

Comparative Study of Technical Competencies Acquired by Agricultural Education Students in Colleges of Education in Nigeria

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Abstract

This comparative study examined the technical competencies gained by Agricultural Education students in Nigerian Colleges of Education. Using a descriptive survey research design, the study sampled 217 students from a population of 513, as determined by the Krejcie and Morgan sample table. Data were collected using a questionnaire designed on a five-point rating scale of Very Highly Acquired to Highly Not Acquired. Researchers and assistants administered the instrument. Means and standard deviations addressed the research questions, while analysis of variance tested the hypotheses at a 5% significance level. Results indicated that students across the three zones demonstrated high levels of technical competency acquisition, with no significant differences in skill levels. Notably, South West and North Central students excelled in livestock and crop production, while South South students outperformed in Agricultural Economics and Extension. The study recommended employing qualified lecturers and providing adequate facilities through the relevant Nigerian regulatory bodies.

Keywords: *Agricultural Education, Technical Competency, Livestock Production, Crop Production, Agricultural Economics and Extension*

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Background to the Study

Colleges of Education are part of the tertiary institutions established with the sole aim of training teachers for basic schools in Nigeria. They have an array of courses ranging from Education, Physical Sciences, Applied Sciences, Languages, Arts and Humanities to vocational subjects. Successful completion of these courses leads to the award of Nigerian Certificate of Education (NCE), which is currently the entry qualification for the teaching profession, particularly in Primary and Junior Secondary Schools. In the area of vocational subjects, Agricultural Education is prominent and is offered in all Colleges of Education in the country.

Agricultural Education is the art of learning through active participation of students in classrooms, farms and laboratory exercises (Shishi *et al.*, 2019). According to the National Commission for Colleges of Education (NCCE, 2012), Agricultural Education emphasises the acquisition of skills and knowledge in social and pedagogical competencies. Technical competency is the level of accuracy required when an employee is in a specific domain of expertise. It is the subject matter knowledge that relates to successful performance on the job (Omodara *et al.*, 2019). Competence, according to Ramesh *et al.* (2020), is a capability or outcome, perceived as an array of abilities across domains related to performance in a specific context. It is a deep and strong character in an individual that predicts such an individual's behaviour in all situations (Raof *et al.*, 2021). Competence implies the sufficiency of knowledge and skills that allow a person to act in a wide variety of situations. It comprises physical, intellectual ability, talent, and the capacity to know, do work, and perform. It is executed under standardised conditions and judged by some level of performance as adequate, proper, sufficient or qualified (Dimelu *et al.*, 2023). This study will examine technical competencies in livestock production, crop production, soil management, and agricultural economics, with a focus on extension.

Statement of the Problem

Agricultural Education is a vocational course that deals with the teaching of theory with profound implications on practical experience as enshrined in the Nigerian policy on Education. The subject places greater emphasis on acquiring practical skills to enhance self-reliance and minimise reliance on challenging white-collar jobs. Graduates churned out from institutions roam about the streets of towns and cities because employers have lost confidence in employing them (Okwuchukwu, 2015). The author further stated that Nigeria's educational system is also in a serious dilemma, and the products are even in a bigger mess upon graduation. This is evident in the declining performance of students in the West African Examination Council (WAEC) (Onwunali *et al.*, 2024) and the National Examination Council (NECO), as well as in products from our tertiary institutions, which are now losing the confidence of employers due to a lack of the required skills for work.

The assertion followed Adeosun (2010), who reported that teacher training institutions failed in their ability to produce teachers with sound pedagogy and content. Hence, graduates cannot translate what they have learned into practice in a working environment. Furthermore, Movahedi and Nagel (2012) revealed that one of the most significant problems of the higher

Agricultural Education system is that students are usually trained theoretically and too narrowly, with little or no relevance to the students' future employment and labour market needs. Therefore, it is necessary to verify these claims across Nigerian Colleges of Education, which are responsible for training basic education teachers in the subject.

