SUPERVISORS' AND SUBORDINATES' PERCEPTION OF THE IMPACT OF BOTSWANA COLLEGE OF AGRICULTURE TRAINING PROGRAMME ON GRADUATES' JOB BEHAVIOUR

Oladele O.I and M. Baiphethi

Department of Agricultural Economics Education and Extension, Botswana College of Agriculture, University of Botswana Gaborone. *oladele20002001@yahoo.com*

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Summary

This study was a descriptive survey, which ascertained supervisors and subordinates perception of the impact of Botswana College of Agriculture training programme on graduates' job behaviour. The study was carried out in the Ministry of Agriculture, Gaborone, Botswana, which is composed of six departments. All BCA graduates employed in each department, their supervisors and subordinates were the population of the study. A simple random sampling technique was used to select 34 graduates and the corresponding supervisors (27) and subordinates (19) were selected in order to reduce response errors due to bias and to triangulate the responses. A structured questionnaire was used for data collection and were analyzed with the Statistical Package for Social Sciences (SPSS) version 16 using frequencies counts, percentages and one-way analysis of variance. The results show that there is male dominance among graduates, supervisors and subordinates. Majority of graduates (53%) are between 26-35 years while for the supervisors the range is 36-45 years however, subordinates are in the same range as graduates. At least 50 percent graduates indicated moderate competence in 27 out of 30 work based competencies. Supervisors indicated that at least 50 percent of the graduates have moderate competence in 21 out of the 30 listed activities while subordinates indicated that at least 50 percent of the graduates were rated to have moderate competence in 19 out of the 30 activities. In terms of meeting the expectations of supervisors and subordinates at least 70 percent of the graduates indicated that they meet expectations of their supervisors and subordinates in 12 out of the listed activities. Supervisors indicated that at least 70 percent of the graduates meet their expectations only in 8 out of the listed activities while subordinates rated that at least 70 percent of the graduates meet their expectations in 5 out of the 30 listed activities. One-way analysis of variance shows that a significance difference exists (F = 3.81, p < 0.05) in perception of the impact of Botswana College of Agriculture training programme on graduates' job behaviour among graduates, supervisors and subordinates. The mean scores show that graduates have the highest mean 98.29 while subordinates have the lowest mean of 86.94. It therefore implies that the rating of graduates by their supervisors and subordinates is lower than that of the graduates and the graduate ratings can also not be considered as valid because of the shortcomings associated with self rating. There is need to improve the training programme such that graduates can be rated independently as competent individuals.

Keywords: competence, agriculture graduates, perception, supervisors, employers, agriculture training, Botswana.

Introduction

Agriculture is the mainstay of the Botswana rural community economy, accounting for about 3% of the national gross product. Despite the great importance as well as potential, agriculture remains unproductive. One of the many reasons for this is poor dissemination of information to farmers which reflect badly to the training programmes of agriculture officers in general. World-wide technological developments in agriculture, like the green revolution very rapid developments in biotechnology, further demand heavy investments in higher agricultural education (Bennet, 1990). These developments require a knowledgeable group of agricultural scientists within the country who are able to appraise these high-tech developments. Anecdotal evidences suggest that there is a positive quantitative development in agricultural education and this increase in output is timely and greatly needed. Agriculture training institutions are expected to impact the necessary knowledge and skills, both theoretical and practically so that graduates can be expected to function effectively in their respective place of work with minimal supervision (Boateng, 2002). Employers of agriculture institution graduates are many and varied, thus the need for designing appropriate curriculum or training programme for varying employers with different missions and objectives (Ashton and Lord, 1997).

It has been reported that training of agricultural professionals in Sub-Saharan Africa is predominantly based on curriculum adopted from countries that had colonies in Africa (Temu 2004). The curriculum was founded on an agricultural philosophy and policy that aimed at the production of cash crops for consumption by the colonizing countries. It is further stated that the content of materials used for teaching and learning has often been adapted from other parts of the world without adequate contextualization and adaptation to local environments (Temu, 2004). One of the main causes is the absence of practical exercises in the curriculum. Apart from this gap, much training remains academic and narrowly specialized (Maguire, (2000). Students therefore, are not sufficiently prepared to solve problems that require the integration of knowledge and experience from a number of related fields.

