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Evaluation of the training programmes of the Ghanaian Farm Institutes

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Abstract

To evaluate the adequacy of the Ghanaian Farm institutes in producing proficient agriculturists, 192 students and 160 graduates were studied in 1978. Course work and practical experience were reported as adequate for respondents' job performance. Most training facilities were adequate, except water and electricity. No significant relationship was found between farm background, age of students and attitude towards agriculture as a profession. Years of formal education of students' parents was significantly related to the occupational aspirations of students. These findings are important in establishing candidate selection, training and government financing policies for the institutes.

Introduction

Like many other African countries, Ghana is a predominantly agricultural country, with over 70% of the working population engaged in this occupation (Boateng, 1970). Introduction of free and compulsory primary education after independence in 1957, led to production of many primary school leavers, a considerable number of whom could not be provided facilities for further education and opportunities to secure gainful employments. For instance, between 1957 and 1965, just over 100,000 extra employment vacancies were available, whereas 160,000 students left the elementary school (Hodge, 1964). To create more employment opportunities for the elementary school leavers and boast agricultural production, farm institutes were established to provide training in modern systems of farming.

The institutes were also to train other individuals who were interested in learning modern farming as well as those sponsored by agricultural institutions such as the State Farm Corporation, farmers' cooperatives and other government agencies and parastatal organisations.

There were six farm institutes in Ghana. Four of these were located at Asuansi in the Central Region, Wenchi in the Brong Ahafo Region, Ejura in the Ashanti Region, and Navrongo in the Upper Volta Region, These are established as a result of the technical aid agreement between Ghana and the United States of America. In 1963, another technical aid agreement between Ghana and the Union of Soviet Socialist Republic led to the establishment of the Adidome Farm Institute in the Volta Region. In 1964, the Damongo Agricultural Institute was opened by the Roman Catholic Church at Tamale in the Northern Region with financial assistance by Canada.

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The above farm institutes graduated a total of 4,396 students between 1960 and 1978. This consisted of 1,471 who graduated from Asuansi Farm Institute, 1,108 from Wenchi between 1965 and 1978; 862 from Adidome and 577 from Ejura during the same period. Two hundred graduated from Navrongo between 1971 and 1975, 178 from Damango between 1966 and 1978. In spite of the above efforts, to the best of the authors' knowledge, no systematic evaluation of the one-year training programmes had been carried out.

The purpose of this study, therefore, was to assess the adequacy of the Ghanaian farm institutes' training programmes for producing proficient agriculturists and on the basis of this, make recommendations to the policy-makers for improvement. Specifically, the study determined (i) personal and socio-economic characteristics of students; (ii) their evaluations of selected aspects of the training programmes such as practical training, training facilities, and usefulness of subject matter to future jobs; (iii) problems encountered during training, and (iv) subjects to be dropped from the syllabus. Similarly, the study determined the graduates' (i) personal social, economic and psychological characteristics; (ii) adequacy of academic preparation for job performance; (iii) most useful courses to their jobs; (iv) suggested additional courses for future training of students; (v) rating of training facilities; (vi) satisfactiion with, and suggestions to improve, the examination system. Findings from the above serve as feedback to the various farm institutes on the performance of their graduates.

To determine the relationships between some students personal characteristics, and attitude toward farming, the following hypotheses were tested: (i) there was no significant difference between attitudes of students with farm background and those with non-farm background towards farming; (ii) the older the students the less favourable their attitudes towards farming as a career. Also to determine the relationship between level of agricultural occupational aspiration of students and some parents characteristics, it was hypothesized that there was no significant relationship between agricultural occupational aspirations of students and (a) the occupation of parents or guardians and (b) the education of parents or guardians. Results of testing the above hypotheses should furnish a deeper understanding of the relationships, if any, of the students' characteristics to some parents.' These should provide useful information which could be applied in recruiting prospective trainees.

