

## Meeting Capacity Building Needs of Secondary School Graduates for Citrus Production for Economic Development in Benue State, Nigeria

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### Abstract

*The study determined capacity building needs of secondary school graduates in citrus production for economic development in Benue State, Nigeria. Three research questions were formulated to guide the study. Survey research design was employed for the study. The study was carried out in Benue State, Nigeria. The target population of the study was 392; consisting of 320 Agricultural Science Teachers and 72 Agricultural Extension Officers in Benue State and used for the study, the entire population was used for the study hence they was no sampling. A-22 capacity building questionnaire items on citrus production was the instrument for data collection. The instrument was face validated by three experts. Three hundred and ninety copies of the questionnaire were administered to the respondent's while three hundred and seventy copies were retrieved and analyzed using weighted x (mean) and Capacity Building Needed Index (CBI). Cronbach Alpha reliability method was used to determine internal consistency of the instrument which yielded reliability coefficient of 0.88. Findings from the study revealed that secondary school graduates in Benue state needed capacity building skills in post-planting, harvest, and post-harvest operation in citrus production. It was recommended amongst others that Secondary school graduates should be trained on citrus production using the identified competencies, skills identified in the study should be integrated into the curricula of secondary schools for students to acquire skills in citrus production, the identified skills should be used by extension officers to build the capacity of secondary school graduates in citrus production.*

**Key words:** capacity building, secondary school graduates, citrus production, sustainable development.

### Introduction

Citrus occupies an important place in the diet of man; this is because of the high nutritive value accorded to its fruit. According to Calabrese (2002). Citrus fruits belong to the family *Rutaceae*, sub-family *Aurantiodae* and tribe *citreae*. The tree is an evergreen, dicotyledonous perennial with spines. Leaves are simple, ovate with wings at the petiole region. Flowers are single or in clusters, white, and fragrant. Fruit is a hesperidium, carpels, or segments filled with juicy arils and seeds. Seeds are white, show polyembryony, except *citrus grandis*, and vary in size and number in different species (Biojode, 2001). Citrus is a plant with large shrubs or small tree reaching 5-15m tall, with spiny shoots and alternatively arranged evergreen leaves with an entire margin. The flowers are solitary, each flower 2-4cm diameter with five (rarely four) white petals and numerous stamens, they are often very strongly scented. Citrus is a cash crop, and is believed to have originated in the part of South Eastern Asia bordered by North Eastern India, Myanmar (Burma) and the Yunnan province of China. The wide genetic diversity for citrus fruits

exists in South East Asia, and they are predominantly distributed in the Indo-Chinese region, they grow well in tropical and sub-tropical regions. Some major citrus growing countries are Argentina, Australia, Brazil, China, Egypt, Greece, India, Israel, Italy, Japan, Mexico, Morocco, South Africa, Spain, Turkey, the United States, and the West Indies.

The arrival of citrus species to Africa has been specifically credited to the Spanish and Portuguese. In Nigeria, the citrus plant was brought by the missionaries in the 30's. Avav and Uza (2002) states that crop improvement through genetic manipulation has given rise to more varieties that are grown in Nigeria today and example of those varieties include; Sour Orange (Seville orange): *Citrus aurantium*, Sweet Orange: *Citrus sinensis* (L) Osbeck, Mandarin: *Citrus reticulata* Blanco, Lemon: *Citrus Lemon* Burm, Rough Lemon: *Citrus Jambhiri* Lush, Lime: *Citrus aurantifolia* (Christm) swingle, Rangpur lime: *citrus limonia osbeck*, Grapefruit: *citrus paradisi* Macfad, Pummelo: *Citrus grandis osbeck*, Trifoliolate Orange: *Poncirus trifoliolate* (L.) Raf. In Nigeria, about 930,000 tons of citrus fruits are produced annually from an estimated hectareage of 3million hectares of land (Food & Agricultural Organization (FAO), 2008). Citrus is grown in the rainforest and guinea savannah, most of these farmlands is in the remote part of the country with poor roads. About 30 – 50% of these citrus fruit get spoilt on the way before getting to the final consumers in the urban centre. Citrus fruits are the highest value fruit crop in terms of international trade. There are two main markets for citrus fruit, the fresh fruit market and the processed citrus fruit market (mainly Orange juice). Total production and consumption of citrus has grown strongly since the 1980's. Current annual worldwide citrus production is estimated at over 105 million tons, with more than half of these being oranges (Food and Agricultural Organization, 2008). The rise in citrus production is mainly due to the increase in cultivation areas, improvements in transportation and packaging, rising incomes and consumer preference for healthy foods (United Nations Conference on Trade and Development (UNCTAD, 2008).

