A PROGRAM OF VOCATIONAL AGRICULTURE FOR SCHOOLS IN CEYLON

by

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A PROGRAM OF VOCATIONAL AGRICULTURE FOR SCHOOLS IN CEYLON

Chapter I

INTRODUCTION

Sir Horace Plunkett once said "The well-being of a people is like a tree, agriculture is its roots, manufacture and commerce are its branches and its life. If the root is injured, the leaves fall, the branches break away, and the tree dies" (31, p. 3). For industry to expand the rural population must be prosperous.

This is recorded in history. The Romans were able farmers. As they conquered the neighboring lands, their lust for power forced them to neglect their farms. They could not maintain their vast empire for long as they lacked food resources to supply their fighting forces. Thus ended a mighty empire.

Ceylon too was the "granary of the East" in ancient times. When the kings realized that agriculture was an essential part of the economy of a country, every citizen was compelled to cultivate the land and produce food. The kings themselves took active part in harvesting ceremonies. As the agricultural efficiency of the country declined, its resources and its standards of living too deteriorated.

Today, the United States of America leads the world in industry, commerce, education and agriculture. With only one-sixth of the world's land area, it produces 60 percent of the world's wheat. It produces a higher percentage of milk, meat,
vegetables, fruits, and all the foodstuffs than any other country. The methods adopted in preserving and handling these are of the highest quality. The country's nutrition is at its best (27). To produce these vast resources of food, only 10 percent of its population is engaged in farming (27). The rest of the population is engaged in industry, research, commerce and education, and in the maintenance of world peace.

Several factors have contributed to America's dominant position in the production of food. The U.S.D.A., experiment stations in colleges and universities, and the private management have unceasingly carried out extensive research in various fields of agriculture. The search for better and higher yielding seeds, soil conservation methods, management, productive animals, feeds and fertilizers, and labor saving devices by organized forms of storing and marketing goes on.

Good methods of education have successfully helped in the dissemination of these research findings. In the United States, vocational education in agriculture is available to boys in high school, young men out of school, as well as to the adult farmers. This diversified program is so effective that today a farmer produces several times as much as a farmer could produce a few years ago. Recent figures show one man produces food for 27 others.

Farming is more complicated today than ever before in the history of mankind. Changes in education need constantly to be
made in order to keep pace with trends in agriculture. The farmer needs to be made aware of these new developments. Vocational education in agriculture is the medium through which he is being informed. Therefore, agricultural education serves as the key role in the continuing progress made in the field of agriculture.

Statement of the Problem

Ceylon obtained her independence in 1948 after more than four centuries of successive rule by the Portuguese, Dutch and the British. Political subordination to foreign powers has left her people poor, undernourished, and dependent. A recent survey made by the Department of Education and the Health Department has revealed that 71,000 students between the age of 6 to 16 years suffer from malnutrition (26). A similar survey of pre-school age children, has shown that a fifth of all in this category are undernourished and suffer from diet deficiency diseases. Thus there is an urgent need in Ceylon for the improvement of the standard of living and health.

To provide this improvement the government set up a program of food subsidies. This was intended to be temporary while some basic program was evolved. Today the government spends over Rs 244 million (approximately $51,240,000) on food subsidies (25). In the recent years the population has more than trebled, thus ever making the need for a better system more urgent. It would
appear that this new system would have to be outside the realm of temporary government provision.

From the example of the United States whose agricultural program has provided its people with a bountiful supply of food, it would seem then that the solution of Ceylon's food problem would also be in the direction of agricultural reform.

There are substantial land reserves for increased production (11, p. 210). New methods of cultivation, irrigation and land use have to be developed.

In order to effect this extensive program of reform, a broad system of education based on sound agricultural knowledge is of vital importance.

Purpose of the Study

The purpose of this study is to present a program of vocational education in agriculture for the rural schools of Ceylon in an effort to improve the standard of living and the general health and prosperity of the people. The vocational agriculture program of the United States of America is used as a basis for this study because the United States holds a dominant position in the world's agriculture today. Many of the methods in agricultural education practiced in the United States can be adapted successfully to the needs of Ceylon.

Limitations

This study is limited to the program of vocational education in agriculture in the high schools of the United States of America.
It is also limited to the conditions in Ceylon. Consideration of young and adult farmers, teacher training, supervision and administration are left for another study. On the basis of the study, recommendations are made for a complete program in vocational education in agriculture for the rural schools of Ceylon.

Definition of Terms

Vocational education: Vocational education includes all forms of specialized education aimed to fit a person for useful occupations. Vocational education programs provide training for students in secondary schools and for out-of-school youth and adults. In the United States of America these programs provide skilled training in agriculture, distribution, homemaking, trades and industry, and practical nursing.

Agricultural education: Agricultural education in United States is a national program of systematic instruction. The program is designed for (1) persons over 14 years of age who are regularly enrolled in public secondary school and who are interested in preparing for work on the farm; (2) young farmers who have left school and are interested in becoming established in farming; (3) adults who are interested in improving their proficiency in farming. This program is worked out by a cooperative effect between the state boards for vocational education and the Federal Government. (33, p. 58).
Vocational agriculture: Vocational agriculture is taught to those who intend to take to farming or other related occupations. Good teaching in vocational agriculture contributes to the aims of general education in schools—health, citizenship, character, worthy use of leisure, worthy home membership, and mastering of the tools of knowledge (30, p. 22, 23).

F.F.A.: Future Farmers of America is a national organization of boys enrolled in vocational agriculture in public secondary schools (33, p. 61). It is an educational, non-profit, non-political farm youth organization of voluntary membership. The F.F.A. is designed to develop agricultural leadership, character, thrift, scholarship, cooperation, citizenship, and patriotism (33, p. 61).

