

A FOLLOW-UP STUDY OF SELECTED GRADUATES AND  
THEIR EMPLOYERS FROM THREE SECONDARY  
AGRICULTURAL TRAINING  
CENTERS IN JAMAICA

By

DAVID JOSEPH RILEY

Bachelor of Science  
University of New Hampshire  
Durham, New Hampshire  
1976

Master of Science  
Oklahoma State University  
Stillwater, Oklahoma  
1979

Submitted to the Faculty of the Graduate College  
of the Oklahoma State University in partial  
fulfillment of the requirements  
for the Degree of  
DOCTOR OF EDUCATION  
July, 1982

Thesis  
1982 D  
R573F  
COP 2



A FOLLOW-UP STUDY OF SELECTED GRADUATES AND  
THEIR EMPLOYERS FROM THREE SECONDARY  
AGRICULTURAL TRAINING  
CENTERS IN JAMAICA

Thesis Approved:

*Robert Terry*

Thesis Adviser

*James P. Key*

*James H. White*

*Robert L. Price*

*Dean F. Schreiner*

*Norman N. Durham*

Dean of Graduate College

## ACKNOWLEDGMENTS

My greatest appreciation goes to the Office of International Programs who, not only through the professional guidance and inspiration of Mr. Hugh Rouk made considerable contributions, but through the understanding and support of Mr. William Abbott as well, sponsored this research project financially through Title XII Funding. My appreciation also goes to other staff members of the Office of International Programs who assisted in various ways with the completion of this dissertation.

I also express gratitude to Dr. Robert Terry, Dr. James Key, Dr. Robert Price, Dr. James White and Dr. Dean Schreiner. The members of my graduate committee who gave professional guidance and support in refining this research project.

Considerable appreciation goes to the people of Jamaica who allowed me to carry out this research project. Specifically, Mr. Ross Murray who allowed me to proceed with my research interest. Many thanks to Mr. James McKenzie, Rudolph Jackson and Lansville Duhaney who were all of great assistance in my being able to successfully carry out the research. Mr. Reuben Gray deserves special gratitude due to his assistance above and beyond the call of duty. Reuben assisted me with finding graduates, transportation to different institutions and rural development projects as well as sending instruments to me which had been returned after my departure from Jamaica.

The principals of the three Agricultural Training Centers were of great help in gathering names and addresses as well as providing the most hospitable accomodations while I visited their institutions. My sincere thanks to Mr. Enos Barrett, Mr. Errol Cameron and Mr. Terrance Thomas, as well as other members of their staff.

To the employers and graduates who took the time to respond to my study, I give many thanks for their time and cooperation. Many thanks go to Dr. Larry Claypool of the Statistics Department, for his time and energy in assisting with the computer programming of the data collected.

Stephanie Butler deserves a special thanks for her time and expertise on the Word Processor for putting this dissertation in its final form.

Last but not least, to my wife, Alana Riley, who contributed and supported me in a professional and personal way; for her love and patience on seeing me through this experience, I give my sincerest appreciation.

## TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION . . . . .	1
Statement of the Problem . . . . .	2
Purpose of the Study . . . . .	3
Objectives of the Study . . . . .	4
Assumptions of the Study . . . . .	4
Scope and Limitations . . . . .	4
Definition of Terms . . . . .	6
II. REVIEW OF LITERATURE . . . . .	7
Introduction . . . . .	7
Geography and Country Specifics . . . . .	7
The Need for Expanded Agricultural Education in Jamaica . . . . .	8
An Overview of the Selected Agricultural Training Centers . . . . .	9
Case Studies of Vocational Agriculture Programs in Other Countries . . . . .	16
An Analysis of Previous Evaluation Studies . . . . .	25
The Need for Educational Evaluation . . . . .	28
Summary . . . . .	30
III. METHODOLOGY . . . . .	33
Introduction . . . . .	33
Selecting the Study Population . . . . .	33
Developing and Validating the Questionnaire . . . . .	35
Administering the Questionnaire . . . . .	37
Statistical Analysis . . . . .	38
IV. ANALYSIS AND PRESENTATION OF DATA . . . . .	42
Introduction . . . . .	42
Description of Population and Returns . . . . .	42
Goal Achievement by the Selected Agricultural Training Centers . . . . .	45
Curriculum Relevancy . . . . .	51
Role of the Selected Agricultural Training Centers . . . . .	53
Needs of the Selected Agricultural Training Centers . . . . .	60
Graduates Agricultural Training Experience Rating . . . . .	65
Graduates Job Performance . . . . .	69

Chapter	Page
Graduates Future Plans . . . . .	72
Recommendations for Other Developing Countries . . . . .	74
Selected Comments . . . . .	74
V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS . . . . .	82
Introduction . . . . .	82
Summary of the Findings . . . . .	83
Conclusions . . . . .	87
Recommendations . . . . .	89
Concluding Statement . . . . .	90
BIBLIOGRAPHY . . . . .	92
APPENDIXES . . . . .	95
APPENDIX A - LETTERS OF TRANSMITTAL . . . . .	96
APPENDIX B - COVER LETTER . . . . .	100
APPENDIX C - INSTRUMENTS . . . . .	102

## LIST OF TABLES

Table	Page
I. Accidental Population . . . . .	34
II. Section One Response Table . . . . .	40
III. Remaining Sections Response Table . . . . .	40
IV. Percentage Returned by Category . . . . .	43
V. Current Status of Graduates Surveyed . . . . .	44
VI. Goal Achievement of the A.T.C.'s as Perceived by Graduates . . . . .	46
VII. Goal Achievement of the A.T.C.'s as Perceived by Employers . . . . .	49
VIII. A Paired Comparison of Graduates and Employers Perceptions of Goal Achievement by A.T.C.'s . . . . .	52
IX. Curriculum Relevancy of the A.T.C.'s as Perceived by the Graduates . . . . .	54
X. The Role of A.T.C.'s in Jamaica's Agricultural Development Process as Perceived by Graduates . . . . .	56
XI. The Role of A.T.C.'s in Jamaica's Agricultural Development Process as Perceived by Employers . . . . .	58
XII. A Paired Comparison of Graduates and Employers Perceptions of the Role of A.T.C.'s in Jamaica's Agricultural Development Process . . . . .	59
XIII. Needs of the A.T.C.'s as Perceived by Graduates . . . . .	61
XIV. Needs of the A.T.C.'s as Perceived by Employers . . . . .	63
XV. A Paired Comparison of Graduates and Employers Perceptions Concerning Needs of the A.T.C.'s . . . . .	66
XVI. Graduates Perceptions of the Benefits from Their Agricultural Training Experiences . . . . .	67
XVII. Employers Ratings of Graduates Job Performance . . . . .	70



Table	Page
XVIII. Employers' Comparison of Graduates with Employees From Other Training Programs. . . . .	71
XIX. Graduates' Rating of Statements Relating to Their Future Plans . . . . .	73
XX. Graduates' and Employers' Perceptions Concerning a Recommendation for Secondary Agricultural Education to be an Integral Part of Other Developing Countries Rural Development Process . . . . .	75

FIGURE

Figure	Page
1. Map of Jamaica . . . . .	11

## CHAPTER I

### INTRODUCTION

The building of modern nations depends upon the development of people and the organization of human activity. Capital, natural resources, foreign aid and international trade, of course, play important roles in economic growth, but none is more important than manpower (14, p. v).

Vocational Agriculture is an integral component of most communities across the United States. The significance of these institutions has been frequently highlighted from their inception in the late 1800's.

Johnson (17, p. 1) emphasizes the significance of vocational agriculture in his follow-up study by stating, "Vocational Agriculture has constantly contributed to the advancement of agriculture by providing opportunities for young people to become Leaders and solve problems." Vocational Agriculture has played a key role in mobilizing youth for the advancement of agriculture in the United States.

The Vocational Agriculture concept has been attempted with varying degrees of success in other countries around the world. In 1975, a substantial program of rural secondary education was initiated in Jamaica with agricultural education as its foundation. The Government of Jamaica in cooperation with the United States Agency for International Development (USAID) mobilized considerable resources to develop secondary agricultural training centers for the improvement of agricultural education in Jamaica.

With the impact of the Vocational Agriculture Programs contributions in the U.S. in mind, the researcher, through his personal experience with the new Secondary Agricultural Education Programs in Jamaica, feels that this emphasis has potential for making an even greater impact in Jamaica's agricultural development process. However, in order for these new programs to most effectively serve Jamaica's need for increased food production and improved rural living; a system of evaluating the products of the new Agricultural Education Programs was deemed necessary. Vicars (37) states the need as follows:

Vocational instructors must go beyond the final examination to the ultimate consumer of our educational product, the public - as represented by the employer. This is necessary if vocational educators are to keep current and effective (p. 15).

The success of this new multi-million dollar project will be determined by its ability to monitor and respond to the needs of an ever changing world. This study attempts to fulfill the need of a newly developed agricultural education program in Jamaica to monitor the effectiveness and identify needed changes. This study goes beyond the final examinations to the consumer of the educational products, and the educational products themselves. Hopefully, assisting the Agricultural Training Centers in keeping current and effective in meeting Jamaica's needs for increased food production and an improved quality of life.

#### Statement of the Problem

A plan for placement and follow-up of students should be built into the project. Contact should be maintained with both the graduate and his employer to determine if the training is adequate to prepare them for duties assigned to them (33, p. 20).

Because of the recent impetus to improve agricultural education in Jamaica, a study concerning adequacy of agricultural training for

graduates to fulfill the job market demand was deemed timely. The problem of this study was obtained through personal experience and interest of the author. With the inception of a new curriculum for training agriculturist at the secondary education level being only three years old, the felt need was determining if the curriculum was achieving its stated objectives. If the curriculum was ineffective in fulfilling the needs of graduates and their employers, what were the need areas that should be identified and emphasized to enhance the agricultural training program's effectiveness.

It was felt this study could supply valuable information to decision makers in Jamaica. Allowing them to make changes in the early stages of the new Rural Secondary Agricultural Education Projects' development to enhance its effectiveness. This information can be used in other developing countries as well as international agencies working on rural secondary education projects.

At the local level, administrators, teachers, students and community members could benefit from this study by being aware of the effective and ineffective components of the agricultural training programs. It is hoped this study will influence decision makers in expediting the appropriate decisions to develop and maintain accountability for funding by reacting to the needs of the students, communities, businesses and industries of Jamaica and other developing countries.

#### Purpose of the Study

The purpose of this study was to ascertain perceptions from selected graduates and their employers concerning various aspects of three secondary agricultural training centers in Jamaica, as well as the

graduates occupational status, future plans and job performance ratings by their employers.

### Objectives of the Study

In order to achieve the purpose of this study, the following objectives must be accomplished:

1. To ascertain ratings from selected graduates' employers concerning their job performance.
2. To ascertain perceptions from selected graduates and their employers concerning the roles, goals and needs of the selected agricultural training programs.
3. To ascertain selected graduates' perceptions concerning their agricultural training experiences, including the curriculum relevancy of the training.
4. To ascertain the current status and future plans of the selected graduates.

### Assumptions of the Study

For the purpose of this study, the following assumptions were made:

1. The three Agricultural Training Centers have basically the same curriculum and goals.
2. The respondents understood the statements on the questionnaires and considered them honestly.

### Scope and Limitations

The population of this study contained students in the last two graduation classes plus their employers of three agricultural training

centers in Jamaica. The roster of graduates names were provided by the principals of the three institutions. Only those graduates and employers whose addresses could be supplied were used in the study.

The scope of the study included six main areas of institutional evaluation:

1. Graduates' and their employers' perceptions concerning the extent of goal achievement by the Agricultural Training Centers.
2. Graduates' perceptions concerning the relevancy of curriculum of the Agricultural Training Centers.
3. Graduates' and their employers' perceptions concerning role of the Agricultural Training Centers in Jamaicas Agricultural Development Process.
4. Graduates' and their employers' ratings concerning the needs of the Agricultural Training Centers to enhance their effectiveness.
5. Graduates' evaluation of their experience in the Agricultural Training Program.
6. Employers' Ratings of the Graduates job performance.

The major limitation of this study was obtaining accurate addresses for the graduates and their employers. Locating those graduates who were outside the educational system was particulary hard. Also due to the high number of unemployed graduates, and some employers employing more than one graduate, a small employer population sample was obtained. This limitation may impose a possible bias in the results of this study, therefore due to the inability to administer a random sampling, implications of this study cannot be generalized to the entire graduate and employer population.

### Definition of Terms

Certain terms used in this study require defining in order to promote understanding and clarity. These are listed below:

Agricultural Training Centers (A.T.C.) - refers to institutions with a three year curriculum designed to train present and perspective persons for careers in agriculture.

Integrated Rural Development - A process of establishing interagency machinery for coordination to harmonize plans and programs in rural development and to initiate and monitor joint action at the community level.

Agricultural Development - The process of mobilizing and increasing the efficiency of the vast quantity of agricultural resources which are already available.

Economic Development - The process by which a population increases the efficiency with which it provides desired goals and services, thereby increasing per capita levels of living and general well being.

Case Study - A study of one or a few individual cases reporting the chronological development of a project or activity or a story of an individual family.



## CHAPTER II

### REVIEW OF LITERATURE

#### Introduction

The review of literature will focus on the following areas as they relate to this Follow-Up Study of three secondary agricultural training centers in Jamaica:

1. Geography and Country Specifics.
2. The Need for Expanded Agricultural Education in Jamaica.
3. An Overview of the Selected Agricultural Training Centers.
4. Case Studies of Vocational Agricultural Programs in Other Countries.
5. An Analysis of Previous Evaluation Studies on Vocational Agriculture.
6. The Need for Educational Evaluation.
7. Summary.

#### Geography and Country Specifics

This study was carried out on the island of Jamaica, the third largest island in the Caribbean with an area of 4,411 square miles. Jamaica is 80 percent mountains with Blue Mountain Peak being the highest at 7,402 feet. The climate is humid and tropical most of the year. Temperatures range from 70°F to 80°F in the cooler months of November to March, with an average temperature of 85°F to 90°F. Jamaica

has an annual rainfall average of 77 inches, with a variation from 200 inches on the northern coast to almost none in the southwestern section.

Jamaica has a population of 2.2 million people with an annual growth rate of 1.4 percent. Jamaican people are mostly of African origin. Literacy rate is said to be 82 percent with an annual income per capita of \$1,143.

Natural resources of Jamaica are mainly bauxite, gypsum and limestone. Agricultural products consist of sugar, bananas, citrus fruits, coffee, pimento and coconuts. Jamaica has 28.1 percent of the work force in agriculture, 17.7 percent in industry and commerce, 33 percent in services and 8 percent in government (36).

Jamaica achieved its independence from England in 1961. It is now under the leadership of Prime Minister Edward Seaga who is a member of the Jamaican Labor Party. The political ideology is Democratic with strong emphasis on free enterprise to bring about its economic development. Tourism is the second largest industry after the bauxite industry in acquiring foreign exchange. The Agriculture Industry has been identified as the industry with great potential in acquiring more foreign exchange to improve Jamaica's balance of payments. Therefore, agricultural education has been given top-priority in the Ministry of Education to increase productivity and improve the economic well being of Jamaica (29).

#### The Need for Expanded Agricultural Education in Jamaica

\*

The impetus which brought about the development of institutions for agricultural training was the lack of awareness of agricultural needs by the people of Jamaica from 1940-1969. McKenzie (25, p. 1) states that

"after the development of Knockalva in 1940 there was no structured operative to formally awaken the people of Jamaica toward the need of agriculture training." The Government of Jamaica developed a Five Year Plan 1963-1968, which reflected the awareness of the importance of agricultural education and training for the implementation of Jamaica's agricultural development policy. The Plan stated "The education system has never been sufficiently closely identified with socio-economic development (24, p. 1). This Plan set the stage for the development of a more comprehensive agricultural training program which envisioned a complete reorganization of the system in order to:

1. Provide better and fuller educational opportunities to rural areas for rural communities. The low educational level of the majority of farmers is a major factor responsible for poor standards of husbandry and the bulk of farmers lack the training provided by the Government Extension Services.
2. Redesign the educational system to give full recognition to Agricultural Training.
3. Reorient curricula and to introduce into these purposeful practical activities. The total educational experiences offered in the schools should ensure a sound general education, relevant to the environment, and on this basis to build up appropriate prevocational and vocational courses (25, pp. 1-2).

With this awareness recognized, decisions were made to expand the Agricultural Education System in Jamaica. With the help of USAID, major expansion was initiated in the Secondary Agricultural Education Programs in Jamaica. The following section gives an overview of this expansion.

#### An Overview of the Selected Agricultural Training Centers

This follow-up study included Dinthill Technical High School, Elim Agricultural Training Center and Knockalva Agricultural Training Center. (Agricultural Training Centers - A.T.C.'s and vocational agriculture - vo-ag programs will be used synonymously throughout this study.) The

locations of these three institutions are shown on the map of Jamaica on the following page. A brief overview of the history and development of each institution will give the reader a better understanding of how these institutions fit into Jamaica's agricultural education process.

#### Dinthill Technical High School

This institution is located in the east-central section of Jamaica. It has been functioning as a Technical High School since 1937, with agriculture as a minor part of its curriculum.