Major citrus producing states in Nigeria include Benue, Nassarawa, Kogi, Ogun, Oyo, Osun, Ebonyi, Kaduna, Taraba, Ekiti, Imo, Kwara, Edo, and Delta. Citrus are excellent sources of minerals, vitamins and enzymes. They are easily digested and bring about a cleansing effect on the blood and the digestive tract. Hence the ailments usually caused by the consumption of unnatural foods can easily be treated with citrus fruits. Apart from being a very good source of food, fruits are also good medicine. Citrus is one of the most important fruit crop grown all over the world. Citrus fruits are rich in vitamin C (ascorbic acid) and folic acid, as well as a good source of fiber. They are fat free, sodium free and cholesterol free. They contain potassium, calcium, folitate, thiamin, miacin, vitamin B6 (Pyrideoxine), phosphorus, magnesium and copper.

Citrus species are grown for the juice of their fruits and are well known as an important source of vitamin 'C' which guards against scurvy (disease condition of blood caused by eating much salt, meat and not eating enough fresh vegetables and fruits). While the processed citrus fruit known as juice are preserved inform of squash, cordials or juice concentrates, some citrus can be prickled or used for flavoring. Various products are obtained from the plant. The leaves of the orange are studded with vesicles containing volatile oil, and have a bitter aromatic taste, and when rubbed between the fingers are very redolent. They, together with the young twigs yield by distillation oil are termed *essence de petit grain*. The original oil bearing this name was distilled from orange berries; it does not differ chemically from orange oil, though it has a different

odour. According to Merkle (2005), an infusion of the leaves is sometimes employed as a gently diaphoretic. The flowers have a delicious fragrance which is imparted to the surrounding atmosphere, but which is lost by drying. They owe their aroma to an essential oil which may be obtained by distillation; it is termed oil of *nerolis*, and is much used in perfumery. Orange flower water is prepared in Italy and France, which is quite pale, has a rich odour of flowers, and a bitter aromatic taste, it is also employed for the purpose of perfumery, although reputed to possess antispasmodic virtues {medicines used to treat symptoms such as pain and spasm in irritable bowel syndrome (IBS)}. The peculiar fragrance of the flower may be preserved for long time by beating them into a pulp with one-fourth their weight of common salt. Merkle (2005) asserted that dried orange peel can also be sprinkled as a garnish. Orange peel can also be boiled in sugar water until they become nearly translucent and when they are allowed to dry, or place in a food dehydrator, the candied orange peel can be eaten as a snack or combined with other dried fruits as an unusual salad. Orange peels also have the advantage of creating a pleasant odour as they burn. Orange oil derived from orange peels is often used in commercial air fresheners and furniture polishes. Merkle (2005) maintained that Dried orange peels can also be stored in a cheese cloth bag and kept in closets to reduce musty odour and do not need preservatives to store for a whole year without deteriorating. Small insects are not only living thing affected by the smell of orange peel, some experts suggest that a mixture of dried orange peel and coffee grounds will discourage neighborhood cats from using a homeowners yard as a litter box.

