

## Occupational Competencies Required by Secondary School Leavers in Rice Production and Marketing for Sustainable Development in Benue State, Nigeria

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### **Abstract**

*This study identified occupational competencies required by secondary school leavers in rice production and marketing for sustainable development in Benue State, Nigeria. Three research questions and three hypotheses guided the study. Descriptive survey research design was used for the study. The population for the study was 420. The entire population was used for the study. A 51- item questionnaire was used for data collection. The instrument was validated by five experts. Cronbach-Alpha reliability coefficient of 0.87 was obtained. Four hundred and twenty copies of the questionnaire were administered to the respondents by the researchers with the help of research assistants. Four hundred and ten-copies of the questionnaire were retrieved and analyzed using mean, standard deviation and t-test. It was found that secondary school leavers required 18 competencies in land and nursery preparation, 19 competencies in planting and weed control and 14 competencies in harvesting and marketing of rice. It was recommended that the secondary school leavers in Benue State should be trained by skill acquisition centres in rice production using the identified competencies among others for sustainable development of secondary school leavers.*

**Keywords:** Occupation, competency, secondary school leavers, production, sustainable development

### **Introduction**

Rice (*oryza sativa*) is a monocotyledonous plant, the commonest variety known in Nigeria and particularly in Benue State are *oryza sativa* and *oryza glaberrima* which are long and short grain rice and can also be referred to as upland and lowland rice. Okpoko, Ajide, Lanco and Erenstein (2001) asserts that rice production started in Nigeria 1500BC with the low-yielding indigenous red grain species *Oryza glaberrima* and it was widely grown in the Delta area. The high-yielding white grain, *oryza sativa* was introduced in about 1860 and by 1960 it accounted for more than sixty percent (60%) of the rice grain in the country. Today, rice is cultivated in virtually all the agro-ecological zones of Nigeria, but on a relatively small scale.

Nutritionally, Olof (2013) viewed rice production as the main cereal crop grown in many parts of the world, and that it forms the main part of the diet of over one-third of the world's population. Rice is rich in carbohydrate and protein. The outer layer of rice, known as bran is also rich in protein and vitamins and is widely used in the formation of poultry feeds. In rice producing areas, the enterprise provides employment for more than eighty percent (80%) of the inhabitants through various activities along the production and distribution chain, from cultivation to consumption. The author maintained that rice grows best in a wide variety of soil with high fertility but slightly acidic. According to the author, rice germinates 4-5 days after planting, taking about 4-7 months to harvest, the demand for

rice has been increasing at a much faster rate in Benue State and the domestic production has never been able to meet the demand, leading to considerable imports, which today stands at about one million metric tonnes yearly.

International Rice Research Institute (IRRI, 2012) reports that the imports are procured on the market with Nigeria spending over US \$300 million on rice imports annually; the Federal Government Rice Research Station (FRRS) was established in Badeggi by the Federal Government of Nigeria. This signaled a major policy thrust with respect to rice research in Nigeria. Their major aim was the development and multiplication of improved varieties of rice seeds. Domestic Product has never been able to meet the demand, leading to considerable imports, which today stands at about one million metric tonnes yearly. The imports are procured on the market with Nigeria spending over US \$300million on rice imports annually. The demand for rice has been increasing at a much faster rate in Nigeria than in other West African countries since the mid 1970s. Rice is a convenient crop to base our estimation on, paddy rice production by 2012 in Sub-Saharan Africa (SSA) was 19 million tonnes equivalent of 12 million tonnes of milled rice at 65% milling rate. Consumption demand for the same year was 24 million tones, at an increase of 5% per year estimated for the period 2000 – 2012, consumption would rise from 24 million tonnes (24MT) in 2012 to 36 million tonnes (36MT) by 2020 (Mustafa, 2015). The author maintained that, recently, Chief Audu Ogbe, the Honourable Minister of Agriculture and Rural Development (HMARD) was quoted to have said Nigeria's consumption demand for rice was five million tonnes (5MT) but we only produce three million tonnes (3MT), hence we need to import the balance of two million tonnes (2MT) to meet our demand. Presumably, Nigeria's 5MT demand is part of the estimated 24MT for SSA for 2012 and which may perhaps rise to an estimated quantity of 7.5MT or more by 2025. For population of 240 million people, 7.5MT of milled rice is not a big deal but the trend is the consumption is that the consumption will equally increase. However, Nigeria should aim towards greater role within its sphere of influence-West Africa or even Africa as a whole and should endeavor to capture a substantial percentage of that ready rice market in Sub-Saharan Africa (SSA). The presidential Initiative on Rice (2001–2007) aimed at producing and processing enough quantities of rice for domestic consumption and export by 2017 could not be attained (Mustafa, 2015). But rice consumption in Nigeria has since increased, similarly, the Nigerian National Rice Development Strategy Plan (NRDSP) which was established in 2009 aimed at making Nigeria self – sufficient in rice by raising production of paddy from 3.4MT in 2007 to 12.8MT by 2018. Even though being the largest producer of rice in West Africa, most production is still predominantly small holder and hence the country continues to import millions of tonnes of rice worth US\$2.6 billion (517.5billion) annually (Cadoni & Angulecci, 2013).