Evaluation of agricultural training programmes

Training is essentially a process of changing people — their knowledge, skills, attitudes or behaviour through instruction, demonstration, practice, planned experience or other techniques (Frank, 1964). According to Collins (1966), Williams ($967), Byrnes (1974), an agricultural graduate should possess a wide range of knowledge and characteristics such as (a) knowledge of agricultural subject-matter including farming techniques; (b) knowledge of economic and farm management techniques; (c) dedication to the spirit of scientific enquiry); (d) communication techniques and methods; (e) a keen sene of mission, and (f) faith in one's fellow man which forbids manipulating him but instead train him to learn to help himself. An effective agricultural training

programme should therefore include these areas in its curriculum and course content.

However, many agriculture training programmes in developing countries have not been effective because.

> "The training programmes have not been geared to actual needs. Agricultural agents and specialists have been prepared for jobs which do not exist. The curricula and course content in some cases are unrelated to the future employment of trainees. Often they are mere copies of course to which instructors have themselves been exposed in institutions where conditions, social and national are quite different" (National Academy of Sciences, 1974).

Continuous evaluation of the training programmes becomes indispensable if some of the above weaknesses are to be identified and measures embarked upon to correct the anomalies in the design and implementation of the programmes. Specifically, such evaluation would uncover, among other areas, (a) the adequacy, relevance and viability of the course contents (b) the effectiveness of the subject - matter and skill delivery methods; (c) impact of the training programme on the learners' knowledge, skill and attitude changes; (c) areas of the training programme which should be continued, expanded or dropped, and the relative importance of each area, on the basis of which budget decision could be made.

Evaluation of the training programme's content, process and product would not lead to very useful suggestions unless the trainees, through whom change is observed, are themselves understood. This is because the characteristics of trainees such as age, sex, formal education and socio-economic background could influence how they respond to training programmes. For instance, Patil and Kale (1972) found that educated farmers in India preferred vocational type of training to peripatetic type. No relationship was found between both the content and type of trainig, and age, size of holding and family size. The characteristics of the trainees could influence their attitude towards agriculture, which in turn could affect their performance during and after training. For instance, Jibowo (1978) found that secondary school students in Oyo State of Nigeria who had predominantly rural background, had more favourable attitudes towards agriculture as a profession than those with predominantly urban background. He also found that the more favourable the attitudes of secondary school students in Ondo State of Nigeria toward agriculture as a profession, the greater their participation in agricultural education activities (Jibowo, 1979).

Apart from evaluating the training programme curriculum content, student characteristics, process and methods, a holistic framework should also include evaluation of the teacher characteristics such as age, sex, qualification and the relationships of these to learner performance, if the best suggestions for improvement are to result. This is not to suggest that all the above areas should be embraced in one study; several studies could be involved.

Methodology

Two pretested questionnaires were the instruments for data collection. One was completed by the trainees, and the other by the graduates. Data were collected from 73 out of a total student population of 96 at Wenchi Farm Institute, which represented 76 percent; 74 out of 90 at Asuansi Farm Institute, which represented 82 percent, and 54 out of 60 at Adidome, which represented 75 percent.

No data were collected from Ejura Farm Institute because it had been elevated to the status of an agricultural college during the study. Similarly, Navrongo Farm Institute was excluded from the data collection exercise because it was no more under the Training and Manpower Division, Ministry of Agriculture in Accra, unlike the other institutes from where data were collected. Damongo agricultural project trained and settled the graduates in actual farming situation, unlike those from which data were collected which trained sponsored and private students who were expected to return to their sponsoring institutions or settle down as private farmers, respectively.

Data were also collected from a total of 160 farmer students who graduated from the three schools between 1970 and 1977. Systematic sampling technique was used to select these respondents from the lists of their names and addressed obtained at Asunasi and Wenchi Farm Institutes, because the postal addresses of the graduates were available. At Adidome Farm Institute, the simple random sampling technique was employed because four of the postal addresses were missing, hence graduates chosen who had no postal addresses were not included in the study. Systematic sampling was employed to select all the trainees studied who were still in the various institutes. Data collection took place between August and October, 1978.

The questionnaire completed by the trainees consisted of direct questions to give data on their personal and social characteristics, attitude towards farming as a career, opinion about selected aspects of the training programmes, evaluation of practical training, training facilities, relevance of subject-matter content to training objectives, problems encountered during training and their occupational aspirations.