Although about 140 countries are known to be involved in citrus production (UNCTAD, 2010) Brazil and the United States alone are credited with contributing up to 45% of global orange production. FAO (2007) estimates indicates that the top 10 citrus producing countries are Brazil, China, United States, Mexico, India, Spain, Iran, Nigeria and Turkey. FAO maintained that the ranking of Nigeria on the 9<sup>th</sup> position among the world top 10 producers of the commodity signify that the situation might be changing. The listing of Nigeria, among the top ten countries of the world is an indication of remarkable improvement in citrus fruit production, with Benue State giving the highest annual production of over one million metric tons of the commodity and they are a lot of secondary school graduates who are roaming the street causing a lot of havoc instead of using their latent and potent energy to invest in citrus production, so as to improve their standard of living and reduce unemployment through citrus production. Summer (2003) asserts that graduates are people who are recognized by a high school as having completed the requirements of a course of study at the school and been able to move to something more advanced.

Secondary school graduates are those students who have completed their six (6) years in the secondary school and are ready to advance in their studies (National Policy on Education (NPE), 2004). Secondary school graduates, in the view of Anjov (2015) are those individuals that have completed six years of secondary school education but could not secure admission into any higher institution or employed in any job. Mama, Asogwa and Ukonze (2012) stressed that unemployed secondary school graduates, have no means of survival except by depending on their parents. This implies that they need to be employed for jobs in order to reduce poverty. Secondary school graduates could engage themselves in citrus production enterprise to generate income for themselves and their family, thereby reducing the rate of crime and unemployment in Benue State. According to (NPE, 2004) secondary school is an educational institution where the second stage of the three schooling periods known as secondary education and usually compulsory up to a specified. It follows elementary or primary education, and is sometimes

followed by university (tertiary) education. There are different types of secondary school and the language used varies around the world, children usually go to secondary school between the age of 11 to 12 years and end between the ages of 16 to 18 years, although there are considerable variations from country to country. Therefore, secondary school graduates could be employed in citrus production for economic development. Production includes all the activities that bring about finished product. Olukunmi (2007) explains production as the transformation of raw materials into finished product thorough organized and controlled use of resource and the effective administration of the processes involved. 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. Ahulkannah, Ndinaechi and Arukwe (2004) see production as the act of making goods and services available to the public. All the activities directly or indirectly contribute towards making goods and services available are productive activities. In this study, production is the utilization of various resources known as inputs into citrus production enterprise. Production is the creation of goods and services and the ultimate distribution of the goods to final consumers for the satisfaction of their wants. Production involves the creation of utility. Utility is the satisfaction derived from the use of a product. Utility may be of form in which case, the form of raw materials is changed into consumable goods. It may be of place in which case the geographical position of goods is changed so that the wants of the consumers can be satisfied. It may also be of time such that the goods will be made available when required. The main purpose of production is consumption (Olukunmi, 2007). Materials must therefore be transformed from their raw state into useable form. There are two (2) major types of production: Direct and indirect production. Direct production is a sort of production in which a person undertakes the production of goods and services for personal and family needs. Direct production is also described as a situation of self-sufficiency or subsistence farming while indirect production is a sort of modern production, it involves the use of modern or sophisticated equipment and a person merely plays a minute rote in production activities. In the modern days, almost all productive activities are described as indirect. The indirect production may be sub-divided into three stages or classes, these are: primary, secondary and tertiary. In the primary, production is concerned with the extraction of raw materials in their natural form from land, air or water. It is described as the extractive stage of production. Production here covers agricultural products, foodstuff such as citrus and beans and mineral resources such as crude oil, coal and gold for industrial use. The secondary production is concerned with the conversion of raw materials or semi-finished products into forms that will be acceptable to the consumers. It is described as the manufacturing stage also comprising of the constructive activities. It is here that the raw materials obtained in primary production are worked upon or processed to become finished goods. Practical example is the manufacture of orange juice. Tertiary production involves the provision of commercial and professional services to people. Wholesalers, retailers, bankers, insurance brokers (who produce commercial services) as well as doctors, lawyers, teachers, tailors (who produce professional services) are in this category.

