One from the field of Test and Measurement all from the University of Agriculture Makurdi, and the internal consistency of the instrument was determined using Cronbach Alpha method of reliability. The reliability coefficient established was 0.82, the instrument was administered by the researchers. The weighted mean and requisite skills index (RSI) were employed in analyzing data from the questionnaire items in other to

answer the research questions. To determine the requisite skills needed by youths, the following steps were taken: the mean ( $X_n$ ) of the needed category was determined for each item, the mean ( $X_p$ ) of the performance category was also determined for each item, the performance gap (PG) was also determined by finding the difference between  $X_n$  and  $X_p$  for each item i.e  $PG = X_n - X_p$ . Inference drawn from the calculation is given as:

Key: RSN =Requisite Skill Needed  
 $\bar{X}_n$  =Mean needed,  
 $X_p$  = Mean performance.  
PG =Performance Gap  
N =Number of respondents

- i. Where the value of PG was positive (+) for each item, it indicates that the youths needed requisite skill due to the fact that the level at which the youths where performing is lower than what is needed. In order words, the level at which the skill item was needed was higher than the level at which the youths could perform the requisite skill items.
- ii. Where the performance (PG) was negative (-) for each item, it shows the skill is not needed by youths. This is because the level at which the youths where performing is lower than what is needed. In order words, the level at which the requisite skill item was needed was lower than the level at which the youths could perform the skill item.
- iii. Where the performance (PG) is (0) for each item, it indicates that the

youths needed no skill, because the level at which the youths were performing the operations of items is equal to the level that was needed

(the level at which the requisite skill item was needed was equal to the level at which youths could perform the requisite skills).

## Results

### Research question 1

What are the requisite skills needed by youths in land and seed preparation of soybeans?

**Table 1:** Performance Gap Analysis of mean rating of the responses of agricultural extension officers on skills needed by youths for Land and seed preparation N=254

S/N	Items	$\bar{x}_n$	$\bar{x}_p$	$\bar{x}_n - \bar{x}_p$	Remark (PG)
<b>land and seed Preparation (Skills Items)</b>					
1.	Clear the land and burn the bush	3.13	1.36	1.77	RSN
2.	Plow and roto till the field	3.16	1.85	1.31	RSN
3.	Take soil samples and analyze	3.26	1.79	1.47	RSN
4.	Mix fertilizer containing N <sub>2</sub> P <sub>2</sub> O <sub>5</sub> and K <sub>2</sub> O at the rate of 20-30,60 and 80 respectively.	3.18	1.90	1.28	RSN
5.	Apply the mixed fertilizer by broadcasting as a basal dose	3.09	7.3	1.79	RSN
6.	Incorporate the fertilizer into the soil with final harrowing and leveling of the field	2.99	1.04	1.95	RSN
7.	Prepare seedbed with soil not too dried.	3.28	2.40	0.88	RSN
8.	Prepare 20cm raised seedbeds	3.04	1.50	1.54	RSN
9.	Space 1m apart from centre of one bed to the centre of the next	3.12	1.81	1.31	RSN
10.	Inoculate rhizobium bacteria at 10kg per kilogram of seed	3.05	1.99	1.06	RSN
11.	Treat seed with fungicides such as captan or thiram for protection against soil born fungal diseases	3.17	1.45	1.72	RSN

**Key:** RSN=requisite skill needed,  $\bar{X}_n$ =mean of needed,  $\bar{X}_p$ =mean of performance, PG=number of respondents

Table 1 data revealed that the performance gap values of the 11 items ranged from 0.88 to 1.79 and were positive. This showed that requisite skills are needed by youths in land and seed preparations of soybeans production.

### **Research Question 2**

What are the requisite skills needed by youths in planting and post-planting operation of soybeans?

**Table 2:** Performance Gap Analysis of mean rating of the response of agricultural extension officers on skills needed by youths for planting and post-planting operation N=254

S/N	Items Planting and Post-Planting Operation (Skills Items)	$\bar{x}_n$	$\bar{x}_p$	$\bar{x}_n - \bar{x}_p$	Remark (PG)
1.	Plant at temperature of 20-30°C	3.18	1.22	1.96	RSN
2.	Plant with a well-drained loam Soil with PH of 6.0-6.5	3.14	2.01	1.13	RSN
3.	Sow two or three seeds in each hill	3.12	2.88	0.24	RSN
4.	Space 45cm between rows and 5-10cm Between plant depending upon seed size and season.	2.98	1.60	1.38	RSN
5.	Sow 60-80kg seed /ha	3.08	0.5	2.58	RSN
6.	Sow seed by hand or machine	3.77	1.53	2.24	RSN
7.	Side dress fertilizer at the rate of 20kgN+25kgk <sub>2</sub> O per hectare	3.03	1.67	1.36	RSN
8.	Apply fertilizer again at 20kg N Per hectare	3.61	2.55	1.06	RSN
9.	First irrigate within a week after sowing	3.48	0.67	2.81	RSN
10.	Continue to irrigate at 10-15 days	3.44	1.55	1.89	RSN
11.	Irrigate within furrows	3.06	2.55	0.51	RSN
12.	Apply alachor at 1.5kg a.i/ha either alone or combined with peridimethalin at 0.75kg a.i/ha to control weed	3.11	0.56	2.55	RSN

13.	Plant resistant variety to control bacteria	2.80	0.51	2.29	RSN
14.	Stopping to spray at least 10 days prior to harvesting.	3.62	1.62	2.02	RSN

**Key:** RSN=requisite skill needed,  $\bar{X}_n$ =mean of needed,  $\bar{X}_p$ =mean of performance, PG=number of respondents

Table 2 revealed that the performance gap values of the 14 items ranged from 0.24 - 2.81 and were positive. This showed that all requisite skills are needed by youths in planting and post-planting operations of soybeans production.