Smith-Hughes Act was passed in February 23, 1917. It provided funds for the improvement and advancement of agriculture in the secondary schools of the United States of America. The main purpose of the act was "for those persons over 14 years of age who have entered farming or are preparing to enter farming" (30, p. 985).

Supervised Farming Program: A supervised farming program is an integral and an essential part of vocational agriculture. It consists of all the farming activities for which systematic instruction and supervision is provided by the vocational agricultural teachers. It may include (1) a productive enterprise, (2) a farm improvement project, (3) a farm practice, and (4) farm placement project.
A productive enterprise is agricultural in nature and consists of a crop or a livestock project carried through a normal productive cycle. It helps in acquiring financial and managerial responsibilities and paves the way for establishment in farming.

A farm improvement project is planned improvement of the farm home or the enterprise. It does not provide immediate monetary returns but increases the value of the farm.

A farm practice is undertaken for new experience. It may not be a productive project, but increases the value of the farm.

Farm placement is used when the home farm and rental opportunities are not available. A written understanding for responsibility is undertaken between the student, parent, and teacher for a minimum period of six months. It involves all the practices discussed previously.
Chapter II

HISTORY AND BACKGROUND

For the convenience of the readers who have not visited Ceylon, a brief description is given about the topography, soils, climate, major and minor crops grown, and the educational system.

Ceylon, said to be the pearl of the Indian Ocean, a veritable garden of Eden, is the land of the Sinhalese.

It is a tropical island, comprising an area of 25,500 square miles, situated just off the tip of the Indian subcontinent (11, p. 3). From the north to the south it is approximately 270 miles long and from the west to the east its greatest width is 140 miles.

The People and the Land

More than half of Ceylon's working population work on the land, and roughly six out of seven people are connected with agriculture in some form or other (11, p. 209). Two-thirds of its people are occupied in production, preparation and distribution of the three main export crops---tea, rubber and coconut. Thus the prosperity of the people depend on the market prices of these crops.

Half the food supply of the country is imported. Ceylon depends on foreign countries to meet the scarce yields of rice,
the staple food. The import percentage of pulses, curry spices and dry fish is about 60% (11, p. 209). Almost the total needs of sugar and wheat are imported. The only way open to increase domestic food production is to diversify the present farming methods and to develop the 3.25 million acres of land that await the plow.

The middle class farmer has required guidance and help for a long time. The peasant and the colonist show low efficiency in production; however, they have shown marked aptitude for adjustment to new methods.

Buddhism, the major religion of the people, influences the pattern of agriculture of the country.

Type of Government

Ceylon became a fully self-governing dominion in the Commonwealth of Nations on February 4, 1948. The governor of Ceylon represents Queen Elizabeth II, and is appointed on the advice of the Prime Minister. The Parliament consists of two houses, the House of Representatives and the Senate and is modeled on the British system. Unless the Parliament is dissolved earlier, its duration is five years. The Prime Minister presides over a cabinet of ministers of his own choosing whose number is not fixed.

The highest tribunal is the Supreme Court consisting of a Chief Justice and eight puisne judges. The Prime Minister is also the Minister of Foreign Affairs. Ceylon is represented by
ambassadors in the principal foreign countries and by high commis-
sioners in the countries of the Commonwealth. In unrepresented
countries her interests are served by the British government.

**Topography and Soils**

A topographical map of the island suggests the shape of a hat. At its center is found land 1,000 feet in elevation, rising quickly to a crown of jagged mountains, peaks seven to eight thousand feet as one looks toward the south. These peaks enclose a strip of level coastal land that extends like a visor into a long tapering plain pointing toward India to the north. The rivers flow from the centrally located mountains to the sea on the east, south and the west.

The lowlands are divided into three sections.

The *southwestern plain*, bounded by the sea on the west, Denduru Oya (River) on the north and the hill country on the east. The rivers Walawe, Nilwala, Kalu and Gin flow across this plain.

The *southeastern plains* are bounded by the Walawe and Mahawali rivers, the sea, and the hill country. This plain is characterized by a number of lagoons. The rivers flowing from the central mountains drain the plain from the north, south and the east.

The *northeastern plain* is demarcated by the Dunduru Oya (River), Matale foothills and Mahawali River on one side and the sea on the other. The rivers from the central hills flow across these plains from the north, west and the east.
The hill country is over 1000 feet above sea level. The highest elevations of the country ranges are from 5000 feet to 7000 feet. A number of plateaus occur in this area and the rivers crossing them leap down from one plateau to another, causing a series of falls around the hill country.

Soils

Ceylon's soils can be described according to the climatic zones.

Wet-zone Soils

(a) Laterite and lateritic red to yellow loams. Derived from igneous and metamorphic rocks. Their texture and fertility varies although they are fairly well supplied with organic matter and nitrogen. They are poor in mineral constituents and acidic in nature. Tea, rubber and coconut grow best under these conditions. One comes across these soils in the wet low country.

(b) Cinnamon soils are bleached sandy soils, possessing a scanty supply of all plant nutrients. They are deficient in potash. Coconut is the main crop grown on these soils.

(c) Patna (grassland) soils occur in the wet highlands and are identified by the presence of a dark humic layer about a foot to three feet overlying the normal red laterites and lateritic loams. Due to their acidic nature, tea is best suited.
(d) Kekilla (fernland) soils are similar to the patna. The only difference being the thickness of humus soils. The layer is less than a foot.

(e) The Paddy (rice) soils were derived by the alluvial deposits and are generally rich in nutrients.

(f) There are also areas of infertile laterite and lateritic clays formed in situ from crystalline rocks. Poor drainage and accumulation of decaying vegetation has resulted in a peaty soil, acidic and yielding poor crops.