In 1975, Dinthill started receiving considerable financial assistance from USAID to help develop its Agriculture Department. Construction started on a new classroom building and laboratory, a plant propagation unit, a poultry unit, a 14 sow piggery, a slaughter house, and renovations to the existing dairy shed and pasture establishment.

The stage was set for a pilot project in vocational agriculture to experiment with a new three year curriculum and determine the feasibility of developing vo-ag programs in Jamaica. The purpose of this pilot project was to identify the problems that might be encountered in the two new vo-ag schools to be built at different locations on the island.

Dinthill's Agriculture Department started with a staff of one which soon expanded to five. The researcher was a member of that staff during 1976-1978 as a Peace Corps volunteer. The staff consisted of a department head with a B.S. from the University of West Indies, Trinidad, three other members who all had diploma degrees from the Jamaica School of Agriculture (29).

This school had a teaching staff of thirty-five with a student population of 1,050. The curriculum provided a wide variety of options

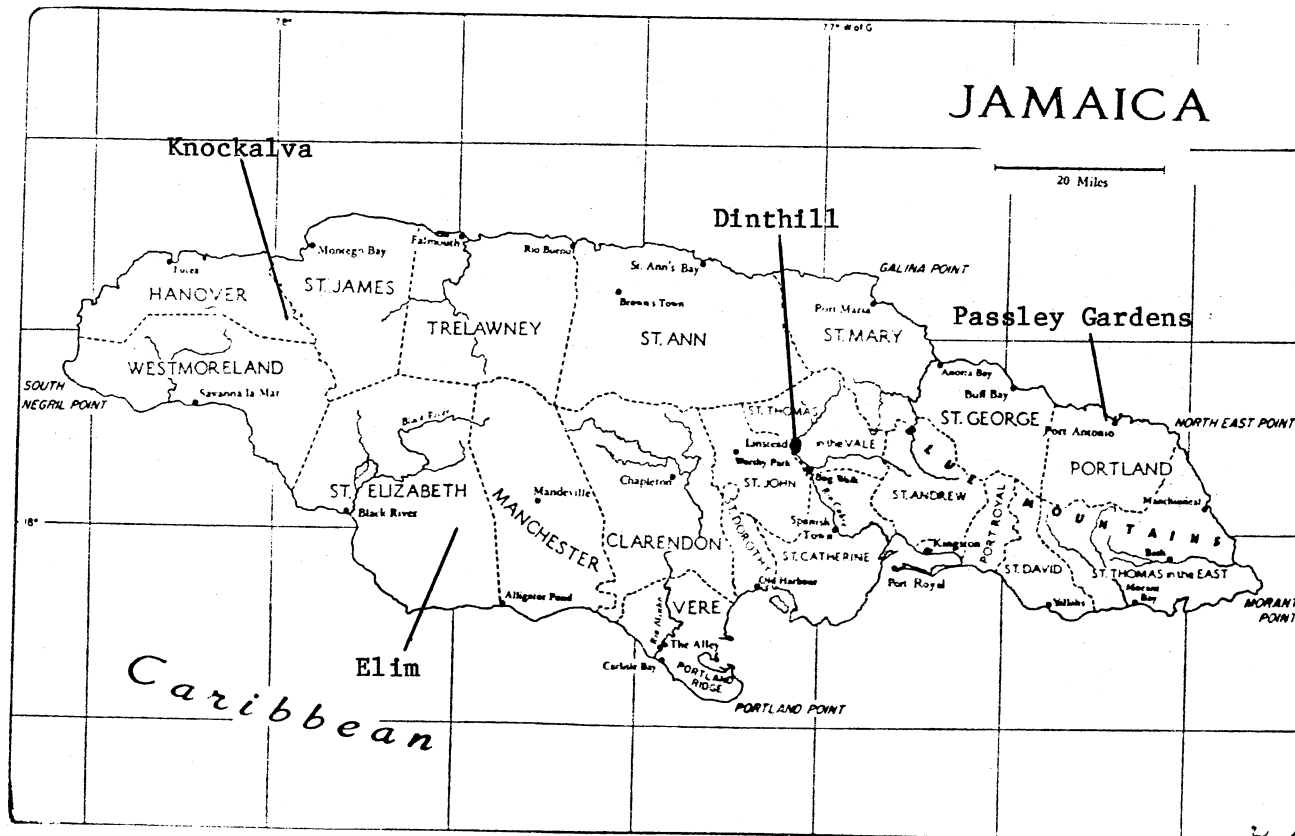


FIGURE 1. Map of Jamaica

including home economics, mechanics, carpentry, business and agriculture. The school farm consisted of approximately 125 acres. The land area was sectioned into 50 acres of pastureland, 20 acres of permanent and semi-permanent crops, 10 acres of corn and sorghum, 10 acres of vegetables and 10 acres for experimental plots. All routine chores are carried out by the 105 residential students living on the school compound (29).

The first group of vo-ag students were selected by an interview and questionnaire to start in January, 1977. This group consisted of 45 students; 30 males and 15 females. This group completed the training program in June 1979. Since the first class started in 1976, a new group of students have been selected each year. Three graduation classes have passed through this pilot project since its initiation and two new agricultural training centers have been constructed (29). The first center constructed will be reviewed in the next section.

#### Elim Agricultural Training Center

Elim is located in the parish of St. Elizabeth in the south western section of Jamaica. It is situated in a rural area with plans for a rural community to be constructed around it.

This institution was opened on February 12, 1979, with 200 students and 10 staff members. The students were selected from all-age schools for the first year course, and from secondary schools for the second year course. There were two courses offered at the school: (1) a three year course in Agriculture, (2) a three year course in Home Economics (30).

Elim has all the modern necessary facilities for agriculture training in terms of classrooms, science laboratories, agriculture and

farm laboratories, home economics facilities and a library is offered to insure a high level of training.

The school operates a farm of approximately 200 acres consisting of the following:

- (a) A three thousand boiler unit.
- (b) A five hundred layer unit.
- (c) A forty sow unit with accommodations to fatten two hundred fatteners.
- (d) A ten stanchion dairy unit equipped with milking machines, calf pens, heifer stanchions, etc.
- (e) Farm workshop.
- (f) Plant propagation unit.
- (g) Feed mill.
- (h) Slaughter house (30, p. 45).

Elim is completely residential with space available for 210 males and 90 females. Housing is also provided for the principal, vice principal, farm manager, matron, nurse and approximately 12 staff members (30).

Two graduation classes have completed since Elim's initiation. Both of these classes were included in this Follow-Up Study. For information purposes, Passley Gardens Agricultural Training Center, constructed as the last part of the USAID project, was not included in this study because of its recent opening in 1981. However, Passley Gardens is operating at this time with some 200 students attending. It is located 3 miles west of Port Antonio, on a location overlooking the Caribbean.

#### Knockalva Agriculture Training Center

This institution is located in the parish of Hanover in the north western section of Jamaica. Knockalva has been in operation since 1940 producing graduates who have supplied many agricultural agencies, industries, government services in agriculture and the Jamaica School of Agriculture (now closed) (29).

Knockalva recently underwent structural changes not a part of the USAID project, but were quite timely and necessary. Firstly, a Dutch land resettlement project was attempted nearby Knockalva which turned out to be quite unsuccessful. Heycoop (15) stated Knockalva was identified as a valuable resource in assisting the training of adult farmers who would be settling on the resettlement project nearby. Therefore, funding originally planned for the resettlement project, was redirected to Knockalva.

As a result of this funding, construction was completed on new dormitories to house 250 students, plus space for adult farmers to participate in short courses, staff housing, a new piggery and a new dairy shed. Renovations to the "Great House" will be done in the future. Several graduates and teachers of Knockalva have received scholarships to participate in special agricultural training programs in Holland (35).

Secondly, in 1980 the Ministry of Education decided a restructuring of Knockalva was necessary. Knockalva had traditionally been combined with a secondary school located nearby. With the restructuring completed, Knockalva is a self sustained school with all classes taught at the Agricultural Training Center.

This change along with the upgrading done with the Dutch Aid, improved Knockalva to the level of the new institutions like Elim and Passley Gardens. Knockalva is using the same three year curriculum as Elim, Passley Gardens and Dinthill. The facilities are similar to the other agricultural institutions with a plant propagation unit, piggery, poultry - both layer and broiler, dairy, pastures, vegetable production as well as permanent and semipermanent crops (25).



## Common Characteristics of the Identified

### Institutions

The three institutions of vocational agriculture training have several characteristics in common. The first characteristic of major importance to the evaluation of these programs is in the aims and objectives of these institutions.

The aims and objectives as stated out by the Ministry of Education, are as follows:

1. To ensure that all agricultural lands and persons engaged in Agriculture, Fisheries, Home Economics and Rural Development are used to their fullest potential and in a manner that will result in optimum economic and social benefit to the country.
2. To provide skilled agricultural graduates of the type and level to fill the demand in agricultural agencies, teaching, food processing, agro-business, agricultural mechanics and especially farming practices related to their respective areas.
3. To provide sufficiently skilled agricultural graduates to enter the J.S.A. to continue their careers in agriculture.
4. To produce graduates who can master certain agricultural skills and competencies including aqua-culture, agricultural mechanics, livestock and crop production, instead of producing graduates who are unable to perform the skills.
5. To produce graduates who will contribute to increasing agricultural production either through production on their farms or through meaningful and competent instruction to farmers.
6. To produce graduates with knowledge of rural communities and who are willing and competent to work and develop rural communities not only through the dissemination of agricultural knowledge but through the provision of leadership for rural groups.
7. To serve as a vehicle for improving the income of rural people through:
  - a. advice and example of the graduates.
  - b. training in continuing education.
  - c. training of students who will be engaged in work study programs throughout their school career.
  - d. proper budgeting and money management.
  - e. co-operation with government agencies involved in agriculture with respect to pertinent agricultural research and experimentation to improve yield (30, p. 1).

These aims and objectives are identified as the focal point of evaluation since evaluation of educational programs are based on the

degree to which the institutions are achieving these objectives.

Another common characteristic of these institutions is their role of serving as regional rural development centers for continuing community education programs. Each school will have the responsibilities of planning, coordinating and directing programs at these centers. This responsibility will require that each school carry out a needs assessment and plan programs to meet these needs.

It is hoped that through the programs collaboration with the Ministry of Agriculture, the school will be able to plan an outreach program to assist farmers in the area. It is also hoped the teaching staff and farm manager will plan demonstrations, field days, seminars and workshops which the farmers will be invited to allow problem solving and impart new skills (30).

#### Case Studies of Vocational Agriculture Programs in Other Countries

##### The American Farm School

The case study of the American Farm School (AFS) in Greece illustrates a good example of what impact a vo-ag program may have on the local, national as well as international arena of human resource development. The historical background gives valuable insight into the makings of a vo-ag program.

The American Farm School originated by the work of Dr. House and two missionary colleagues who purchased fifty three acres of parched land in a bandit-infested, waterless unprotected stretch of land just outside the city of Thessaloniki, Greece, in 1902.

Dr. House's philosophy of teaching was that to teach by example, the land had to be as poor as that of the poorest farmer. To make this land

bloom would be advertisement enough. Bloom it did, through a system of dry farming, sinking of wells with the help of students who were "learning by doing" sheer grit and the "will of God" made it possible (22).

The early history was no easier a task than the initial difficulties of making the land bloom with agriculture produce. The principal building which took ten arduous years to construct, burned down in 1917. There were years the well dried up, years of flooding, and years of drought. Influenza and malaria also racked the students and his family.

Despite these difficulties, who would have destroyed a lesser of a man, the American Farm School remained remarkably on course. Dr. House was indeed a man of great foresight and practicality. He had a dream of founding an educational institution that would have as its goal, Harvards' president Charles Elliott precept: "The development of the whole man, the head, the heart and the hand" (22, p. 3).

Dr. House believed that by training youngsters to be leaders in their rural communities, as well as modern farmers, he could contribute to the country personnel with a well developed sense of community and cooperation. His concept of education was to try and inculcate to the student, the ethic that it was not degrading for educated people to work with their hands. He says this is a major factor in preventing the village boys from despising village life and moving to the city (22).

He was not only concerned of the boys education, but also the girls education was a part of Dr. House's scheme. Dr. House had a maxim: "When you educate a man you educate an individual." He said, "When you educate a woman, you educate a whole family" (22, p. 3). Even though he didn't live to realize the girls addition to the AFS, this is a very integral part of the AFS today.

The role played by the AFS from its inception until now has been a very significant one. The present Director, Bruce M. Lansdale speaks very proudly of the AFS record over the past seventy years.

Seventy percent of our graduates have remained in agriculture, according to a 1965 independent survey. By returning to villages all over Greece our graduates have joined a network of like minded, progressive farmers and village leaders who have played an important role in the dramatic development of agriculture (22, p. 4).

From the initial classes of ten to fourteen students in the early days, the AFS now contains some two hundred students, fifty which are females. The acreage is now increased from the original fifty-five to four hundred. The school is not only serving as a formal program of practical and theoretical vocational agriculture training for secondary school aged students, but a host of other training programs as well.

The AFS has provided the model for a new educational system being developed in Greece. Three middle level schools have been organized by the Greek Government, all technical institutions patterned after the AFS. The AFS Campus is used as a center for teachers and technicians who are trained by the Ministry of Agriculture to staff new government schools. With the assistance of a World Bank Grant, the construction of a piggery, greenhouse, new laboratory, and short course center have been added to the AFS campus.

The Greek Government Funds pay for the short courses, which fifteen hundred rural leaders and farmers attend throughout the year in conjunction with a Greek Ministry of Agriculture Plan. A major portion of the housing facilities and equipment have been provided by assistance from the Agency for International Development.

On the international dimension, the AFS has two programs that are of major significance. One of these programs is known as the "Greek Summer"

program. "Greek Summer" brings fifty American students and other nationalities to Greece to participate in a Peace Corps like project. The high school students undertake needed construction in a Macedonian village where they live for four weeks; they travel throughout Greece for another two weeks. The relationships that develop between the villages and students is the real significance of the "Greek Summer."

The AFS also sponsors a practical training session for interested people in critical issues of international development. This program is geared toward people of all countries who wish to effectively bridge the gap between small farmers and the appropriate technology essential to increasing food production in developing countries. This program is based on practical training to put the theoretical concepts of agriculture production from college to use.

Recent communications with the Director of AFS, Bruce Lansdale (20), have brought about considerable concern and initial planning for an international vocational agriculture workshop to focus on the problems, successes and needs of vocational agriculture around the world. This Follow-Up Study will have major implications for the establishment of a workshop concerning vocational agriculture's role in the agriculture development process of developing countries.

#### The Ethiopian Adventure

Oklahoma State University embarked upon a bold new experience on June 9, 1951, when Henry G. Bennett drafted the initial agreement for technical assistance with Emperor Haile Selassie of Ethiopia. The stage was set for the establishment of an agricultural college in Ethiopia patterned after the American System Land-Grant Colleges. The end result

was visioned from the beginning, but the rough path of identifying the considerable needs to achieve that goal was to be molded with expertise, time and experience.

Considerable time needed to be spent on surveying the soils, topography, climate, plant and animal life. The human resources present in the country were also of major concern on having qualified students to start enrollment at an agricultural college when completed. A survey taken by the Americans showed that there was not one Ethiopian with an equivalent of a bachelors degree in any phase of agriculture (12).

With this finding, the prerequisite for the college of agriculture was founded in the Jimma Agricultural Technical School. The Jimma School was to serve as a preparatory school for the college of agriculture and as a center for research until the college could be completed.

An eighty acre site was donated for the new school by the Imperial Government. The easy work was over. Now the hard work of pioneering a new school out of a jungle of vines and weeds had to begin. The first members of the staff at the Jimma School were shocked by the dilapidated conditions of the buildings. All but two of the buildings were hidden by tall corn growing on the campus. The task ahead seemed overwhelming.

Armed with enthusiasm and determination, the Americans cleared the jungle of growth around the buildings, replaced doors, window framing and other physical needs. Renovations, landscaping and new construction in the following months produced a beautiful, well designed campus and physical plant.

The first class was to begin in the Fall of 1952. The selection process was not an easy one, but eighty students were selected and distributed equally from freshmen to senior classes. The first objective

established was, "To prepare the student for further study in the field of agriculture" (12, p. 16).

From the beginning a work-study philosophy of education was instilled in the students. Many came from wealthy families in which working with their hands was beneath their dignity. The students were required to enroll in a minimum of 15 hours per week of farm work and research (12).

There was strong feeling that the Jimma School laid the foundation for successful agriculture education programs in Ethiopia. The principal representative of the Oklahoma State contract, Dr. Luther Brannon (12, p. 45), felt that without the Jimma School the "College of Agriculture would have experienced difficulty in progressing beyond the brick and mortar stage."

The Jimma School provided a continuing flow of students qualified to enter the college of agriculture; in addition, it provided terminal training for young men interested in a career in farming or agriculture related work. Many of the Jimma graduates went to work in the agriculture extension service and played an important role in expanding agriculture education throughout Ethiopia.

To varify the important role the Jimma School played in the educational progression of its first class of eighty graduates; fifty of them completed requirements of a bachelor of science degree at the Imperial Ethiopian College of Agriculture; twenty six received master of science degrees from land-grant and state universities in the United States; and sixteen completed doctoral programs. It may be important to remember these students were selected with no previous academic records, mainly by intitution and first impressions.