In the submission of Holt and David (2005), enterprise is an activity or project that produces services or produces goods and services. There are essentially two types of enterprise; Business and social enterprises. Business enterprises are run to make a profit for private individual or group of individuals which include small businesses. On the other hand, the social enterprise,

functions to provide services to individuals and groups in the community. There are a lot of different enterprises such as small business, in which one person owns and runs them, others include family business owned and run by partners who are family relations. People usually decide to set up small businesses to earn income from producing and selling products or delivering services to individuals or other business. To earn income from a small business, the enterprise has to run at a profit, that is, some money should be left over for the business owner once all the costs of making the product or delivering a service have been met. Enterprise is any business organization owned by individuals, state or federal parastatals to make profit. Olukunmi (2007) asserted that enterprise is any business organization engaged in an economic activity. It could be self-employed, partnership and associations. The author stressed that an enterprise is not developed by chance but as a result of careful planning and detailed attention to establishment and maintenance. It is important that secondary school graduates possess competency in citrus production enterprise, they should be equipped with capacity building needs.

Capacity building is defined by United Nations Development Programme (UNDP, 2006) as a long-term continual process of development that involves all stakeholders including ministries, local authorities, non-governmental organizations, professionals, community members, academics and more. The term capacity building has many different meaning and interpretations depending on where to use it and in what context it is used. It is generally accepted that capacity building as a concept is closely related to education, training and human resource development. This conventional concept has changed over recent years towards a broader and more holistic view covering both institutional and countries specific initiatives. Groot and Moolen (2005) defined capacity building as the creation of an enabling environment with appropriate policy and legal framework, institutional development including community participation, human resource development and strengthening of managerial systems. Capacity building often refers to assistance that is provided to develop a certain skill or competence, or for general up grading of performance ability. According to UNDP (2006), Capacity building is the element that gives fluidity, flexibility and functionality to an individual to adapt to changing needs. Capacity building is much more than training and includes the human resource development, the process of equipping individuals with the understanding skills and access to information, knowledge and training that enables secondary school graduates to perform effectively. Capacity building in the submission of Anjov (2015) is an effort geared towards improving the level of knowledge, skills, and attitude possessed by an individual for proficiency in a given task or job, capacity building is the act of developing the level of knowledge, skills and attitude possessed by an individual in a given job to maximize profit and enhance income. In this study, capacity building is the act of developing the level of knowledge, skills and attitude possessed by secondary school graduates for citrus production enterprises and could result in the reduction of unemployment rate among secondary school graduates and also reduce the rate of crime in Benue State through citrus production enterprise.

### **Statement of the Problem**

In Benue State, citrus production is a lucrative business. It has high market as many customers come from neighboring states and countries to patronize the farmers. However, it was observed by the researcher that the quantity supplied by the citrus farmers in the state falls below the quantity demanded by the consumers and marketers, despite all the effort of the extension agents

to help citrus farmers boost their output and supply to the market. The problem of low-supply and poor preservation of citrus products could be as a result of the low level of education of the farmers and age. In any case, the government of the country expected that secondary school graduates should be able to replace their parents in animal and crop production such as citrus. This is why the Nigerian Education Research and Development Council (NERDC) included crop production in the curriculum of secondary schools which is handed over to the teachers for implementation. Teachers on their part teach and evaluate secondary school students for competence in different areas of agriculture including citrus production before they are allowed to graduate. Meanwhile, the researcher observed that most of the secondary school graduates abandon agriculture and migrate to urban cities such as Makurdi, Kano, Lagos, Onitsha, Port-Harcourt and Abuja in search of white-collar jobs which are not easy to come by these days. In most cases they resort to armed robbery, human trafficking, prostitution, tuggery in order to earn a living, instead of picking up jobs in agriculture such as citrus production. The question now is: is it that the skills they learnt in schools are not adequate to motivate and sustain them in citrus production or they lack interest in Agriculture generally? The researcher is worried about the level of skills possessed by the secondary school graduates because even those who embark on citrus production still make use of old principles and practices adopted by their parents despite their exposure to fundamental skills in crop production in secondary schools. It is on these bases that the researcher deemed it necessary to conduct this study on the capacity building needs of secondary school graduates for citrus production in Benue State, and the gap this study seeks to fill is in the area of nursery operation, pre-planting operation, planting operation, post-planting and harvest operation.