Objectives of the Study

1. To determine the level of technical competencies acquired in livestock production by students of Agricultural Education in the three Geopolitical Zones of Nigeria.
2. To establish the level of technical competencies acquired in crop production and soil management by students of Agricultural Education in the three Geopolitical Zones of Nigeria.
3. To determine the level of technical competencies acquired in economics and extension by students of Agricultural Education in the three Geopolitical Zones of Nigeria.

Research Questions

The following research questions guided the study;

1. What is the level of technical competencies acquired in livestock production by students of Agricultural Education in the three Geopolitical Zones of Nigeria?
2. What is the level of technical competencies acquired in crop production and soil management by students of Agricultural Education in the three Geopolitical Zones of Nigeria?
3. What is the level of technical competencies acquired in economics and extension by students of Agricultural Education in the three Geopolitical Zones of Nigeria?

Hypotheses of the Study

The following Hypotheses were formulated and tested at the 0.05 level of significance;

1. There is no significant difference between the levels of technical competencies acquired in livestock production by students of Agricultural Education within the three Geopolitical Zones of Nigeria.
2. There is no significant difference between the levels of technical competencies acquired in crop production and soil management by students of Agricultural Education within the three Geopolitical Zones of Nigeria
3. There is no significant difference between the levels of technical competencies acquired in economics and extension by students of Agricultural Education within the three Geopolitical Zones of Nigeria.

Methodology

The study area for the research was the Nigerian Colleges of Education with emphasis on Agricultural Education. The study adopted a descriptive survey research design due to the extensive coverage and widespread nature of the respondents. NCE III Agricultural Education students of the public colleges, who amounted to 513, formed the population of the study. A multi-stage sampling technique was adopted by the survey in selecting respondents. Of the six geopolitical zones in Nigeria, North Central, South South and South West were chosen randomly.

In each of the zones, researchers purposively selected four Colleges based on school ownership, thus two State and two Federal Colleges, making a total of 12 colleges. Furthermore, researchers adopted a proportional sampling method, selecting students at the college level. Hence, a total of 217 were selected following Krejcie and Morgan (1970), while a simple random technique was used to select the students at the department level.

The instrument for data collection was a questionnaire, following Omodara (2016), with a validity and reliability coefficient value of 0.88. The instrument comprises three sections, namely, Livestock, Crop and Soil, and Economics/Extension competencies. The instrument was designed on a five-point rating scale of Very Highly Acquired (VHA), Highly Acquired (HA), Moderately Acquired (MA), Not Acquired (NA) and Highly Not Acquired (HNA). A corresponding value of 5, 4, 3, 2, and 1 was assigned to the rating, respectively. The instrument was administered personally by the researchers, who visited the colleges. However, in institutions where students were not in session, research assistants were employed.

The collected data were analysed using mean and standard deviation to address the research questions, while Analysis of Variance (ANOVA) at a ≤ 0.05 level of significance was employed to test hypotheses. The decision rule of acceptability was ≥ 3.00 , which implied acquired competency, while means below ≥ 3.00 were regarded as competency not acquired. All statistical analysis was done using SPSS Version 23.

Result and Discussion

Table 1: Levels of Technical Competencies Acquired in Livestock Production among Students in the Zones.

