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# Agricultural Practice Competency Need among Final Year Agricultural Undergraduates in Selected Universities in South-West Nigeria

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**Abstract:** Universities and higher education institutes in agriculture usually respond to prepare the main part of specialists, researchers, extension workers, and farmers for agricultural practice. This paper therefore examined Agricultural Practice Competency Need among Final Year Students. Primary data were collected using survey from 150 respondents, sampled through a two-stage random sampling technique. The data analysis employed descriptive statistics while Chi Square was used to examine the differences between the test variables and the generated hypothesis. The result showed that the mean age of the respondents was 22.5. Also, majority (54.7%) of the respondents were females while 57.3% declined to the possibility of pursuing a postgraduate degree in agricultural related courses. "Weed control and fertilization" (MS = 2.39), "Poultry production" (MS = 2.32), "Horticultural practices" (MS = 2.11) were key areas where respondents demonstrated a high level of competence while "Horticultural practices" (MS = 2.61), "Animal breeding" (MS = 2.54), "Plant genetics and breeding" (MS = 2.37), "Food processing" (MS = 2.30), "Pest and disease management" (MS = 2.23) were key areas of competency needs by the respondents. The research found that area of specialization ($\chi^2$ = 110.016, p≤ 0.07) and residential area ($\chi^2$ = 90.744, p≤ 0.015) have a strong influence in determining the competency needs of students. The study recommends that Government through the necessary stakeholders in university education should organized practical oriented curriculum so as to enable students have competencies in key areas of agriculture.
**Keywords:** Competency Need, Agricultural Practice, Agriculture, Horticultural Practice, Career.

## INTRODUCTION

Agriculture is one of the most important economic sectors in Nigeria. It not only supplies the country's food but also provides enormous employment opportunities for the citizen. Agriculture if taken seriously in Nigeria have the potential to account for over 50% of the Gross National Product (GNP), 40% of employment, more than 80% of the domestic food supply, and 30% of non-oil exports within the next five years [1]. Although there is a large capacity for investment in land, water, and natural resources by both governmental and private sectors, Nigeria's potential has not been met, as available resources have not been used properly. In addition, sustainable land use particularly for forests and rangelands has not yet been achieved [2].

The agricultural sector requires skilled human resources who are capable of all aspects of work in agricultural and rural centers, including producing, processing, and marketing agricultural products. Universities and higher education institutes in agriculture usually respond to prepare the main part of specialists, researchers, extension workers, and farmer [3]. The roles of agriculture remain significant in Nigeria's economy despite the strategic importance of the oil sector. Agriculture provides primary means of employment for Nigerians and accounts for more than one third of total Gross Domestic Product (GDP) [4]. More than 70% of the working adult populations in Nigeria are employed in the agricultural sector directly or indirectly and over 90% of Nigeria's agricultural outputs come from peasant farmers who dwell in rural areas [1]. However, majority of farmers have limited access to modern inputs, tractors and are confronted with high cost of labour. Thus the farmers remain stagnated and economic situations unimproved as daily income is less than one US Dollar per day [5].

Competency is defined by Parry [6] as a cluster of related knowledge, attitudes, and skills that affect a major part of one's job. Similarly, Davis *et al.* [7] state: "competencies encompass clusters of skills, knowledge, abilities, and behaviors required for people to succeed". According to Burke [8], "competencies embody the ability to transfer skills and knowledge to new situations within the occupational area". There is a growing popularity for the notion of competence as integrated capabilities [9]. Mulder [10] summarizes definitions of competencies as: "competencies are capabilities, capacities or potentials and can be understood as characteristics of persons, teams, work units or organizations which enable them to attain desired achievements".

One of the biggest problems faced by the higher agricultural education system in Nigeria is that students are usually trained theoretically and too narrowly. Most of the subjects studied in agricultural departments in Nigeria are strictly academic and have little relevance to the student's future employment and the labor market needs [11]. In addition, the absence of much-needed linkages and communication between employers and the agricultural higher education system has created a situation, where it is difficult for universities to identify which specific skills and competencies are not only expected, but needed from their employers [12, 13]. In view of the fore-going, it has become very expedient for a study of this nature to be carried out and hence, the specific objectives were to: determine the various competencies needed by final year agricultural undergraduates; and to test the hypothesis that:

Ho: There is no significant difference between respondents' demographic characteristics and the various competencies needed by final year agricultural undergraduates.