The role of the Jimma School was not only to train students of the new technologies of agriculture, but through outreach and extension projects directly give Ethiopian farmers a chance to see how they can benefit from the schools activities. This was done by annual field days where neighboring farmers became acquainted with the schools' activities. These field days were the result of a combined focus of a county fair and a science exhibition.

This gave the students a chance to show off their newly acquired knowledge of agriculture, as well as exposing the Ethiopians to the academic activities of the school. Probably more importantly, it showed the Ethiopians the practical benefits of applied agriculture and scientific training. The farmers were also active participants in that they were urged to exhibit their poultry, livestock and vegetables and to compete for prizes. These field days turned out so successfully, they were enthusiastically attended by local residents as well as Ethiopian dignitaries, including Haile Selassie, who was a regular visitor (12).

If the teachers goal is viewed ultimately to work themselves out of a job, that is to say, to develop students who can learn on their own to become self-sufficient, Oklahoma State's project took heed of this fact. By 1966, the role of OSU in the Ethiopian Agricultural Education System was changed from operational to advisory. This was allowed to happen by the higher education attained by outstanding graduates of the College of Agriculture.

Many received masters and doctorates at OSU as well as other outstanding agriculture programs including Cornell, Purdue, Ohio State, Wisconsin, Minnesota, Rutgers, Michigan State and Pennsylvania. These students were to return to Ethiopia and accept administration, teaching and research positions in agriculture education (12).



This experience illustrates, even though the College of Agriculture was the major contributor of highly trained personnel, the Jimma Agricultural and Technical Institute was essential to start the process of agriculture education in Ethiopia. The same needs and potential holds true for Jamaica as in other developing countries where the foundation of human resource development is a critical need, especially in agriculture.

#### Intermediate Agriculture Education for Rural Development

Although the agriculture extension agents and teachers of agriculture in the United States must receive a bachelor of science degree before serving in these positions, most developing countries do not share this characteristic. Most extension staff and teachers in the primary and secondary level hold a diploma from an intermediate institution. The intermediate institution is the real mass producer of technical agents of change. For this reason, it is very important these educational institutions be closely involved in rural development.

Some factors which are in favor of these institutions demanding more attention are:

1. They are usually located in rural areas, have more contact with rural communities, and do not suffer from Ivory Tower isolation and academic graudeur;
2. These institutions have more flexibility in programs programs and structures than institutions of higher learning;
3. Investment and recurrent costs of education at this level are considerably lower than those of universities (7, p. 23).

These institutions are a part of the formal educational system and do have a degree of conservativeness and immobility, typical of long established rigidly administered educational systems. This fact is important in establishing ways of reorganizing and adapting the work

undertaken by these institutions, which may in fact be the most important components of the institutionalized agriculture education system.

These institutions are able to train a large number of technicians to work directly with the rural people at focal points of development. Yet, despite the important role they play in the rural development process, they do not receive the necessary assistance and attention from governments (7).

However, Malaysia is a good example of a country which has recently made a commitment to a type of agriculture education which did not exist a few years ago. A new syllabus for high school agricultural science, rich in terms of practice, as well as basic theory has been introduced. Funds have been made available to purchase supplies and equipment for use in agriculture classes. Teachers are being trained with access to modern facilities (7).

The Ministry of Education is proud of its emphasis and recognition of a system of continuing education. The teacher training course is based on an intensive in-service program utilizing holidays and weekends. This allows for teachers to go to the in-service training in the one instance, and the in-service training to go to the teachers in the other.

Week long sessions were held at vocational schools with good agricultural facilities. Subjects covering agronomy, farm management, animal science and farm machinery are taught by teachers brought in from the teacher training college and vocational schools. In addition a "mobile" pilot project has been conducted to see if in-service training could be effective having small groups of twenty-five during weekends. Five locations were chosen and every weekend for five weeks, sessions

were held for a group of teachers in that region. Course content was directed toward the immediate needs of the teachers, teaching methods, lesson plans, budgeting and technical subject matter was discussed. Plans were made to have the teachers attend a weekend session at least twice a year.

The "mobile" in-service courses thus far completed were very well accepted by the participants. Considerable time was spent on preparing for the classes and developing handout materials which were felt to be major factors in the programs acceptance. The benefits of the in-service training were twofold. The improved performance of the teachers on the job with the increased knowledge as well as the rapport established between the teachers who attend the course.

The need for teachers to discuss mutual problems and receive well deserved recognition for their daily work were seen as critical factors in developing a family feeling among participants. This resulted in talk of starting an agriculture teachers organization. Everyone involved felt that agriculture education in Malaysia is moving toward better teaching through better teachers and in-service training is a critical factor in the total program (7).

#### An Analysis of Previous Evaluation Studies

The rapid expansion of Vocational Agriculture in our public schools, the unprecedented changes in farming and other agricultural occupations and the emerging diversion of opinions of school administrators, teachers and laymen concerning essential elements of an effective program of Vocational Agriculture led the Research Committee of the Southern Region to recognize the need for a study of this type (11, p. 1).

The above quote illustrates the importance attached to identifying the important concepts of an effective vocational agriculture program by the Southern Research Committee cited by Garrett (11) in 1955.

Garrett's (11) study was one of twelve studies (one for each of the twelve states in the southern region) to be compiled for an identification of the important concepts of an effective vocational agriculture program in a community.

Opinions were collected from administrators, teachers, in-school students, young farmers and adult farmers who receive the instruction. An interview methodology was used in collecting opinions. A summary of the findings show that the controlling purpose of vocational education in agriculture should be to train for useful employment and proficiency in an agricultural occupation. The evaluation of how well the objectives were achieved by the program was perceived to be the attitudes of boys and parents and farming by in-school students. The criteria for evaluating the young and adult farmer phase of the program should be measured by the number of improved practices adopted as a result of vocational agriculture instruction.

Garrett's (11) respondents stated the teachers, students and all who participated in planning of the program should be involved in the evaluation. A point of particular significance to the study is the final recommendation that was given by Garrett (11, p. 36). "A thorough and comprehensive program of acquainting students, laymen and administrators with the aims, purposes, activities, and progress of vocational agriculture should be initiated".

This final statement illustrates the need for an evaluation system to continuously familiarize all parties involved in the purposes and progress made towards those purposes by the training program. An

interesting point was brought out by Garrett's (11) study with respect to the vocational agricultural schools' relationship to the community.

The consensus of opinion divulged that community service should not be given major emphasis when planning vocational agriculture programs. This gives an interesting contrast to the present day vo-ag schools service as community centers. The Jamaican Vo-Ag Programs serve as centers for continuing education not only for agriculture, but for other disciplines as well. The U.S. relationship of vo-ag to community shows the same type of trend and need. An important part of the evaluation of vocational agricultural programs in the U.S. as well as the programs in Jamaica must identify and include the degree to which the continuing education dimension of its purposes are reached.

Follow-up studies are important to fulfill this need of evaluation to identify the degree which formal programs are meeting their objectives.

Sharp and Krasneger (31), state the following concerning follow-up studies:

Follow-up studies involve research designs which require a contact with individuals who have shared an experience in the past and whom the researcher desires to study or re-study. The usual goal of such studies is to arrive at some measure of the impact of the experience on the subsequent behavior or status of these individuals. In the area of vocational education the most widely accepted technique has been to evaluate training programs in terms of occupational outcome over a given period of time. The employment of a graduate in a job for which he received training is the accepted ultimate indicator of successful vocational training, although experts in the field recognize that many indicators other than training-related employment--for example enrollment in posthigh school training, or simple retention in high school through graduation--might be used to measure the 'success' of vocational training. The usual technique for obtaining data concerning graduates is one or more follow-up contacts after training or occasionally, the collection of data on trainees through a particular phase of training, with subsequent follow-up (p. 1).

The Division of Vocational Education in 1967 stated the following concern:

Follow-up programs on the results obtained from training can be used to provide feedback to curriculum producers. Teachers should conduct student evaluation and follow-up of students employed in the field. Feedback from students as well as follow-up records should be used in evaluation (10, p. 4).

A dissertation by Joseph Vicars (37) states the following about follow-up studies:

Gathering of information with which to make an adequate evaluation is and always will be a major problem facing Vocational Education. One possible method of staying current with industry and also providing a program that will benefit a community is a follow-up program (p. 22).

This concept of follow-up studies, to the researchers knowledge, is not a methodology used in the Jamaican Vo-Ag School evaluation system.

#### The Need for Educational Evaluation

It is becoming increasingly clear that much of our investment in such areas as education, health, poverty, jobs, housing, urban development, transportation and the like is not returning adequate dividends in terms of results. Without for a moment lessening our commitment to provide for these pressing human needs, one of congresses' major, though oft-delayed challenges must be to reassess our multitude of special programs, concentrate (indeed, expand) resources on programs that work where the needs are greatest and reduce or eliminate the remainder. We no longer have the time nor the money to fritter away on nonessentials which won't produce the needed visible impact on problems (38, p. 41).

The educational evaluation of any secondary vocational agriculture program must be based on the philosophy and objectives of the school. The degree to which the school is meeting the needs of the students enrolled and the community served are the broad basis of criteria for evaluation (26).

Whatever the educational program may be, there is always a necessity for more effective programs to meet the needs of the nation. Educational evaluation is increasingly important as a source of knowledge and direction. Through evaluation, an identification can be made as to the programs or parts of programs which work, those which do not, and do point the way for better formulation of policy and program (38).

Decision makers want and need to know the answers to such questions as:

How well is the program meeting the purposes for which it was established? Should it be continued, expanded, cutback, changed or abandoned? These answers are hard to obtain through informal means (38, p. 27).

Decisions about the future operations will effect the fate of many people and involve large sums of money. The decision makers, Board of Directors, legislators, international agencies are often times far removed from the program and need hard facts on which to base their decisions. With these conditions, evaluation of educational programs as well suited to the task of producing the requests information for decision makers (39).

The Vocational Education Programs of Jamaica have the same needs of other educational program plus an added accountability for funding from the Agency for International Development. This fact in itself gives the program evaluation precedence in producing information for USAID to use in other developing countries.

The concern of all decision makers of where and how to spend the decreasing money allotted for development programs is demanding an increased effectiveness of educational programs. Information concerning

the Vocational Agriculture Programs in Jamaica must be produced to insure the philosophy, objectives, curriculum and programs are meeting the needs of graduates, employers of graduates, rural communities and the National Agricultural Development needs. The following quote by Carpenter (4) supports this need:

In spite of the extensive amount of research in agricultural occupations, the point has not been reached where those planning agriculture education programs have the data needed for adapting programs to occupational needs of clientele. Variation from one area to another is substantial and continually shifting (p. 43).

Constant changes mandate the need for a continuous evaluation system to keep educational programs current in meeting the needs of students and communities of the future.

#### Summary

The impact of vocational agricultural education in the United States sets the pace for institutions of vocational agriculture in the developing countries. It should be noted however, that the success of these institutions in the United States were due to a comprehensive effort; Most importantly, the legislation following the initial pioneering. The Vocational Technical Schools and the University Land Grant Colleges coordinating research, extension and education programs all were essential in the success of the Secondary Vocational Agriculture Schools.

The researcher wished to emphasize the word comprehensive because of the importance it has in planning, developing, initiating, maintaining and evaluating the Agriculture Education program. From the policy makers



to the students, a mentality of integrating research, extension and education as well as agencies, groups and institutions within a community must be strived for.

A comprehensive system of evaluation must also be strived for. Feedback on energies and resources devoted to particular programs must be acquired. The increase in human needs and decrease in natural resources is requiring a more efficient and effective utilization of these resources. This can only be done by a continuous evaluation of the programs. Follow-up studies are one way in which to provide this data.

Jamaica has identified the importance of human resource development in its attempt to improve the economic development of the country. Both the American Farm School in Greece and the Ethiopian Adventure reinforce the importance of secondary agricultural education in increasing food production and improve rural living. These examples verify that the process of economic development of any country is dependent on the ability of the people to mobilize natural resources especially, human resources to achieve this goal. The initial step of familiarizing as many people as possible in each community of the ways they can contribute to the overall goals of the development process was the primary goal of vocational agricultural education.

The fact that all people, farmers as well as non-farmers occupations can benefit from a vocational agricultural school, illustrates their significance. For the purpose is not only to train young men and women above fourteen years of age to pursue occupations in agriculture related fields, but also to serve the general public. This not only refers to parameters of the local community, but national and international arenas as well.

The ramifications of international exchanges of agricultural technology in improving the level of living around the world, as well as international students adding an invaluable like to world understanding are tremendous. The links of friendship which were established at the Jimma Schools' first class in 1952 are still strong with members of staff at Oklahoma State University, to say nothing of the tremendous contributions these people have made to Ethiopia's development. The need for vocational agricultural education on a local, regional and international dimension cannot be overstressed.

Three recent graduates of Oklahoma State University returned to their country of Jamaica. They are dynamic resources for the project in Jamaica and will be in close cooperation with Oklahoma State University. This could be a new era in vocational agricultural development of which Oklahoma State University is at the forefront, much like the sixteen years in Ethiopia. Title XII activities are giving the impetus for institutional development just as the Point IV Program did in 1950. The pioneering efforts of the Ethiopian project must reemerge at Oklahoma State University to meet the needs and challenges of the developing nations around the world.

Within the Division, we must develop the infrastructure and procedures whereby the administration and participation in the international area are accomplished with the same excellence that domestic programs are handled (30, p. 2).

## CHAPTER III

### METHODOLOGY

#### Introduction

The purpose of this chapter is to describe the methods and procedures used in collecting and analyzing the data in this study. The following procedures were necessary to complete this study:

1. Selecting the study population.
2. Developing and validating the questionnaire.
3. Administering the questionnaire.
4. Statistical analysis.

#### Selecting the Study Population

The population selected for this Follow-Up Study consisted of the last two graduation classes and their employers of three secondary agricultural training centers in Jamaica. A proportional stratified random sampling of 30 percent was the original population sample selected. However, due to lack of records containing addresses for many of the randomly selected graduates, this procedure had to be eliminated. Therefore, the researcher used all those graduates and their employers of the last two graduating classes who could be located by classmates, teachers and the principal of the selected institutions. The population ultimately chosen will be referred to as the "accidental population" because of the way it was chosen. Table I identifies this accidental population.

TABLE I  
ACCIDENTAL POPULATION

Institution	Class	No. of Graduates	Graduate Accidental Population		Employer Accidental Population	
			N	%	N	%
Dinthill	1980 & 1981	44	13	18.57	9	21.95
Elim	1980 & 1981	105	30	42.85	17	41.46
Knockalva*	1979 & 1981	<u>76</u>	<u>27</u>	<u>38.57</u>	<u>14</u>	<u>39.47</u>
		225	70	31.11	41	58.00

\*Knockalva had no 1980 graduating class due to a restructuring of the school.

Table I shows 31.11 percent of the total graduate population was non-randomly selected for the study giving a total of 70 graduates in the sample. The employer population selected was 58% or 41 employers of the 70 graduates selected. This number was low because of a high unemployment rate of the graduates and a lack of records on where some graduates were employed. There were also situations where more than one graduate was employed at the same institution or business which decreased employer number.

A list of graduates were obtained from the administrative offices of each institution. The principal, teachers and students who were familiar with the graduates were asked if they had any records of where the graduates were living and who their employers were. The final selection of graduates and employers were then made including all those with an address.

#### Developing and Validating the Questionnaire

The questionnaires used in this study were developed from research and concerns the author had on vocational agricultural education in Jamaica. There were five major categories of statements for the graduates to respond to:

1. Extent to which the graduate felt the Agricultural Training Center they attended achieved its objectives.
2. Extent to which the curriculum was relevant to their agricultural training needs.
3. The role agricultural training centers should play in Jamaica's agricultural development process.
4. Needs of the Agricultural Training Programs.
5. Benefits attained from their experience in agricultural training.

The first part of the questionnaire included current status information concerning employment or educational status, job title and duties, their employers name and address, school attended, year of graduation and gender.

The employers questionnaire included four major categories of statements for response:

1. Extent to which the Agricultural Training Center their employee attended achieved its stated objectives.
2. The role agricultural training centers should play in Jamaicas agricultural development process.
3. Needs of the Agricultural Training Programs.
4. Employers ratings of the graduates training according to job performance. The first part of the employers questionnaire contained information concerning the graduates name, school they attended, job title and duties, as well as their own name (optional), address and company or firm name.

Research on other follow-up studies helped identify concerns, problem areas and format to use in developing the questionnaire. The last section of the graduates questionnaire was taken from Johnson's (17) Follow-up Study with slight modifications. McKenzie's (25) Report on agricultural education in Jamaica supplied the information to develop the first two categories of statements on the graduates questionnaire, namely the objectives and curriculum of the Agricultural Training Centers. The last section on the employers questionnaire concerning the items for rating the graduates performance was taken from a report by O'Reilly and Asche (28). The remaining sections of the questionnaires were developed from concerns felt by the author.