### **Purpose of Study**

The major purpose of the study was to determine capacity building needs of secondary school graduates for citrus production in Benue State. Specifically; the study determined the capacity building needs of secondary school graduates in:

- i. post-planting operation;
- ii. harvest operation; and
- iii. post-harvest operation.

### **Research Questions**

1. What are the capacity building skill needs of secondary school graduates in Post- planting operation for citrus production in Benue State?
2. What are the capacity building skill needs of secondary school graduates in harvest operation for citrus production in Benue State?
3. What are the capacity building skill needs of secondary school graduates in post-harvest operation for citrus production in Benue State?

### **Methodology**

The study adopted the survey research design. It is a design in which a group of people or items is studied by collecting and analyzing data only from a few people or items considered to be representative sample of the entire population through the use of questionnaire (Emaikwu,

2012).The target population for the study was 392 comprising of 320 Agricultural Science Teachers (Benue State Teaching Service Board(TSB)2015) and 72 Registered Agricultural Extension Officers in Benue State (Benue Agricultural and Rural Development Authority,BNARDA,2015).The entire population constituted the sample size because of the manageable size which the researcher and his assistants handled effectively during data collection, therefore, there was no sampling for the study.A-22 capacity building questionnaire items on citrus production was developed from reviewed literature and was the instrument used for data collection. The 22 items questionnaire deals with skills in various sections of citrus production. Data was collected by the use of questionnaire from Agricultural Science Teachers and Agricultural Extension Officers in Benue State, the questionnaire was divided into two categories of needed and performance. The needed category has a 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 (3) experts (2) from the Department of Agricultural Education, University of Agriculture and (1) from the Department of Agricultural Extension all from the University of Agriculture Makurdi, the internal consistency of the instrument was determined using Cronbach-Alpha method of reliability. The reliability coefficient established was 0.88; the instrument was administered by the researcher. The weighted mean and Capacity Building Needed Index (CBNI) were employed in analyzing data from the questionnaire items in order to answer the research questions. To determine the capacity building needs of secondary school graduates in Citrus production, the following steps were taken: the mean ( $X_n$ ) of the needed category was determined for each item, the mean 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.  $PG = X_n - X_p$ , Inferences drawn from the calculation is given as:

- i. Where the value of PG was positive (+) for each item, it indicates that secondary school graduates needed capacity building due to the fact that the level at which the secondary school graduates were 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 women could perform the skill items.
- ii. Where the value of PG was negative (-) for each item, it shows that capacity building is not needed by secondary school graduates. This is because the level at which the secondary school graduates were performing is lower than what is needed. In order words, the level at which the skill item was needed was lower than the level at which the women could perform the skill item.
- iii. Where the value of PG is zero (0) for each item, it indicates that the secondary school graduates needed no capacity building, because the level at which the secondary school graduates were performing the operation of the item is equal to the level that was needed (the level at which the skill item was needed was equal to the level at which secondary school graduates could perform the skills).

## Results

### Research question 1

What are the skill capacity building needs of secondary school graduates in post-planting operation for citrus production in Benue State?