Dry-zone Soils

The dry-zone soils are mainly comprised of red, brown, and dark grey lateritic and non-lateritic loams, very variable in texture and depth. These soils overlie a gravelly sub-soil. By nature they are rich in mineral nutrients but lack in organic matter. Rice is the main crop grown; however, annual crops are attempted.

(a) Red-brick loams derived from Miocene (calcerous) sedimentary limestone occur in the Jaffna peninsula. Though deficient in nitrogen, they are rich in other mineral nutrients.

(b) In the northern part of the peninsula and low-lying tracts are found soils derived from miocene limestone and are designated grey calcerous loams.
(c) Red loams derived from crystalline limestone (domite and calcite) are present in Matale and Nalanda.

(d) Soils similar to the Cinnamon soils mentioned earlier occur in the northwestern provinces. They are brown and reddish grey soils derived from the Pleistocene plateau deposits.

(e) The dry Patna (grasslands) soils are light to medium loams, moderately acid, poor in nutrients and variable in texture.

Climate: Temperature, Rainfall and Seasons

The island is situated just about 10° north of the equator and consequently has an equable temperature in all sections, except the highland section. In both the southwestern and the southeastern region, as well as the northern plain, the temperature ranges between 80° F. and 83° F.

Starting at 1000 foot elevation, the highlands present the following average temperature picture (14, p. 38):

- 1000 feet = 77° F.
- 3000 feet = 70° F.
- 6000 feet = 60° F.

The humidity varies with temperature and is between 65% and 78% as one proceeds from the lowlands to the highlands.

Rainfall

As the central highlands jut out, the moisture bearing winds
cause southwest monsoons to spill most of its supply of rainfall on the windward slopes and lowlands in the southwest quarter of the island. The remaining portion of the island gets very little rain during this season. This region is referred to as the "Dry-zone" and is actually dry, averaging approximately only one-half the annual rainfall of the "Wet-zone". Milder winds from the northeast and the conventional rains dominate the islands rainfall during the northeast monsoon.

**Rainfall Seasons**

May to September is the season of the southwest monsoon rains. The southwest quarter of the island receives most of the rain. The north and east are generally dry.

October-November is the season of afternoon thunderstorms and the rain is well distributed throughout the whole island. The central and western hills experience the heaviest rain during this period.

December to February is the season of northeast monsoon rains, often associated with weak cyclones. Northern and eastern lowlands receive most of its rain within these months.

During March and April the island experiences well distributed rainfall in the afternoons.
A. Major Crops

According to census figures of 1959, the following information is reported (9, p. 221):

- **Tea**: 579,625 acres
- **Rubber**: 668,178 acres
- **Coconut**: 1,071,000 acres

Tea---Requirements of soil, rainfall and elevation confine tea cultivation to the wet-zone of the island, particularly to the mountainous region. However, the qualities differ according to elevation.

- **Low-country tea**: --- up to 2000 ft.
- **Medium-grown tea**: --- 2000 ft. - 4000 ft.
- **High-grown tea**: --- over 4000 ft.

The world's population of black tea is one billion pounds of which Ceylon produces 325 million pounds, exceeded only by India which produces 575 million pounds.

The tea research institute is devoted to the technical studies towards strengthening Ceylon's competitive position in the world market.

Rubber---is mainly located in the middle of the wet-zone and in low to medium elevations where the annual rainfall is approximately 80 inches. About 30 percent of the acreage under rubber cultivation consists of small
estates (10 to 100 acres). The rubber research institute is mainly concerned with the breeding, management, production and underplanting with cacao.

**Coconut**—Ceylon is one of the leading producers of coconut. Apart from the exports, the crop is important for food and many other secondary uses. Ceylon ranks third to the Philippines and Indonesia in exports of copra and coconut oil.

Best areas for coconuts are located in the northwestern province, although it is commonly grown in a narrow coastal strip of about five to ten miles in width. Rainfall, temperature and the depth of the water table plays an important part in the annual crop yields.

Improvement and replanting programs in coconut farming are handled by the Coconut Research Institute.

**B. Minor Crops**

**Cacao** (*Theobroma*) plantations are located in wind-protected areas. For successful growth it requires a well-distributed rainfall of 60 to 80 inches and a constant temperature. In the recent years cacao is planted under stands, especially in the dryer areas.

**Cinnamon** (*Cinnamomum zeylanicum*), once a highly prized crop, is predominantly grown in the southwestern lowlands up to 2000 foot elevation. It requires a rainfall
of about 80 inches.  

*Arecanut* palms for nuts are cultivated up to about 3000 foot elevation. It is widely used as a masticatory, source of vermifuge for dogs, and for preparation of dyes, tanning and dentifice materials.

*Citronella* (*Cymbopogon nardus*) is a grass which grows on a wide range of soil in warm moist climatic conditions from sea level up to about 2000 feet. Distillation of this grass yields an aromatic essential oil used for medicines, soaps and cosmetics and as an insect repellent.

*Pepper* (*Piper nigrum*) is grown in moist lowlands up to an elevation of 2000 feet. As this is a vine, using common shade trees for support, it is grown where these trees are available such as on tea plantations.

*Nutmeg and mace* (*Myristica fragrans*) well known as a spice tree, grows in moist areas up to 2000 feet.

*Cardamons* (*Elettaria cardomum*) produces capsules used for flavoring, and as a carmative. It is grown in forests and steep valleys between 2500 feet and 4000 feet above sea level.

*Cloves* (*Eugenia caryophyllata*) grows best in deeper and well drained soils from sea level to about 2000 feet above sea level.
In Ceylon tobacco has been grown for a long time. Chewing, pipe, cheroot and cigarette types are produced. The country needs at least an additional 6000 acres to be self-sufficient.