An attempt to increase the technical know-how of university graduates of agriculture necessitated the introduction of the Farm Practical Year (FPY) programme. According to Ogunbameru (1986), this process of gaining knowledge and practical skill through observation and by doing is called internship. Undergraduate agricultural students must determine how to solve farm practical problems, gather and organise farm data or information, develop and formulate technical reports. These practices promote ownership of knowledge and translate into critical thinking skills they need to find out for themselves (Bransford *et al*., 2000; White and Fredericksen, 1998). Students participation in farm practical can also be an effective means of experiential learning and associated skills development (Matter and Steidl, 2000; McCleery *et al.,* 2005). In India, the World Bank (1995) observed that there was little emphasis in the curricula on preparing the agricultural graduates for better career in agriculture or agribusiness outside government jobs. In Ghana, Okorley (2001) reported that only 20 per cent of final year university agricultural students surveyed indicated a definite willingness to pursue agribusiness as a self-employment venture because of the poor practical training delivered by the curriculum. Again, Okorley (2001) reported that in Ghana the present curricula for teaching agriculture in the universities were not adequate to address the training needs for self-employment in agribusiness.

Problem

There is a danger that students complete their training programme with a high developed knowledge of agriculture, but with very little of practical value to communicate Bennet, 1990). Curriculum delivery has been based on rote learning, memorisation of facts and reproduction of the same at examinations. The method use has largely been over 70% class teaching with library assignments and laboratory work making the other 10-30%. Conventional assessment of rote-learned information using closed-book examinations is the norm (Adams, 1994).Very little interaction with farming communities takes place to enrich the learning programme (Adams, 1994). In most cases the farming communities is not involved in the design and delivery of agricultural curriculum. Furthermore, private sector involvement in the design and delivery of curriculum has also not taken place or even where there is some consultation, it tends to be sporadic. Therefore the current curriculum lacks practical training; there are limited opportunities for students to come into contact with the farming community, to work with farmers and their families and to better understand the dynamics of rural development (Roling, 1988).

Botswana College of Agriculture (BCA) is the only citadel of learning in agriculture in the country, with mandate to prepare graduates to fill high-level scientific, technical, professional and managerial jobs. They are charged also with the task of generating the knowledge and innovation needed for development, through scientific research and as agents for the acquisition, adaptation and dissemination of scientific and technical knowledge developed elsewhere. The training programme consist of taught courses for the award of Higher National Diploma in Agriculture , Bachelor and Masters Degree. Another important component is the farm practical training where students are attached to farms to gain practical experiences in farming and farm management. The Government of Botswana through the Ministry of Agriculture for a very long time has the objective of being self-sufficient in food; therefore it needs competent extension staff to carry out this mandate. Government have sponsored training and established BCA to meet this major objective. With BCA as the major institution for manpower development for service delivery in Botswana, it is important to determine the impact of BCA training on the job behavior of their graduate. The objective of the study is to determine Supervisors' and subordinates' perception of the Impact of Botswana College of Agriculture training programme on graduates' Job behaviour

Methodology

The study was carried out in the Ministry of Agriculture, Gaborone, Botswana. It is composed of six departments, department of Animal production and Health, Crop production and Protection, and Agricultural information. All BCA graduates employed in each department, their supervisors and subordinates were the population of the study. A simple random sampling technique was used to select 34 graduates and the corresponding supervisors (27) and subordinates (19) were selected in order to reduce response errors due to bias and to triangulate the responses. A structured questionnaire which was subjected to face validity among lecturers in the Department of Agricultural Economics Education and Extension and having reliability coefficient of 0.85 was used for collection of data on personal characteristics of respondents, the extent to which the graduates performed different duties (measured on a 3-point Likert type scale of high (3), moderate (2), and low(1) and determining if the graduates meets the expectations of employers

(based on a 2-point scale of meet expectation (2) and not meet expectation (1). Data collected were analyzed with the Statistical Package for Social Sciences (SPSS) version 16 using frequencies counts, percentages, and multiple regression analysis.