S/No.	Competency Items	SW	s	NC	s	SS	s
1	Identify various breeds of rabbit present in Nigeria.	4.59	0.28	3.98	0.16	3.86	0.22
2	Identify various classes of birds that constitute poultry.	4.19	0.24	3.96	0.18	4.18	0.21
3	Identify various breeds of ruminant animals in Nigeria.	4.14	0.18	3.84	0.16	4.27	0.21
4	Identify various breeds of swine in Nigeria.	3.91	0.17	3.75	0.13	3.41	0.16
5	Propose appropriate construction of housing facilities for livestock.	3.71	0.13	3.75	0.16	4.23	0.22
6	Identify facilities needed to manage livestock housing.	3.79	0.18	3.77	0.15	4.00	0.17
7	Cleaning and fumigation of livestock pens.	3.70	0.18	3.81	0.15	3.55	0.21
8	Propose appropriate feed at right age for poultry.	3.53	0.13	3.81	0.16	3.73	0.21
9	Propose appropriate feed for other livestock.	3.66	0.16	3.62	0.15	3.45	0.14
10	Identify and explain the functions of six nutrients required by livestock.	3.90	0.18	3.77	0.14	3.18	0.17
11	Identify malnutrition in livestock.	3.97	0.16	3.74	0.17	3.41	0.14
12	Take corrective measures for livestock malnutrition.	3.80	0.15	3.61	0.15	2.86	0.11
13	Effectively handle eggs in hatchery.	3.71	0.13	3.68	0.13	3.45	0.16
14	Effectively handle Day old Chicks setting in brooding house.	3.84	0.15	3.82	0.15	3.95	0.15
15	Explain genetic inheritance in livestock.	3.67	0.15	3.65	0.13	3.45	0.10
16	Explain the benefits of natural mating.	3.73	0.15	3.84	0.14	3.36	0.13
17	Explain the benefits of artificial insemination.	3.64	0.15	3.65	0.11	3.14	0.15
18	Identify successfully animals on heat.	3.70	0.14	3.74	0.14	3.14	0.19
19	Observe bio-security in livestock section.	3.61	0.17	3.66	0.13	2.73	0.18
20	Taking an animal's temperature and pulse rate accurately.	3.54	0.12	3.67	0.14	2.86	0.09
21	Identify various pests of livestock.	3.64	0.12	3.72	0.15	3.64	0.12
22	Identify various diseases symptoms of livestock.	3.63	0.14	3.66	0.13	3.27	0.14
23	Take control measures for pests of livestock.	3.86	0.15	3.69	0.17	3.18	0.18
24	Take control measures for diseases of livestock.	3.79	0.14	3.79	0.15	3.73	0.25
25	Observe appropriately vaccination programme in poultry.	3.94	0.18	3.77	0.13	2.86	0.15
26	Effectively handle eggs without allowing contaminated products into the market.	3.71	0.13	3.71	0.16	3.91	0.16
27	Effectively handle milk without allowing contaminated products into the market.	3.53	0.09	3.59	0.16	2.68	0.25
28	Effective keeping of farm records in livestock.	3.73	0.13	3.89	0.16	4.45	0.30
29	Experience in Beekeeping.	3.61	0.14	3.52	0.15	2.86	0.17
30	Identify various facilities needed in beekeeping.	3.54	0.11	3.58	0.16	2.91	0.17
31	Identify various available fish that can be raised under pond conditions.	3.79	0.14	3.69	0.11	4.59	0.33
32	Effectively establish pond under different conditions.	3.66	0.14	3.88	0.16	4.50	0.26
33	Effectively manage and maintain hygiene of pond water.	3.56	0.11	3.68	0.17	4.36	0.22
34	Identify appropriate feed type/size for fish of various ages.	3.67	0.13	3.75	0.13	4.18	0.19
35	Identify various fishing gears available locally.	3.83	0.17	3.58	0.15	4.32	0.28
36	Identify when to apply fertilizer/lime to a pond.	3.67	0.14	3.70	0.11	4.05	0.19
37	Identify easily symptoms of various diseases in fish.	3.26	0.11	3.55	0.12	3.82	0.17
GRAND MEAN		3.75	±0.22	3.73	±0.11	3.61	±0.56

Where SW = South West, S = Standard Deviation, NC = North Central, SS = South South