Rice is grown in alluvial plains in the wet-zone and in the dry-zone under irrigation.

Kurrakkan - Finger millet (*Eleusine coracana*) grown in fertile soils having a well distributed rainfall between 35 inches to 40 inches.

Maize: Indian corn (*Zea mays*) is a popular crop outside the very wet region. It is grown as a substitute food crop on rice lands during seasons of insufficient rains.

**Fruit Crops**

The following fruit crops are grown in the country mostly in home gardens: (a) Sapodilla (*Achras sapota*), Pineapple (*Ananas sativa*), Bread fruit (*Artocarpus incisa*). In addition, Jak fruit (*Artocarpus integrifolia*) is grown for its timber and fruits. Citrus fruits are grown in small plantations of five to forty acres. Mangosteen (*Garcena mangostecna*), Mango (*Mangifera indica*), Banana (*Musa spp.*), Avacoda pear (*Persea gratissima*), and Guava (*Psidium guayava*) are grown where adapted to local conditions.
Vegetables

In addition to various cereal crops; beans, chillies, pulses, yams and onions are grown at lower elevations. In these regions the following vegetables are grown and there is an increasing demand which is beneficial to the welfare of the island. They are:
(a) Gourds, pumpkins, squashes, melons; (b) Okra (Hibiscus esculantus);
(c) Horse radish tree (Moringa pterygosperma); (d) Bingal (Solanum melongena); (e) Spinach; (f) Tomatoes and radishes.

At the higher elevations a range of sub-tropical and temperate vegetables are produced. The Department of Agriculture encourages their cultivation and helps in the marketing of these vegetables.

Pasture and Livestock

According to census figures of 1959, the following information is reported (9, p. 221):

456,000 acres pasture
1,494,957 cattle
792,208 buffaloes
76,700 swine
788,400 goats
49,316 sheep
400,000 poultry
Natural pasture throughout the island is deficient in nutrients. In drier regions, the grasses lack palatability except when young, fresh and short.

The important types of natural pastures are:

1. Hill and mountain pastures where European cattle, as the Jerseys, are acclimatized.

2. At intermediate elevations the drier and warmer pastures provide poor grazing.

3. Savannah type grasslands where the rainfall is low produces rather unpalatable grass.

4. The grass glade grazing of the dry-zone. Various types of grasses like *Brachiaria brizantha* along with legumes like *Stylosanthes gracilis* have been tried in order to establish pastures.

The fodders grown are maize, sorghum, Guinea grass (*Panicum maxima*), and Napier grass (*Pennisetum*).

**Livestock**

With a view of improving the livestock in the country, breeding stations have been established in various parts of the island. Government farms provide elementary training in cattle management and dairy routine to young men of the vicinity. Swine breeding is being given attention in the coconut growing districts and in the upcountry estates. The Department of Agriculture is working for the development of the village poultry and swine industry.
The Educational System in Ceylon

The educational system of Ceylon was developed and modeled according to that of the United Kingdom. This was academic in character. Although several changes in the educational system have taken place in the United Kingdom, the system has more or less remained the same. Changes have taken place, but they have not kept pace with the needs of Ceylon (11, p. 769).

All children are required to attend school until the age of 14. It is realized at the present time that the child leaving school at 14 is too immature and the educational authorities feel that the age of compulsory education should be raised from 14 to 15 or 16 (6, p. C5).

According to the latest figures available, about 400,000 children of school age are unable to attend school because of lack of facilities.

The figures also show that at present there are 8,033 (7, p. A205) schools with 67,977 teachers and 2,137,993 pupils (7, p. A161).

The normal sequence of schooling is the primary school (through the fifth grade or standard), the junior secondary or post-primary school (through the eighth grade).

Those who are qualified may go to the Senior Secondary School (8th grade to General Certificate examination level which is the 12th grade). A special two-year class, known as the university
MAP 3

CEYLON
SHOWING THE PROVINCES

NORTHERN PROVINCE

NORTH CENTRAL PROVINCE

NORTH WESTERN PROVINCE

CENTRAL PROVINCE

WESTERN PROVINCE

SABARAGAMOVA PROVINCE

SOUTHERN PROVINCE

COLOMBO

POLONNARUWA

EASTERN PROVINCE

UVA PROVINCE

AMPARI
entrance or the higher school certificate, is provided in the Senior Secondary School, for those who are under 18 years of age and who have passed the General Certificate Examination with credits. However, a boy has to leave school when he is 18 years of age. Education in all stages is free including professional training at the university level.

The medium of instruction is Sinhalese in 80% of the schools and Tamil in about 20% of the schools. Sinhalese is the official language and all children are expected to know Sinhalese, however English is taught in all schools.

The distribution of schools in the island by district as on May 31, 1959, are as follows (7, p. A205):

<table>
<thead>
<tr>
<th>Province</th>
<th>Number of Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Province</td>
<td>1697</td>
</tr>
<tr>
<td>Southern Province</td>
<td>1009</td>
</tr>
<tr>
<td>Central Province</td>
<td>1389</td>
</tr>
<tr>
<td>Northern Province</td>
<td>716</td>
</tr>
<tr>
<td>Northwestern Province</td>
<td>974</td>
</tr>
<tr>
<td>Sabaragamuwa Province</td>
<td>941</td>
</tr>
<tr>
<td>Uva Province</td>
<td>523</td>
</tr>
<tr>
<td>North Central Province</td>
<td>373</td>
</tr>
<tr>
<td>Eastern Province</td>
<td>411</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8033</strong></td>
</tr>
</tbody>
</table>
All schools in the country are administered by the Director of Education under the Ministry of Education. The subjects taught in Grade 1 to 5 are: Religion, Sinhala/Tamil, official language, English, Physical Education, Constructional Activities--art and hand work, Environmental Activities--nature study, local history, history of familiar things, life's great men at home and abroad, local geography and world geography.