Results and Discussion

Table1 discuss the demographic characteristics of graduates, supervisors and subordinates. Majority of graduates(53%) are between 26-35 years while for the supervisors the range 36-45 years which is due to long service in the job; however, subordinates are in the same range as graduates, they could have worked for 2 to 3 years after completing their diploma as the results indicate that they are diploma holders (89.5%). The results show again that graduates monthly income is between P5001-10000 (76.5%). When graduates are employed by the government, the entry point is a scale of C3 which is within that range and the subordinates with a diploma are slightly below the graduates at C4 scale (P2000-P5000). About 65% employed from BCA are degree holder and are employed as Assistant Agricultural Scientific Officers by the Ministry of Agriculture. The subordinates are diploma holders and most the supervisors have the same qualifications as graduates the only difference is the years in the service as they have a lot of years in the job. The findings also indicate that graduates are less than 10 years in the service, holding the position of Assistant Agricultural Scientific Officers and they do have few years in the service when compared to their supervisors, which most of them are more than 10 years in the service.

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Table 1: Demographic characteristics of graduates, supervisors and surbodinates

	BCA graduates (n =34)	Supervisors (n =27)	Subordinates (n =19)
Gender			
Male	22 (64.71)	16(59.25)	13(68.42)
Female	12 (35.29)	11(40.74)	6(31.58)
Age (years)			
<25	2(5.9)		4(21.1)
26-35	18(52.9)	5(18.5)	10(52.6)
36-45	14(41.2)	19(70.4)	5(26.3)
46-60		3(11.1)	
Qualification			
Certificate			2(10.5)
Diploma	12(35.3)	12(44.4)	17(89.5)
Degree	22(64.7)	15(55.6)	
Years in service			
<2	6(17.6)	1(3.7)	2(10.5)

3-5	8(23.5)	5(18.5)	6(31.6)
6-10	16(47.1)	7(25.9)	3(15.8)
11-15	4(11.8)	9(33.3)	5(26.3)
21-30		5(18.5)	3(15.8)
Salary (BWP)			
2000-5000	6(17.6)	2(7.4)	10(52.6)
5001-10000	26(76.5)	14(51.9)	7(36.8)
10001-20000	2(5.9)	11(40.7)	2(10.5)

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Table 2 shows the competencies of the graduates as rated by the 3 categories of respondents for this study. Graduates indicated that they have high competence in are highly competent in carrying out simple farm soil sampling to determine fertility needs for crops (36%) and preparation of extension reports (35%). However at least 50 percent graduates indicated moderate competence in 27 out of 30 work based competencies. Supervisors indicated that 44 percent of graduates have high competence in 2 out of 30 activities listed. These are conducting method demonstrations and preparation of extension reports. Also indicated was that at least 50 percent of the graduates have moderate competence in 21 out of the 30 listed activities. The subordinates rated graduates as having high competence in assistance in postmortem (53%) and evaluating training (58%) while at least 50 percent of the graduates were rated to have moderate competence in 19 out of the 30 activities. The trend of the results shows that graduates did not rate themselves as having high competence in these activities. It is also noteworthy that the highest proportions of graduates were in the moderate competence category. The consistence in the number of activities rated as moderate competence shows similarity in the ratings of graduates, supervisors and subordinates. This agrees with Adams, (1995), that graduates have low competence in activities due to little interaction between students and the farming communities.

