

Field Practical Training Programme of Faculties of Agriculture in Edo and Delta States, Nigeria

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Abstract

The study assessed the Field Practical Training (FPT) programme of Agriculture Faculties in Edo and Delta States, Nigeria. Simple random sampling technique was used to select 150 final year students from three public universities. Data were collected with questionnaire and analyzed. Findings show that more of the respondents were males (56.7%), the majority (68.0%) were 20-24 years while 93.3% were single. Highest proportion (27.3%) of respondents were from the department of Agricultural Economics and Extension Services. The respondents had higher positive attitudes towards a career in agriculture after the practical training ($\bar{x}=3.03$) than before FPT ($\bar{x}=2.64$). They perceived that they were competence in many tasks carried out especially those related to Crop and Animal Science ($\bar{x}\geq 2.5$). There was significant difference in respondents' perceived level of competence before and after FPT at 5% level of significance in all the eight (8) thematic areas, the highest was Animal science ($t=7.66$). Constraints perceived to militate against achieving entrepreneurial development of youth through FPT included the use of crude farm implements ($\bar{x}=3.19$), dearth of improved technologies and inputs ($\bar{x}=3.14$), poor exposure to farmers' condition ($\bar{x}=3.13$), and inadequate funding of the programme ($\bar{x}=3.12$). FPT enhanced competence and positive attitude towards career in agriculture. Addressing the constraints would better prepare youth for agri-preneurship.

Keywords: Practical training, students of agriculture faculty

Introduction

Faculties of Agriculture in Nigerian Universities are saddled with the responsibility of training undergraduates in several disciplines in agriculture. In doing this they employ experiential learning. According to Kolb and Kolb (2005), theory must be reinforced with practice and practices need sound theory to guide their conduct. Lewis and Williams (1994) also observed that, in higher learning situations, experiential learning is conducted in the form of field based experiences or by crediting of prior learning. In this light it was made mandatory and indeed a policy of the National Universities Commission (NUC) that, agricultural undergraduates in the fourth year of the five-year degree be exposed to Field Practical Training (Farm Practical Year).

The Field Practical Training (FPT) programme promotes “learning by doing”, where students combine theoretical knowledge and hands on skills during programme implementation. Students going on FPT are usually attached to commercial farms for a period (usually about 8 weeks) and while there, they are placed under the supervision of a farm manager. In Edo and Delta States, the structure and implementation are similar and students are attached to out-station or commercial farm. The FPT programme equivalences are also done in countries like Botswana (Botswana College of Agriculture, BCA, 2008) and even the United States (Iowa State University, 2005). The FPT programme helps to promote experiential learning and increases programme quality. The expected learning outcomes of the FPT programmes are competencies that students will acquire at the end of the programme to prepare them as agripreneurs. These competencies as identified by BCA (2003) includes areas in soil science and fertility, agronomy and horticultural practices, crop protection activities, forestry activities, engineering activities, land survey, farm power and machines, farm structures and services, post-harvest handling and extension services. Navarro (2006); Bruening and Frick (2004) submitted that companies of today want graduates with cross-cultural experiences.

Despite the hands-on learning provided by the FPT programme, which was made mandatory for agricultural undergraduates by NUC so as to match university graduates output with national manpower needs especially in agriculture, graduates rarely pick up agriculture as a career. In other words, the agricultural sector in Nigeria is largely dominated by non-agriculture graduate and rural dwellers. Anyanwu and Ileoje (1996) reported that the proportion of graduates with competent skills in agriculture appears to be less than the share of students enrolled in this discipline. With this trend, sustainable agriculture entrepreneurial development which requires a long term perspective and continuing activities over several generations is far-fetched. Also Government's objective to increase the availability of competent and committed human resources (graduates) especially in agriculture, to contribute their quota to achieve sustainable agricultural development in the nation will also be defeated. While the importance and the need for involving undergraduates in the FPT programme has been adequately outlined and justified (Oladele, Subair and Thobega, 2011; Odo, Akinagbe, Madukwe and Ajayi, 2011), the students' competence, attitude towards the programme and constraint militating against the programme in achieving its set objectives have not been

properly documented especially since performance and behaviour of current agriculture undergraduates and professional will help contribute to sustainability of agriculture (Liaghati, Veisi, Hematyar and Ahmadzadeh, 2008). It is against this back drop that this study seeks to assess the Field Practical Training (FPT) programme of agriculture faculties in Edo and Delta States, Nigeria.