The results in Table 1 showed the level of technical competencies acquired in livestock production at the various zones. For the South West, the highest mean of 4.59 was recorded on identifying different breeds of rabbit present in Nigeria. In contrast, the lowest mean of 3.26 was recorded on recognising symptoms of various fish diseases. The results from North Central showed the highest mean of 3.98 on identifying various breeds of rabbit, while the

lowest mean of 3.52 was recorded on experience in beekeeping. In the South South, the highest mean of 4.59 was recorded on identification of available fish species that can be raised under pond conditions, with the lowest mean of 2.68 on effective handling of milk without allowing contaminated products into the market. Generally, the grand means of 3.75, 3.73, and 3.61 were recorded in South West, North Central, and South South, respectively, which showed variation in the strength of various zones and indicated a high level of competency acquisition in livestock production. However, the South West region revealed high competencies compared to the South South, which recorded the lowest mean of 3.61. Results implied that pre-service teachers still have some areas of deficiency, particularly in the South South zones, despite proficiency in livestock production. Such areas of need include bio-security in livestock, taking animal temperature and pulse rate, vaccination in poultry, handling of milk without contamination, beekeeping experience and facilities, and taking corrective measures for livestock malnutrition.

The standard deviations of 0.22, 0.11, and 0.56 for the South West, North Central, and South South zones, respectively, indicated that there was uniform consensus agreement on the acquired competencies around the means for each zone in North Central and South West, but divergence among students in the South South zone. These results implied that, students in the North Central and South West were better competent in livestock production, probably due to availability of large and small ruminates the zones which is not common in South South zone. This result is in conformity with the findings of Lawal *et al.* (2014) who reported that, majority of the teachers did not possess required competency in animal production in Ondo State. Similarly, Onipede *et al.* (2021) identified areas of improvement needed in Animal Science among agricultural teachers in Ekiti State. Meanwhile, Wells *et al.* (2023) reported 35 technical skills required by teachers in the Animal System pathway for effective teaching in Illinois and Iowa, USA.

Table 2: Levels of Technical Competencies Acquired in Crop Production and Soil Management among Students in the Zones

S/No.	Competency Items	SW	s	NC	s	SS	s
1	Identify different classes of crops grown in Nigeria.	4.54	0.28	4.24	0.21	4.64	0.29
2	Carryout land preparation activities for various crops.	4.20	0.24	3.89	0.15	4.27	0.21
3	Identify planting dates for various crops.	3.96	0.18	3.81	0.15	4.55	0.27
4	Identify planting spacing of various crops.	3.91	0.19	3.87	0.15	4.59	0.28
5	Identify an appropriate soil required by various crops.	3.70	0.15	3.63	0.16	4.18	0.21
6	Identify symptoms of various diseases of crops.	3.74	0.15	3.61	0.12	3.95	0.18
7	Identify symptoms of various pests of crops.	3.66	0.16	3.94	0.16	3.86	0.20
8	Control/take preventive measures of Pests of crops.	3.77	0.16	3.73	0.15	4.18	0.21
9	Control/take preventive measures of diseases of crops.	3.59	0.15	3.81	0.16	3.95	0.17
10	Identify fertilizer needs of various crops.	3.61	0.20	3.91	0.16	4.00	0.19
11	Identification of different nutrient deficiency symptoms in crops.	3.81	0.15	3.75	0.14	3.68	0.20
12	Carryout weed identification and control.	3.63	0.14	3.68	0.15	4.27	0.24
13	Carryout herbicides application appropriately.	3.60	0.14	3.79	0.14	4.32	0.24
14	Read and interpret labels/instructions on agrochemical accurately.	3.60	0.10	3.61	0.15	3.59	0.21
15	Carryout effectively thinning on various crops.	3.63	0.14	3.61	0.13	3.77	0.13
16	Carryout harvesting at right time.	3.80	0.16	3.86	0.16	4.41	0.26
17	Use correct method of harvesting of various crops.	3.69	0.14	3.69	0.16	4.23	0.21
18	Processing of various crops.	3.66	0.15	3.44	0.12	4.18	0.19
19	Effective preservation of various crops.	3.67	0.16	3.80	0.14	4.23	0.21
20	Effective storage of various crops.	3.86	0.15	3.57	0.14	4.36	0.27
21	Carryout appropriate husbandry measures for the nursery.	3.69	0.16	3.59	0.16	3.55	0.11
22	Handling of various Horticultural practices.	3.54	0.10	3.67	0.11	3.77	0.13
23	Carryout soil sampling with appropriate tools.	3.34	0.10	3.65	0.15	3.23	0.13
24	Determine which soil is appropriate for various crops.	3.50	0.12	3.54	0.13	3.95	0.15
25	Identify appropriate irrigation method for various crops.	3.60	0.14	3.68	0.14	3.09	0.17
26	Determine water needs level of various crops during irrigation.	3.99	0.17	3.62	0.14	3.27	0.13
27	Effective planning and composition of crops rotation in a farm.	3.77	0.16	3.78	0.16	3.73	0.18
28	Observe appropriate water conservation methods on various soil type.	3.69	0.15	3.82	0.15	3.27	0.15
29	Carryout water erosion control on various type of soil.	3.53	0.13	3.62	0.15	2.82	0.19
30	Carryout experiments on soil samples.	3.76	0.13	3.59	0.13	2.95	0.12
31	Identify various farm tools with their uses.	3.77	0.14	3.82	0.14	4.23	0.25
32	Coupling of implements on tractor.	3.57	0.11	3.63	0.13	1.77	0.21
33	Operate tractor successfully on the farm.	3.64	0.15	3.67	0.12	1.77	0.21
34	Carryout maintenance on all the farm tools/implements.	3.67	0.12	3.67	0.14	3.73	0.17
35	Diagnose common tractor problems.	3.44	0.11	3.44	0.13	1.91	0.17
36	Effectively control wind erosion in your area.	3.39	0.08	3.48	0.12	2.23	0.16
GRAND MEAN		3.71	±0.22	3.71	±0.16	3.68	±0.78