Table 2: Graduates' competencies on task

Tasks	Graduates			Supervisors			Subordinates		
	high	moderate	low	high	moderate	low	high	moderate	low
Soil sampling and to determine fertility	12(35.5)	20(58.8)	2(5.9)	6(22.2)	16(59.3)	5(18.5)	5(26.3)	11(57.9)	3(15.8)
Determine structure and texture of soil	8(23.5)	22(64.7)	4(11.8)	7(25.9)	14(51.9)	6(25.2)	3(15.8)	13(68.4)	3(15.8)
Soil and water conservation									
Calibrate equipment to apply the right amount	6(17.6)	18(52.9)	10(29.4)	4(14.8)	18(66.7)	5(18.5)	5(26.3)	12(63.2)	2(10.5)
Benefits of organic matter	10(29.4)	22(64.7)	2(5.9)	5(18.5)	15(55.6)	7(25.9)	3(15.8)	12(63.2)	4(21)
Plant nutrition problems and recommend corrections	8(23.5)	18(52.9)	8(23.5)	6(22.2)	13(48.1)	8(29.6)	2(10.5)	13(68.4)	4(21)
Methods of establishment for various crops	8(23.5)	20(58.8)	6(17.6)	8(29.6)	15(55.6)	4(14.8)	2(10.5)	13(68.4)	4(21.1)
Carry out proper planting of various crops	10(29.4)	18(52.9)	6(17.6)	10(37.0)	13(48.1)	4(14.8)	5(26.3)	11(57.9)	3(15.8)
Carry out harvesting and postharvest activities	4(11.8)	24(70.6)	6(17.6)	8(29.6)	15(55.6)	4(14.8)	4(21.1)	11(57.9)	4(21.1)
Operate and maintain a tractor	12(35.3)	18(52.9)	4(11.8)	5(18.5)	13(48.1)	9(33.3)	5(26.3)	8(42.1)	6(31.6)
Adjust common agricultural implements	2(5.9)	26(76.5)	6(17.6)	4(14.8)	15(55.6)	8(29.6)	4(21.1)	10(52.6)	5(26.3)
Irrigation schemes performance	4(11.8)	24(70.6)	6(17.6)	3(11.1)	17(63.0)	7(25.9)	2(10.5)	11(57.9)	6(31.6)

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Task									
Minimize environment impact of irrigation schemes	10(29.4)	18(52.9)	6(17.6)	5(18.5)	16(59.3)	6(22.2)	6(31.6)	7(36.8)	6(31.6)
Control measures for wind and water erosion	6(17.6)	20(58.8)	8(23.5)	6(22.2)	16(59.3)	5(18.5)	6(31.6)	8(42.1)	6(26.3)
Assess physical roperties of farm products	6(17.6)	20(58.8)	8(23.5)	7(25.9)	12(44.4)	8(29.6)	6(31.6)	9(47.4)	4(21.1)
Assess hydration status of animal	10(29.4)	14(41.2)	10(29.4)	5(18.5)	15(55.6)	7(25.9)	4(21.1)	11(59.1)	4(21.1)
Mouthing animals for FMD	4(11.8)	18(52.9)	12(35.3)	6(22.2)	15(55.6)	6(22.2)	8(42.1)	9(47.4)	2(10.6)
Pregnancy diagnosis and dystopia	4(11.8)	18(52.9)	5(35.3)	7(25.9)	13(48.1)	7(25.9)	8(42.1)	11(57.9)	0(0)
Assist in postmortem	4(11.8)	18(52.9)	12(35.3)	6(22.2)	15(55.6)	6(22.2)	10(52.6)	9(57.4)	(00)
Calculate dosage and constitute dip mixes	4(11.8)	22(64.7)	8(23.5)	10(37.0)	13(48.1)	4(14.8)	8(42.1)	10(52.6)	1(5.3)
Evaluate the efficacy of dip chemicals	6(17.6)	20(58.8)	8(23.5)	7(25.9)	15(55.6)	5(18.5)	9(47.4)	9(47.4)	1(5.3)
Assessment condition of pastures	8(23.5)	20(58.8)	6(17.6)	10(37.0)	14(51.9)	3(11.3)	9(47.4)	9(47.4)	1(5.3)
Visual appraisal of condition of rangelands	10(29.4)	16(47.1)	8(23.5)	7(25.9)	16(59.3)	4(14.8)	8(42.1)	9(47.4)	2(10.5)
Method demonstration	8(23.5)	22(64.7)	4(11.8)	12(44.4)	14(51.9)	1(3.7)	5(26.3)	11(57.9)	3(15.8)
Preparation of extension reports	12(35.3)	20(58.8)	2(5.7)	12(44.4)	13(48.1)	2(7.4)	4(21.1)	13(68.4)	2(10.5)
Preparation of speech for radio broadcasting	6(17.6)	22(64.7)	6(17.6)	8(29.6)	16(59.3)	3(11.1)	5(26.3)	12(63.2)	2(10.5)