To achieve this, the specific objectives were set to;

1. describe the personal characteristics of FPT agriculture students in Edo and Delta States;
2. examine the attitudes of students towards FPT;
3. ascertain the perceived competence of students before and after FPT; and
4. identify constraints encountered by students during the training.

The hypothesis was:

1. There is no significant difference in the respondents' competency level before and after the Field Practical Training (FPT).

Methodology

The study was conducted in Edo and Delta State. Edo State is an inland state in southern Nigeria. Its capital is Benin City. It is bounded to the south and southern by Delta State, to the north and northeast by Kogi State, and to the West by Ondo State. Edo state covers an area of 19,819.3 square kilometers (km²) (Edo State Government, 2011). It has a population of 3,233,366 and a population density of 184 people per square kilometer. The State accounts for 2.3% of Nigeria's total population.

Delta State with capital at Asaba, shares common boundaries with Edo and Ondo States to the northwest, Imo and Anambra to the Northeast, Rivers and Bayelsa States to the south east. In the southwest and south, it has approximately 122 kilometers of coastline bounded by the Bight of Benin on the Atlantic Ocean. The major ethnic groups are Urhobo, Igbo, Ezon (Isan) Isoko, and Itsekiri. It is an oil producing state with a population of 4,098,391. The state has a total land area of 16,842km² (National Bureau of Statistics, 2006).

The population of the study consists of final year students of public universities in Edo and Delta States, namely; the University of Benin, (UNIBEN) Benin City, Ambrose Alli University (AAU) Ekpoma and Delta State University (DELSU) Anwai. A three stage sampling procedure was employed to select respondents for the study. First was the purposive selection of three public universities; University of Benin, Ambrose Alli University and Delta State University. This is because of the presence of faculties of agriculture in these universities. This was followed by the purposive selection of 500 level Agriculture students from the three identified universities. The 500 level students were chosen as respondents because they had undertaken the Field Practical Training

(FPT). Samples were drawn proportionately to size in each of the selected universities to give a total sample size of 150 respondents.

Data for the study were collected with the aid of questionnaire and analysed using descriptive statistics percentages, means and frequency counts while t-test was used to test the hypothesis.

Results and Discussions

Personal Characteristics of the Respondents

The pooled result showed that more than half (56.7%) of the respondents were males. These results were similar to that of UNIBEN and DELSU, however, the results from AAU presented a different dimension with females (52.5%) being higher than the (47.5%). This could be attributed to the fact that agricultural activities especially the field practical aspect are labour intensive and quite strenuous, which makes it less desirable especially by the female folks. This finding is supported by the findings of Karl (1998) who found that the number of females in higher agricultural education is relatively lower than the males. The pooled mean age of the respondents is 24years. This suggests that respondents were young and active for the labour intensive task of agriculture as entrepreneurs after graduation. This was corroborated by the finding of Abayomi (2008) that the majority of the students (98.2%) were between the age range of 16 – 25 years. Table 1 also reveals that the majority (93.3%) of the respondents across the selected universities were single. This suggests that respondents prefer concentrating on their studies and getting at least a B.Sc. before going into marriage. This agrees with Okolo (2012) in which a majority (93.5%) of students was single. A high percentage (63.3%) of respondents across the universities attended private primary schools, while a lower percentage (36.7%) attended public primary schools. This may be due to the fact that private primary schools are perceived to have a higher quality of education than public schools and this may also affect their attitude towards agriculture. This is in line with the findings of Uba (2007) that people patronize private schools on the assumption that public schools are not performing up to standard. The pooled results on secondary school attended showed some similarities with respondents' primary as more than half (55.3%) of respondents attended private secondary schools.