The recent launch of the Anchors Borrowers Programme by President Muhammed Buhari in Kebbi State in November, 2015 aimed at improving the overall production of rice in Nigeria was commendable and should be built into a functional National Food Security Programme (Mustafa, 2015). Rice is cultivated in almost all the agro ecological zones at a minimal level, there is also a great disparity among the states of Nigeria in rice production in terms of output and yield particularly within the middle belt region and production in Benue State is still at a small-scale level since it cannot sustain the livelihood in the state and satisfies the food security of the state. In Benue state, rice is consumed as a staple food and is one of the most valued cereal crop West Africa. For this reasons, rice has market in

the locality and could engage secondary school leavers for substance. Anjov (2015) states that secondary school leavers are those individuals that have completed six years of secondary school education but could not secure admission into higher institution of learning or employed in any job. The authors maintained that unemployed secondary school leavers have no means survival except depending on their parents. This implies that, they need to be employed to reduce dependency and contribute to the Gross Domestic Product (GDP). Rice production has the potential to adequately engage secondary school leavers at different levels of the production and marketing.

Production is a process, and as such, occurs through time and space. Because it is a flow concept, production is measured as a rate of output per period of time. Olukunmi (2007) sees production as the act making goods and services available to the public. All activities which directly contribute towards making goods and services available are productive activities.

Ugwoke, Onu, Agboeze and Asogwa (2013) categorized activities in crop production into pre-planting, planting, post-planting and harvesting operations. Therefore, rice production is the combination of resource inputs for the purpose of obtaining rice seeds as outputs and making them available to the final consumers. The activities in rice production are grouped into nursery, planting, and management of rice farm and marketing of rice seeds.

Nursery as explained by Anjov(2015) is a house or place where young plants known as seedlings are raised. It is an enclosure such as poly-pots, seeds-boxes or beds where seeds are raised into seedlings and protected from harsh weather before they are transplanted to the main farm. The author added that good nursery practices facilitate survival and establishment of seedlings in the farm after transplanting which makes planting easier for crop farmers.

Planting operations involves all the activities in sowing the seeds or seedling in the prepared farmland for easy germination and development of the plant. Anjov (2015) asserts that planting is placing of seeds or seedlings into the ground usually in mound, beds, ridges so that subsequently hoeing and weeding can be done easily, only the seed cultivars that are viable should be selected and planted. Rice can be propagated using drilling or dibbling method of planting for upland rice, transplanting method is used for irrigated farms and broadcasting method for lowland rice (Olof, 2013). In this context, planting is the coordination of human efforts and other relevant resources involved in rice production and marketing of its seed for economic benefits.

Marketing is a means through which products are made available and sold to buyers at an agreed price. Andrew (2007) stated that agricultural marketing covers the services involved in moving an agricultural product from the farm to the consumer. It includes numerous interconnected activities such as planning, production, growing and harvesting, grading, packing, transport, storage, agro and food processing, distribution, advertising and sale of farm produce. George (2008) maintained that marketing is the most critical consideration in a crop production enterprise and the nutritional and the important nature of rice makes its production and marketing a profitable occupation for interested individuals.

An occupation is one's regular, daily and immediate business or job through which one earns a living livelihood. Okorie (2000), states than an individual who has occupation is

said to have work and that effective work of an individual worker in any occupation is based on interest, knowledge, skills, ability, attitude and value. This implies that the success of the secondary school graduates in rice production and marketing occupation is based on the level of their competencies in the activities involved.