Task									
Identification of training needs	8(23.5)	22(64.7)	4(1.8)	8(29.6)	17(63.0)	2(7.4)	8(42.1)	9(47.4)	2(10.5)
Planning for training	4(11.8)	26(76.5)	4(11.8)	9(33.3)	15(55.6)	3(11.1)	6(31.6)	11(57.9)	2(10.5)
Conducting training	6(17.6)	24(70.6)	4(11.8)	10(35.0)	15(55.6)	2(7.4)	7(36.8)	11(57.9)	1(5.3)
Evaluating training	8(23.5)	22(64.7)	4(11.8)	11(40.7)	13(48.1)	3(11.1)	11(57.9)	6(31.6)	2(10.5)

Table 3 discusses the expectations of supervisors and subordinates from the graduates on the listed 30 tasks. At least 70 percent of the graduates indicated that they meet expectations of their supervisors and subordinates in 12 out of the listed activities. Supervisors indicated that at least 70 percent of the graduates meet their expectations only in 8 out of the listed activities while subordinates rated that at least 70 percent of the graduates meet their expectations in 5 out of the 30 listed activities. The results imply that on many of the tasks graduates were not able to meet the expectations of their supervisors and subordinates. It is therefore important that training programme should address skill acquisition and high competence imparting practices.

Table 3: Table 3: Graduates' levels of performance

Tasks	Graduates		Supervisors		Subordinates	
	Meet expectation	Not meet expectation	Meet expectation	Not meet expectation	Meet expectation	Not meet expectation
Soil sampling and to determine fertility	30(88.2)	4(11.8)	20(74.1)	7(25.9)	12(63.2)	7(36.8)
Determine structure and texture of soil	26(76.5)	8(23.5)	20(74.1)	7(25.9)	13(64.4)	6(31.6)
Soil and water conservation	28(82.4)	6(17.6)	24(88.9)	3(11.1)	13(68.4)	6(31.6)
Calibrate equipment to apply the right amount	24(70.6)	10(29.4)	17(63)	10(37)	14(73.7)	5(26.3)
Benefits of organic matter	28(82.4)	6(17.6)	23(85.2)	4(14.8)	12(63.2)	7(36.8)
Plant nutrition problems and recommend corrections	22(64.7)	12(35.3)	19(70.4)	8(29.6)	14(73.7)	5(26.3)