## MATERIALS AND METHODS

The study was carried out in three universities in South-west Nigeria (University of Ado Ekiti, Ado Ekiti, Ekiti State, Federal University of Agriculture, Abeokuta, Ogun State and Federal University of Technology, Akure, Ondo State). A Two-stage sampling technique was employed in the selection of respondents. First stage involves a random selection of three (3) Universities in South-West Nigeria and the second stage also involves a random selection of fifty (50) respondents each from the list of final year students of agriculture in the selected Universities making a total of one hundred and fifty (150) respondents. Primary data were used for this study and were collected through the use of a structured questionnaire. Data were analyzed using descriptive statistics such as frequency counts, percentages, mean, ranks, cross tabulations while Chi Square was used to examine the differences between the test variables and the generated hypothesis.

## RESULTS AND DISCUSSION

Results from table 1 revealed that the mean age of the respondents was 22.5. Majority of the respondents (36.0%) were between the ages of 24 – 25 years. It could be inferred from the result that majority of the students have their ages ranging between 22 – 25 years. This is understood considering the fact that most Nigerian students graduates from secondary schools at ages 16 – 18 years and agriculture in most Nigerian Universities is run for 5 years.

Also, majority (54.7%) of the respondents were females while 45.3% were males. This does not conform to the study by Abubakar [1] which revealed that more males are seen studying agricultural related courses than their female counterpart. About 49.3% of the respondents were Christians, while 48.7% were Muslims. The result suggests that Christianity and Islam were widely and evenly spread in South-west Nigeria. Majority of the respondents (57.3%) declined to the possibility of pursuing a postgraduate degree in agricultural related courses. The result suggests that majority of the students still do not yet understood the potentials that agriculture offers even in their final year.

Table 2 showed that majority of the respondents (32.0%) specializes in Agricultural Economics and Extension. Also, 54% of the students were Yoruba's by tribe. The result is well accepted considering the fact that the study was carried out in South-west Nigeria, the home of the Yoruba's. The result also agrees with the studies of Falokun [14] who asserted that Universities in South-west Nigeria offered the best form of Education in relation to other geo-political zones. This explains why there were many students from different parts of the country studying in the South-western part of Nigeria.

Furthermore, table 2 revealed that majority of the respondents (54.7%) has some of their family members in agricultural related careers. The implication of this result bothers on the influence their family members involved in agriculture may have on their choice of career. Table 2 further showed that majority (57.3%) of the respondents' lives in rural areas. This result agrees with the several literatures that majority of Nigerians lives in the rural areas.

**Table-1: Socio-economic characteristics of respondents according to their Age, Gender and Religion**

| Characteristics | Frequency | Percentages (%) |
|---|---|---|
| Age (yrs) | | |
| ≤ 19 | 2 | |
| 20 – 21 | 30 | |
| 22 – 23 | 48 | |
| 24 – 25 | 54 | |
| 26 – 27 | 10 | |
| ≥ 28 | 6 | |
| Mean age | | 22.50 |
| Gender | | |
| Male | 68 | 45.3 |
| Female | 82 | 54.7 |
| Religion | | |
| Christianity | 74 | 49.3 |
| Islam | 73 | 48.7 |
| Free thinker/Traditional | 3 | 2.0 |
| Pursuance of Postgraduate degree in Agric. Related field | | |
| No | 86 | 57.3 |
| Yes | 64 | 42.7 |
| Total | 150 | 100.0 |

Source: Field Survey, 2015; N=150

**Table-2: Socio-economic characteristics of respondents according to their area of specialization, ethnicity, family involvement in agricultural related career and residential areas**

| Characteristics | Frequency | Percentage (%) |
|---|---|---|
| Specialization | | |
| Crop Science | 14 | 9.30 |
| Agronomy | 16 | 10.7 |
| Agric. Econs. & Extension | 48 | 32.0 |
| Fisheries | 8 | 5.3 |
| Forestry | 13 | 8.7 |
| Animal Science | 29 | 19.3 |
| Others | 22 | 14.7 |
| Residential area | | |
| Rural | 86 | 57.3 |
| Sub-urban | 13 | 8.7 |
| Urban/city | 51 | 34.0 |
| Family involvement in agricultural related career | | |
| No | 68 | 45.3 |
| Yes | 82 | 54.7 |
| Total | 150 | 100.0 |