Olaitan (2003), states that to be competent implies that an individual has acquired knowledge, skills, attitude and judgment which he required in order to perform successfully at a specified proficiency level in a given work. In the context of this study, occupational competencies refer to knowledge, skills, attitude and judgment that should be acquired and performed by secondary school leavers for success in rice production and marketing for sustainable development. Rice is one of the most important food crops for sustainable livelihood in Benue state, it is a staple food for most Nigerian citizens, yet its production is still at subsistence level, not meeting the needs of the population. According to Udoh (2003), rice is cultivated in virtually all the ecological zones in Nigeria. In spite of this, the areas rice is cultivated still appear small. Moreover, could it be that low output resulted to inadequate skills acquired by the farmers, old age by the farmers and subsequently low standard of living for the farmers. Therefore, secondary school leavers who are fresh out of school with occupational skills could replace their parents who are old with obsolete ideas in rice production and marketing which could also sustain their livelihood in Benue State.

### **Purpose of the Study**

The purpose of this study was to identify occupational competencies required by secondary school leavers in rice production and marketing for sustainable development in Benue State, Nigeria. Specifically, the study ought to identify competencies required by secondary school leavers in:

1. land preparation and nursery operation;
2. planting and weed control operation; and
3. harvesting and marketing operation.

### **Research Questions**

1. What are the competencies required by secondary school leavers in land preparation and nursery operation?
2. What are the competencies required by secondary school leavers in planting and weed control operation?
3. What are the competencies required by secondary school leavers in harvesting and marketing operation?

### **Hypotheses**

The following null hypotheses were formulated for the study and tested at 0.05 level of significance.

1. There is no significant difference in the mean ratings of Teachers of Agricultural science and Agricultural Extension officers on competences required by secondary school leavers in land preparation and nursery operation.
2. There is no significant difference in the mean ratings of Teachers of Agricultural Extension Officers on competencies required by secondary school leavers in planting and weed control operation.
3. There is no significant difference in the mean ratings of Teachers of Agricultural science and Agricultural Extension Officers on competencies required by secondary school leavers for harvesting and marketing of rice.

### **Methodology**

Three research questions and hypotheses guided this study. Descriptive survey research design was adopted for this study. Emaikwu (2007) states that descriptive survey research design is a plan, structure and strategy than an investigator adopts in order to obtain solution to research problems using questionnaire in collecting, analyzing and interpreting the data. This design is suitable because the study made use of questionnaire developed literature to collect data from the respondents.

The area of the study was Benue State; the population for the study was 420 made up of 278 Teachers of Agricultural Science in senior secondary schools (Benue State Teaching Service Board, TSB, 2016) and 142 Agricultural Extension Officers (Benue State Agricultural and Rural Development Agency, BNARDA, 2016). The entire population was used for the study because the size was small and manageable. Hence, there was no sampling. The instrument for data collection was 51-item questionnaire titled: Rice Production Competency Questionnaire (RPCQ). The questionnaire was developed from literature and industries by the researchers' response scale of Highly Required, Averagely Required, Slightly Required and not Required with a corresponding value of 4, 3, 2 and 1. The instrument was face validated by five university lecturers, two from Department of Crop Production, one from Department of Vocational Agriculture and Technology Education and two from Department of Agricultural Extension all from the University of Agriculture, Makurdi Benue State. Their corrections and suggestions were utilized to improve the initial copy of the questionnaire to produce the final copies. Cronbach-Alpha reliability method was adopted to determine the internal consistency of the questionnaire items. A Cronbach-alpha coefficient of 0.87 was obtained. Four hundred and twenty copies of the questionnaire were administered to the respondents, but four hundred and ten copies were returned and analyzed. Weighted mean and standard deviation were used to answer the research questions while t-test statistic was used to test the hypothesis at 0.05 level of significance and at 408 degree of freedom. The average mean of 2.50 was used for decision-making. Any item with a mean rating of 2.50 or above was regarded as a competency item that is required while any competency item with a mean rating less than 2.50 was regarded as not required. Any it with standard deviation between 0.00 and 1.96 indicated that the respondents were not far from the mean and the opinion of one another. The hypotheses of no significant difference was upheld for any item whose t-calculated value was less than the t-table value of 1.98 level of significance and at 408 degree of freedom.