Agricultural occupational aspiration score was computed for each student by assigning a score of 1 for non-agricultural job he intended to do after graduation and 2 for an agricultural job. Occupations of parents were similarly scored, that is, 1 for non-agricltural, 2 for agricultural.

The questionnaire for the graduates solicited data on personal chatacteristics, job satisfaction, adequacy of academic preparation in the farm institutes for their jobs and evaluation of the facilities in the institute during their training. The variables were measured with direct questions which had face validity.

Attitude towards farming as a career was measured with sixteen statements judged by three "experts" as valid. The experts included a teacher of agriculture in a Ghanaian agricultural college and two agricultural extension researchers and teachers in a Nigerian University. The attitude statements consisted of seven positive and nine negative statements, to which students were asked to agree, disagree or be neutral. Total score for each respondent was

computed by assigning a score of 1, 2 and 3 respectively for agree, neutral and disagree to a negative statement and "vice-versa" for each positive statement, and then adding the scores for all the statements. Respondents who scored 16—24 were classified as having unfavourable attitude, 25—40 as neutral and 41—48 as positive.

When respondents' reactions were obtained to all statements, 16 was the least score on unfavourable attitude; 48 was the highest score on favourable attitude; 32 was the mid-point of neutral attitude; neutral attitude score range of 25—40 were mid-point of 16 to 32 and 32 to 48, respectively.

Chi-square analysis was employed to test the relationship of categorized variables including farm and non-farm background, and age with attitude, while correlation analysis was employed to test the relationship between agricultural occupation aspirations of students and their parents' occupation and education.

Results and Discussions

Personal, social and economic characteristics of students and graduates

Most of the trainees were males. Training of female students was terminated at Wenchi in 1967. Only seven out of the total sample of 192, studied, representing 7.3% were females. Majority (58&) were privately sponsored by non-governmental agencies and individuals, 42% were sponsored by the Ministry of Agriculture. Twenty-three percent were less than 20 years old; 29% were 26 years and older. The mean age was 24.4 years, 24.5 years and 22.7 years respectively at Adidome, Asuansi and Wenchi. Nine-three percent had middle school certificates, 3.1% had no certificate; the others who did not respond could be assumed to have no certificate. As possession of the middle from IV was an admission requirement, those who did not have this must have been in a disadvantaged position to respond favourably to training.

Majority (63%) of the students grew up in both towns and cities, 30% grew up in villages, while 7% grew up in cities.

Most (88% of them had previous farming experience, while 12% had none before coming to the farm institutes. A mean of 4 years of farming experience was indicated. Farming was the major occupation of majority 76% of the respondents' fathers, white-collar jobs, such as teaching, were mentioned by 22 percent. The others did not respond. Similarly, 62% indicated that farming was their mothers' jobs such as seamstresses. Fifty-percent and 68% indicated that their fathers and mothers respectively, had no formal education. 45% and 27% had middle four certificate; 5% of the fathers and mothers had the General Certificate of Education at the ordinary level.

The graduates were older than the students. The mean age of the former was 30. Fifty-one percent of the graduates were 21-32 years old, 38% were 33 years and over, 11% were below 21. Like the students, most (90&) of the graduates were male. 10% were female. Fifty-nine percent were married, 38%, single and 3% were either divorced, separated or widowed. Most respondents (93%) indicated that they had the farm institute certificate while the others (7%) indicated having the teacher training or secondary school leaving certificates in

addition to the farm institute certificates. Sixty-nine percent engaged in farming and related occupations, 19% went to agricultural college, 8% were engaged in jobs which were unrelated to agriculture, 4% were unemployed. Most of the graduates who engaged in agriculture should be able to utilize part of their training in the farm institutes on their jobs. Forty-three earned incomes of 3,000 cedis and above. This was almost equivalent to senior civil service earning (salary range 50, 55, 1977/78 in Ghana). It was therefore encouraging. Twenty-one percent earned 2,001-3,000 cedis; 8% earned less than 1,500 cedis. The other graduates did not respond to this item.