Source: Field Survey, 2015 N=150

**Table-3: Level of Competence in Agriculture**

| Agricultural Practice Competency areas | High | Medium | Low | Mean Score | Rank |
|---|---|---|---|---|---|
| Horticultural practices | 43 (28.7) | 81 (54.0) | 26(17.3) | 2.11 | 2nd |
| Pest and disease management | 32 (21.3) | 68 (45.3) | 50 (33.3) | 1.88 | 6th |
| Weed control and fertilization | 80 (53.3) | 49 (32.7) | 21 (14.0) | 2.39 | 1st |
| Plant growth and identification | 38 (25.3) | 90 (60.0) | 22 (14.7) | 2.11 | 2nd |
| Plant physiology | 22 (14.7) | 36 (24.0) | 92 (61.3) | 1.53 | 10th |
| Marketing of agricultural produce | 32 (21.3) | 66 (44.0) | 52 (34.7) | 1.87 | 7th |
| Extension and adult education | 33 (22.0) | 49 (32.7) | 68 (45.5) | 1.77 | 9th |
| Food processing | 22 (14.7) | 34 (22.7) | 94 (62.7) | 1.52 | 12th |
| Animal breeding | 14 (9.30) | 28 (18.7) | 108(72.0) | 1.37 | 15th |
| Plant genetics and breeding | 12 (8.0) | 29 (19.3) | 09(72.7) | 1.35 | 16th |
| Wildlife and fishery science | 17 (11.3) | 33 (22.0) | 100 (66.7) | 1.47 | 13th |
| Green house/gardening | 24 (16.0) | 32 (21.3) | 94 (62.7) | 1.53 | 10th |
| Fruits and vegetable production | 56 (37.3) | 46 (30.7) | 48 (32.0) | 2.05 | 4th |
| Dairy production | 32 (21.3) | 23 (15.3) | 95 (63.3) | 1.38 | 14th |
| Programme planning and evaluation | 36 (24.0) | 48 (32.0) | 66 (44.0) | 1.80 | 8th |
| Value additions in Agriculture | 13 (8.7) | 23 (15.3) | 114 (76.0) | 1.32 | 17th |
| Poultry production | 41 (27.3) | 56 (37.3) | 53 (35.3) | 1.92 | 6th |
| Mean Score derived from H=3, M=2, L=1 | | | | | |

Note: The values in parenthesis represent the percentage while the value outside represent the frequency.
Source: Field Survey, 2015

**Table-4: Areas of competency needs**

| Areas of competency needs in Agriculture | Competency Seriously | Competency Needed | Competency Needed | Mean Score Not Needed | Rank |
|---|---|---|---|---|---|
| Poultry production | 41 (27.3) | 58 (38.7) | 51 (34.0) | 1.93 | 11th |
| Dairy production | 56 (37.3) | 52 (34.7) | 42 (28.0) | 2.09 | 10th |
| Fruits and vegetable production | 20 (13.3) | 29 (19.3) | 101 (67.3) | 1.46 | 16th |
| Green house/Gardening | 61 (40.7) | 43 (28.7) | 46 (30.7) | 2.10 | 8th |
| Wildlife and fishery science | 66 (44.0) | 52 (34.7) | 32 (21.3) | 2.22 | 6th |
| Animal breeding | 89 (59.3) | 54 (36.0) | 7 (4.7) | 2.54 | 2nd |
| Food processing | 74 (49.3) | 48 (32.0) | 28 (18.7) | 2.30 | 4th |
| Value additions in agriculture | 61 (40.7) | 44 (29.3) | 45 (30.0) | 2.10 | 8th |
| Plant genetics and breeding | 77 (51.3) | 52 (34.7) | 21 (14.0) | 2.37 | 3rd |
| Marketing of agricultural produce | 40 (26.7) | 46 (30.7) | 64 (42.7) | 1.84 | 13th |
| Plant physiology | 62 (41.3) | 54 (36.0) | 34 (22.7) | 2.14 | 7th |
| Plant growth and identification | 38 (25.3) | 42 (28.0) | 70 (46.7) | 1.78 | 14th |
| Extension and adult education | 46 (30.7) | 48 (32.0) | 56 (37.3) | 1.93 | 11th |
| Weed control and fertilization | 22 (14.7) | 38 (25.3) | 90 (60.0) | 1.54 | 15th |
| Horticultural practices | 58 (38.7) | 64 (42.7) | 28 (18.7) | 2.61 | 1st |
| Pest and disease management | 63 (42.0) | 59 (39.3) | 28 (18.7) | 2.23 | 5th |
| Mean Score derived from CSN=3, CN=2, CNN=1 | | | | | |

Note: The values in parenthesis represent the percentage while the value outside represent the frequency.
Source: Field Survey, 2015

**Table-8: Chi-Square Analysis of Respondents' Demographics characteristics and level of willingness of students to practice agriculture after graduation**

| Variables | Chi-Square | Df | P-value | Decision |
|---|---|---|---|---|
| Age | 101.573 | 5 | 0.093 | Not significant |
| Gender | 113.268 | 1 | 0.002 | Significant |
| Area of Specialization | 110.016 | 6 | 0.007 | Significant |
| Religion | 45.630 | 2 | 0.103 | Not significant |
| Residential area | 90.744 | 2 | 0.015 | Significant |