Curriculum for Grade 6 to 8 are: Religion, Sinhala/Tamil, English, Elementary Mathematics, General Science, Ceylon and World Geography and History, Civics, Art, Physical Education, Woodwork and metalwork for boys and Home Science for girls, Singing and Music.

In Grades 9 and 10 the same subjects are taught but in a more advanced manner.

In Grades 11 and 12 the subjects taught depend on the student's ability and his wishes. They are particularly aimed towards a profession. Language and arithmetic are regarded as compulsory subjects at this level.

In a large number of schools agriculture is taught at the general certificate level (7, p. A157). It is the policy of the Department of Education to encourage the teaching of agriculture as a practical subject on a wide scale. Gardening as a school subject from Standard VI to VIII is being taught where facilities are available as it is felt that it is one of the worthwhile ways
of varying the traditional academic curriculum of our schools. Apart from gardening becoming a hobby, it is a subject where the pupil works out of doors as well as in the class, studying both theory and practice. Gardening is therefore thought to be useful and a practical general science.

The Director of Education and his department enforces standards mainly through examinations supervised by an efficient staff.

The General Certificate of Education is necessary for most of the lower grades of job. A pass in the General Certificate Examination is necessary to enter into a trade school or for jobs in the Ceylon Police, Army, Navy, Air Force, and in Clerical Service—general, postal, and railway and other semi-skilled occupations.

The system of education in Ceylon is highly centralized. All textbooks are approved by the Director of Education. Courses and time allotted are identical throughout the country.

**Agricultural Education**

At the present time there are about 200 boys attending thirteen boys' Practical Farm Schools and 94 girls attending four Practical Farm Schools for girls. These students represent the sons and daughters of village cultivators and are given the basic education in agriculture.

Besides the above there are two schools of agriculture with a present student population of approximately 300 (8, p. 203).
The minimum requirement for entrance to these two schools is a General Certificate examination offering Bio-sciences. These two schools offer a two-year course of theoretical and practical training in all phases of agriculture and animal husbandry. This specialized training fits them for managerial posts on estates, for work in the extension services, and allied agricultural jobs. The girls in these schools are trained with the objective of producing women to achieve a realistic approach to all aspects of agriculture, of home management, etc.

The University of Ceylon provides a course in agriculture leading to the Bachelor of Science. To enter the B.Sc. Degree program, a person must qualify at the General Certificate level with credit passes in three science subjects. He has also to pass the university entrance examination which is competitive.

The first year in the B.Sc. Degree program is devoted to pure sciences---botany, zoology, chemistry and descriptive economics. These courses are of the same level as those offered to the freshmen in science, medicine and veterinary science.

In the second year the following subjects are offered---agricultural botany, zoology, chemistry, farm engineering and surveying, principles of agriculture I, horticulture and animal hygiene.

In the third and final year, crops (major and minor), principles of agriculture II, animal husbandry, agricultural economics, and farm management are the subjects taught.
During the second and third years all mornings are devoted to practical work in the laboratory or in the field. Lectures are mostly arranged for the afternoons.

At the end of each year a person has to pass a written and practical examination in all subjects taught.

A person can appear for an examination only twice.

Residence in the university campus---Halls of Residence---is compulsory during the three years.
Chapter III

PROCEDURE

In order to carry on an investigation of this type the author found it necessary to prepare himself by studying the program of vocational agriculture in the United States of America. This was accomplished by the following means:

1. Attending a regular course of studies in the Agricultural Education Department of the Oregon State University consisting of the essential courses in Technical Agriculture and professional courses in: Program Report Analysis, Agricultural Curriculum, Adult Education in Agriculture, Extension Course in Teacher Training, Community Programs of Agricultural Education and Research in Agricultural Education. These courses provided a sound background for the purpose of designing and developing an acceptable educational program to meet the specific needs of Ceylon.

2. A review of literature on vocational agriculture in the United States of America was carried out. The most important books reviewed were:

   (a) Education in the United States of America, a bulletin published by the Department of Health, Education and Welfare.

   (b) A Handbook of Vocational Agriculture by Lloyd J. Phipps.
The review of the materials supplemented the knowledge gained through course work. They provided an understanding of the philosophy behind the various techniques and suggestions pertaining to methods and materials for collection of data on vocational agriculture.

In presenting the history and background of Ceylon the author obtained most material from (a) New Geography of Ceylon by S. F. deSilva and (b) The Economic Development of Ceylon published by the International Bank of Reconstruction and Development.

The latest figures on Education and Agriculture were collected from the Administrative Reports of the Directors of Agriculture and Education published in 1960 and 1961.

The sessional paper 1-1962 which is an interim report on the National Education Commission Ceylon 1962 was very useful in planning this program to suit the present needs.

During the course of this study the author visited the agriculture departments of Canby, Central Linn, Cascade and Corvallis
High Schools in the State of Oregon. The author had opportunities to sit in adult classes at Central Linn and all-day classes both at Central Linn and Canby. In these visits the author took advantage of discussing the schedules of course work, organization and presentation of courses of studies, records of supervised farming programs and the visual aids with the vocational agricultural teachers of the above two schools. Personal interviews with the boys enrolled in Vocational Agriculture in these schools provided a clear insight to the honest reactions and opinions of the students regarding the operation of the Vocational Agriculture program.

In the winter term several visits were made to the Cascade High School, when the Agriculture Department was studied from the point of view of the needs of the community.