## Results

The results for the study were obtained from the research questions answered and hypotheses tested through data collection and analyzed.

### Research Question 1

What are the competencies required by secondary school leavers in land preparation and nursery operation?

### Hypothesis 1

There is no significant difference in the mean ratings of Teachers of Agricultural science and Agricultural Extension Officers on competencies required by secondary school leavers in land preparation and nursery operation.

The data for answering research question 1 and testing hypothesis 1 are presented in table 1

**Table 1: Mean Ratings, Standard Deviation and t-test Analysis of the Responses of Teachers of Agricultural science and Agricultural Extension Officers on competencies required by Secondary School Leavers in land preparation and nursery operation. (N=408)**

N/S	Competencies in land preparation and nursery operation	<i>X</i>	<i>SD</i>	<i>t-cal</i>	Remark
1.	Clear the land by using hoe or cutlass.	3.63	1.36	0.76	RQ, NS
2.	Remove all the stumps, roots and trees before ploughing.	3.16	1.85	0.62	RQ, NS
3.	Clear and pack bushes before onset rains.	3.56	1.78	0.50	RQ, NS
4.	Apply basal fertilizer before harrowing.	3.18	1.90	0.59	RQ, NS
5.	Use disk harrow to fine tilt.	3.09	1.30	0.36	RQ, NS
6.	Construct bunds to accumulate rain water.	2.99	1.04	0.37	RQ, NS
8.	Select site for rice nursery/seedling preparation	2.86	1.86	0.55	RQ, NS
9.	Clear the stump vegetation to prepare the land.	3.18	1.86	0.63	RQ, NS
10.	Demarcate the land with pegs for proper nursery operation.	3.14	1.37	0.77	RQ, NS
11.	Loosen the soil to facilitate rooting.	3.12	1.15	0.70	RQ, NS
12.	Select viable or healthy seeds of the desired cultivar to enhance germination.	3.10	1.23	0.64	RQ, NS
13.	Treat selected seeds with chemicals.	3.98	1.12	0.49	RQ, NS
14.	Broadcast treated seeds evenly.	2.68	1.14	0.39	RQ, NS
16.	Lift seedlings from the nursery when the soil is moist	3.02	1.84	0.44	RQ, NS
17.	Trim the leaves back with sharp machet to reduce leaf surface	3.19	1.92	0.47	RQ, NS

18. Transplant with sticks with about 25-39cm long. 3.12 1.88 0.53 RQ, NS

Key:  $\bar{X}$ = Mean,  $SD$ =Standard Deviation,  $t_{cal}$ =  $t$ - calculated,  $t_{table}$ =1.98, RQ=Required, NS=Not Significant.

The data in Table 1 revealed that the mean of the 18-items ranged from 3.02 to 3.98. This showed that each and all of the items had a mean value above the cut-off point of 2.50 which indicated that all the competencies were required by secondary school leavers for rice planting and weed control. The Table also revealed that each and all of the items had their standard deviation ranged from 1.04 to 1.92; this showed that the respondents were not far from the mean and from one another in their responses. The result of the test of hypothesis in table 2 indicated that each of items had its calculated t-value lower than the table value of 1.98. This revealed that there was no significant difference in the mean ratings of teachers of Agricultural Science and Agricultural Extension Officers on competencies required by secondary school leavers in planting and weed control operation. Therefore, the hypothesis of no significant difference was upheld for the 18- items.

### Research Question 2

What are the competencies required by secondary school leavers in rice planting and weed control operation:

### Hypothesis 2

There is no significant difference in the mean ratings of teachers of Agricultural Science and Agricultural Extension Officers on competencies required by secondary school leavers in rice planting and weed control operation.

The data for answering research question 2 and testing hypothesis 1 are presented in Table 2.