Significant level = P≤ 0.05; Source: Field survey, 2015

**Competency needs of the students**

Table 3 revealed the level of competencies of final year students in key agricultural practices. Using mean score to rank their level of competence according to their order of competence as indicated by the respondents, "Weed control and fertilization" (MS = 2.39), "Poultry production" (MS = 2.32), "Horticultural practices" (MS = 2.11), "Plant growth and identification" (MS = 2.11), "Fruits and vegetable production" (MS = 2.05), "Pest and disease management" (MS = 1.88), "Marketing of agricultural produce" (MS = 1.87), and "Programme planning and Evaluation" (MS = 1.80) were key areas where respondents demonstrated a high level of competence as they ranked 1st, 2nd, 3rd, 3rd, 5th , 6th, 7th and 8th respectively.

The table further showed that the other listed competency areas whose mean score were below 1.80 indicated the areas where the respondents demonstrated medium to low level of competence. The implication of these is that the University authorities of these institutions needs to take proactive measures in ensuring that the curriculum of the school is reviewed so as to accommodate the several areas of agricultural practice areas to enable students acquire more competencies in all areas of agriculture. This will enhance the transformation of the agricultural sector into a more profitable sector and help to bring to fulfillment the goals of the federal government's agricultural transformation agenda.

Table 4 revealed the areas of competency needs by respondents. Using mean score to rank the key areas of competency needs according to their order of needs as indicated by respondents, "Horticultural practices" (MS = 2.61), "Animal breeding" (MS = 2.54), "Plant genetics and breeding" (MS = 2.37), "Food processing" (MS = 2.30), "Pest and disease management" (MS = 2.23), "Wildlife and fishery science" (MS = 2.22), "Plant physiology" (MS = 2.14), "Value additions in agriculture" (MS = 2.10), "Greenhouse/gardening" (MS = 2.10), "Dairy production" (MS =2.09) were very serious areas of competency needs as they ranked 1st, 2nd, 3rd, 4th, 5th, 6th, 7th,8th, 8th, and 10th respectively. The table further showed that the other listed areas of competency needs whose mean score were below 2.0 were not seriously needed.

The final year students' response to the various methods of acquiring competencies in agriculture was tested on their agreements and disagreements with a number of statements. Table 5 revealed that the respondents showed their strong positive agreements with the suggested methods to acquire competencies in agriculture such as "Internship experience" (MS = 4.37), "Field trips" (MS = 4.27), "Community based experience scheme" (MS = 4.07), "Laboratory work" (MS = 3.92), "College coursework" (MS = 3.78), and "Workshop" (MS = 3.76). The result generally shows that the final year students were positively disposed and have a good perception on the need for the usage of these competency methods in agriculture.

**Test of Hypotheses**

The information in table 5 showed that gender ($\chi^2$ = 113.268, p≤ 0.002), Area of Specialization ($\chi^2$ = 110.016, p≤ 0.07), and Residential area ($\chi^2$ = 90.744, p≤ 0.015) are significantly related with the various competencies needed by final year agricultural undergraduates while age ($\chi^2$ = 101.573, p≤ 0.093) and Religion ($\chi^2$ = 45.630, p≤ 0.103) are not significantly related with competency needs of the students. This implies that gender, area of specialization and residential area have a strong influence in determining the competency needs of students. Male might tend to be interested in acquiring competencies in some areas of agriculture than female which might be due to the tedious nature of the area of competency. Area of specialization can also stir up willingness to acquire competency in some key areas of agriculture. Also, respondents' area of residence can also influence students' competency needs. Therefore, the null hypothesis; there is no significant difference between some selected demographic characteristics of the students and their various competency needs will not hold (i.e. rejected) for gender, area of specialization and area of residence of respondent but hold (i.e. not rejected) for Age and Religion.

**CONCLUSION AND RECOMMENDATIONS**

Based on the findings of the study, it can be concluded that the students need competencies in key areas of agriculture such as Horticultural practices, animal breeding, plant genetics and breeding, food processing, pest and disease management amongst many others. In lieu of these, the following recommendations were made:

- Government through the necessary stakeholders in university education should organized practical oriented curriculum so as to enable students have competencies in key areas of agriculture.
- There should be collaboration between Universities and agricultural research institutes so as to help students have their Industrial Attachment programmes in some of these institutes as this will help them gain necessary agricultural competencies. Also, students should be posted to Agricultural research institutes and ministries of agriculture so they can acquire related competencies.

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