In the final development of the program of Vocational Agriculture for secondary schools in Ceylon, the author's own experience on a plantation, in the extension service and as Lecturer in Horticulture, at the Government Teachers Training College, Maharagama, has been used.
Chapter IV

VOCATIONAL EDUCATION IN AGRICULTURE IN UNITED STATES OF AMERICA

Vocational education in agriculture is so well organized in the United States of America today that it contributes to the overall success in the fulfillment of the aims of good public education.

Vocational agriculture programs help in the dissemination of latest research findings to farmers, and also gives an impetus to the younger generations on the farmland who will be future farmers to apply these findings in the field and attain proficiency in modern farming methods.

Other phases covered through these programs include agricultural economics such as rural credit, farmers cooperative for purchases, marketing, and economic disposal of surplus products such as milk, grain, etc.

In short, vocational agriculture programs induce confidence, pride, and contentment in the farmer, who is considered to be the backbone of a nation.

As a result of the complexity and diversity of the activities, the Congress of the United States of America enacted legislation which provides assistance for development of Vocational Education in agriculture.

This assistance is in the form of advice and funds for each state to assist in the promotion and development of the vocational
agriculture program. These funds are principally used for salaries and travel of vocational agricultural teachers, teacher trainers, supervisors and directors. According to the law, every dollar contributed by Federal vocational educational funds should be supplemented by at least one dollar from the state or local funds. The State Board for Vocational Education is responsible for the promotion, development, improvement, and supervision of the vocational agriculture program within the state (33, p. 58).


The importance attached to and the benefits derived from the vocational agriculture program have resulted in a steady increase in enrollment in vocational agriculture in the public schools. Today in the United States of America this program of systematic instruction is conducted in more than 10,000 public schools (33, p. 58).

The over-all program of vocational agriculture is designed for: (1) Persons over 14 years of age who are regularly enrolled in public secondary schools and who are interested in preparing for the work on the farm. (2) Young farmers who have graduated or otherwise left school and are interested in being established in farming. (3) Adults who are interested in improving their proficiency in farming methods (33, p. 58).
The national acts enforce that vocational agriculture classes "provide for directed and supervised farming practice in agriculture either on a farm provided for by the school or other farm, for at least six months of the year" (33, p. 58). The new concept of vocational agriculture in the United States of America today is that it is a course of study designed to introduce the students to agricultural occupations, including farming.

The teachers in vocational agriculture are graduates who have had special training in the teaching of vocational agriculture.

The Program of Vocational Education in Agriculture

The program of Vocational Education in agriculture in the United States includes the following: (1) Classroom activities, (2) Supervised farming program, (3) Farm mechanics activities, (4) The Future Farmers of America organization.

National Vocational Education Acts

Eight important acts have been passed since 1917 and each act marked a forward step in the advancement of the program.

1. The Smith-Hughes Act of February 23, 1917 provided for annual appropriations for allocation to the states for the advancement for vocational education in agriculture, trades and industries and homemaking. These funds also provide for expenses involved in teacher training (30, p. 985).
2. On March 10, 1924, an act extending the provision of the above act to include the territory of Hawaii was passed (30, p. 992).

3. The George-Reed act was accepted by the Congress on February 5, 1929. This act provided additional funds for use in vocational agriculture and home economics (30, p. 992).

4. An act extending the provisions of the Smith-Hughes Act to Puerto Rico was approved in March 3, 1931 (30, p. 993).

5. On May 21, 1934, the George-Ellzey Act extended the George-Reed Act—appropriations to trades and industry as well (30, p. 994).

6. The George-Deen Act passed on June 8, 1936 replaced George-Ellzey Act and provided increased funds to supplement the annual appropriation of "Smith-Hughes Act" (30, p. 995).

7. An act extending the provisions of funds for Vocational Education to the District of Columbia was passed in 1937.

8. George-Barden Act (Vocational Bill S619) was passed on August 1, 1946. It amended the George-Deen Act and added many new provisions which superseded the George-Deen Act. George-Barden Act is on legislation authorizing annual appropriations (30, p. 1000).

The amounts allocated as annual appropriations were increased and expenditures for a number of new phases of work were authorized.
Future Farmers of America Organization

The Future Farmers of America, also known as the FFA, is the national organization of boys enrolled in vocational agriculture in public schools. "It is an educational, non-profit, non-political farm youth organization of voluntary memberships, designed to develop agricultural leadership, character, thrift, scholarship, cooperation, citizenship, and patriotism" (16, p. 5).

The F.F.A. is an integral part of the vocational agriculture program. It is one of the most effective means of imparting practical farming. Among the many facets offered by the F.F.A. to its members, the most important are (a) Training in public speaking, parliamentary procedure, and stimulating cooperative effort with other fellow members for individual and community betterment.

The F.F.A. is organized on a local, district, state and national level. F.F.A. in a public school (local chapters) organize recreational activities, safety campaigns, parent-son banquets, and other group functions.

Other activities include landscaping and beautifying the school or church grounds.

As a result of these various activities and through theoretical and practical instruction in vocational agriculture, the members of the F.F.A. ultimately develop into efficient and successful farmers. They also develop poise and strength of character and attain the requisites for responsible citizens of
the country and of the society.

**Supervised Farming Program**

The supervised farming program is an integral part of the vocational agriculture program of the school. It provides the student a chance to apply the knowledge and the skills acquired to their home farms.

This program is composed of a (a) productive project, (b) improvement project, and (c) supplementary project.

The individual farming programs are based on the farming enterprises on the agricultural situation on the home farm and the community and are planned cooperatively by the teacher, parent and the student. This careful planning helps to prepare the student for permanent farming.

To cite a recent example of the benefits obtained through a supervised farming program, the success of Darryl Seuell is reproduced from "The Oregon Future Farmer", Volume XXXII, Number 3 (13, p. 1, col. 1).

This example is cited as such conditions can be simulated in Ceylon where the land holdings, etc. are much like that encountered in this case.