Table 1 also reveals that 27.3% of respondents were in the Department of Agricultural Economics and Extension Services. This agrees with Okolo (2012) that Agricultural Economics and its related courses are highly sought after by intending students of agriculture. A higher proportion (38.0%) of respondents' fathers was civil servants. More than two-fifth (46.0%) of the respondents' mothers were business women. More than half (56.0%) of the respondents were born in the city. The implication of this is that a majority of the respondents may not have a prior exposure to agriculture in their formative and teenage years. It agrees with the findings of Oladele *et al.*, (2011) who found that Botswana College of Agriculture students' families were not involved in agriculture. A higher percentage (67.5%) of respondents in UNIBEN, put in for medicine as their first choice course of study in the Universities Matriculations Examination (UME). While 63.0% and 52.5% of respondents in DELSU and AAU put in agriculture as their first choice course of study in the UME, however, the pooled results show that

46.7% of respondents wanted medicine while 39.3% choose agriculture as their first choice. This shows that agriculture is not a popular demand as a career option for respondents. It also suggests that some of the respondents might be studying agriculture as a last resort option. This may affect their interest and attitude towards FPT programme consequently agricultural entrepreneurship.

Table 1: Personal Characteristics of the Respondents

		UNIBEN	DELSU	AAU	POOLED
		%	%	%	%
Sex	Female	36.1	51.9	52.5	43.3
	Male	63.9	48.1	47.5	56.7
Age range (mean=24years)	20-24	65.1	63.0	77.5	68.0
	25-29	28.9	29.6	20.0	26.7
	30-34	6.0	7.4	2.5	5.3
Marital status	Single	95.2	88.9	92.5	93.3
	Married	4.8	11.1	7.5	6.7
Type of primary school attended	Public	36.1	44.4	32.5	36.7
	Private	63.9	55.6	67.5	63.3
Type of secondary school attended	Public	47.0	51.9	35.0	44.7
	Private	53.0	48.1	65.0	55.3
Department	AGE	34.9	14.8	20.0	27.3
	ANS	19.3	-	50.0	24.0
	SOS	30.1	3.7	15.0	21.3
	CRP	15.7	3.7	15.0	13.3
	Fisheries	-	77.8	-	14.0
Father's occupation	Civil servant	27.7	51.9	50.0	38.0
	Businessman	32.5	29.6	25.0	30.0
	Politician	4.8	3.7	7.5	5.3
	Artisan	-	-	-	-
	Trader	2.4	-	-	1.3
	Farmer	3.6	7.4	7.5	5.3
	Others	28.9	7.4	10.0	20.0
Mother's occupation	Civil servant	25.3	48.1	22.5	28.7
	Businessman	42.2	40.7	57.5	46.0
	Politician	-	-	-	-
	Artisan	1.2	-	-	0.7
	Trader	19.3	3.7	7.5	13.3
	Farmer	1.2	3.7	5.0	2.7
	Others	10.8	3.7	7.5	8.7
Place of birth	Village	13.3	3.7	10.0	10.7
	Town	25.3	48.1	40.0	33.3
	City	61.4	48.1	50.0	56.0
Field of interest	Agriculture	25.3	63.0	52.5	39.3
	Medicine	67.5	18.5	22.5	46.7
	Others	7.2	18.5	25.0	14.0

Respondents' Attitude towards the Field Practical Training

Table 2a shows the attitude of students towards the field practical training. From the pooled result of the selected universities, out of 9 attitudinal statements listed, the students agreed to seven of them. However, their disagreement was reflected on two of these statements; "students (trainees) are not used as cheap source of labour" ($\bar{x} = .13$

and 2.16 before and after the FPT respectively) and "I don't feel like a labourer during the FPT and this gives me a positive perspective about it" ($\bar{x} = 2.36$ and 2.39 before and

after the FPT respectively). This shows that though students have a positive attitude towards the training, yet felt they were being used. This may be as a result of the fact that they are been attached to commercial farms who in the process of training them sees them as a source of cheap labour and hence use them to carry out most of the work on the farm. This is somewhat in agreement with the finding of Froukje (2009) who observed that difficulty in recruiting and retaining a skilled staff is a major constraint of commercial agriculture.

Cumulatively, Table 2b reveals that from the pooled results, 73.3% and 76.0% of the respondents (before and after the training respectively) had a favourable attitude towards the training. This could imply that students look up to the FPT programme and were not disappointed since a high proportion maintained positive attitude. This is in tandem with the findings of Faralu (2011) who submitted that male and female youths in Kastina State had positive attitude towards agriculture as a career. This attitude could influence their decision to engage in agricultural enterprises.