Majority (53.1%) of the graduate did not wish to change their jobs, while 33.8% preferred schooling, 11.3% preferred farming while only 0.6% preferred a job which was not related to agriculture. In agreement with the above, many graduates (74.4%) were well satisfied with their existing jobs, 18.8% had little satisfaction, while only 3.3% and 3.1% were not at all satisfied and undecided, respectively. Most graduates therefore had high degrees of job satisfaction.

Rating of training facilities by students and graduates

Data in Table 1 summarize the rating of the training facilities in the Farm Institutes by the students and graduates.

TABLE 1: PERCENTAGE DISTRIBUTION OF STUDENTS AND GRADUATES BY RATING OF TRAINING FACILITIES IN THE YEAR INSTITUTES

Facility	Rating by Students			Rating by Graduates		
	Good	Poor N = 192	Undecided	Good	Poor	Undecided N = 160
Crop farm	95.4	3.6	1.0	95	3.7	1.3
Classroom	92.7	6.3	1.0	89.4	8.7	1.9
Piggery unit	92.7	6.8	0.5	85.0	5.0	10.0
Library	90.6	8.9	0.5	81.9	15.0	3.1
Poultry unit	82.3	17.2	0.5	88.8	6.9	4.3
Dormitory	78.2	21.9	0.0	88.7	9.4	1.9
Cattle unit	78.1	8.9	13.0	78.7	12.5	8.8
Vegetable garden	70.4	28.6	1.0			
Dining Hall	69.3	29.2	1.5			
Water Supply	44.8	54.7	0.5			
Workshop	45.7	55.1	3.1			
Sports & games	41.2	56.8	2.0	66.8	28.8	4.4
Rabbitry	35.9	26.6	37.5	-	-	-
Transportation	29.7	68.2	2.1	43.2	53.7	3.1
Orchard	25.1	40.6	34.4	-	-	-
Laboratory	7.3	8.9	83.8	19.3	25.6	55.0

Majority of both the students and graduates rated the crop farm, classroom, piggery unit, library, poultry unit, dormitory and cattle unit facilities as good. Majority of the students rated the vegetable garden and dining hall facilities as good, while no graduate rated them as well as workshop, rabbitry and orchard facilities, because they were not required to rate them. Majority of the students graduates rated water supply, sports and games as good, while majority of the students rated them as poor. These facilities must have deteriorated since the graduates left the institutes. The facilities which were not rated by the graduates in addition to transportation and laboratory, were not rated as good by most students.

Evaluation of the practical training by students

Many of the training facilities such as crop farm, piggery, poultry, cattle and rabbitry units and the orchard, previously rated were to provide field practical experience to the trainees. They were asked to indicate how valuable the practical training had been based on five response categories. Most (81.8%) of the trainees considered it as very valuable; 15.1% considered it as somewhat helpful; only a few (1.6%), (1%), and (0.5%), indicated that it wasted students' time, they were undecided, and that it did not add much to students' total competence, respectively.

Usefulness of courses to job performance

Trainees were asked to indicate the most useful courses to the jobs they planned to do after graduation. Animal production was most frequently (52.2%) identified; this was followed by crop production (34.4%), and then farm management (13.4%).

Crop production was most frequently (36.4%) identified by the graduates as the most useful course studied; this was followed by farm management (23.8%); then poultry and livestock production (19.6%), while the other courses were not frequently mentioned (20.1%). It could be observed that crop production, animal production and farm management were the popularly identified courses taken during training which were expected to be most useful by students, or have been noticed to be most useful by graduates, to their job performance (See Table 2). The students and graduates desired to have deeper courses in the useful areas to broaden their capabilities.

TABLE 2: DISTRIBUTION OF RESPONDENTS BY COURSES IDENTIFIED AS MOSE USEFUL TO THEIR JOB PERFORMANCE

Courses	Students		Graduates	
	N (N = 192)	%	N (N = 160)	%
Animal production	174	52.2	42	19.6
Crop production	115	34.4	78	36.5
Farm Management	45	13.4	51	23.8
Others			43	20.1
Total	334*	100	214*	100

*Some respondents identified more than one area.