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Methods of establishment for various crops	5(26.3)	14(73.7)	6(22.2)	21(77.8)	6(17.6)	28(82.4)
Carry out proper planting of various crops	3(15.8)	16(84.2)	2(7.4)	25(92.6)	0(0)	0(0)
Carry out harvesting and postharvest activities	4(21.0)	15(78.9)	3(11.1)	23(85.2)	8(23.5)	26(76.5)
Operate and maintain a tractor	7(36.8)	12(63.2)	9(33.3)	18(66.7)	8(23.5)	26(76.5)
Adjust common agricultural implements	6(31.6)	13(68.4)	10(37)	17(63)	10(29.4)	24(70.6)
Irrigation schemes performance	8(42.1)	11(57.9)	12(44.4)	15(55.6)	10(29.4)	24(70.6)
Minimize environment impact of irrigation schemes	6(31.6)	13(68.4)	12(44.4)	15(55.6)	10(29.4)	24(70.6)
Control measures for wind and water erosion	7(36.7)	12(63.3)	10(37)	17(63)	20(58.8)	14(41.2)
Agricultural products on the basis of physical properties	10(52.6)	9(47.4)	15(55.6)	12(44.4)	10(29.4)	24(70.6)
Assess hydration status of animal	10(52.6)	9(47.4)	17(63)	10(37)	14(41.2)	20(58.8)
Mouthing animals for FMD	7(86.8)	12(63.2)	17(63)	10(37)	12(35.3)	22(64.7)
Pregnancy diagnosis and dystocia	9(47.4)	10(52.6)	17(63)	10(37)	14(41.2)	20(58.8)
Assist in postmortem	10(52.6)	8(42.1)	19(70.4)	8(29.6)	16(47.1)	18(52.9)
Calculate dosage and constitute dip mixes	11(57.9)	8(42.1)	17(63)	10(37)	18(52.9)	16(47.1)
evaluate the efficacy of dip chemicals	8(42.1)	11(55.9)	20(74.1)	7(25.9)	20(58.8)	14(41.2)
Assessment condition of pastures	9(47.4)	10(52.6)	15(55.6)	12(44.4)	16(47.1)	18(52.9)
Visual appraisal of condition of rangelands	8(42.1)	11(57.9)	12(44.4)	15(55.6)	12(35.3)	22(64.7)
Do method demonstration	8(42.1)	11(57.9)	14(51.9)	13(48.1)	14(41.2)	20(58.8)
Preparation of extension reports	8(42.1)	11(57.9)	11(40.7)	16(59.3)	16(47.1)	18(52.9)
Preparation of speech for radio broadcasting	9(47.4)	10(52.6)	18(66.7)	9(33.3)	14(41.2)	20(58.8)
Identification of training needs	14(73.7)	5(26.3)	17(63.0)	10(37.0)	14(41.2)	20(58.8)

Planning for training	14(41.2)	20(58.8)	10(37.0)	17(63.0)	8(42.1)	11(57.9)
Conducting training	16(47.1)	18(52.9)	12(44.4)	15(55.6)	12(63.2)	7(36.8)
evaluating training	18(52.9)	16(47.1)	13(48.1)	14(51.9)	11(57.9)	8(42.1)

To determine differences in perception of the Impact of Botswana College of Agriculture training programme on graduates' job behaviour, one-way analysis of variance was used. The results show that a significance difference exists (F = 3.81, p < 0.05). The mean scores show that graduates have the highest mean 98.29 while subordinates have the lowest mean of 86.94. It therefore implies that the rating of graduates by their supervisors and subordinates is lower than that of the graduates. The ratings by graduate can also not be considered as valid because of the shortcomings associated with self rating. If the ratings by the supervisors or subordinates were to have a higher mean score, the reflection of the training programme on graduates' competencies would have been positive but as it is there is need to improve the training programme such that graduates can be rated independently as competent individuals.

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Job behaviour	Sum of Squares	df	Mean Square	F	p	Groups Means	N
Between Groups	1667.01	2	833.50	3.81	0.026	Subordinates 86.94 a	19
Within Groups	16842.67	77	218.73			Supervisors 91.88 ab	27
Total	18509.68	79				Graduates 98.29b	34

Conclusion

The findings of the study showed that the there is male dominance among graduates, supervisors and subordinates as employees in the Ministry of agriculture and they are between 26 and 45 years of age. Also BCA graduates performance is low and they do not meet expectations of their supervisors and subordinates in a number of competencies. The graduates do not meet expectations mostly in areas which a lot of practice or hands-on and experiences. The experiences need one to have worked for a very long time. Others need a lot of interaction with the farming communities. Lots of courses in the college are rated useful. The study therefore recommends that the degree programme of BCA is reviewed to reflect more competence and skill acquisition and that graduates need a lot of interaction with the farming community and more exposure in practical. There is need to improve the training programme such that graduates can be rated independently as competent individuals.

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