In order to check validity and content of the questionnaires, a first draft was passed to selected faculty and staff in the Office of International Programs and Agricultural Education Department. After gathering the questionnaires with comments from the selected individuals, considerable changes had to be made. The author carried out more research on follow-up studies and made the appropriate changes on the questionnaires. The second draft was passed out to the beforementioned individuals plus Jamician students to critique the instruments content and validity. The instruments were once again gathered and the recommended changes were made. A third draft was then resubmitted to the appropriate individuals plus the statistics department for review of validity and special changes to allow for computerization of data. A final draft was made and checked by the authors adviser. A few changes were then made which resulted in the final instrument taken to Jamaica.

Upon arrival in Jamaica, the questionnaires were reviewed by officials in the Ministry of Education to allow content and validation analysis plus special considerations and recommendations concerning the local situation. The appropriate changes were made resulting in the final form of the questionnaires used in this Follow-Up Study.

#### Administering the Questionnaire

The researcher made a six week visit to Jamaica from January 20, 1982, through February 28, 1982, to collect the data for this study. Officials from the Ministry of Education were consulted on the best way to administer the questionnaire. The decision was made to mail them to the selected graduates.

The researcher visited each institution gathering the names and addresses of the selected graduates. The questionnaires were mailed to them with a self-addressed stamped envelope and a cover letter stating the purpose of the study. The cover letter was on Ministry of Education stationary and signed by Mr. James McKenzie, Senior Education Officer. It was decided this type of cover letter would be most effective in increasing the number of returns because of the graduates familiarity with Mr. McKenzie.

A second mailing was initiated three weeks after the first mailing to individuals who had not responded to the first mailing. The second mailing included another questionnaire, self-addressed stamped envelope and a cover letter. The cover letter for the second mailing was the same as the first with a personal note attached stating the importance of the response and to use the second questionnaire if the first one was misplaced. No third attempt was initiated to gather more responses since the author needed to return to the United States. Some questionnaires were returned to the Ministry of Education after the researchers departure. These were mailed to the researcher by officials in the Ministry of Education in Jamaica.

#### Statistical Analysis

All responses gathered were analyzed using frequency distribution, number and percentage figures. Mean responses were also used to describe the central tendency of the groups surveyed.

A comparison was also desired between the graduates and employers of graduates responses to the statements in selected categories. A



t-test was used to determine any significant difference between the two groups. A paired comparison of fifteen graduates and employers were included in the comparative analysis giving an equal number in each group.

Since this comparison involved matched pairs, the t-test formula for related samples was used. In order to use this t-test, homogeneity of variances needed to be checked. This was done by using the following formula given by Best (3):

$$F = \frac{S_2 \text{ (Larger Variance)}}{S_1 \text{ (Smaller Variance)}}$$

Once the homogeneity of variances were identified the following formula was used to calculate the t-values (3):

$$t = \frac{X_1 - X_2}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2} - 2r \frac{S_1}{N_1} \frac{S_2}{N_2}}}$$

The null hypothesis was that there are no differences between  $\bar{X}_1$  and  $\bar{X}_2$ . The critical value of rejection was found for  $N - 2 = df$  or  $15 - 2 = 13df$ . The table value used in this analysis was 2.160 at the .05 alpha level (21, p. 370).

The response categories for the statements included on the instruments were on a Likert scale of 1-4 on all sections of the questionnaires. The first section on both questionnaires were pertaining to the extent of achievement for goal statements indicated in Table II.

TABLE II  
SECTION ONE RESPONSE TABLE

Response Category	Value	Numerical Range
Not Achieved (NA)	1	.50-1.49
Partially Achieved (PA)	2	1.50-2.49
Achieved (A)	3	2.50-3.49
Greatly Achieved (GA)	4	3.50-4.00

In order to facilitate the categorizing of fractions resulting in the calculations of mean responses, a range of numerical values were established for each extent of agreement as shown above.

On the remaining sections of the questionnaires a Likert scale was used to determine the degree to which the respondents agreed with the statements. Table III contains this response information.

TABLE III  
REMAINING SECTIONS RESPONSE TABLE

Response Category	Value	Numerical Range
Strongly Agree (SA)	1	.50-1.49
Agree (A)	2	1.50-2.49
Disagree (D)	3	2.50-3.49
Strongly Disagree (SD)	4	3.50-4.00

A range of numerical values were also used on this Likert Scale to allow categorizing of fractions resulting from calculations of mean responses. However, on this scale, as the terms would indicate, the lower the mean response, the more agreement the respondents had with the statements. In the first section of both the employer and graduate questionnaires the higher the mean response, the greater the extent of agreement with the statements.

On the last section of the employer questionnaire, a rating of the graduates training and performance was allowed by using a 4 point Likert scale. This Likert scale allowed a rating from Low to High as follows:

<u>Rating</u>			
<u>Low</u>			<u>High</u>
1	2	3	4

Fractions obtained from mean responses used Table III values for mean response fractions. Also included in the last section of the employers questionnaire was a comparison between the graduates selected in this study and graduates from other training programs. This section included the following statements for the employer to check the appropriate one:

- ☐ No basis for comparison.
- ☐ This student is better prepared.
- ☐ Both are about the same.
- ☐ This student is less prepared.

This data was analyzed by simply tallying the number of employers checks for each statement.

## CHAPTER IV

### ANALYSIS AND PRESENTATION OF DATA

#### Introduction

The purpose of this chapter is to report and analyze the data received from the questionnaires returned by selected graduates and their employers from three secondary agricultural training centers in Jamaica. The analysis and reporting of data collected was achieved by the use of various descriptive statistical methods described in the previous chapter.

#### Description of Population and Returns

The population in this study included graduates of the last two graduation classes and their employers who could be located from three agricultural training centers in Jamaica. This number included 70 graduates and 41 employers, giving a total of 111 in the accidental population. Of this population, 79 responded or 71.17 percent. The 79 respondents included 58 graduates and 21 employers. The respondents were categorized as shown in Table IV.

Current status of the graduates surveyed is shown in Table V. Table V shows 70.69 percent of the graduate respondents were employed in agricultural related jobs. Two of the graduate respondents were in non-

agriculturally related jobs. Fourteen were unemployed while one graduate was attending school. There were five graduate respondents employed part-time and none were self-employed.

TABLE IV  
PERCENTAGE RETURNED BY CATEGORY

Group	Dinthill		Elim		Knockalva		Total	
	N	%	N	%	N	%	N	%
Graduates	7	12.07	26	44.83	25	43.10	58	100.00
Employers	1	4.76	9	42.86	11	52.38	21	100.00
Sub Total	8		35		36		79	100.00

One hundred percent of the employer respondents were employing graduates for an agriculturally related job. Of the twenty-one employer respondents, eighteen were principals of secondary or all age schools, two were supervisors in the Ministry of Agriculture and one was a supervisor of a sugar estate.

The type of employment of the graduate respondents showed thirty-two of them were employed with the Ministry of Education as agriculture teachers. Five were serving as extension agents, three were employed with an agricultural production organization, two were serving as office clerks and one employed with the Ministry of Agriculture.

TABLE V  
CURRENT STATUS OF GRADUATES SURVEYED

Ag Related Jobs		Non-Ag Related Jobs		Unemployed		Attending School		Self Employed		Employed Part-time	
N	%	N	%	N	%	N	%	N	%	N	%
41	70.69	2	3.45	14	24.14	1	1.72	0	0	5	8.62

## Goal Achievement by the Selected Agricultural Training Centers

One of the primary goals of this study was to identify if the A.T.C.'s were achieving the goals stated by the Ministry of Education. This section of the questionnaire was included to ascertain perceptions from both the graduates and employers concerning the extent of goal achievement by the selected A.T.C.'s.

Table VI summarizes the graduate population sample responses. The graduate respondents felt the A.T.C.'s were most successful in achieving the goal of "providing graduates who could fill the demand in agricultural agencies," mean score 3.24, followed by "teaching" with a mean response of 3.14, then "agricultural business" with a mean 3.03. The graduates felt the A.T.C.'s were least successful in filling the demand in "food processing" with a mean of 2.00 and "agricultural mechanics" having a mean score of 2.43.

The graduates evaluation of the A.T.C.'s showed these institutions were "providing graduates capable of increasing agricultural production" as the goal most achieved with a mean response of 3.66. The "production of graduates who as farmers, teachers and extension agents would contribute to the development of rural communities" was perceived as the second most achieved objective receiving a mean score of 3.57.

The goal of developing rural communities was followed by the A.T.C.'s ability to "produce graduates who had sufficient agricultural knowledge to enter an institution of higher education," mean score 3.55. Achievement of the goal to "supply graduates who had the range of knowledge to replace the present generation of farmers" rated fourth by the graduates receiving a mean score of 3.52. Placing fifth was the goal

TABLE VI  
GOAL ACHIEVEMENT OF THE A.T.C.'S  
AS PERCEIVED BY GRADUATES

Statement	Not Achieved		Partially Achieved		Achieved		Greatly Achieved		No Response		Mean Response
	N	%	N	%	N	%	N	%	N	%	
This Agricultural Training Center:											
Provides skilled graduates who can fill the demand in:											
1. Agricultural Agencies	0	0	4	6.89	32	55.17	21	36.20	1	1.72	3.24
2. Teaching	2	3.44	7	12.07	30	51.72	19	32.76	0	0	3.14
3. Food Processing	19	32.76	20	34.48	11	18.96	6	10.34	7	3.45	2.00
4. Agricultural Business	1	1.72	10	17.24	29	50.00	17	29.31	1	1.77	3.03
5. Agricultural Mechanics	3	5.17	30	51.72	22	37.93	3	5.17	0	0	2.43
Provides graduates with the range of experiences and information to replace the present generation of farmers.											
	0	0	4	6.90	16	27.58	37	63.79	1	1.72	3.52
Provide graduates with sufficient agricultural knowledge to enter an institution of higher education in agriculture.											
	0	0	1	1.72	20	34.48	36	62.06	1	1.72	3.55
Produces graduates who, through orientation and hands-on experience, have developed mastery of the fundamental agricultural skills.											
	0	0	5	8.62	28	48.28	25	43.01	0	0	3.34



TABLE VI (Continued)

Statement	Not Achieved		Partially Achieved		Achieved		Greatly Achieved		No Response		Mean Response
	N	%	N	%	N	%	N	%	N	%	
This Agricultural Training Center:											
Produces graduates who, as farmers, teachers and extension agents, will contribute to the development of rural communities.	0	0	2	3.44	21	36.21	35	60.35	0	0	3.57
Produces graduates who as farmers, teachers and extension agents will contribute to increased agricultural production.	0	0	2	3.44	16	27.59	40	68.96	0	0	3.66
Organizes and provides training to upgrade skills or farmers in areas where schools are located to increase agricultural production and improve rural life.	3	5.17	8	13.79	23	39.66	24	41.38	0	0	3.17

of "producing graduates who through orientation and hands-on experience, have developed mastery of the fundamental agricultural skills," this goal received a mean score of 3.34. The least achieved goal by the A.T.C.'s was "to organize and provide training to upgrade skills of farmers in areas where schools are located to increase agricultural production and improve rural life." This goal received a mean response of 3.17. An overall evaluation by the graduates concerning the goal achievement of the A.T.C.'s reflected by a mean response of 3.26, shows that they were relatively successful in achieving their stated goals.

The employers evaluation concerning the fields of training specified as goals of the A.T.C.'s were very similar to that of the graduates as shown in Table VII. The field of training in agriculture most successfully achieved was "teaching" with a mean score of 2.48. The second highest mean score 1.95, was received by "agricultural agencies." Also in line with the graduates rating was "agricultural business" preparation placing third, with a mean score of 1.62. "Agricultural mechanics" and "food processing" received the lowest mean scores with 1.43 and .95 respectively.

Of the remaining goals specified on the questionnaire, the goal of "producing graduates who through orientation and hands-on experience, have developed mastery of the fundamental agricultural skills" received the highest mean score of 2.95. This goal was rated next to last by the graduates. The goal rated second by the employers specified that the A.T.C.'s "produced graduates who as farmers, teachers, and extension agents will contribute to the development of rural communities." This goal received a 2.90 mean score. This was followed by the goal of "providing graduates with sufficient knowledge to enter an institution of

TABLE VII

GOAL ACHIEVEMENT OF THE A.T.C.'S  
AS PERCEIVED BY EMPLOYERS

Statement	Not Achieved		Partially Achieved		Achieved		Greatly Achieved		No Response		Mean Response
	N	%	N	%	N	%	N	%	N	%	
This Agricultural Training Center:											
Provides skilled graduates who can fill the demand in:											
1. Agricultural Agencies	0	0	5	23.81	9	42.86	1	4.76	6	28.57	1.95
2. Teaching	0	0	10	47.62	8	38.10	2	9.52	1	4.76	2.48
3. Food Processing	2	9.52	6	28.57	2	9.52	0	0	11	52.38	.95
4. Agricultural Business	1	4.76	6	28.57	7	33.33	0	0	7	33.33	1.62
5. Agricultural Mechanics	1	4.76	10	47.62	3	14.29	0	0	7	33.33	1.43
Provides graduates with the range of experiences and information to replace the present generation of farmers.											
	1	4.76	6	28.57	9	42.86	2	9.52	3	14.29	2.29
Provide graduates with sufficient agricultural knowledge to enter an institution of higher education in agriculture.											
	1	4.76	5	23.81	10	47.62	4	19.05	1	4.76	2.71
Produces graduates who, through orientation and hands-on experience, have developed mastery of the fundamental agricultural skills.											
	0	0	6	28.57	10	47.62	5	23.81	0	0	2.95

TABLE VII (Continued)

Statement	Not Achieved		Partially Achieved		Achieved		Greatly Achieved		No Response		Mean Response
	N	%	N	%	N	%	N	%	N	%	
This Agricultural Training Center:											
Produces graduates who, as farmers, teachers and extension agents, will contribute to the development of rural communities.	0	0	6	28.57	11	52.38	4	19.05	0	0	2.90
Produces graduates who as farmers, teachers and extension agents will contribute to increased agricultural production.	1	4.76	7	33.33	11	52.38	2	9.52	0	0	2.67
Organizes and provides training to upgrade skills or farmers in areas where schools are located to increase agricultural production and improve rural life.	3	14.29	8	38.10	5	23.81	2	9.52	3	14.29	2.00

higher education in agriculture," mean score 2.71. Rating fourth from the employers response and first on the graduates response is the goal of "producing graduates who as farmers, teachers and extension agents, will contribute to increased agriculture production." Employers responses measured a 2.67 mean score.

Employers felt the goals least achieved by the A.T.C.'s were "providing graduates with a range and information to replace the present generation of farmers" and "to organize and provide training to upgrade skills of farmers in areas where schools are located to increase agricultural production and improve rural life." These two goals received a mean score of 2.29 and 2.00 respectively. It is interesting to note that both the graduates and employers placed the goal of providing training to farmers in the area as the least achieved goal listed.

A t-test analysis was used to do a specific comparison between fifteen pairs of graduates and employers to determine if any significant difference could be found between the two groups concerning goal achievement of the three A.T.C.'s.

According to Table VIII, there were significant differences between all except two goal achievement statements. Therefore, the null hypothesis stating the sample means of graduates and employers are equal, would have to be rejected between all the mean responses except for "teaching" and "food processing" in this section.

#### Curriculum Relevancy

This section of the questionnaire was included to ascertain from the graduates which areas of the curriculum may need more emphasis or

TABLE VIII  
A PAIRED COMPARISON OF GRADUATES AND EMPLOYERS  
PERCEPTIONS OF GOAL ACHIEVEMENT BY A.T.C.'S

Statement	Group Means		t-value
	Graduates	Employers	
Provides skilled graduates who can fill the demand in:			
Agricultural Agencies	3.06	2.07	2.65*
Teaching	2.93	2.60	1.23
Food Processing	1.73	1.00	1.66
Agricultural Business	2.80	1.80	2.96*
Agricultural Mechanics	2.40	1.60	2.18*
Provides graduates with the range of experiences and information to replace the present generation of farmers	3.60	2.00	4.58*
Provides graduates with sufficient agricultural knowledge to enter an institution of higher education in Agriculture	3.60	2.93	4.18*
Produces graduates who, through orientation and hands-on experience, have developed mastery of the fundamental agricultural skills	3.49	2.93	2.43*
Produces graduates who, as farmers, teachers and extension agents, will contribute to the development of rural communities	3.40	2.80	2.81*
Produces graduates who, as farmers, teachers and extension agents, will contribute to increased agricultural production	3.46	2.66	3.29*
Organizes and provides training to upgrade skills of farmers in areas where the schools are located to increase agricultural production and improve rural life	3.06	1.73	3.08*

\*denotes a significant difference at the .05 level.

alterations to better meet their needs. The remaining sections will show lower mean scores for a higher rating and a high mean score for a more unfavorable rating.

There were twelve areas of curriculum presented for the graduates response. Of the twelve areas of curriculum presented, all except for two areas received less than a 2.00 mean score response. This depicted the graduates were generally satisfied with these ten areas of the curriculum.

"On-farm experiences and training" and "crop science and management" had the most favorable response, both receiving a mean score of 1.41. "Animal science and production" along with "farm management" followed with mean scores of 1.43 and 1.45 respectively. "English language," "soils science and management," "agricultural mechanics," "integrated science," "mathematics" and "ornamental science and management" were rated in the middle range with mean scores of 1.64, 1.72, 1.79, 1.81, 1.83, and 1.95, respectively. The highest mean scores were attained by "laboratory work" and "social studies" areas of the curriculum with mean scores of 2.51 and 2.53 respectively. This seems to illustrate that these two areas were not emphasized enough or relevant to the graduates needs. The overall mean score was 1.79 illustrating a favorable attitude toward the curriculums relevancy to their needs.