Courses to be removed from the syllabus

Majority (61.5%) of the students and graduates (53%) indicated that no subject should be removed. Few students (12.6%) and 20.3% of graduates indicated that farmshop should be removed, because of the observation that there were no facilities and tutors to teach it. Nine percent of students and 10.6% of graduates mentioned soil science, because of the common reason of inadequate teaching facilities and difficulty in understanding it; horticulture was mentioned by 6% of students and 16.1% of graduates, because of inadequate facilities and number of tutors.

Problems encountered during training

Data in Table 3 show the distribution of students by pressing problems encountered during training.

TABLE 3: DISTRIBUTION OF STUDENTS BY PRESSING PROBLEMS ENCOUNTERED DURING TRAINING

Problem	Farm Institutes						Total	
	Adidome		Asuansi		Wenchi			
	(N = 45)		(N = 74)		(N = 73)		(N = 192)	
	N	%	N	%	N	%	N	%
Water shortage	34	37.8	3	3.6	39	24.2	76	22.8
Inadequate farm supplies	18	20.0	13	15.6	18.0	60	18.0	
Electricity failure	9	10	1	1.2	33	20.4	43	12.9
Irregular students allowances	13	14.4	6	7.2	22	13.6	41	12.2
Inadequate transportation	1	1.1	5	6.0	25	15.5	31	9.3
Others	8	8.9	5	6.2	2	1.2	15	4.4
No response	7	7.8	50	60.2	11	6.8	68	20.4
*Total	90	100	83	100	161	100	334	100

*Some students gave more than one problem.

Water shortage was the most frequently mentioned problem. However, it was not identified as a problem at Asunasi Farm Institute. Inadequate farm supplies such as machinery, implements, vehicles livestock feeds and agrochemicals were pressing problems in the three farm institutes. Electricity and students' allowance were not regularly provided in all the institutes except Asuansi where irregular supply of electricity was not mentioned. Inadequate transportation was a problem at Asuansi and Wenchi. Other problems mentioned were insufficent number of staff, forced labour of students for staff, insufficient teaching aids, toilet and recreational facilities.

Adequacy of academic preparation for job performance

Data in Table 4 show the distribution of graduate by adequancy of their academic preparation in the farm institutes for their job performance.

Adequacy of academic preparation	*N*	*%*
It prepared me very well	98	61.2%
It prepared me well	42	26.2
It prepared me very little	13	8.1
My training has nothing to do with my work	5	3.1
It did not prepare me at all	1	0.6%
Unascertained	1	0.6%
Total	160	100

It could be seen that most of the graduates felt that their trainings in the farm institutes prepared them well for their jobs taken up after graduating; some graduates (8.1%) thought it prepared them very little. The graduates who thought their training was either irrelevant to their work, or could not ascertain, were very few (4.3%).

Suggested courses to be added to existing courses in future training of students

When asked to indicate courses which they wished should be included in future training of students, 21% of the graduates indicated basic science; 11.7% suggested agricultural engineering; agricultural economics (9.9%) and farm management (5.6%). Majority (51.8%) made no suggestion. The later category must have been satisfied with the existing courses. Those who suggested existing courses such as farm management pointed out specific areas like book-keeping, to be added to the course content. The additional topics suggested in agricultural engineering were irrigation, animal traction and technical drawing.

Satisfaction with, and suggestions to improve the examination system

Many (83.1%) graduates indicate that the were satisfied with the examination system 16.9% indicated that they were not. Forty-nine percent had no suggestested that the papers should be externally assessed in tion for improving examination system; 21% addition to internal assessment; the others suggested fairness in conducting examinations, use of objective and essay tests, greater practical orientation of questions, greater number of quizzes, identification of students' papers by numbers rather than names, prompt grading and return of marked answer booklets to students. Many of the above suggestions, if implemented, should improve the conduct of examination.