**Table 2: Mean Ratings, Standard Deviation and t-test Analysis of the Responses of Teachers of Agricultural Science and Agricultural Extension Officers on competencies required by Secondary School Leavers in planting and weed control operation (N=408)**

S/N	Competencies in planting and weed control operation	$\bar{X}$	$SD$	$t_{cal}$	Remark
1.	Check ecology before planting.	3.00	1.00	0.51	RQ, NS
2.	Use drilling method of planting for upland rice.	3.88	1.11	0.74	RS, NS
3.	Use transplanting method in irrigated farms.	3.73	1.41	0.55	RS, NS
4.	Use broadcasting, drilling and transplanting for lowland rice fields.	3.00	1.00	0.82	RS, NS
5.	Plant seed in the soil to a depth of 5-7cm.	3.00	1.00	0.70	RQ, NS
6.	Plant 2-3 seeds per hole.	3.78	1.21	0.77	RQ, NS
7.	Plant 65kg rice seeds per hectare.	3.88	1.41	0.89	RQ, NS
8.	Plant in May/June with a spacing of 25cm x 30cm apart.	3.88	1.91	0.52	RQ, NS
9.	Use fork stick to ensure that the seedlings are in firm contact with the soil.	3.77	1.16	0.64	RQ, NS

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10.	Use good land preparation to control weed.	3.98	1.31	0.61	RQ, NS
11.	Control weed before they produce seeds.	3.88	1.21	0.80	RQ, NS
12.	Control weed manually or use of herbicides.	3.98	1.71	0.94	RQ, NS
13.	Pull weed out in row planting.	3.88	1.91	0.54	RQ, NS
14.	Weed by machine in mechanized farming.	3.68	1.91	0.90	RQ, NS
15.	Weed two to three weeks after emergence.	3.78	1.11	0.71	RQ, NS
16.	Weed six to seven week after emergence.	3.90	1.91	0.67	RQ, NS
17.	Apply Ronstar (EC) 2-3 days after sowing at the rate of 4-6 litres/ha for pre-emergence.	3.72	1.21	0.89	RQ, NS
18.	Apply Aroxone at 2 litres/ha when seeds have grown in the fields.	3.78	1.81	0.62	RQ, NS
19.	Apply Ronstar (PL) 14-21 days after planting at the rate of 5-6 litres/ha.	3.84	1.31	0.51	RQ, NS

Key: X= Mean, SD=Standard Deviation, t-cal=t- calculated, t-table=1.98, RQ=Required, NS=Not Significant

The data in Table 2 revealed that the mean of the 19-items ranged from 3.00 to 3.98. This showed that each and all of the items had a mean value above the cutoff point of 2.50 which indicated that all the competencies were required by secondary school leavers for rice planting and weed control. The Table also revealed that each and all of the items had their standard deviation ranged from 1.00 to 1.91; this showed that the respondents were not far from the mean and from one another in their responses. The result of the test of hypothesis in table 2 indicated that each of items had its calculated t-value lower than the table value of 1.98. This revealed that there was no significant difference in the mean ratings of teachers of Agricultural Science and Agricultural Extension Officers on competencies required by secondary school leavers in planting and weed control operation. Therefore, the hypothesis of no significant difference was upheld for the 19- items.

### Research Questions 3

What are the competencies required by secondary school leavers in harvesting and marketing operation?

#### Hypothesis 3

There is no significant difference in the mean ratings of Teachers of Agricultural Science and Agricultural Extension Officers on competencies required by secondary school leavers in harvesting and marketing operation.

The data for answering research question 3 and testing hypothesis 3 are presented in table 3.

**Table 3: Mean Ratings, Standard Deviation and t-test Analysis of the Responses of Teachers of Agricultural science and Agricultural Extension Officers on competencies required by Secondary School Leavers in Harvesting and Marketing operation (N=408)**

<b>S/N</b>	<b>Competencies in Harvesting and Marketing.</b>	<b><i>X</i></b>	<b><i>SD</i></b>	<b><i>t-cal</i></b>	<b>Remark</b>
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<b>Competencies in Harvesting</b>					
1.	Harvest rice at about 4-7 months after planting.	3.00	1.26	0.92	RQ, NS
2.	Harvest using sickle or sharp machet.	3.98	1.00	0.92	RQ, NS
3.	Harvest using machines.	3.98	1.00	0.90	RQ, NS
4.	Cut the plant within 6cm to 8cm off the ground level.	3.00	1.26	0.81	RQ, NS
5.	Cut the panicle with a strong knife or sickle.	3.98	1.26	0.81	RQ, NS
6.	Process rice by winnowing.	3.98	1.00	0.76	RQ, NS
7.	Process rice by milling.	3.96	1.26	0.83	RQ, NS
<b>Competencies Marketing</b>					
8.	Sort and grade rice using size, colour and variety.	3.98	1.00	0.72	RQ, NS
9.	Fix appropriate prices for each grade based on market survey or demand.	3.98	1.00	0.74	RQ, NS
10.	Advertise rice locally or through the media to attract buyers.	3.95	1.00	0.75	RQ, NS
11.	Sell rice direct to buyers at the farm gate or transport the rice to market for sale at better price.	3.00	1.26	0.70	RQ, NS
12.	Distribute or sell rice to consumers through middlemen.	3.00	1.26	0.78	RQ, NS
13.	Keep appropriate records of sales for sustainability and /or expansion	3.05	1.30	0.70	RQ, NS
14.	Calculate the expenditure and income to balance the profit and loss account.	3.85	1.40	0.78	RQ, NS