#### Role of the Selected Agricultural Training

##### Centers

This section was included in both the graduate and employer instruments. The purpose of this section was to ascertain perceptions

TABLE IX  
CURRICULUM RELEVANCY TO THE A.T.C.'S  
AS PERCEIVED BY THE GRADUATES

Curriculum Area	Strongly Agree		Agree		Disagree		Strongly Disagree		No Response		Mean Response
	N	%	N	%	N	%	N	%	N	%	
Animal Science and Production	38	65.52	17	29.31	1	1.72	2	3.44	0	0	1.43
Ornamental Science and Management	15	25.86	30	51.72	10	17.24	2	3.44	0	1.72	1.95
Crop Science and Mgmt.	39	67.24	16	27.59	2	3.44	1	1.72	0	0	1.41
Soils Science and Management	23	39.65	28	48.28	7	12.07	0	0	0	0	1.72
Mathematics	21	36.21	29	50.00	5	8.62	3	5.17	0	0	1.83
Farm Management	38	65.52	16	27.59	2	3.44	2	3.44	0	0	1.45
English Language	27	46.55	26	44.83	4	6.90	1	1.72	0	0	1.64
Social Studies	6	10.35	24	41.38	15	25.86	12	20.69	1	1.72	2.53
Agricultural Mechanics	16	27.59	33	56.90	7	12.07	7	1.72	1	1.72	1.79
Integrated Science	21	36.21	29	50.00	6	10.35	2	3.44	0	0	1.81
Laboratory Work	8	13.79	18	31.03	18	31.03	12	20.69	2	3.44	2.51
On-Farm Experience and Training	39	67.24	13	22.41	4	6.90	1	1.72	1	1.72	1.41



concerning the A.T.C.'s role in Jamaica's agricultural development process. There were eight statements included in this section to ascertain perceptions from the respondents. Table X summarizes the responses from the graduates.

According to Table X, the role which received the most favorable response was "to provide the essential primary step in agricultural education in Jamaica," with a mean score of 1.47. The role of "providing leadership for community development" received the second most favorable response, with a 1.55 mean response. The graduates surveyed also felt strongly about the A.T.C.'s "influencing policy decision making for agricultural development" and "serving as demonstrators for new agricultural practices." These two role statements received mean scores of 1.63 and 1.67 respectively. Two role statements tied for fifth place in the ratings of this section. Those were for the A.T.C.'s "to serve as a center for agricultural research" and "to serve as a center for extension activities." They both received a 1.93 mean response.

Ironically the role statement specifying that the A.T.C.'s should serve as a community development center received next to the highest mean score with a 2.39. This was rather surprising after the role statement of providing leadership for community development was second most agreed upon statement of the eight listed.

Finally, the last role statement was included to "cross-check" the attention of the respondents and received the most disagreement. This statement specified that the A.T.C.'s should be "less active in community affairs." A 3.53 mean response was received on this statement. There were 5 or 8.61 percent agreeing with this statement, no one strongly agreed with it.

TABLE X  
THE ROLE OF A.T.C.'S IN JAMAICAS'  
AGRICULTURAL DEVELOPMENT PROCESS  
AS PERCEIVED BY GRADUATES

Statement	Strongly Agree		Agree		Disagree		Strongly Disagree		No Response		Mean Response
	N	%	N	%	N	%	N	%	N	%	
Serve as a center for agricultural research.	22	37.93	17	29.31	12	20.69	5	8.62	2	3.44	1.93
Serve as a center for extension activities.	18	31.03	22	37.93	14	24.14	2	3.44	2	3.44	1.93
Serve as a community development center.	12	20.69	17	29.31	21	36.20	7	12.07	1	1.72	2.36
Serve as a demonstrator for new agricultural practices.	27	46.55	20	34.48	6	10.35	3	5.17	2	2.44	1.67
Provide leadership for community development.	31	53.45	20	34.48	5	8.62	1	1.72	1	1.72	1.55
Influence policy decision making for agricultural development.	26	44.83	20	34.48	7	12.07	2	3.44	3	5.17	1.63
Provide the essential primary step in agricultural education in Jamaica.	36	62.07	17	29.31	5	8.62	0	0	0	0	1.47
Be less active in community affairs.		00	5	8.61	17	29.31	36	62.07	0	0	3.53

Table XI summarizes the employer responses concerning the A.T.C.'s role in Jamaica's agricultural development process. The role most agreed upon by the employer's was that the A.T.C.'s "provide the essential primary step in agricultural education in Jamaica." This statement received a 1.43 mean response from the employers. This role was also chosen first by the graduates. Employers also felt that one of the primary roles of the A.T.C.'s was to serve as a "demonstrator for new agricultural practices." They responded with a 1.62 mean score for this statement.

Five of the six remaining role statements were in the "agree" response range. These five were in order of lowest mean score or receiving the most agreement to the highest mean response; they were "provide leadership for community development," mean of 1.81, "serve as a center for extension activities," had the same mean response of 1.86, "serve as a community development center," had a mean score of 1.95 and "influence policy decision making for agricultural development," had a 2.24 mean response. The graduates and employers disagreed considerably on this role of the A.T.C.'s since the graduates responded to the role of influencing policy decisions with the second lowest mean response.

The employers responded to the role statement concerning that A.T.C.'s should "be less active in community affairs" with strong disagreement. This statement received a 3.52 mean response from the employers. The graduates also responded to this statement with strong disagreement.

Table XII illustrates the t-test analysis on the comparison of responses for the role statements between the graduate and employer respondents. Only one role statement comparison resulted in a

TABLE XI  
THE ROLE OF A.T.C.'S IN JAMAICA'S  
AGRICULTURAL DEVELOPMENT PROCESS  
AS PERCEIVED BY EMPLOYERS

Statements	Strongly Agree		Agree		Disagree		Strongly Disagree		No Response		Mean Response
	N	%	N	%	N	%	N	%	N	%	
Serve as a center for agricultural research.	5	23.81	11	52.38	4	19.05	0	0	1	4.76	1.86
Serve as a center for extension activities.	4	19.05	13	61.91	3	14.29	0	0	1	4.76	1.86
Serve as a community development center.	4	19.05	11	52.38	5	23.81	0	0	1	4.76	1.95
Serve as a demonstrator for new agricultural practices.	8	38.10	13	61.91	0	0	0	0	0	0	1.62
Provide leadership for community development.	5	23.81	12	57.14	3	14.29	0	0	1	4.76	1.81
Influence policy decision making for agricultural development.	2	9.52	11	52.38	5	28.81	2	9.52	1	4.76	2.24
Provide the essential primary step in agricultural education in Jamaica.	13	61.91	7	33.33	1	4.76	0	0	0	0	1.43
Be less active in community affairs.	0	0	1	4.76	8	38.10	12	57.14	0	0	3.52

TABLE XII  
A PAIRED COMPARISON OF GRADUATES AND EMPLOYERS PER-  
CEPTIONS OF THE ROLE OF A.T.C.'S IN JAMAICAS'  
AGRICULTURAL DEVELOPMENT PROCESS

Statements	Group Means		t-value
	Graduates	Employers	
Serve as a center for agricultural research	1.86	1.93	0.21
Serve as centers for extension activities	1.93	1.80	0.38
Serve as community development centers	2.20	2.06	0.35
Serve as demonstrators for new agricultural practices	1.53	1.60	0.23
Provide leadership for community development	1.40	1.73	1.32
Influence policy decision making for agricultural development	1.13	2.20	4.30*
Provide the essential primary step in agricultural education in Jamaica.	1.26	1.33	0.29
Be less active in community affairs	3.66	3.53	0.62

\*denotes a significant difference at the .05 level.

significant difference. This role statement was "influence policy decision making for agricultural development." The graduates rated this role with a more favorable attitude than did the employers.

#### Needs of the Selected Agricultural Training Centers

This section was included to identify some of the problem areas or weaknesses of the A.T.C.'s so that the appropriate decisions could be made to improve their effectiveness. There are 21 statements included in this section.

Table XIII summarizes the responses given by the graduate respondents. The data shows that seven of the statements included in this section received mean scores that were in the "strongly agree" The lowest mean response was received by the statement concerning for "more interaction with other agricultural education programs around the world." This was closely followed by the need for "improved placement practices for graduates," which received a 1.26 mean response. The graduates strongly agreed that there is a need for "more support from the Ministry of Agriculture." This statement received a 1.29 mean response from the graduates. Another need statement which was in the "strongly agreed" category was the need for "more cooperation with United States Universities," 1.43 mean response.

Thirteen need statement responses were categorized in the "agree" category. The only statement which fell in the "disagree" category was the need for "less hands-on experience and training." There were no need statements in the "strongly disagree" category.

Table XIV includes the data collected with respect to employers

TABLE XIII  
NEEDS OF THE A.T.C.'S AS PERCEIVED  
BY GRADUATES

Statements	Strongly Agree		Agree		Disagree		Strongly Disagree		No Response		Mean Response
	N	%	N	%	N	%	N	%	N	%	
Better qualified administrators	4	6.90	18	31.03	17	29.31	17	29.31	2	3.44	2.74
Better qualified teachers	12	20.69	14	24.14	24	41.38	5	8.62	3	5.17	2.28
More staff development emphasis	20	34.48	26	44.83	9	15.52	1	1.72	2	3.44	1.78
More staff development opportunities	25	43.10	24	41.38	4	6.90	3	5.17	2	3.44	1.67
Better facilities	29	50.00	8	13.79	13	22.41	5	8.62	3	5.17	1.79
More dedicated teachers	16	27.59	18	31.03	15	25.86	7	12.07	2	3.44	2.16
More effective student selection system	25	43.10	20	34.48	8	13.79	4	6.90	1	1.72	1.81
More effective student evaluation system	12	20.69	22	37.93	14	24.14	7	12.07	3	5.17	2.17
More hands-on experience and training	15	25.86	25	43.10	13	22.41	2	3.44	3	5.17	1.93
More relevant curriculum	14	24.14	21	36.21	15	25.86	6	10.35	2	3.44	2.16
A better image within the community	13	22.41	20	34.48	16	27.59	7	12.07	2	3.44	2.22

TABLE XIII (Continued)

Statements	Strongly Agree		Agree		Disagree		Strongly Disagree		No Response		Mean Response
	N	%	N	%	N	%	N	%	N	%	
More cooperation with research	28	48.28	22	37.93	3	5.17	2	2.34	3	5.17	1.53
More cooperation with farmers	21	36.21	29	50.00	6	10.35	1	1.72	1	1.72	1.74
More cooperation with extension	20	34.48	31	53.45	4	6.90	1	1.72	2	3.44	1.69
More cooperation with industry	28	48.28	24	41.38	4	6.90	1	1.72	1	1.72	1.59
More support from the Ministry of Ed.	36	62.07	14	24.14	5	8.62	2	3.44	1	1.72	1.50
More support from the Ministry of Ag.	41	70.69	14	24.14	2	3.44	0	0	1	1.72	1.29
Improved placement practices for graduates	43	74.14	15	25.86	0	0	0	0	0	0	1.26
Less hands-on experience and training	3	5.17	4	6.90	28	48.28	19	32.76	4	6.90	2.95
More cooperation with U.S. universities	38	65.52	16	27.59	3	3.44	1	1.72	1	1.72	1.38
More interaction with other agricultural education programs around the world.	49	84.48	7	12.07	1	1.72	0	0	1	1.72	1.14



TABLE XIV  
NEEDS OF THE A.T.C.'S AS PERCEIVED  
BY EMPLOYERS

Statements	Strongly Agree		Agree		Disagree		Strongly Disagree		No Response		Mean Response
	N	%	N	%	N	%	N	%	N	%	
Better qualified administrators	3	14.29	3	14.29	3	14.29	2	9.52	10	47.62	2.36
Better qualified teachers	4	19.05	4	19.05	4	19.05	0	0	9	42.86	2.00
More staff development emphasis	2	9.52	7	33.33	1	4.76	0	0	11	52.38	1.90
More staff development opportunities	3	14.29	8	38.10	0	0	0	0	10	47.62	1.73
Better facilities	4	19.05	8	38.10	1	4.76	1	4.76	7	33.33	1.93
More dedicated teachers	4	19.05	6	28.57	2	9.52	2	9.52	7	33.33	2.14
More effective student selection system	4	19.05	7	33.33	3	14.29	0	0	7	33.33	1.93
More effective student evaluation system	5	23.81	5	23.81	2	9.52	0	0	9	42.86	1.75
More hands-on experience and training	3	14.29	6	28.57	3	14.29	1	4.76	8	38.10	1.33
More relevant curriculum	1	4.76	3	14.29	7	33.33	1	4.76	9	42.86	1.52
A better image within the community	2	9.52	7	33.33	1	4.76	0	0	11	52.38	1.90

TABLE XIV (Continued)

Statements	Strongly Agree		Agree		Disagree		Strongly Disagree		No Response		Mean Response
	N	%	N	%	N	%	N	%	N	%	
More cooperation with research	2	9.52	7	33.33	0	0	0	0	12	57.14	1.60
More cooperation with farmers	1	4.76	9	42.86	0	0	0	0	11	52.38	1.90
More cooperation with extension	1	4.76	7	33.33	1	4.76	0	0	12	57.14	1.82
More cooperation with industry	3	14.29	5	23.81	3	9.52	0	0	11	52.38	2.20
More support from the Ministry of Ed.	6	28.57	5	23.81	3	14.29	0	0	7	33.33	1.79
More support from the Ministry of Ag.	4	19.05	8	38.10	2	9.52	0	0	7	33.33	1.86
Improved placement practices for graduates	6	28.57	5	23.81	2	9.52	0	0	8	38.10	1.69
Less hands-on experience and training	0	0	2	9.52	3	14.29	5	23.81	11	52.38	3.30
More cooperation with U.S. Universities	5	23.81	4	19.05	1	4.76	1	4.76	10	47.62	2.00
More interaction with other agricultural education programs around the world	7	33.33	7	33.33	0	0	0	0	7	33.33	1.50

responses concerning needs of the A.T.C.'s. The employers responses included one need statement in the "strongly agree" category. This statement was "more hands-on experience and training."

There were eighteen statement responses by the employers which were in the "agree" category. The mean responses in the category ranged from 1.50 on the statement "more interaction with other agricultural education programs around the world," to a mean response of 2.36 for the statement "better qualified administrators."

The two statements least agreed upon by the employers were the need for a "more relevant curriculum" and "less hands-on experience and training." They received mean scores of 2.66 and 3.30 respectively. It should be noted that a large number of the employers had "no responses" for many of the statements in this section. An average of eight did not respond on all of the statements in this section. This may indicate a lack of knowledge about the needs of the A.T.C.'s

Table XV illustrates the data presented concerning a comparison of the employers and the graduates. A significant difference was found between four of the need statements, namely they were, "better qualified administrators," "a better image within the community," "more cooperation with farmers" and "less hands-on experience and training."

#### Graduates Agricultural Training Experience Rating

This section was included for the graduates, to ascertain information pertaining to the benefits they received from participating in their Agricultural Training Program. This section was also included to reveal strengths and possible weaknesses in the selected programs. The results are summarized in Table XVI.

TABLE XV  
A PAIRED COMPARISON OF GRADUATES AND EMPLOYERS  
PERCEPTIONS CONCERNING NEEDS OF THE A.T.C.'S

Statements	Group Means		t-value
	Graduates	Employers	
Better qualified administrators	2.46	1.00	2.95*
Better qualified teachers	1.80	1.00	1.82
More staff development emphasis	1.80	1.00	1.82
More staff development opportunities	1.46	.86	1.60
Better facilities	1.66	1.06	1.46
More dedicated teachers	2.07	1.13	1.76
More efficient student selection system	1.67	1.13	1.17
More efficient student evaluation system	1.67	.86	2.04
More hands-on experience and training	2.00	1.13	1.86
A more relevant curriculum	1.93	1.26	1.23
A better image within the community	2.06	.86	2.61*
More cooperation with research	1.20	.80	1.57
More cooperation with farmers	1.46	.86	2.20*
More cooperation with extension	1.60	1.00	1.42
More cooperation with industry	1.60	1.00	1.50
More support from the Ministry of Education	1.40	.93	1.33
More support from the Ministry of Agriculture	1.20	1.13	.21
Improved placement practices for graduates	1.20	.80	1.87
Less hands-on experience	3.46	1.46	4.37*
More cooperation with U.S. universities	1.33	.93	1.38
More interaction with other agricultural education programs around the world	1.13	.80	1.32

\*denotes a significant difference at the .05 level.