Table 2a: Attitude towards the field practical training before and after the training

	BEFORE				AFTER			
	UNIBEN Mean	DELSU Mean	AAU Mean	Pooled Mean	UNIBEN Mean	DELSU Mean	AAU Mean	Pooled Mean
Am not indifferent to the field practical training	3.13	3.00	2.90	3.05*	3.18	2.93	2.78	3.03*
Enthusiastic about Field Practical Training (FPT).	2.95	2.81	3.10	2.97*	3.11	2.81	2.78	2.97*
Field practical training is relevant	3.17	3.30	3.47	3.27*	3.40	3.07	2.95	3.22*
FPT is not boring, tiring and unrewarding.	3.23	3.44	2.85	3.17*	3.16	3.52	2.85	3.14*
I am not unhappy because I have to pay for FPT training	2.63	2.59	2.55	2.60*	2.67	2.89	2.57	2.69*
I don't feel like a labourer during FPT and this gives me a positive perspective about it.	2.21	2.75	2.13	2.36	2.11	2.90	2.18	2.39
It's not a waste of time, energy and money	3.27	3.63	3.00	3.26*	3.36	3.78	3.23	3.4*
Students (trainees) are not used as cheap source of labour	2.04	2.44	2.13	2.13	2.04	2.52	2.17	2.16
FPT is strenuous but has built my competence to practice	2.58	2.70	2.40	2.56*	2.30	2.92	2.70	2.64*

Source: Field Survey, 2013*Agreed (mean \geq 2.50).

Table2b: Categorization of respondents based on attitude towards field practical training

	UNIBEN %	DELSU %	AAU %	Pooled %
Attitude score before:				
Positive attitude (score > 22)	73.5	85.2	65.0	73.3
Negative (score <=22)	26.5	14.8	35.0	26.7
Attitude score after:				
Positive attitude (score > 22)	75.9	92.6	65.0	76.0
Negative (score <=22)	24.1	7.4	35.0	24.0

Source: Field Survey, 2013.

Respondents' Competency in field activities before and after FPT

Appendix 1 shows respondents' competency across eight thematic areas in agriculture and on seventy-eight (78) identified items/activities in which they participated during the FPT. Before the training, respondents were competent in twelve (12) activities across the eight thematic areas. This finding agrees with that of Oladele *et al.*, (2011) who observed that students were competent in 12 out of 47 tasks before undergoing the FPT programme. Interestingly, after the training, respondents had an increased competence in some of the thematic areas. In Crop production, respondents had an increased level of competence. Before the programme respondents were competent in only 6 (six) activities however, after the programme students had competence in seven (7) additional activities. These activities include; nursery making (2.37 to 2.81), pumpkin production (2.21 to 2.52), calculation of fertilizers to specific crops (2.06 to 2.51). In Animal science, respondents had competence in six (6) additional activities which includes goat production and management (2.27 to 2.68), rabbit production and management (2.21 to 2.60), pig production and management (2.27 to 2.87) and Processing of broilers (2.33 to 2.72). Additional competence was also observed in Fisheries; fish identification (2.21 to 2.62), fish pond management (2.18 to 2.70) and fish feed formulation (1.78 to 2.57) and in Agricultural engineering one competence was gained in enforcing safety behaviour in a workshop (2.41 to 2.75). However, in other thematic areas such as Forestry and Wildlife, Soil science, Agricultural economics and Agricultural extension no competence was gained. This implies that the FPT programme did not improve students' level of competency in these areas.

Appendix 1 also revealed the areas in which students had the highest and the least competence. The areas in which students had the highest competence are; crop production and animal science. However, low competence was observed in area of Forestry and wildlife, Soil Science and Agricultural Extension. This could be due inadequate learning facilities for the effective training of students in activities related to

these areas. These findings were somewhat similar with that reported by Oladele *et al.* (2011) that students' had a high level of competency in crop science and animal science while most activities related to farm engineering were not popular in the competent rating among students of the Botswana College of Agriculture, Gaborone, Botswana.