Where SW = South West, S = Standard Deviation, NC = North Central, SS = South South

Results (Table 2) showed the level of technical competencies acquired in crop production at the various zones. South West indicated a relatively high mean of 4.54 in identifying different classes of crops grown. At the same time, the least was 3.34 recorded for carrying out soil sampling with appropriate tools. Results in North Central showed the highest mean of 4.24 on identifying different classes of crops grown. In contrast, the lowest mean of 3.44 was recorded on processing various crops and diagnosing common tractor problems. In the South South, the highest mean of 4.64 was recorded for identifying different classes of crops grown, with the lowest mean of 1.77 for coupling tractor implements and successfully operating a tractor on the farm. The grand means of 3.,71, 3.71 and 3.68 for South West, North, Central and South South, respectively, implied variation and indicated a high level of competencies in crop production and soil management, which favoured South West and North Central compared to South South with relatively less mean. Despite the proficient competencies acquired by the pre-service teachers in the South South zone, results indicated that skill improvement is

needed in coupling, operating and diagnosing common tractor problems and controlling wind erosion.

The consensus agreement on the acquired competencies, using standard deviations of 0.22, 0.16, and 0.76, also revealed a high spread in the South South zone, implying better performance in crop production for students in the North Central and South West zones. This may be associated with oil pollution in the South South zone, which has affected their land, discouraging participation in crop production. Field experience also revealed a high number of agricultural students in the North Central and South West regions. Under pre-service training, these students engaged in hands-on activities, including the Students Industrial Work Experience Scheme (SIWES) and field visits to commercial farms, which are prevalent in the zone without environmental impediments. In contrast, their counterparts in the South-South primarily engage in Fishing and the buying and selling of goods. Earlier, Oladele *et al.* (2011) reported that agricultural students in Botswana acquired high competency in soil and crop management after a Field Practical Training (FPT) year outside the school. On the contrary, Lawal *et al.* (2014) concluded that Agricultural Science teachers in Ondo State did not possess the required competencies in soil and crop management.