TABLE XVI  
GRADUATES PERCEPTIONS OF THE BENEFITS FROM  
THEIR AGRICULTURAL TRAINING EXPERIENCES

Statements	Strongly Agree		Agree		Disagree		Strongly Disagree		No Response		Mean Response
	N	%	N	%	N	%	N	%	N	%	
Helped me learn how to work	36	62.07	20	34.48	2	3.44	0	0	0	0	1.41
Taught me skills useful in an ag. career	50	86.21	8	13.79	0	0	0	0	0	0	1.13
Taught me skills useful in a non-ag. career	8	13.79	26	44.83	12	20.69	10	17.24	2	3.44	2.42
Helped me choose an occupation	21	36.21	31	53.45	4	6.90	0	0	2	3.44	1.70
Helped me enter on advance in an ag. career	33	56.90	23	39.66	1	1.72	0	0	1	1.72	1.44
Helped me learn how to get along with people	24	41.38	34	58.62	0	0	0	0	0	0	1.58
Helped me learn leadership skills	40	68.97	18	31.03	0	0	0	0	0	0	1.31
Helped me learn how to participate in meetings	24	41.38	30	51.72	4	6.90	0	0	0	0	1.66

TABLE XVI (Continued)

Statements	Strongly Agree		Agree		Disagree		Strongly Disagree		No Response		Mean Response
	N	%	N	%	N	%	N	%	N	%	
Helped me stay in school	17	29.31	23	39.66	12	20.69	2	3.44	4	6.90	1.98
Helped me go to college	8	13.79	22	37.93	15	25.86	3	5.17	10	17.24	2.27
Were good for me	45	77.59	11	18.97	2	3.44	0	0	0	0	1.26
Were such that if I had it to do over again, I would enroll in this Agricultural Training Program	31	53.45	15	25.86	5	8.62	2	3.44	5	8.62	1.58
Emphasized career orientation and development	17	29.31	27	46.55	2	3.44	3	5.17	9	15.52	1.82
Taught me skills that are useful in creating self-employment	39	67.24	16	27.59	1	1.72	0	0	2	3.44	1.32

The graduates were apparently satisfied with the majority of benefits listed in this section. Six of the fourteen listed received mean responses which were included in the "strongly agree" category. The range of mean responses were from 1.13 to 2.42. The benefit receiving the lowest mean was "taught me skills useful in an Agricultural Career". The highest mean response of 2.42 was received by the statement "taught me skills useful in a non-agricultural career." Other highly agreed upon benefits from the program was that their experiences "were good for me" and "helped me learn leadership skills."

#### Graduates Job Performance

One of the most important evaluation tools concerning the effectiveness of a training program is in the performance of its graduates. This section was included to ascertain information concerning job performance of the graduates selected in this survey.

This section includes two parts. The first part has thirteen items related to different aspects of job performance. The response rating for this section is on a four point rating scale, going from "Low-1" to "High-4." Therefore, the higher the mean response, the more favorable the job performance. The second part is merely a comparison of the selected graduates to other employees employed by the selected employers. The comparison is done by checking one of the four statements provided.

Table XVII contains the data concerning the rating of graduates job performance. The items which were rated highest by the employers were "cooperation with others," with a mean response of 3.15; "work attitudes," with a mean response of 3.10; and willingness to learn and improve" having a mean response of 3. The lowest rating was found with

TABLE XVII  
EMPLOYERS RATINGS OF GRADUATES  
JOB PERFORMANCE

Items	Rating										Mean Response
	1		Low 2		3		High 4		No Response		
	N	%	N	%	N	%	N	%	N	%	
Quality of work	1	4.76	6	28.57	12	57.14	1	4.76	1	4.76	2.65
Quantity of work	0	0	6	28.57	10	47.62	4	19.05	1	4.76	2.90
Job related technical knowledge	1	4.76	5	23.81	12	57.14	0	0	3	14.29	2.61
Job skills	1	4.76	6	28.57	12	57.14	1	4.76	1	4.76	2.65
Basic academic skills	1	4.76	2	9.52	13	61.91	3	14.29	2	9.52	2.95
Work habits	0	0	6	28.57	9	42.86	5	23.81	1	4.76	2.95
Work attitudes	1	4.76	4	19.05	7	33.33	8	38.10	1	4.76	3.10
Accepts responsibility	1	4.76	5	23.81	9	42.86	5	23.81	1	4.76	2.90
Supervision required	2	9.52	5	23.81	10	47.62	2	9.52	2	9.52	2.63
Cooperation with others	3	14.29	0	0	8	38.10	9	42.86	1	4.76	3.15
Willingness to learn and improve	3	14.29	0	0	10	47.62	6	28.57	2	9.52	3.00
Overall satisfaction	1	4.76	3	14.29	11	52.38	4	19.05	2	9.52	2.95
Promotability	2	9.52	3	14.29	12	57.14	2	9.52	2	9.52	2.74



TABLE XVIII

EMPLOYERS COMPARISON OF GRADUATES WITH EMPLOYEES  
FROM OTHER TRAINING PROGRAMS

Statement	N	%	No Response	
			N	%
No basis for comparison	7	33.33	1	4.76
This student is better prepared	0	0	0	0
Both are about the same	6	28.57	0	0
This student is less prepared	7	33.33	0	0

the item "job related technical knowledge" with a mean response of 2.61. Overall satisfaction of the graduates received a 2.95 mean response.

Table XVIII contains a comparison of the selected graduates with other employees of the employers surveyed. Seven employers stated they had no basis for comparison while seven also stated the graduates were less prepared. Six stated that the graduate was about the same while no one said the graduates were better prepared.

#### Graduates Future Plans

This section was added to the questionnaire in Jamaica. Ministry of Education officials stated an interest in knowing what the future plans were of the graduates. Therefore, five statements concerning certain options were added on the back of the questionnaire. Two additional comments were also added to the "benefits" section on this addition.

Table XIX contains the data collected on the future plans of the graduates who responded. A majority of the graduates seem to be interested in "attending an institution of higher education in agriculture." This option had the lowest mean response, 1.24. The highest mean response 3.26, was received by the option of "remaining at my present job." This would suggest that most of the graduates surveyed were dissatisfied with their present jobs. A high interest seems to be also placed in "studying abroad," mean response 1.60.

TABLE XIX  
GRADUATES RATING OF STATEMENTS  
RELATING TO THEIR FUTURE PLANS

Statements	Strongly Agree		Agree		Disagree		Strongly Disagree		No Response		Mean Response
	N	%	N	%	N	%	N	%	N	%	
Attend an institution of higher education in Agriculture	51	87.93	5	8.62	0	0	0	0	2	3.44	1.24
Remain at my present job	0	0	5	8.62	19	32.76	15	25.86	19	32.76	3.26
Create my own job	8	13.79	21	36.21	10	17.24	3	5.17	16	27.59	1.90
Change jobs	4	6.90	7	12.07	22	37.93	10	17.24	15	25.86	2.88
Study abroad	20	34.48	23	39.66	2	3.44	0	0	13	22.41	1.60
Other											

### Recommendations for Other Developing Countries

One question was included on both the employer and graduate instruments to ascertain information pertaining to their recommendation for other developing countries with respect to A.T.C.'s. It was hoped that this question would get a general feeling of the overall respondent satisfaction with the contributions of A.T.C.'s.

The author feels that these A.T.C.'s have great potential for other developing countries around the world. Therefore, the attitudes of people directly involved with the A.T.C.'s should support or defy such a premise. Table XX contains the perceptions of the respondents concerning the question of their "recommending secondary agriculture education as being an integral part of other developing countries rural development process." The responses are overwhelmingly in favor of this recommendation. Graduates and employers both with mean responses of 1.14 and 1.30 respectively, either "agreed" or "strongly agreed" with this question. No one disagreed with this concept for other developing countries.

### Selected Comments

Additional comments were asked for at the end of each questionnaire. It was encouraging to see that many of the graduate respondents took advantage of this opportunity to express their feelings about their agricultural training experiences. Some graduates wrote as much as two pages expressing their concerns about the Agricultural Training Programs.

The Author feels that some of the most valuable information from the study is included in the comments expressed by both the graduate and

TABLE XX

GRADUATES AND EMPLOYERS PERCEPTIONS CONCERNING A RECOM-  
MENDATION FOR SECONDARY AGRICULTURAL EDUCATION TO  
BE AN INTEGRAL PART OF OTHER DEVELOPING  
COUNTRIES RURAL DEVELOPMENT PROCESS

Group	Strongly Agree		Agree		Disagree		Strongly Disagree		No Response		Mean Response
	N	%	N	%	N	%	N	%	N	%	
Graduates	50	86.21	8	13.79	0	0	0	0	0	0	1.14
Employers	14	66.67	6	28.57	0	0	0	0	1	4.76	1.30

employer respondents. Therefore, he has included the following comments from respondents:

1. One very important thing about our training was that our system of workmanship was versatile because it did not only develop in us skills by modern devices, but in a manual form also, making us fit and capable of adjusting ourselves to almost any kind of environment.

2. From an individual point of view, the Vocational Agricultural Program was highly successful at Dinthill Technical High School. After three years of extensive study and completion of the Agricultural program, finding a job posed no real problem for the successful students. The problem really lies with those who wish to continue their study in Agriculture.

3. The Agricultural Training Program that I participated in was truly a success to me and my fellow companions. It was indeed a pleasure for the three year experience that I gained at Dinthill Technical High School. The only fault I find with it is that it doesn't provide the graduates with any form of future in agriculture. After leaving school graduates who wish to extend their agricultural education and skill should get some form of support from both the Ministry of Agriculture and the Ministry of Education as well as United States universities. Apart from the Jamaica School of Agriculture (J.S.A.) which no longer exists, there is no other form of tertiary institution in Jamaica for one who is agriculturally motivated. This is a set back in the agricultural society.

4. I think that we could have achieved more if we had a science lab to carry out laboratory tests and also a library where we could do research. I would recommend that these facilities be given to this

school as early as possible as they are very vital in any institution. Being an institution which offers a three year course, I think that people who leave here and want to pursue their studies at a tertiary institution should be allowed to spend one year less at the tertiary institution. This is because I think that the final years of work at Knockalva is equivalent to the first year at e.g. Jamaica School of Agriculture.

5. The Agricultural Training was excellent, but we have many difficulties in obtaining jobs, especially in the Ministry of Agriculture. Even though there are plans for increasing the production of coffee, sugar cane, bananas and local crops and livestock industries. Moreover, the academic standard is very good. Annually there is about 80-90% of the final year students taking the J.S.A. entrance exam who are successful; but only 5-10% of these are selected to enter the institution. There isn't enough graduates entering the J.S.A. summer courses either.

6. The Agricultural Training Program I have participated in at Knockalva was of significant importance to me. The curriculum was organized in such a way that after graduation we will be able to manipulate efficiently in any aspect of agriculture. It is therefore my intention to continue this same trend so that my country and my community can be benefited from my training.

7. I think jobs should be provided for students that have graduated. I think that the government should provide loans so that graduates may be able to employ themselves. I would create my own job if I could get a loan to borrow.

8. During the first year I feel the course could be a little more intensive in the area of Animal Science, Crop and Soil Science. There should be a lab set up in the institution so that students can

participate in research, especially where crop and soil are concerned for example, diseases of plants by identification. Some of the graduates should even have a fair chance of entering a university by gaining scholarships instead of holding us down.

9. Although I have achieved a lot from this program, yet I did not achieve much in the areas of accounts and farm management. This is really showing on my performance in these areas.

10. I think the government should encourage more young Jamaican's to do farming. From as early as basic school age if possible. More emphasis should be placed on students who have dedicated themselves to agriculture. More government scholarships should be given to students at a secondary school level who have shown an existing potential toward agriculture, also teachers of agriculture science. The Agriculture Society should cooperate more with the school; for example take students on for work experience. More emphasis should be given to persons involved in backyard farming.

11. The Ministry should get the school associated with universities all over the world so that graduates can be able to get the higher level of agriculture education and also wider education opportunities. The community should also have a better knowledge of the school. With the Jamaican people unaware of the school and its function, graduates find it hard to get jobs.

12. My comment is this, I don't like the way we are left alone after graduation. I think that you as the senior officer in our field should assist us in getting some jobs. I left Elim from July, 1981, and up until now I am unable to obtain a job. I have gone through the process of checking with most of the agricultural parish offices near by, and its



unsuccessful. I think both the Ministry of Education and the Ministry of Agriculture should try and obtain some vacancies for us as graduates. Because, what has happened is that the Agriculture sector is filled with untrained agriculturalist.

On the other hand, I think that most of us can be employed in some of the extension jobs, all-age and secondary schools. Due to the fact that we are the pioneers of Elim, we should be out in the field to set some principles that the pre-graduates may be better known when they graduate. Elim is not known to some extent.

These secondary agricultural institutions should have a work employment system like the Jamaica School of Agriculture. Whereas after graduation we can find a job that we can impart and practice what we are taught.

13. I believe that many more improvements are needed for the development of these Agriculture Programs. They should be so involved in agricultural activities which would not result in them being the center of attraction for all those who are interested in agriculture. This can only happen if support is received from the Ministry of Agriculture and Education. The programs also need a very good relationship with agricultural industries, which will provide better job opportunities for its graduates.

14. I found it necessary for the Ministry of Education and Agriculture to combine and seek jobs for the graduates of these institutions. The graduates should have a job relevant to agriculture. At this moment I cannot get a job.

15. It should involve more management practice. The training program should also give access to students to study sociology, which

will help them to deal with people more effectively, which is a must for them, especially if they are going into the teaching career.

16. I am very much interested in furthering my studies so that I may help uplift agriculture in the country.

17. Elim Agriculture School has played a major role in my life. The school has been an asset to many rural youths, some of whom are graduates of Junior secondary schools. In a recent discussion with a pioneer graduate, the question was asked, "What would happen to us if there was not an Elim?" Today we are proud of Elim High School, we can answer our own question. Having been through Elim I can say there are no regrets.

After being placed in the middle of an Agricultural Community (Brumdec) by the inventors; we accepted the challenge to persevere for excellency. What we received at the end is not put into investment. Knowing that whatever a man needs in life will only come by launching out after it. Everybody possesses their own talents and each man's talent and achievement must be accepted and treated with respect. Everybody won't be doctors, lawyers, teachers, and others. Therefore, some will have to be farmers, extension officers, and others. Each member must be treated equally in Society. Today because of what was taught to me, I found myself moving very effectively, even more than graduates of higher institutions. I am very sorry that graduates like us, are not given better incentives at work, even when you work harder than those of higher education. Even appointment in the Public Service is not given to us. I hope the Ministry will look at this problem. Let me at this time congratulate the inventors of Elim and the entire staff who worked dedicatedly with us and who saw us to the end.

18. I think he acquits himself industriously at his assignments and is a very cooperative person.

19. They should be encouraged to be more punctual on the job and when absent more than a day, to inform their employer without delay.

20. It is my opinion that on an average the teachers are qualified what seems to be lacking in our society as a whole, is dedication and persistency.

21. What has been observed is that persons who are not graduating do not want to do field work; instead they want to go to the office and concentrate on bookwork.

22. This employee was taken on at the beginning of December 1981. In the short time he has been with us he has performed well and he has proven that the time spent at Knockalva was not wasted. He shows good potential for the future.

## CHAPTER V

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### Introduction

The purpose of this study was to ascertain opinions from selected graduates and their employers concerning various aspects of three secondary agricultural training centers in Jamaica. Information was also desired concerning the graduates occupational status, future plans and ratings of the graduates job performance.

This purpose was set forth to assist decision makers and planners in Jamaica in expediting the appropriate decisions for enhancing the effectiveness of these agricultural training programs. In order to achieve this purpose the following objectives were identified.

1. To ascertain ratings from the graduates employers concerning the graduates job performance.

2. To ascertain perceptions from selected graduates and their employers concerning the roles, goals and needs of the selected agricultural training programs.

3. To ascertain the graduates perceptions concerning their agricultural training experience including the curriculum relevancy of their training.

4. To ascertain the current status and future plans of the selected graduates.

The researcher designed two instruments to collect the data for this study. This was done by reviewing other follow-up studies and input from staff and faculty at Oklahoma State University. Input was also given Jamaica's students at Oklahoma State University as well as Ministry Officials in Jamaica. The researchers experience in Jamaica also contributed a great deal to the content of these instruments.

The data was collected by mailing the questionnaires to the selected graduates and employers. The researcher visited Jamaica from January 20, 1982, through February 28, 1982, to collect the data.

The methodology used in analyzing the data collected in this study were descriptive statistics: numbers, percentages and mean responses.

A t-test was also used to determine any significant differences between the graduates and employer responses. A paired comparison was used between fifteen matched pairs of graduates and employers.

#### Summary of the Findings

1. Of the accidental population of 111; 79 respondents were ascertained giving a 71.2 percent response rate.

2. Fifty-eight graduates and twenty-one employers were included in the 79 respondents.

3. Forty-one of the graduates were employed as agricultural teachers, two were employed in non agriculturally related jobs, 14 were unemployed, five were employed part-time, one was in school, while none were self-employed.

4. The employer respondents included 18 principals of all-age or secondary schools, two supervisors in the Ministry of Agriculture and one supervisor of a sugar estate.

5. The average response of the graduates concerning goal achievement of the agricultural training centers was a 3.26, in the "achieved" category (2.50-3.49).

6. Graduate responses showed that preparation for "agricultural agencies" and "teaching" professions were rated highest, while preparation in "food processing" and "agricultural mechanics" received the lowest. The employers responded with the same rating.

7. The graduates felt the goal most achieved was that "graduates would contribute to an increased agricultural production," while the least achieved was the goal statement of "providing training for farmers in the area of these schools to increase agricultural production and improve rural life." This was also chosen by the employers as the least achieved goal.