Personal characteristics of students and attitude towards farming

Results of testing the hypotheses relating some personal characteristics of students, namely, farm and non-farm background and age to attitude towards farming showed no significant relationship between these characteristics and attitude towards farming as a professiion. The chi-square value of 2.99 which

was not significant at 1 degree of freedom supported the fact that the percentage of students with favourable attitude who were from farm background (87%) was similar to that of those with unfavourable attitude (93.%) who were from the same background. Similarly, the percentages of students with favourable (13%) and unfavourable (6.7%) attitudes who were from non-farm background, were not statistically different.

The chi-square value of 3.81 which ws not significant at 0.05 level with 2 degrees of freedom, justified the fact that the percentages of students who were at the various age categories and had favourable or unfavourable attitude, were not statistically different. At 19 years of age and below, those with favourable and unfavourable attitudes were 22.5% and 28.6% respectively; at 20 - 25 years, they were 49.3% and 35.7%; at 26 years and above, 28.1% and 35.7 percent. Most students (92.7%) had a favourable attitude towards agriculture; 7.3% ahad an unfavourable attitude.

Occupation, education of parents or guardians and agricultural occupational aspirations of students

Correlation analysis showed no significant relationship between occupation of parents and agricultural occupation aspirations of students ($r = 0.0014$). However, the correlation coefficient, r of 0.1287 between education of parents and agricultural occupational aspirations of students showed a significant relationship between the two variables. This means that the greater the years of formal education of parents, the greater the tendency for the students to aspire to take up agricultural occupations after graduation. The Operations Feed Yourself and similar campaigns aimed at boosting food production might have induced the desire to boost farming among the educated segment of the population, hence the gretaer aspiration of the students from their homes. Such tendency might have increased with greater exposure to the campaign which must have increased with greater education and awareness of national affairs.

Conclusions and Recommendations

1. Many training facilities such as the crop farm classroom, poultry and livestock units and the library facilities were well provided for training in the farm institutes. Some others such as workshop, sports and games, rabbitry, transportation and laboratory facilities were inadequately provided. While efforts should be made to maintain and even improve upon the standard of the facilities which were well provided, others which were not, should be well provided to contribute to the training of proficient agriculturists.

2. Crop production, animal production and farm management were the courses which were popularly identified by both students and graduates as most useful for their future and current job performances, respectively. While the popular wish of respondents that these courses should be strengthened in the institutes' curricula is upheld, other important courses such as soil science, and horticulture, which some respondents recommended to be removed from

the syllabus because of inadequate facilities and difficulty in understanding the subjects, should not be removed because these are complementary to other courses in training a knowledgeable agriculturist. Instead, facilities should be provided as earlier suggested, and course content modified to correct the anomalies.

3. The major problems encountered by the trainees at Addidome and Wenchi Farm institutes were water shortage, inadequate farm supplies and irregular payment of students allowances. Other pressing problems encountered at Wenchi were electricity failure and inadequate transport facilities. The only problem noticeably acknowledged at Asuansi was inadequate farm supplies. As the authors believe that most of the problems encountered in the other farm institutes were present at Asunasi, common policy efforts at solving these should be directed to all the institutes.

4. Most of the graduates believed that their training in the farm institutes prepared them well for their job performance. These farm institutes would then be expected to produce proficient agriculturists in future, provided their conditions at the time of this study are maintained and even improved upon.

5. Although the courses taken in the farm institutes at the time of this study were perceived as adequate by majority of the graduates, for future training of students, basic science, and agricultural engineering should be introduced where non-existing. The farm management content should be broadened. These are necessary because some graduates suggested that these areas should be included in future training of students.

6. Most students had a favourable attitude towards agriculture as a profession, regardless of their farm or non-farm background as well as their age categories. As attitude is often directly related to performance, students from farm or non-farm background as well as those within the range of acceptable age limits for admission, should be given similar opportunities in selection and training.

7. The greater the years of formal education of parents or guardians, the greater the occupational aspirations of students in taking to agriculture and related jobs. The traditional belief that students from parents with high education are not likely to take to farming on graduation has seized to exist. The above conclusion suggests the opposite trend. The category of trainees should therefore be assisted through government policies to realise their aspirations, without neglecting those from parents with less or no formal education.

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