Constraints Faced by Respondents during the Field Practical Training

A list of nineteen (19) constraints was given and seventeen (17) of the 19 constraints were identified as serious constraints by respondents. This shows that students faced myriads of constraints during the training. The six most serious constraints identified by respondents was use of local implements (3.19), insufficient resources (3.14), lack of vehicle for transporting students for extension activities (3.13), inadequate funding (3.12), lack of storage facilities (3.02) and inadequate government subvention (3.01). These constraints all centre on lack of or inadequate resources for the FPT programme. This is concomitant with the findings of Odo *et al.*, (2011) who reported similar findings among students of University of Nigeria, Nsukka (UNN) and Michael Okpara University of Agriculture, Umudike (MOUUAU). Their report revealed that lack of necessary tools, use of hoe and cutlasses was experienced among students and this was due to lack of government subvention. The resultant effect of this will be reduced quality of the programme and inability to optimize the programme for entrepreneurship. Other constraints identified by students in the selected universities include; poor programme planning (pooled =2.75), poor implementation by universities (2.92 UNIBEN and 3.05, AAU), lack of proper monitoring and evaluation by field staff (pooled = 2.62) and lack of proper monitoring and evaluation by FPT lecturers (pooled =2.59). FPT is a form of experiential learning which helps to improve the quality of agriculture programme in universities. Thus poor planning, implementation and monitoring may hinder students from acquiring competence in various activities. This finding was buttressed by the findings of Horton, Ballantyne, Peterson, Uribe, Gapasinand, Sherikda (1991), that monitoring ensures that inputs, work schedules and outputs are proceeding according to plan and also warn of deviations from initial goals and expected outcomes.

Table 3: Constraints faced during the field practical training

	UNIBEN		DELSU		AAU		Pooled		Rank
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Use of local farm implements including hoes and cutlasses on the allotted plots	3.28*	0.95	2.56*	1.15	3.45*	0.85	3.19*	1.01	1st
Insufficient resources such as agricultural inputs	3.42*	0.80	2.56*	1.15	2.95*	1.04	3.14*	0.99	2nd
Lack of vehicles for transporting students for extension activities	3.24*	1.01	2.78*	1.19	3.15*	1.08	3.13*	1.07	3rd
Inadequate funding of the programme	3.27*	0.91	2.74*	1.16	3.08*	0.94	3.12*	0.98	4th
Lack of storage facilities	3.14*	1.01	2.52*	1.25	3.10*	0.96	3.02*	1.06	5th
Inadequate government subvention is lowering the quality of the FPT	3.17*	0.99	2.67*	1.18	2.90*	1.17	3.01*	1.08	6th
Lack of safety wears exposes students to danger during FPT	3.07*	1.09	2.85*	1.23	2.80*	1.11	2.96*	1.12	7th
Uncertainty in weather condition	2.89*	1.09	2.59*	1.08	3.00*	0.91	2.87*	1.05	8th
Short period of exposing students to practical work outside the university (outstation) during FPT	2.88*	1.06	2.52*	1.16	3.00*	1.11	2.85*	1.10	9th
Poor implementation of the programme by the University	2.92*	0.97	2.33	1.11	3.05*	1.04	2.85*	1.03	9th
Poor programme planning	2.73*	0.98	2.59*	1.19	2.88*	1.14	2.75*	1.06	11th
Difficulties in combining the farm work with lectures	2.81*	1.02	2.56*	1.15	2.70*	1.20	2.73*	1.09	12th
Poor marketing strategies use for sales of farm produce	2.82*	1.06	2.22	1.01	2.85*	1.10	2.72*	1.08	13th
Poor attitude of staff towards FPT	2.75*	1.07	2.41	0.93	2.80*	1.09	2.70*	1.05	14th
Lack of proper orientation of the students before the commencement of the FPT	2.76*	1.04	2.74*	1.23	2.52*	1.20	2.69*	1.12	15th
Lack of proper monitoring and evaluation by the field staff	2.69*	0.99	2.52*	1.09	2.55*	1.06	2.62*	1.02	16th
Lack of proper monitoring and evaluation by FPT lecturers	2.53*	0.99	2.78*	1.12	2.60*	1.08	2.59*	1.04	17th
Lack of commitment from staff	2.52*	0.99	2.15	0.99	2.63*	1.08	2.48	1.02	18th
Lack of commitment from students	2.28	1.03	2.41	1.01	2.57*	1.17	2.38	1.07	19th