Key: X= Mean, SD=Standard Deviation, t-cal= t-calculated, t-table=1.98, RQ=Required, NS=Not Significant

The data in Table 3 revealed that the mean of all the 14-items and grand mean ranged from 3.00 to 3.95. This showed that each and all of the items had a mean value above the cut off point of 2.50 which indicated that all competencies were required by secondary school leavers for harvesting and marketing of rice. The Table also revealed that each and all of the items had their standard deviation ranged from 1.00 to 1.26; this showed that the respondents were not far from the mean and from one another in their responses. The result of the test of hypothesis in table 3 indicated that each of the 14-items had its calculated t-value lower than the table value of 1.98. This revealed that there was no significant difference in the mean ratings of Teachers of Agricultural science and Agricultural Extension Officers on competencies required by secondary school leavers in harvesting and marketing operation. Therefore, the hypothesis of no significant difference was upheld for the 14-items.

## Discussions of results

The findings from table 1 show that secondary school leavers required 18- competencies in land operation and nursery operation, and were supported by Ataborh (2004). The author asserts that the preparation of land for cultivation of rice requires a great deal of skill which farmers lack. Secondary school leavers require competency in the establishment of nurseries and the knowledge of clearing the land by using hoe or cutlass, removing all the stumps, roots and trees before ploughing and clearing and clearing and by packing the bushes before onset of rains.

The finding from table 2 revealed that secondary school leavers required 19- competencies in planting and weed control operation was in agreement with the work of Adeosun, Onyibe and Salako (2005). The authors state that farmers need to have skills in manual rice planting using three modes of planting: drilling or dibbling, broadcasting and transplanting. The competencies required by secondary school leavers in weed control was in consonance with the study of Olof (2003) the author affirmed that controlling weed before they produce seeds, applying Ronstar (EC) 2-3 days after sowing at the rate of 4-6 litres/ha for pre-emergence and weeding 2-3 weeks after emergence.

The finding from table 3 showed that secondary school leavers require 14- competencies in harvesting and marketing was in consonance with the work of Otsuka and Kijima (2010). The authors submitted that skills in harvesting rice at about 4-7months, planting, harvesting using sickle or sharp machet and sorting and grading seeds using sizes. Ezedinma (2001) agreed that skills needed by secondary school leavers in harvesting: is the use of sickle where the rice stems are cut a meter from the ground. The stems are cut and spread and allowed to dry for about a week before threshing. Rice crop mature in four to seven months depending on the variety sown. The work of Otsuka and Kijima(2010) agreed with the findings that farmers need capacity building in marketing. The authors affirm that effective market systems should be present at the village level through cooperative groups that fix appropriate price for rice.

### **Conclusion and Recommendation**

Rice is a staple crop highly consumed by households in Benue State and virtually everywhere in the world because of its nutritive and economic values. This made its demand higher than its supply in the market. Hence, rice production is lucrative and bankable that secondary school leavers can invest their latent and potent energy including their little savings in the occupation safely. The study found out that 51- competency items are required by secondary school leavers in rice production for sustainable development. Based on the findings of the study, it was therefore, recommended that:

1. improved variety of rice seeds should be subsidized by the local and state authorities for secondary school leavers and other interested persons, as this will increase production.
2. secondary school leavers in Benue State should be trained by skill acquisition centres in rice production using the identified competencies.
3. the identified competencies in rice production and marketing should be developed into training modules by Agricultural Extension Officers and administrators of skill acquisition centres for training interested individuals especially the secondary school leavers.

4. the identified competencies should be used by Agricultural Extension Officers to build the capacity of crop secondary school leavers in rice production.

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