**Table 1: Performance Gap Analysis of the mean ratings of the responses of secondary school graduates in post-planting operation for citrus production in Benue State. (N=320:72)**

S/n	Item Statement	$\bar{x}_n$	$\bar{x}_p$	PG( $\bar{x}_n - \bar{x}_p$ )	Remark
1.	Affirm/consolidate the soil at the base of the seedling ensuring that they are in upright position.	3.01	2.15	0.86	CBN
2.	Apply 3litres of water per plant twice a week for new seedling.	3.21	2.20	1.01	CBN
3.	Apply 50kg of NPK 10:10:10 per plant/hole 5weeks after planting (based on soil test).	3.01	2.50	0.51	CBN
4.	Repeat fertilizer application in May and September i.e during the long and short rains.	3.41	2.20	1.21	CBN
5.	Weed the orchard manually with hoe or cutlass or chemically using herbicide Fermate or Arsan.	3.35	2.40	0.95	CBN
6.	Interplant citrus with early maturing plants like okra, leafy vegetables, melon, sweet potato or sweet corn.	3.42	3.01	0.41	CBN
	Tie maize stalk around the trunk to avoid sunburn.	3.41	2.01	1.38	CBN
	Inspect young trees frequently of pest and diseases.	3.45	2.01	1.44	CBN

CBN=Capacity Building Needed,  $\bar{x}_n$  = mean of needed by secondary school graduates,  $\bar{x}_p$ = mean of performance by Agricultural Science Teachers, PG= Performance Gap

Data in Table 1 showed that the Need-Performance Gap Value of all the eight (8) skill items were 1.41 to 1.44 and were positive. This indicated that secondary school graduates needed capacity building in all the skill items in post- planting operation for citrus production in Benue State.

### Research question 2

What are the skill capacity building needs of secondary school graduates in harvest operation for citrus production in Benue State?

**Table 2: Performance Gap Analysis of the mean rating of the responses of secondary school graduates in harvest operation for citrus production in Benue State. (N=320:72)**

S/n	Item Statement	$\bar{x}_n$	$\bar{x}_p$	$PG(\bar{x}_n - \bar{x}_p)$	Remark
1.	Determine at what stage of maturity to harvest citrus fruits based on the market channel.	3.02	2.45	0.57	CBN
2.	Move around the orchard to identify fruits that fall on the ground.	3.52	2.05	1.47	CBN
3.	Place ladder on the citrus tree and climb to reach to the fruit if the stem is tall.	3.52	2.31	1.21	CBN
4.	Pull fruits by hand, clippers or secateurs to avoid cutting or puncturing the skin of citrus.	3.43	2.35	1.08	CBN
5.	Avoid harvesting fruits that are light, puffy or spongy because they lack juice.	3.46	2.30	1.16	CBN
6.	Sort fruit to eliminate all foreign materials such as leaves and twigs.	3.22	2.10	1.12	CBN
7.	Gather citrus fruits under the tree before transporting.	3.14	2.01	1.13	CBN

*CBN = Capacity Building Needed,  $\bar{x}_n$  = mean of needed by secondary school graduates,  $\bar{x}_p$  = mean of performance by Agricultural Science Teachers, PG= Performance Gap.*

Data in Table 2 revealed that the Need-Performance Gap Value of the seven (7) skill items ranged from 0.57 to 1.47 and were positive. This indicated that secondary school graduates needed capacity building in all the skill items in harvest operation for citrus production in Benue State.

### Research question 3

What are the skill capacity building needs of secondary school graduates in post-harvest operation for citrus production in Benue State?

**Table 3: Performance Gap Analysis of the mean rating of the responses of secondary school graduates in post-harvest operation for citrus production in Benue State. (N=320:72)**

S/n	Item Statement	$\bar{x}_n$	$\bar{x}_p$	$PG(\bar{x}_n - \bar{x}_p)$	Remark
1.	Sort and grade citrus fruit using sizes, colour and variety.	3.23	2.05	1.18	CBN
2.	Fix appropriate prices for each grade base on market survey or demand.	3.11	2.11	1.00	CBN
3.	Advertise citrus fruit locally or through the media to attract buyers.	3.15	1.55	2.60	CBN
4.	Sell citrus fruit to buyers at the orchard gate or transport the fruit to market for sale at better price.	3.37	2.70	0.67	CBN
5.	Distribute or sell citrus fruit to consumers through middlemen.	3.25	2.51	0.74	CBN
6.	Keep appropriate record of sales for sustainability and/ or expansion.	3.33	2.18	1.15	CBN
7.	Calculate the expenditure and income to balance the profit or loss account.	3.40	2.56	0.84	CBN

CBN = Capacity Building Needed,  $\bar{x}_n$  = mean of needed by secondary school graduates,  $\bar{x}_p$  = mean of performance by Agricultural Science Teachers, PG= Performance Gap.