Source: Field Survey, 2013. **Serious (mean ≥ 2.50)*

Difference in the Competency Level Before and After the Field Practical Training

Table 4 reveals that there is a significant difference in respondents' competency level across all areas of the training, before and after the FPT programme. The results show that for crop production ($t=6.61$; $P\leq 0.05$), animal science ($t=7.66$; $P\leq 0.05$), agricultural engineering ($t=6.98$; $P\leq 0.05$), soil science ($t=6.09$; $P\leq 0.05$), forestry and wildlife ($t=8.30$; $P\leq 0.05$), fisheries $t=10.00$; $P\leq 0.05$), agricultural economics ($t=9.28$; $P\leq 0.05$) and agricultural extension ($t=2.91$; $P\leq 0.05$). This implies that respondents' competency level before and after the training across various areas of agriculture is statistically significant. Table 4 also reveals that while students had an increased level of competence before and after the training in crop production, animal science, agricultural engineering, soil science, forestry and wildlife, fisheries and agricultural economics, they experienced a decrease in agricultural extension. In other words, the FPT did not increase their

competence in this aspect. This may be due to the constraint respondents faced in the programme. This is in line with the results from Table 3, which revealed that lack of vehicles for transporting students for extension activities was ranked third. This corroborates the finding of Odo *et al.*, (2011) who observed that lack of vehicles for transporting students for extension activities as a constraint was statistically significant.

Table 4: Difference in the respondents' competency level before and after the field practical training

Competencies	Before	After	Difference	T-test
Crop Production	43.43	51.05	-7.63	6.61*
Animal Science	34.65	43.98	-9.33	7.66*
Agricultural Engineering	17.73	21.90	-4.17	6.98*
Soil Science	12.69	15.95	-3.26	6.09*
Forestry and Wildlife	10.25	13.98	-3.73	8.30*
Fisheries	15.55	22.81	-7.27	10.00*
Agricultural Economics	8.05	11.50	-3.45	9.28*
Agric Extension	12.21	10.86	1.35	2.91*

* P≤0.05. Source: Field Survey, 2013.

Conclusion and Recommendations

The study established that respondents have positive attitude and competency which significantly increased after undergoing the FPT programme. However, the FPT programme has been seriously constrained by insufficient resources such as agricultural inputs, use of crude implements and inadequate funding. These constraints need to be addressed to provide enabling environment for the programme to further attract the students/youths to be agripreneurs.

The need to use improved technologies at university faculty level especially mechanization for drudgery reduction to attract youths so that the benefits of the FPT programme can be enhanced. Better funding for FPT programme through public-private sector partnership to assist faculties of agriculture.

The students could be followed up after graduation with empowerment programme (seed money) and farm settlement scheme for school leavers to establish agricultural enterprises rather than look for a white collar jobs. Government and private sector/NGOs. The extension component of FPT should be made more practical through students' interaction with communities for real life experiences so that students will appreciate the farming situation in their environment and come up what they can contribute to bring out change.

Appendix 1: Respondents competency in field agricultural activities before and after participation in FPT