8. Employers felt the most achieved goal was "providing graduates with mastery of fundamental agricultural skills."

9. The t-test analysis between 15 matched pairs resulted in significant differences between the means of all goal statements except for "teaching" and "food processing."

10. The graduates were satisfied with the relevancy of all areas of the curriculum except "laboratory work" and "social studies."

11. Both graduates and employers responded in the "agree" category of response for 7 of the 8 role statements. The eighth role statement specifying these institutions should be "less active in community affairs," received strong disagreement from both groups surveyed.

12. The t-test analysis resulted in one significant difference. That statement was that these agricultural training centers should "influence policy decision making for agricultural development."

13. "More interaction with other agricultural education programs around the world," "improved placement practices for graduates," "more support from the Ministry of Agriculture" and "more cooperation with research," were common need areas of concern expressed by graduates and employers.

14. Need statements receiving the least concern were "better qualified administrators," "a more relevant curriculum," "more hands-on experience and training" and the need for "less hands-on experience and training," by both groupes surveyed.

15. The t-test analysis showed four statements with significant differences between the mean responses of the two groups. These were, "better qualified administrators," "a better image within the community," "more cooperation with farmers" and "less hands-on experience and training."

16. The benefits receiving the most favorable rating by the graduates for the experiences in agricultural training were "taught me skills useful in an agricultural career," "were good for me," "helped me learn leadership skills" and "taught me skills useful in creating self-employment."

17. Benefits receiving the least favorable response from the graduates were "taught me skills useful in a non-agricultural career," "helped me go to college" and "emphasized career orientation and development."

18. The employer evaluation of selected graduates highlighted "co-operation with others," "work attitudes" and "willingness to learn and improve," as the items with the highest ratings.

19. Items receiving the lowest rating by employers were, "job related technical knowledge," "job skills" and "quality of work."

20. Regarding the future plans of the graduates, it was found that 96.5 percent of them expressed an interest in "attending an institution of higher education in agriculture." Other interest for the future were to "study abroad" or "create my own job." A high degree of dissatisfaction was expressed for "remaining at their present jobs."

21. The statement included to ascertain the graduates and employees feelings toward recommending agricultural training centers for other developing countries received strong agreement from both groups. One hundred percent of the graduates agreed, while 95.3 percent of the employers agreed with it. One did not respond.

#### Summary of Selected Comments

The comments submitted by the graduates were very positive toward their agricultural training experiences. However, there seems to be a common thread of discontent concerning the lack of assistance with acquiring a job in agriculture to use their training after graduation.

A strong recommendation was made by many of the students to have the Agricultural Training Center, Ministry of Education and the Ministry of Agriculture, to work together in assisting graduates in acquiring jobs in the agricultural industry. The graduates were also concerned about the lack of an institution of higher education in agriculture to continue their studies. The problem of seeking employment in agriculture compounded by the lack of a tertiary institution in agriculture to continue their training has given them a very gloomy outlook.

Other points of concern by the graduates were the lack of laboratory and library resources and facilities to carry out research. A couple of graduates commented that they would have liked more management training



and sociology. "We need to be better able to understand people, especially if we're going to be teachers," one stated.

One graduate commented on his desire for the Ministry of Education to develop associations with universities around the world to increase opportunities to study agriculture.

Generally, the comments by the graduates were proud and very supportive of the A.T.C.'s. One graduate even took this opportunity to congratulate the inventors and entire staff of Elim who "worked with us and saw us to the end."

Employer comments were very few. Two commented on the good quality of work the graduate had performed in a short time of employment. One commented on a punctuality problem with the graduate. Another commented on the graduates not wanting to do field work; only "go to the office and concentrate on bookwork."

### Conclusions

The conclusions of this study are as follows:

1. The Agricultural Training Centers (A.T.C.'s) are generally achieving the goals stated by the Ministry of Education. However, there are several areas that need attention; namely, concentrating more on the training of farmers to increase agricultural production and improve rural life, food processing and agricultural mechanics components of curriculum. Laboratory facilities and library resources were also a major deficiency in these training programs.

2. The curriculum seemed to be serving the needs of the graduates and employers.

3. The A.T.C.'s are an integral part of Jamaica's agricultural development process.

4. The A.T.C.'s should be an integral part of the rural development process of other developing countries.

5. The deficiencies identified of greatest concern to the respondents were; "improved placement practices for the graduates," "more support from the Ministry of Agriculture," "more interaction with other agriculture education programs around the world," and "more cooperation with research."

6. The major benefits received from the A.T.C.'s by the graduates were the agricultural skills and knowledge acquired, leadership skills and a general feeling of "being good for me."

7. Benefits that should be attained from this experience but were not seemed to be a lack of assistance to go to college, and not enough emphasis on career planning and placement.

8. Employers were generally satisfied with the performance by these graduates. There seem to be a high rating for cooperation, work attitudes and willingness to learn and improve. However, the areas receiving low ratings were "job related technical knowledge," "job skills" and "quality of work." This may have resulted in a poor comparison with other employees. However, consideration must be given to the years of experience and training by the other employees. This fact came out of an employers and a graduates comments.

9. The graduates are very frustrated with the inability to attend an institution of higher learning. This was verified by many comments and the future plans illustrated nearly 100 percent interest in furthering their education in agriculture.

### Recommendations

The recommendations drawn from this study are as follows:

1. Major emphasis needs to be channeled toward a public relations program for the Agricultural Training Centers (A.T.C.'s). This would enhance the support and cooperation from both the public and private sectors. Hopefully, the placement of graduates would be improved from this, as well as increased interaction with research, extension, and private industry enhancing everyone's efforts.

2. One person should be assigned to focus on the role of public relations for each institution.

3. Graduates must have priority in participating in the resettlement projects such as the First Rural Development Project in Jamaica. It is a well identified fact that the greatest problem in these resettlement projects is a lack of trained agriculturalists. The graduates would not only have the attitude and skills to increase agricultural production in Jamaica, but could also serve as extension agents for others in the community, community development leaders, researchers, linkages between teaching, research and extension and salesmen for other graduates of these institutions.

4. A liaison must be established between the Ministry of Agriculture and the Ministry of Education in Jamaica. This study has documented the need for more support from the Ministry of Agriculture. A deliberate effort must be made between the teachers, administrators, ministry officials and politicians to coordinate and integrate the efforts of training agriculturalist for increasing agriculture production and improving the quality of life.

5. More emphasis must be given to the staff development process of teachers and administrators in these institutions. Both graduates and employees rated staff development as a priority concern. Merely building beautiful structures will not result in an effective educational program - people make them function.

6. Wages also need to be upgraded to increase the competition with private industry. A brain drain will continue if some compensations are not made to keep the best educators in the system.

7. The concept of follow-up studies as well as other forms of program evaluation should be an integral part of monitoring the effectiveness of Jamaica's Agricultural Training Programs. Evaluation should be a continuous process built into the functioning of programs.

8. Strengthen the curriculum through the addition of an "internship" program to more fully develop the skills and abilities of the students and also assist with possible employment opportunities after graduation.

#### Concluding Statement

The underdeveloped countries need high level manpower just as urgently as they need capital. Indeed, unless these countries are able to develop the required strategic human resources they cannot effectively absorb capital. Of all the resources required for economic development, high talent manpower requires the longest 'lead time' for its creation. Dams, power stations, textiles factories and steel mills can be constructed in a few years, but it takes 10 to 15 years to develop managers, engineers, and the administration to operate them. The existence of such manpower, however, is essential if the countries are to achieve self-sustaining growth (14, p. 17).

The above quote summarizes the importance of a country like Jamaica to take its investment in human resource development seriously. The

infrastructure is in place with institutions like Elim, Passley Gardens and Knockalva to train agriculturalists; now its up to the decision makers from top political positions down to the farmers. Lip service alone cannot mobilize the human resources to develop agriculture in Jamaica. It takes deliberate dedicated actions reflecting the needs of farmers, communities and serious agricultural students to increase agricultural production and improve the quality of life in Jamaica.

The potential for setting the pace for other countries to mobilize their human resource development through agriculture education lies in Jamaicas progress and future. Hopefully, the international agencies and institutions like Oklahoma State University can take with them Jamaica's blue print and successful concept to assist other developing nations in transforming their human and natural resources into a progressive, dynamic, self-sustaining economy.

## BIBLIOGRAPHY

1. Agency for International Development. Evaluation Handbook. Washington, D.C.: Office of Program Evaluation, U.S. Agency for International Development, 1971.
2. Amin, Gaial A. Food Supply and Economic Development. New York: Reprinters of Economic Classics, Augustus M. Kelley, Bookseller, 1966.
3. Best, John. Research in Education. 2nd Ed. Englewood Cliffs, NJ: Prentice Hall, 1970.
4. Carpenter, Earl T. and John H. Hodges. Review and Synthesis of Research in Agricultural Education. Columbus, OH: Research Series No. 59, Eric Clearing House on Vocational and Technical Education, The Ohio State University, 1970.
5. Darcey, Chester. "Follow-up of Mechanized Agriculture Graduates at Texas A & M University." (Unpublished Doctoral Dissertation, Oklahoma State University, Stillwater, OK, 1980.)
6. Davis, Benjamin M. Agricultural Education in the Public Schools. Chicago, IL: The University of Chicago Press, 1912.
7. FAO, Ilo, UNESCO. 1978 Training for Agriculture and Rural Development. Rome, Italy: Food and Agriculture Organization of the United Nations, 1979.
8. FAO, Ilo, UNESCO. 1977 Training for Agriculture and Rural Development. Rome, Italy: Food and Agriculture Organization of the United Nations, 1977.
9. FAO, Ilo, UNESCO. 1975 Training for Agriculture and Rural Development. Rome, Italy: Food and Agriculture Organization of the United Nations, 1975.
10. Frazier, Don and Eddy Finley. "A Study of the Efficiency of a Follow-up Data Collection Procedure." Stillwater, OK: Research report, Oklahoma State Department of Vocational and Technical Education, October 1979.
11. Garrett, Charles B. "Concepts of an Effective Program of Vocational Education in Agriculture." (Unpublished Master Thesis, Oklahoma State University, Stillwater, OK, 1955.)

12. Gill, Jerry L. The Great Adventure: Oklahoma State University and International Programs. Stillwater, OK: Oklahoma State University Press, 1978.
13. Hamlin, Herbert M. Agricultural Education in Community Schools. Danville, IL: The Interstate Printers and Publishers, 1950.
14. Harbison, Frederick and Charles A. Myers. Education, Manpower and Economic Growth Strategies of Human Resource Development. New York: McGraw-Hill Series in International Development, 1964.
15. Heycoop, J. Personal Interview. Jamaica, West Indies, February 1982.
16. Hodges, Stanley L. "Employee-Employer Assessment of Effectiveness of Agricultural Mechanics Training received at Modesto Junior College." (Unpublished Ed.D. Dissertation, Oklahoma State University, Stillwater, OK, 1973.)
17. Johnson, Byron A. "A Follow-up Study of 1973-74 Oklahoma Vocational Agriculture Completers." (Unpublished Doctoral Dissertation, Oklahoma State University, Stillwater, OK, 1980.)
18. Key, James P. "Research Design in Occupational Education 5980." Stillwater, OK: Published at Department of Agricultural Education, Oklahoma State University, 1978.
19. Lacruz, Pedro F. "Possible Adaptations in the Functions of Secondary Agriculture Education to Enhance Rural Community Development in Venezuela." (Unpublished Masters Thesis, Oklahoma State University, Stillwater, OK, 1981.)
20. Lansdale, Bruce. Personal Interview. Offices of International Programs, Oklahoma State University, Stillwater, OK, November, 1979.
21. Linton, Marigond and Phillip Gallo, Jr. The Practical Statistician: Simplified Handbook of Statistics. Monterey, CA: Brooks/Cole Publishing Company, 1975.
22. Marder, Brenda. A Unique Institution. Athens, Greece: The Athenian, Greeces' English Language Montly, May, 1975.
23. Marion, Claude. "Resources for Occupational Guidance in Agricultural Education." Agricultural Magazine, 35 (April, 1959), p.219.
24. Matthews, Clyde C. "A Follow-up Study to Determine the Effectiveness of the Coordinated Vocational Education and Training Program in Selected High Schools in Oklahoma." (Unpublished Doctoral Dissertation, Oklahoma State University, Stillwater, OK, 1976.)
25. McKenzie, James D. "Agricultural Education in the Ministry of Education." Jamaica, West Indies: Ministry of Education, September, 1981.

26. National Study of School Evaluation. Evaluative Criteria for the Evaluation of Secondary Schools. Arlington, VA: National Study of School Evaluation, 1978.
27. Oliver, J. Dale. "Information - A Critical Element in Evaluation and Planning." Agricultural Education, 47 (July, 1974) p.15.
28. O'Reilly, P., and F. Asche. Follow-up Procedures: A National Review. Blacksburg, VA: Project Report. Virginia Polytechnic Institute and State University, 1979.
29. Riley, David J. Personal Experience in Jamaica. 1976-1978, January-March, 1982.
30. Rouk, Hugh F. Final Report on Rural Secondary Agricultural Education in Jamaica. Stillwater, OK: Office of International Programs Publishing, 1979.
31. Sharp, Laure M. and Rebecca Krasnegor. The Use of Follow-up Studies in the Evaluation of Education. Washington, D.C.: U.S. Department of Health Education and Welfare, Office of Education, U.S. Government Printing Office, 1966.
33. Siegenthaler, I. E. and E. D. Edington. "An Evaluation Study of the Jimma Agricultural Technical High School in Ethiopia." (Oklahoma State University Research Foundation, Stillwater, OK, 1966)
34. Sinor, R. T. "The Occupational Distribution of Vocational Agriculture Graduates of Tecumseh High School and Their Assessment of Teaching Program Content." (Unpublished Masters Thesis, Oklahoma State University, Stillwater, OK, 1971.)
35. Turabaim, Kate L. A Manual for Writing of Term Papers, Theses and Dissertations. Chicago, IL: The University of Chicago Press, 1969.
36. U. S. Department of State. Jamaica. Washington, D. C.: Bureau of Public Affairs. July, 1980.
37. Vicars, Joseph A. "A Study of Employer and Employee Opinion Regarding the Adequacy of Training of Vocational-Technical Students at the Texas State Technical Institute." (Unpublished Ed.D. Dissertation, Oklahoma State University, Stillwater, OK, 1972.)
38. Weiss, Carol H. Evaluation Research: Methods for Assessing Program Effectiveness. Englewood Cliffs, NJ: Prentice Hall, Inc., 1972.
39. Worthen, R. B. and James R. Sanders. Educational Evaluation: Theory and Practice. Belmont, CA: Wadsworth Publishing Company, Inc., 1973.



## **APPENDIXES**

APPENDIX A

LETTERS OF TRANSMITTAL


**OKLAHOMA STATE UNIVERSITY • STILLWATER**

Office of International Programs  
 (405) 624-6335  
 Cables: INTPROSU

74078

June 18, 1981

Mr. Litton William  
 Jamaica School of Agriculture  
 Spanish Town  
 JAMAICA WI

Dear Mr. Williams,

I hope all is well with you in Jamaica. We haven't heard much from you in some time, but hope that the vocational agriculture education program is moving along well.

I'm nearing the end of my studies at Oklahoma State University and need to identify an area of research for my dissertation. In talking with Mr. Rouk, we thought that Jamaica has an ideal situation with the recent developments in vocational agriculture education.

I'm writing a proposal to return to Jamaica to carry out my investigation on the role of vocational agriculture in the agriculture development process of Jamaica. This would include surveying AID personnel, ministry officials, teachers and administrators, as well as students who are graduates of the vo-ag system.

I would appreciate it if you could consider the focus of my research and give me your feelings about my dissertation. I'm concerned about the feasibility of the study as well as your feelings on what the needs are of Jamaica with reference to the focus of my research.

I'm very excited about the chance to return to Jamaica as well as hopefully doing something which is beneficial to the vocational education project of Jamaica.

I'm planning on finishing my course work in December and possibly carrying out the research in January.

Please discuss this matter with the appropriate personnel and let me know what your feelings are about my research interest.

I will be awaiting your response. Thank you for your time and cooperation.

Sincerely yours,

David Riley  
 Graduate Assistant


**OKLAHOMA STATE UNIVERSITY • STILLWATER**

Office of International Programs  
(405) 624-6535  
Cables: INTPROSU

74078

October 14, 1981

Mr. Ross Murray  
Chief Education Planner  
Ministry of Education  
National Heroes Circle  
Kingston, Jamaica

Dear Mr. Murray:

I am writing to request permission to carry out research on the Vocational Agriculture Programs in Jamaica. The proposed date for this study is January 20 through February 20, 1982.

I am completing my doctorate in Agriculture Education at Oklahoma State University. I served as a Peace Corps volunteer at Dinthill Technical High School from 1976-78 teaching agriculture. This experience familiarized me with the potential that agriculture education has in the agriculture development process of Jamaica.

I feel that the secondary institutions of agriculture education such as Dinthill, Knockalva and the new institutions, Elim and Passley Gardens are of great value not only for Jamaica but other developing countries in their process of human resource development to increase food production.

Please find enclosed my proposal for an evaluation study on selected agriculture training centers in Jamaica. I would appreciate any comments and suggestions you have on the feasibility, focus and practicality of my research interests.