Table 3: Levels of Technical Competencies Acquired in Economics and Extension Parameters among Students in the Zones

S/No.	Competency Items	SW	s	NC	s	SS	s
1	Accurate farm record keeping.	4.61	0.29	4.25	0.21	4.59	0.30
2	Identify investment opportunities.	4.16	0.21	3.81	0.14	4.14	0.20
3	Creativity in your endeavour.	3.83	0.17	3.58	0.15	3.91	0.19
4	Averting risks in business.	3.66	0.13	3.72	0.15	4.05	0.23
5	Decision making when faced with more than one options.	3.43	0.14	3.75	0.17	4.14	0.22
6	Identifying favourable sources of finance for agricultural business.	3.66	0.11	3.64	0.15	4.23	0.24
7	Identifying appropriate processing and storage methods for various produce.	3.71	0.14	3.92	0.16	4.23	0.20
8	Application of the law of demand/supply on agricultural produce.	3.67	0.18	3.68	0.15	4.18	0.21
9	Handling of market information.	3.76	0.15	3.77	0.14	4.14	0.18
10	Identify appropriate market for one's products.	3.79	0.13	3.72	0.12	4.00	0.17
11	Proper packaging of product for market.	3.63	0.11	3.71	0.14	4.41	0.26
12	Understand when to bring your products to market.	3.64	0.15	3.78	0.14	4.23	0.21
13	Manage funds allocation for project.	3.81	0.16	3.86	0.14	4.27	0.21
14	Farm resources management (man, crops, livestock, soil and facilities).	3.67	0.16	3.82	0.17	3.91	0.15
15	Take decision on production under unfavourable condition.	3.60	0.13	3.68	0.15	3.82	0.15
16	Preparation of Profit and Loss Account.	3.79	0.15	3.61	0.14	3.23	0.07
17	Carryout cost benefit ratio.	3.67	0.13	3.84	0.18	2.68	0.13
18	Carryout comparative cost advantage especially on input sourcing.	3.59	0.11	3.69	0.15	2.86	0.19
19	Carryout most economic combination of inputs.	3.73	0.13	3.81	0.15	2.86	0.18
20	Determination of economic level of production.	3.56	0.12	3.82	0.16	3.27	0.17
21	Maximisation of profit in an enterprise.	3.24	0.06	3.68	0.14	3.14	0.16
GRAND MEAN		3.72	±0.27	3.77	±0.14	3.82	±0.57

Where SW = South West, S = Standard Deviation, NC = North Central, SS = South South

The results in Table 3 show the level of technical competencies acquired in economics and extension across various zones. In the South West, the highest mean of 4.61 was recorded on

keeping accurate farm records, while the lowest mean of 3.24 was recorded on maximisation of profit in an enterprise. The results from North Central showed a high mean of 4.25 on keeping accurate farm records, while the lowest mean of 3.58 was recorded on creativity in the students' endeavour. In the South South, the highest mean of 4.59 was recorded for keeping accurate farm records, with the lowest mean of 2.68 for the carryout cost benefit ratio. The grand means of 3.72, 3.77 and 3.82 were recorded in South West, North Central and South South, respectively. The results showed variation in the means of the various skills in the zones; however, the grand means indicated a high level of competencies in economics and extension, with South South pre-service teachers being the most competent, followed by the North Central zone.

The results (Table 3) showed that Agricultural Education students from the three zones acquired high competency in Agricultural Economics and Extension; however, the consensus agreement among students was consistent in North Central (0.14) than South West (0.27) zones, unlike in South South (0.57), where the spread from the mean was high. This is likely associated with the relatively small number of agricultural students and poor participation in agriculture. This finding aligns with the study by Ayanda *et al.* (2013), which reported an above-average mean in a study of student ability in economics and agricultural parameters at Kwara State University. Omodara (2016) also reported high students' competency acquisition in economics and extension in the North West. On the contrary, Onipede *et al.* (2021) identified areas for improvement in Agricultural Science teaching, specifically in Agricultural Economics and Extension, within Ekiti State. Also, Isiwu (2019) found that teachers of Agricultural Science in Senior Secondary Schools in Abia State needed improvement on 13 items in instruction planning in farm record keeping and accounting. Onwunali and Muhammed (2025) also reported a negative knowledge gap in Agricultural Economics and Extension in Zaria Educational Zone of Kaduna State.