"Good soil, much toil, and the kind of folks that give a fella half of a tractor for Christmas have added up to make Darryl Seuell, Adrian F.F.A. chapter, Oregon's Star Farmer of 1962."
Darryl started F.F.A. with two dairy heifers and 2½ acres of grain. He now has forty-five acres of crops including sugar beets, corn, alfalfa, barley, and four dairy animals.

The family farm was not large enough to support two farming programs. So for the betterment of his project Darryl rented other acreage. With the acreage he got experience in business agreements and working with unrelated landlords.

This project has grown from a small project where labor was exchanged between father and son to an enterprise now requiring hired labor.

Darryl has been active in his chapter as secretary twice, exhibiting at the fairs, and on the livestock judging team. He has won the district Better Farming contest, the chapter Dairy, Crop, and Star Farmer awards. He was co-captain of the Adrian football team and is a student body representative.

Darryl plans to attend OSU and major in Vocational Agriculture.
An Example of a Supervised Farming Program
Livestock-type Farm (17, p. 223)

<table>
<thead>
<tr>
<th>Production Project</th>
<th>In School</th>
<th>Out of School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st yr.</td>
<td>2nd yr.</td>
</tr>
<tr>
<td>Swine</td>
<td>2 head</td>
<td>10 head</td>
</tr>
<tr>
<td>Beef Cattle</td>
<td>2 head</td>
<td>10 head</td>
</tr>
<tr>
<td>Sweet Potatoes</td>
<td>1 acre</td>
<td>1 1/2 acres</td>
</tr>
<tr>
<td>Peppers</td>
<td>Minor</td>
<td>1 1/2 acres</td>
</tr>
<tr>
<td>Corn</td>
<td>Contributory</td>
<td>3 acres</td>
</tr>
<tr>
<td>Peanuts</td>
<td>Contributory</td>
<td>1 acre</td>
</tr>
</tbody>
</table>

| Improved Projects  | Constructed barn, 1 acre permanent pasture | Landscape home grounds, Erected new fence, drained a wet field | Painted a barn, planted clover crops, installed running water | Seeded 5 acres of pastures, stumped 5 acres of land | Constructed a poultry house, built a permanent hot bed, installed an irrigation system for 5 acres |

| Supplemented Farm Practices | Mixed fertilizers, pruned trees, culled hens, caponized cockerals, repaired screens | Made tool box, sharpened tools, treated seed, canned fruit, dressed poultry | Tested milk, built steps, sprayed trees, sheared sheep | Baleed hay, inoculated legumes, tested seed oats, operated mowing machine | Built poultry appliances, painted shelves on kitchen, sprayed vegetable adjusted cream separator, built trap nest, prepared a fair exhibit |

Table 1
<table>
<thead>
<tr>
<th>Second Example of Supervised Farming</th>
<th>First Year</th>
<th>(17, p. 224)</th>
<th>Supplementary Farm Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production Projects</td>
<td>Improved Projects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>300 baby chicks for fryers</td>
<td>Landscape the home grounds</td>
<td>Sharpen farm tools</td>
<td></td>
</tr>
<tr>
<td>300 baby chicks for pullets</td>
<td>Set out a home fruit orchard</td>
<td>Plant a forestry seedbed</td>
<td></td>
</tr>
<tr>
<td>1 acre of green feed</td>
<td></td>
<td>Repair window screens</td>
<td></td>
</tr>
<tr>
<td>1 acre of corn</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 dairy calf</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Second Year

| 100 laying hens                      | Set out 2 acres of pine seedlings | Grow a home garden          |
| 600 baby chicks                      | Improve 1 acre of pasture         | Propagate ornamental plants |
| 1 acre of green feed                 | Continue landscaping home ground  | Build steps for home        |
| 4 acres of corn                      | & establishing home orchard       |                             |
| 1 heifer                             |                          |                             |
| 1 guilt                              |                          |                             |

Third Year

| 250 laying hens                      | Improve 1 acre pasture           | Repair water pump           |
| 600 baby chicks                      | Drain 2 acres lowland            | Repair front gate           |
| 3 acres of green feed                | Grow 2 acres winter clover crops | Put handles on farm tools   |
| 5 acres of corn                      | Plant 3 acres pine trees         | Grow home garden            |
| 1 dairy cow                          |                          |                             |
| 1 breed sow & pigs                   |                          |                             |

Table 2
<table>
<thead>
<tr>
<th>Second Example (Cont'd)</th>
<th>Fourth Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>350 laying hens</td>
<td>Clear 5 acres of land</td>
</tr>
<tr>
<td>750 baby chicks</td>
<td>Instill running water &amp; electric lights on the farm</td>
</tr>
<tr>
<td>4 acres of green feed</td>
<td>Protect planted pine acreage</td>
</tr>
<tr>
<td>10 acres of corn &amp; peanuts</td>
<td>Hive 5 colonies of bees</td>
</tr>
<tr>
<td>1 breed sow &amp; pigs</td>
<td>Cure 100 bushels of sweet potatoes</td>
</tr>
<tr>
<td>6 hogs for meat</td>
<td>Repair broken window panes</td>
</tr>
<tr>
<td>1 dairy cow</td>
<td>Grow home garden</td>
</tr>
</tbody>
</table>
Advisory Councils

The advisory councils, truly represented by the community, have contributed to the success of the vocational agriculture program in public schools in the United States of America. It binds the community and the school together in order to provide a success in agricultural, commercial and business needs of the community.

The inclusion of experienced members of the local community in the advisory council is helpful to the administrator and the school board in acquainting them with the true agricultural problems and the farm living conditions and the needs of the community.

To the vocational agricultural teacher the advisory council acts as guide, philosopher and friend, always sharing his untold burdens in planning and the execution of a program best suited to the community, state and the nation.