Data in Table 3 revealed that the Need-Performance Gap Value of the seven (7) skill items ranged from 0.67 to 2.60 and were positive. This indicated that secondary school graduates needed capacity building in all the skill items in post-harvest operation for citrus production in Benue State.

### Discussion of Findings

The result of the study in Table 1 revealed that secondary school graduates needed seven (7) Capacity building skills in citrus post-harvest operation. The identified capacity building needs in citrus post-harvest operation are: sort and grade citrus fruits using size, colour and variety, fix appropriate prices for each grade based on market survey or demand, advertise citrus fruit locally or thorough the media to attract buyers, sell citrus fruits to buyers at the orchard gate or transport the fruits to market for sale at better price among others. These findings are in consonance with the findings of Olaitain, Asogwa and Eze (2011) that skills in marketing of vegetable products include: clean vegetable products of soil, sort and grade vegetable products, store, advertise and sell the products and keep appropriate records of expenses and sales. Omeje and Asogwa (2013) found out that skill in marketing of melon seeds include: survey the market for demand of melon products, fix prices for melon per-kilogram weight, identify distribution channels, advertise melon seeds to buyers, sale melon seeds to buyers at farm site or at the market and keep sales record to calculate profit of loss for melon production.

The result of the study in Table 2 showed that secondary school graduates needed eight (8) of long stick and so on. This also agreed with the work of Capacity building skills in citrus harvest operation. The identified capacity building needs in citrus harvest operation are: Determine at what stage of maturity to harvest citrus fruits based on the market channel, move around the orchard to identify mature fruits or the ones that fall on the ground, place a ladder on the citrus tree and climb it to reach to the fruit if the stem is tall or use Ugwoke, Onu, Agboeze, and

Asogwa (2013) in a study on occupational competencies required by retirees in pawpaw production and marketing for sustainable livelihood in Enugu State, where the retirees were judged to possess occupational competencies in 17 harvesting and marketing for sustainable livelihood in Enugu State. Determine at what stage of maturity to harvest pawpaw pods based on the market channel, move around the orchard to identify mature pods using colour change from green to light green, tinge of yellow to red at the epical end depending on the variety, place a ladder on the pawpaw tree and climb it to reach to the pods if the stem is tall among others.

The result of this study in Table 3 revealed that secondary school graduates needed seven (7) capacity building skills in citrus post-harvest operation. The identified capacity building in citrus post-harvest operation are: Sort and grade citrus fruit using sizes, colour and variety, fix appropriate prices for each grade base on market survey or demand, advertise citrus fruit locally or through the media to attract buyers, sell citrus fruit to buyers at the orchard gate or transport the fruit to market for sale at better prices among others. The result in table 3 are in agreement with the findings of Omeje and Asogwa (2013) that skills in marketing of melon seeds include: Survey the market for demand of melon products, fix prices for melon per-kilogram weight, identify distribution 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 production. The findings and observations of the authors cited above helped to add validity to the findings of this study.

### **Conclusion and Recommendation**

The study found out that secondary school graduates needed 8-skills in post-planting operation, 7-skills in harvest operation and 7-skills in post-harvest operation of citrus production. The researcher considered the following recommendation worthwhile on the basis of the above findings.

1. Teachers of agricultural science should use the findings from this study to train students for self reliance in citrus production on graduation.
2. Secondary school graduates should be trained on citrus production using the identified competencies.
3. The identified skills should be used by extension officers to build the capacity of secondary school graduates in citrus production.

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