Table 4: Analysis of Variance on Levels of Technical Competencies (Livestock)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.424	2	212	1.704	0.187
Within Groups	13.436	108	124		
Total	13.859	110			

The F value of $P\ 0.187 > 0.05$ indicated there are no significant differences in the level of competencies acquired across the zone in livestock production. Hence, the hypothesis of no significant differences was accepted. Despite students' competencies in livestock production, there were no significant variations in the competencies acquired. This result agrees with the stance of Onipede *et al.* (2021), who asserted that there was no significant difference in the improvement needs of male and female Agricultural Science teachers in animal production in Ekiti State. On the contrary, Omodara *et al.* (2019) concluded that there is a significant difference in the level of competencies acquired by NCE holders in North West Nigeria in livestock production, probably because of the limited number of large ruminants in Ekiti State.

Table 5: Analysis of Variance on Levels of Technical Competencies (Crop and Soil)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.020	2	0.010	0.044	0.957
Within Groups	23.911	105	0.228		
Total	23.931	107			

The results of the means analysis revealed that Agricultural Education students from the three zones demonstrated high competency in crop production and soil management. However, the F value of $P\ 0.957 > 0.05$ indicated no significant differences in the level of competencies acquired across the zones in crop production and soil management. Therefore, the null hypothesis of no significant differences was accepted. The results agreed with the findings of Onipede *et al.* (2021), who affirmed that there was no significant difference in the improvement needs of Agricultural Science teachers in Soil Science. However, Omodara *et al.* (2019) asserted that there was a significant difference in the level of crop and soil competencies acquired by students in North West Nigeria.

Table 6: Analysis of Variance on Levels of Technical Competencies (Economics and Extension)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.103	2	0.52	0.376	0.688
Within Groups	8.252	6	0.138		
Total	8.355	62			

The F value of $P\ 0.688 > 0.05$ indicated there are no significant differences in the level of competencies acquired across the zone in Agricultural Economics and Extension. Consequently, the hypothesis of no significant differences was upheld. This result agreed with the findings of Ayanda *et al.* (2013), who stated that there is no significant difference in the level of competencies acquired by students on Agricultural Economics parameters in Kwara State University. Contrary to the result, Omodara (2016) reported that there were no significant differences among students' levels of competencies acquired in Agricultural Economics and Extension in North West Nigeria. Therefore, the acquisition of competencies in Agricultural Education tends to be influenced by location.

Conclusion

This research was embarked upon to determine level of technical competencies acquired by Agricultural Education students in livestock, crops/soil and agricultural economics and extension across Nigeria due to wide variation in climate and comparative advantages possessed by zones in the country in terms of soil fertility, crop adaptability and suitability of different zones to different animals. Based on the study, even though there were slight variations in both strengths and weaknesses across zones in the level of competencies acquired in the technical area of Agricultural Education, there are no significant differences in the level of competencies acquired in Animal Science, Crop Science, Soil Science, Agricultural Economics and Extension among the zones. Hence, the conclusion that Agricultural Education students in Nigeria acquired high competencies in technical areas of their

programme, despite the limitation experienced with South South institutions that were not in session during the field work which affected their rate of return of instrument.

Recommendations

Based on the findings, the study recommended the following ;

1. The college management, through regulatory and funding bodies, should provide facilities for teaching fisheries in the South West, beekeeping in the North Central, and milk and its product handling in the South South Zones of Nigeria.
2. The college management should place greater emphasis on providing tools and implements, as well as appointing qualified lecturers in Soil Science and Agricultural Engineering to teach courses on Farm tools, implements, and soil-related subjects.
3. Lecturers in the South South zone should improve on the pedagogy of Agricultural Economics and Extension to enhance students' competency.

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