### Research Question 3

What are the requisite skills needed by youths in Harvesting and Marketing operation of soybeans?

**Table 3:** Performance Gap Analysis of mean rating of the responses of extension agents on skills needed by youths for harvesting and marketing operation N=254

S/N	Items	$\bar{X}_n$	$\bar{X}_p$	$\bar{X}_n - \bar{X}_p$ (PG)	Remarks
<b>Harvesting and Marketing Operation (Skills Items)</b>					
1.	Determine at what stage of maturity to harvest Soy-beans based on the market channel	2.12	1.40	0.72	RSN
2.	Harvest mature soybeans using hands	3.50	3.18	0.32	RSN
3.	Harvest mature soybeans using machines.	3.83	2.10	1.73	RSN
4.	Harvest and keep plants under shed.	2.93	1.3	1.63	RSN
5.	Thrash on mat or tarpaulin	2.75	1.1	1.65	RSN
6.	Sell unprocessed soybeans	2.47	1.25	1.22	RSN
7.	Transport soybeans to cities	3.47	3.15	0.32	RSN
8.	Sell soybeans off-season at profitable amount.	4.34	3.21	1.13	RSN
9.	Store and advertise soybeans	3.77	1.53	2.24	RSN
10.	Keep appropriate records of expenses and sales.	4.50	3.18	1.32	RSN
11.	Sort and grade soybeans	4.55	2.28	2.3	RSN

**Key:** RSN=requisite skill needed,  $\bar{X}_n$ =mean of needed,  $\bar{X}_p$ =mean of performance, PG=number of respondents

Table 3 revealed that the performance gap values of the 14 items ranged from 0.32 - 2.24 and were positive. This showed that requisite skills are needed by youths in harvesting and marketing operations of soybeans production.

### **Discussion of Results**

The results in Table 1 revealed that youths required 19 requisite skills in soybeans seed and land preparation. The skills are: clear the land and burn the bush plow and roto till the field, take soil samples and analyse, mix fertilizer containing  $N_1P_2O_5$  and  $K_2O$  at the rate of 20-30, 60 and 80kg/ha, space 1m apart from centre of one bed to the centre of the next and so on. This result is in agreement with Ukonze (2010) who found out that clearing site ready for tillage, marking out the tilled land for beds, maintaining farm hygiene and providing shade are important skills in nursery operation for vegetable crops production in Enugu State.

The result in Table 2 revealed that youths required 11 requisite skills in planting and post-planting operations in soybeans production. The identified requisite skills are: plant in a well-drained loam soil with a pH of 6.0-6.5, sow two to three seeds in each hill, sow seed by hand or machine plant resistant variety stop spraying production. The findings and observations of the authors cited above helped to validity to the findings of this study.

### **Conclusion and Recommendations**

chemicals at least 10 days prior to harvesting side dress at the rate of 20kgN+25kgK<sub>2</sub>O per hectare and so on. This result is corroborated by the observation of Okorie (1985) that steps in sowing of seeds in the garden include: dig the soil to specification, rake the soil to give a five tilt, remove any weed, plant the seeds and cover the sees with soil from a fine sieve. Obinne (1986) posited that the activities in post-planting operation include: thinning, supplying, mulching, fertilizer application, irrigation, weeding, pest and disease control and harvesting.

The result in Table 3 revealed that youths required 14 requisite skills in Harvesting and marketing operations in soybeans production. The identified requisite skills are: Harvest mature soybeans using hand, harvest using machine, thrash on mat and tarpaulin, transport soybeans to cities, sort and grade soybeans among others. These findings are in consonance with the findings of Omeje and Asogwa (2013) who found out that skills in marketing of melon seeds include: survey the market for demand of melon products, fix prices for melon per-kilogram weight, identify distributing channels, advertise melon seeds to buyers, sell melon seeds to buyers at farm site or at the market and keep sales record to calculate profit or loss for melon Soy-beans is a leguminous crop highly consumed by households in Benue State because of its nutritive and medical values. This made its demand higher than its supply in the market. Hence, soybeans production is lucrative and bankable that youths can

invest their energy and enthusiasm in soybeans production. The study found out 36-requisite skills items that are needed by youths for soybeans production for enhancing food security. Based on the findings of the study, it was therefore, recommended that:

- (i) Youths in Benue State should be trained by skill acquisition centres in soybeans production using the identified requisite skills.
- (ii) The ministry of Agriculture in the state should send more extension

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agents to the rural areas to teach youths the modern techniques of land and seed preparation for planting.

- (iii) The identified skills should be used by extension agents to teach other people soybeans production.
- (iv) Government should encourage film shows and demonstration plots of how soybeans should be harvested and further promote co-operative societies for enhancing marketing strategies for soybeans sale.

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