	Before				After			
	UNIBEN Mean	DELSU Mean	AAU Mean	Total Mean	UNIBEN Mean	DELSU Mean	AAU Mean	Total Mean
Crop Production:	.	.	.	.	.	.	.	.
Land clearing/ preparation	2.93*	3.30*	3.23*	3.15*	3.23*	3.22*	3.40*	3.28*
Nursery making/bed molding	2.30	2.07	2.75*	2.37	2.84*	2.56*	3.03*	2.81*
<i>Telferia</i> (pumpkin) production	2.13	2.00	2.50*	2.21	2.55*	2.26	2.75*	2.52*
Cassava production	2.69*	2.26	3.20*	2.72*	3.11*	2.41	3.37*	2.96*
Yam production	2.14	2.63*	2.78*	2.52*	2.46	2.41	3.00*	2.62*
Fertilizer application/manuring	2.51*	2.81*	2.47	2.60*	3.16*	2.89*	2.75*	2.93*
Weeding	2.99*	2.78*	3.28*	3.02*	3.25*	2.67*	3.28*	3.07*
Pesticide application	2.04	2.44	2.47	2.32	2.70*	2.52*	2.55*	2.59*
Harvesting of crops	2.36	2.63*	3.12*	2.70*	2.73*	2.48	3.32*	2.84*
Calculating the amount of fertilizer to apply to specific crops	2.06	1.96	2.15	2.06	2.88*	2.26	2.38	2.51*
Performing basic plant disease diagnosis	1.72	1.30	2.00	1.67	2.28	1.81	2.58*	2.22
Determining plant nutrition problems	1.89	1.52	2.02	1.81	2.64*	1.78	2.30	2.24
Recommending correction procedures for plant nutrition problems	1.87	1.67	2.20	1.91	2.54*	2.04	2.65*	2.41
Selecting appropriate planting methods for various crop seeds	2.22	2.37	2.60*	2.40	2.86*	2.26	2.75*	2.62*
Planting and carrying out harvesting appropriately for various crops	2.20	2.44	2.80*	2.48	2.73*	2.63*	2.95*	2.77*
Identifying pest infestation symptom	2.00	1.78	2.48	2.09	2.63*	1.89	2.57*	2.36
Recommending appropriate pest control procedures for various pests	1.93	1.63	2.30	1.95	2.60*	1.96	2.45	2.34
Collecting and preserving crop disease specimen	1.75	1.37	2.12	1.75	2.36	1.78	2.43	2.19
Carrying out appropriate husbandry measures for the nursery	2.08	1.70	2.12	1.97	2.75*	2.37	2.58*	2.57*
Animal Science:								
Goat production and management	2.30	1.74	2.78*	2.27	3.12*	1.85	3.07*	2.68*
Rabbit production and management	2.30	1.74	2.58*	2.21	3.05*	1.74	3.00*	2.60*
Pig production and management	2.19	1.89	2.73*	2.27	2.99*	2.44	3.18*	2.87*
Poultry production and management	2.47	2.37	3.13*	2.66*	3.24*	2.63*	3.38*	3.31*
Processing of broilers	2.20	1.96	2.83*	2.33	2.84*	2.22	3.10*	2.72*
Knowledge of and application of meat processing techniques	2.04	1.78	2.32	2.05	2.77*	2.04	2.53*	2.45
Hay production	2.27	1.63	1.78	1.89	3.27*	1.96	2.20	2.48
Ration formulation	1.89	1.67	1.98	1.85	2.80*	1.89	2.25	2.31
Cleaning and fumigating poultry house	1.96	2.41	2.75*	2.37	2.88*	2.33	2.83*	2.68*
Cleaning and disinfecting milking facilities	1.70	1.63	2.15	1.83	2.34	1.85	2.60*	2.26
Cleaning and disinfecting piggery units	1.94	1.96	2.45	2.12	2.82*	2.37	2.8*	2.66*

Livestock disease diagnosis	1.81	1.56	2.15	1.84	2.59*	1.93	2.53	2.35
Taking temperature of animals	1.71	1.41	1.95	1.69	2.43	1.52	2.25	2.07
Taking pulse rate of animals	1.65	1.41	1.83	1.63	2.12	1.63	2.23	1.99
Examining mucus membranes of animals	1.63	1.30	1.78	1.57	2.19	1.48	2.03	1.90
Conducting pregnancy test in farm animals	1.83	1.44	1.73	1.67	2.60	1.93	1.93	2.15
Determination of sexes in farm animals	2.04	2.30	2.30	2.21	2.83*	2.41	2.68	2.64
Agricultural Engineering	.	.	.	.	.	.	.	.
Practical exposure to farm machinery maintenance	1.86	2.22	1.95	2.01	2.69*	2.15	2.20	2.35
Enforcing safety behaviour in a workshop	2.23	2.52*	2.48	2.41	2.94*	2.81*	2.50	2.75
Tractor driving and operation	1.78	1.63	2.00	2.21	2.34	1.85	2.17	2.15
Operating and maintaining a tractor	1.69	1.44	2.00	2.27	2.28	1.59	2.18	2.02
Diagnosing common tractor problems	1.59	1.41	2.15	1.72	2.02	1.44	2.15	1.87
Calibrating planters and seeders for various crop seeds	1.46	1.52	1.77	1.58	1.88	1.70	1.93	1.84
Planning mechanization strategies for a farm for efficient operation	1.48	1.48	1.75	1.57	2.06	2.00	1.98	2.01
Operating and adjusting common agricultural implements	1.65	1.63	2.05	1.78	2.25	2.00	2.20	2.15
Designing and constructing animal housing facilities	1.63	1.81	1.95	1.80	2.28	2.30	2.10	2.23
Designing and constructing crop storage facilities	1.40	1.85	1.80	1.68	1.98	2.07	2.15	2.07
Soil Science:	.	.	.	.	.	.	.	.
Farm design and mapping land survey	1.61	2.15	2.17	1.98	2.18	2.15	2.28	2.20
Analysis of soil sample and classification	1.81	1.93	2.20	1.98	2.54*	2.15	2.43	2.37
Evaluating of soil profiles in farming areas	1.61	2.00	2.22	1.94	2.36	1.96	2.32	2.21
Evaluating farming land for soil and water conservation needs	1.59	2.04	1.98	1.87	2.27	1.81	2.15	2.08
Recommending suitable soil and water conservation measures for specific farm	1.63	2.00	1.93	1.85	2.36	2.26	2.20	2.27
Recommending appropriate soil	1.78	2.15	2.13	2.02	2.55*	2.07	2.50	2.37