Sincerely yours,

David Riley  
Administrative Assistant

DJR/sab

**OKLAHOMA STATE UNIVERSITY • STILLWATER**

Office of International Programs  
(405) 624-6535  
Cables: INTPROSU

74078

December 22, 1981

Dr. Robert Terry, Head  
Department of Agricultural Education  
Oklahoma State University  
Stillwater, OK 74078

Dear Dr. Terry:

This letter is in support of the research proposal submitted by Mr. David Riley and a request for Title XII Strengthening Grant funding.

As you may recall, OSU personnel have been involved in the AID/GOJ Loan project for agricultural education since the design stage starting in 1976. The general thrust of the program contains many of the elements of experience gained from OSU's work in Ethiopia during the 1950's and 60's.

Mr. Riley as a Peace Corps Volunteer to Jamaica, was assigned to teach in the experimental school at Dinthill during 1976-1978. Since that time he has travelled extensively in Asia, Africa and Europe making comparative studies of agricultural education and its relationship to agricultural development.

The study which he has proposed would add validity to the concept and provide a model to be used by developing countries around the world.

The project has the strong support of Ministry of Education officials in Jamaica.

I believe the project will add strength to OSU's capability to assist developing countries in this important phase of manpower development.

Sincerely,

Hugh F. Rouk, Director  
International Education

HFR/sab

**APPENDIX B**

**COVER LETTER**



## MINISTRY OF EDUCATION

2 NATIONAL HEROES CIRCLE.

P.O. BOX 498.

KINGSTON, JAMAICA

ANY REPLY OR SUBSEQUENT REFERENCE  
TO THIS COMMUNICATION SHOULD BE  
ADDRESSED TO THE PERMANENT  
SECRETARY AND THE FOLLOWING  
REFERENCE QUOTED:-

No. \_\_\_\_\_

January 29, 1982.

Dear Sir/Madam:

Mr. David Riley of Oklahoma State University's Department of Agricultural Education is gathering information about job entry preparation from former students and their employers of Knockalva, Elim and Dinthill Agricultural Training Centers. It is hoped that this information can be used in giving direction to curriculum development and revision.

The intent of this study is not only to make a contribution to these Agricultural Training Centers in general, but particularly to enhance their effectiveness in serving their communities and Jamaica's agricultural development process.

Since we expect this study to be of major importance in helping to establish changes of direction in our agricultural education programmes it is my hope that you will participate in this study by completing the enclosed questionnaire. Your judgement and recommendations will be of significant help to these agricultural training centers. It is also felt that these types of agricultural training programmes have great potential for other developing countries. The information you give will be of significance for them in making the appropriate decisions on the most effective agricultural education programmes.

Please return the questionnaire in the enclosed self addressed stamped envelope by February 12, 1982.

We sincerely appreciate your time and cooperation with this request.

Sincerely,

James McKenzie  
S.E.O. (Agricultural Education)

## **APPENDIX C**

### **INSTRUMENTS**



## GRADUATE QUESTIONNAIRE

All information on this questionnaire will be held in strict confidence for educational purposes.

School I attended: \_\_\_\_\_ Elim, \_\_\_\_\_ Knockalva, \_\_\_\_\_ Dint Hill  
Year of Graduation: \_\_\_\_\_  
Sex: \_\_\_\_\_ Male, \_\_\_\_\_ Female  
Current Educational Status: \_\_\_\_\_ Not attending school; \_\_\_\_\_ Attending school  
Current Employment Status: \_\_\_\_\_ Employed Full-Time; \_\_\_\_\_ Employed Part-Time;  
\_\_\_\_\_ Unemployed; \_\_\_\_\_ Self-Employed

Job Title

**Job Duties**

Is your job related to your agricultural field of training?

       Yes, it is directly or closely related.

       No, it is only remotely related or is not related at all.

Employer's Name

Address

INDICATE BY CIRCLING THE APPROPRIATE NUMBER BELOW, THE EXTENT TO WHICH YOU  
FEEL THE AGRICULTURE TRAINING CENTER YOU ATTENDED, ACHIEVED THESE STATED  
GOALS.

1-NO Not Achieved; 2-PA Partially Achieved; 3-A Achieved; 4-GA Greatly Achieved

THIS AGRICULTURAL TRAINING CENTER:

	NA	PA	A	GA
Provides skilled graduates who can fill the demand in:				
Agriculture Agencies . . . . .	1	2	3	4
Teaching . . . . .	1	2	3	4
Food Processing . . . . .	1	2	3	4
Agricultural Business . . . . .	1	2	3	4
Agriculture Mechanics . . . . .	1	2	3	4

Provides graduates with a range of experiences and information to replace the present generation of farmers . . . . .	1	2	3	4
---	---	---	---	---

Provides graduates with sufficient agricultural knowledge to enter an institution of higher education in agriculture . . .	1	2	3	4
--	---	---	---	---

Produce graduates who, through orientation and hands-on experience, have developed mastery of the fundamental agricultural skills . . . . .	1	2	3	4
---	---	---	---	---

Producers graduates who, as farmers, teachers and extension agents, will contribute to the development of rural communities	1	2	3	4
---	---	---	---	---

Producers graduates who, as farmers, teachers and extension agents, will contribute to increased agricultural production	1	2	3	4
--	---	---	---	---

Organizes and provides training to upgrade skills of farmers in  
areas where schools are located to increase agriculture  
production and improve rural life . . . . . 1 2 3 4

1-SA Strongly Agree; 2-A Agree; 3-D Disagree; 4-SD Strongly Disagree

THE CURRICULUM WAS RELEVANT TO MY TRAINING NEEDS IN:	SA	A	D	SD
Animal Science and Production . . . . .	1	2	3	4
Ornamental Science and Management . . . . .	1	2	3	4
Crop Science and Management . . . . .	1	2	3	4
Soils Science and Management . . . . .	1	2	3	4
Mathematics . . . . .	1	2	3	4
Farm Management . . . . .	1	2	3	4
English Language . . . . .	1	2	3	4
Social Studies . . . . .	1	2	3	4
Agricultural Mechanics . . . . .	1	2	3	4
Integrated Science . . . . .	1	2	3	4
Laboratory Work . . . . .	1	2	3	4
On-farm Experiences and Training . . . . .	1	2	3	4

THIS AGRICULTURAL TRAINING CENTER SHOULD:

Serve as a center for agriculture research . . . . .	1	2	3	4
Serve as a center for extension activities . . . . .	1	2	3	4
Serve as a community development center . . . . .	1	2	3	4
Serve as a demonstrator for new agricultural practices . . . . .	1	2	3	4
Provide leadership for community development . . . . .	1	2	3	4
Influence policy decision making for agricultural development . . . . .	1	2	3	4
Provide the essential primary step in agriculture education in Jamaica . . . . .	1	2	3	4
Be less active in community affairs . . . . .	1	2	3	4

THIS AGRICULTURE TRAINING CENTER NEEDS:

Better qualified administrators . . . . .	1	2	3	4
Better qualified teachers . . . . .	1	2	3	4

More staff development emphasis . . . . . 1 2 3 4  
 More staff development opportunities . . . . . 1 2 3 4  
 Better facilities . . . . . 1 2 3 4  
 1-SA Strongly Agree; 2-A Agree; 3-D Disagree; 4-SD Strongly Disagree

	SA	A	D	SD
More dedicated teachers . . . . .	1	2	3	4
More effective student selection system . . . . .	1	2	3	4
More effective student evaluation system . . . . .	1	2	3	4
More hands-on experience and training . . . . .	1	2	3	4
A more relevant curriculum . . . . .	1	2	3	4
A better image within the community . . . . .	1	2	3	4
More cooperation with research . . . . .	1	2	3	4
More cooperation with farmers . . . . .	1	2	3	4
More cooperation with extension . . . . .	1	2	3	4
More cooperation with industry . . . . .	1	2	3	4
More support from the Ministry of Education . . . . .	1	2	3	4
More support from the Ministry of Agriculture . . . . .	1	2	3	4
Improved placement practices for graduates . . . . .	1	2	3	4
Less hands-on experience and training . . . . .	1	2	3	4
More cooperation with United States universities . . . . .	1	2	3	4
More interaction with other agriculture education programs around the world . . . . .	1	2	3	4

#### MY EXPERIENCE IN AGRICULTURAL TRAINING:

Helped me learn how to work . . . . .	1	2	3	4
Taught me skills useful in an agricultural career . . . . .	1	2	3	4
Taught me skills useful in a non-agricultural career . . . . .	1	2	3	4
Helped me choose an occupation . . . . .	1	2	3	4
Helped me enter and advance in a agricultural career . . . . .	1	2	3	4
Helped me learn how to get along with people . . . . .	1	2	3	4

Helped me develop leadership skills . . . . .	1	2	3	4
Helped me learn how to participate in meetings . . . . .	1	2	3	4
Helped me stay in school . . . . .	1	2	3	4
Helped me go to college . . . . .	1	2	3	4
Were good for me . . . . .	1	2	3	4

1-SA Strongly Agree; 2-A Agree; 3-D Disagree; 4-SD Strongly Disagree

	SA	A	D	SD
Were such that if I had it to do over again, I would enroll in this agricultural training program . . . . .	1	2	3	4
I would recommend other developing countries to emphasize secondary agriculture education as an integral part of their rural development process . . . . .	1	2	3	4

#### MY AGRICULTURAL TRAINING

Emphasized Career Orientation and Development . . . . .	1	2	3	4
Taught me skills that are useful in creating self-employment . . . . .	1	2	3	4

#### MY FUTURE PLANS ARE TO

Attend an institution of higher education in agriculture . . . . .	1	2	3	4
Remain at my present job . . . . .	1	2	3	4
Create my own job . . . . .	1	2	3	4
Change jobs . . . . .	1	2	3	4
Study abroad . . . . .	1	2	3	4
Other (please specify) . . . . .	1	2	3	4

Please add any comments you have about the agricultural training program you participated in. Thank you for your time and cooperation.

COMMENTS: (Use back of sheet if necessary.)

## EMPLOYER QUESTIONNAIRE

All information on this questionnaire will be held in strict confidence for educational purposes.

Name of your employee \_\_\_\_\_

School my employee attended \_\_\_\_\_ Elim, \_\_\_\_\_ Knockalva, \_\_\_\_\_ Dinthill

Job Title \_\_\_\_\_

Job Duties \_\_\_\_\_

Your Name (Optional) \_\_\_\_\_

Address \_\_\_\_\_

Company or Firm \_\_\_\_\_

INDICATE BY CIRCLING THE APPROPRIATE NUMBER BELOW, THE EXTENT TO WHICH YOU FEEL THE AGRICULTURE TRAINING CENTER YOUR EMPLOYEE ATTENDED, ACHIEVED THESE STATED GOALS.

1-NA Not Achieved; 2-PA Partially Achieved; 3-A Achieved; 4-GA Greatly Achieved

THIS AGRICULTURAL TRAINING CENTER:

	NA	PA	A	GA
Provides skilled graduates who can fill the demand in:				
Agriculture Agencies . . . . .	1	2	3	4
Teaching . . . . .	1	2	3	4
Food Processing . . . . .	1	2	3	4
Agricultural Business . . . . .	1	2	3	4
Agriculture Mechanics . . . . .	1	2	3	4
Provides graduates with a range of experiences and information to replace the present generation of farmers . . . . .	1	2	3	4
Provides graduates with sufficient agricultural knowledge to enter an institution of higher education in agriculture . . . . .	1	2	3	4
Produces graduates who, through orientation and hands-on experience, have developed mastery of the fundamental agricultural skills . . . . .	1	2	3	4
Produces graduates who, as farmers, teachers and extension agents, will contribute to the development of rural communities . . . . .	1	2	3	4
Produces graduates who, as farmers, teachers and extension agents, will contribute to increased agricultural production . . . . .	1	2	3	4
Organizes and provides training to upgrade skills of farmers in areas where schools are located to increase agriculture production and improve rural life . . . . .	1	2	3	4

1-SA Strongly Agree; 2-A Agree; 3-D Disagree; 4-SD Strongly Disagree

THIS AGRICULTURAL TRAINING CENTER SHOULD:	SA	A	D	SD
Serve as a center for agriculture research . . . . .	1	2	3	4
Serve as a center for extension activities . . . . .	1	2	3	4
Serve as a community development center . . . . .	1	2	3	4
Serve as a demonstrator for new agricultural practices . . .	1	2	3	4
Provide leadership for community development . . . . .	1	2	3	4
Influence policy decision making for agricultural development	1	2	3	4
Provide the essential primary step in agriculture education in Jamaica . . . . .	1	2	3	4
Be less active in community affairs . . . . .	1	2	3	4

THIS AGRICULTURE TRAINING CENTER NEEDS:

Better qualified administrators . . . . .	1	2	3	4
Better qualified teachers . . . . .	1	2	3	4
More staff development emphasis . . . . .	1	2	3	4
More staff development opportunities . . . . .	1	2	3	4
Better facilities . . . . .	1	2	3	4
More dedicated teachers . . . . .	1	2	3	4
More effective student selection system . . . . .	1	2	3	4
More effective student evaluation system . . . . .	1	2	3	4
More hands-on experience and training . . . . .	1	2	3	4
A more relevant curriculum . . . . .	1	2	3	4
A better image within the community . . . . .	1	2	3	4
More cooperation with research . . . . .	1	2	3	4
More cooperation with farmers . . . . .	1	2	3	4
More cooperation with extension . . . . .	1	2	3	4
More cooperation with industry . . . . .	1	2	3	4
More support from the Ministry of Education . . . . .	1	2	3	4

## THIS AGRICULTURE TRAINING CENTER NEEDS:

	SA	A	D	SD
More support from the Ministry of Agriculture . . . . .	1	2	3	4
Improved placement practices for graduates . . . . .	1	2	3	4
Less hands-on experience and training . . . . .	1	2	3	4
More cooperation with United States universities . . . . .	1	2	3	4
More interaction with other agriculture education programs around the world . . . . .	1	2	3	4

PLEASE RATE YOUR BEFORE MENTIONED EMPLOYEES' TRAINING ACCORDING TO THE  
FOLLOWING ITEMS:

ITEMS	RATING			
	Low			High
Quality of Work . . . . .	1	2	3	4
Quantity of Work . . . . .	1	2	3	4
Job Related Technical Knowledge . . . . .	1	2	3	4
Job Skills . . . . .	1	2	3	4
Basic Academic Skills . . . . .	1	2	3	4
Work Habits . . . . .	1	2	3	4
Work Attitudes . . . . .	1	2	3	4
Accepts Responsibility . . . . .	1	2	3	4
Supervision Required . . . . .	1	2	3	4
Cooperation with Others . . . . .	1	2	3	4
Willingness to Learn and Improve. . . . .	1	2	3	4
Overall Satisfaction . . . . .	1	2	3	4
Promotability . . . . .	1	2	3	4

As a result of this graduates' training, how would you rate him or her in  
relation to other employees in your business who received training from some  
other source. (Check the appropriate one.)

- ☐ No basis for comparison
- ☐ This student is better prepared
- ☐ Both are about the same
- ☐ This student is less prepared

I would recommend other developing countries to emphasize secondary agricultural education as an integral part of their rural development process.

\_\_\_\_\_ Strongly Agree \_\_\_\_\_ Agree \_\_\_\_\_ Disagree \_\_\_\_\_ Strongly Disagree

Please add any further information you would like to this evaluation - your response is an essential part of making the agricultural training centers more effective in meeting Jamaica's needs.

Thank you for your time and cooperation.

Comments: (Use back of sheet if necessary.)



2

VITA

David Joseph Riley

Candidate for the Degree of

Doctor of Education

**Thesis:** A FOLLOW-UP STUDY OF SELECTED GRADUATES AND THEIR EMPLOYERS  
FROM THREE SECONDARY AGRICULTURAL TRAINING CENTERS IN JAMAICA

**Major Field:** Agricultural Education

**Biographical:**

**Personal Data:** Born in Colebrook, New Hampshire, August 31, 1954,  
the son of Mr. and Mrs. Thomas Riley.

**Education:** Graduated from Colebrook Academy High School, Colebrook,  
New Hampshire, June 14, 1972; received Bachelor of Science  
degree in Occupational Education from the University of New  
Hampshire, Durham, New Hampshire, May 16, 1976; received Master  
of Science degree in Agricultural Education from Oklahoma State  
University, Stillwater, Oklahoma, December 20, 1979; completed  
requirements for the Doctor of Education degree in Agricultural  
Education at Oklahoma State University, Stillwater, Oklahoma,  
July, 1982.

**Professional Experience:** Assistant Vocational Agriculture Instructor  
summers from 1973-1975 at Colebrook, Vocational Agriculture  
Department, Colebrook, New Hampshire, Member of Professional  
Vocational Education Development Committee; Students in our  
State Committee, Pi Kappa Alpha Fraternity; Peace Corps  
Volunteer Teaching Agriculture in Jamaica 1976-1978;  
Administrative Assistant in the Office of International  
Programs, Oklahoma State University, 1978-1982; Resident  
Director Aboard the S.S. Universe - "Semester at Sea" Program -  
Spring 1980; Peace Corps Campus Recruiter at Oklahoma State  
University, 1979-1980.