erosion control measures								
Assess irrigation scheme performance	1.53	1.37	1.75	1.55	2.20	1.70	2.22	2.04
Forestry and Wildlife:	.	.	.	.	.	.	.	.
Identification of forest products and their uses	1.87	1.78	2.22	1.96	2.59*	1.74	2.48	2.27
Beekeeping	1.70	1.37	2.00	1.69	2.70*	1.74	2.05	2.16
Grasscutter production	1.58	1.11	1.60	1.43	2.61*	1.26	1.87	1.91
Snailery	1.75	1.85	1.80	1.80	2.72*	2.07	1.97	2.25
Honey Production	1.64	1.26	1.67	1.52	2.64*	1.56	1.88	2.03
Identification of original honey	1.73	1.48	1.88	1.70	2.81*	1.63	2.08	2.17
Fisheries:	.	.	.	.	.	.	.	.
Fish identification	1.93	2.70*	2.00	2.21	2.69*	2.96*	2.20	2.62*
Fish pond management	1.99	2.63*	1.93	2.18	2.98*	3.07*	2.05	2.70*
Fish feed formulation	1.73	2.52*	1.83	1.78	2.82*	3.04*	1.85	2.57*
Taking Secchi disc reading	1.95	2.41	1.58	1.98	2.99*	2.89*	1.60	2.49
Carrying out Spawning operations	1.60	2.59*	1.58	1.92	2.48	3.04*	1.55	2.36
Determination of stocking density	1.71	2.67*	1.80	2.06	2.67*	2.96*	1.75	2.46
Sex identification	1.67	2.78*	1.87	2.11	2.61*	3.00*	1.73	2.45
Use of fishing nets	1.76	2.63*	1.83	2.07	2.55*	2.78*	1.92	2.42
Agricultural Economics:	.	.	.	.	.	.	.	.
Farm Records/ Accounting	1.93	2.19	2.55*	2.22	2.71*	2.19	2.55*	2.48
Marketing of harvested crop	1.92	1.93	2.73*	2.19	2.47	1.81	2.68*	2.32
Valuation of farm asset	1.81	1.56	2.37	1.91	2.51*	1.89	2.43	2.28
Determination of farm asset depreciation	1.83	1.56	2.15	1.85	2.46	1.74	2.20	2.13
Agric Extension:	.	.	.	.	.	.	.	.
Production of visual aids e.g. posters and flipcharts	1.87	1.52	1.67	1.69	2.87*	1.67	1.80	2.11
Production of audio aids e.g. CDs	1.64	1.33	1.75	1.57	2.36	1.41	2.00	1.92
Participatory Rural Appraisal and community outreach	1.59	1.52	1.92	1.68	2.36	1.63	1.95	1.98
Role playing	1.71	1.59	2.05	1.78	2.40	1.67	2.05	2.04
Radio presentation	1.61	1.74	2.00	1.78	2.23	1.89	2.12	2.08
T.V. presentation	1.64	1.63	2.07	1.78	2.22	1.70	2.18	2.03

Farm and home visits	1.87	1.81	2.03	1.90	2.40	2.15	2.25	2.27
Source: Field Survey, 2013.	*Competent (mean \geq 2.50)							

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