The advisory councils originated in the United States of America as far back as 1911. The first council was established in Massachusetts; however, with the passing of the Smith-Hughes Act in 1917 it has spread to many vocational agriculture departments in the United States.
Chapter V

SUGGESTED PROGRAM OF VOCATIONAL AGRICULTURE FOR CEYLON

The Objectives of a Vocational Agriculture Program Would be as Follows:

1. To develop interest in farming as a career as well as proficiency in agricultural techniques, including business.
2. To efficiently produce and market quality products.
3. To provide training for careers in negotiations of trade agreements.
4. To provide training for the maintenance and repair of farm machinery and buildings as well as the maintenance and improvement of home and community.
5. To develop good relations with non-farming individuals and groups in the interest of keeping the public informed about modern agriculture.
6. To make farming a safer occupation financially as well as physically.

The above objectives could, however, change with time according to human needs and may differ from community to community.
Program for Secondary Schools

It is suggested that the program in vocational agriculture be introduced in the 7th standard (grade 9) when the boy is 14 years old and be spread over a period of four years until he passes the General Certificate Examination in Education (grade 12).

The enrollment should be purely voluntary and a decision of the student and his parents. It is the teacher's responsibility to provide adequate guidance. However, it should be made clear that the vocational agriculture class should not be made the "dumping ground" of a school on the assumption that a boy who cannot succeed in his studies may do better in agriculture. It should be clear that the full agricultural development of the country would take place within a number of years and the opportunities for boys in vocational agriculture will increase as years go by. Therefore the number of boys enrolled in vocational agriculture must bear a close relationship to the number of persons needed in agricultural occupations.

Various difficulties such as allotment of periods and extracurricular activities may seriously interfere with a vocational agriculture program, but it is not impossible to work out a good schedule. It may be suggested that in the first, second and the fourth year, one period of agriculture be included in the daily schedule. During the third year, agriculture may be taught daily for two periods. This time allotment may suffice as classroom
instruction. However, the classroom instruction should be supplemented by a supervised farming program and F.F.C. activities.

In the organization of the four-year course, the subject matter may be arranged in a "cross-sectional", integrated or "scrambled" fashion. The first year may be devoted to giving an introduction to the whole field of agriculture and in the fourth year (General Certificate Class) should be used for summarizing the four-year experiences of the students.

During the four-year course the classroom instruction should deal with two broad areas - agricultural science and farm mechanics. The first year the program should be oriented around selection. This would include such things as selection of a project, crop or animal, selection of a breed, land, soil, etc.

In the second year it should be oriented around production such as milk, eggs, meat, fruits, rice, etc.

In the third year the subject matter should be oriented around management, such as management of a dairy herd, of an orchard, rice field, poultry business and so on.

In the fourth year the subject matter should be primarily based on problems involved in the ultimate establishment in farming or in related agricultural occupations.

The two broad areas, agricultural science and farm mechanics, can be divided into other categories as follows:
In a four-year course in vocational agriculture, working on a basis of five periods per week as proposed and taking roughly 180 days in a school year, it could be assumed that there would be 900 periods for classroom instruction. The 900 periods may be divided into the two fields mentioned above to suit the local needs of various districts and communities.

It may be suggested that 600 periods may be allocated for agricultural science. These 600 may be divided into the four years according to grade placement. Finally, the number of periods set apart for each year may be divided into the five fields in agricultural science.

Since the type of farming in Ceylon is not yet fully mechanized and due to the lack of facilities, 300 periods may be allocated for farm mechanics. The method adopted in breaking down the periods allotted for agricultural science may be used to break the time allotment for farm mechanics.
Suggested programs of studies for the three different zones of Ceylon are as follows:

Table 3. Wet Zone Low-Country
(Sea level to 2000 ft. elevation)

Periods taught each year

<table>
<thead>
<tr>
<th>Agricultural Science</th>
<th>Ag I</th>
<th>Ag II</th>
<th>Ag III</th>
<th>Ag IV</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Crops</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major (Tea, Rubber, Coconut)</td>
<td>10</td>
<td>10</td>
<td>15</td>
<td>10</td>
<td>45</td>
</tr>
<tr>
<td>Rice</td>
<td>10</td>
<td>15</td>
<td>25</td>
<td>10</td>
<td>60</td>
</tr>
<tr>
<td>Vegetables</td>
<td>10</td>
<td>5</td>
<td>15</td>
<td>5</td>
<td>35</td>
</tr>
<tr>
<td>Fruits</td>
<td>5</td>
<td>20</td>
<td>37</td>
<td>23</td>
<td>85</td>
</tr>
<tr>
<td>Fodder &amp; grass</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>2. Livestock</td>
<td>40</td>
<td>20</td>
<td>30</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>3. F.F.C.</td>
<td>20</td>
<td>10</td>
<td>13</td>
<td>7</td>
<td>50</td>
</tr>
<tr>
<td>4. Farm Management</td>
<td>5</td>
<td>15</td>
<td>40</td>
<td>30</td>
<td>90</td>
</tr>
<tr>
<td>5. Supervised Farming Program</td>
<td>40</td>
<td>20</td>
<td>30</td>
<td>20</td>
<td>110</td>
</tr>
</tbody>
</table>

Farm Mechanics

<table>
<thead>
<tr>
<th></th>
<th>Ag I</th>
<th>Ag II</th>
<th>Ag III</th>
<th>Ag IV</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Farm Shop</td>
<td>15</td>
<td>15</td>
<td>10</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>2. Rural Electrification</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>3. Farm Power and Machinery</td>
<td>8</td>
<td>20</td>
<td>40</td>
<td>12</td>
<td>80</td>
</tr>
<tr>
<td>4. Soil and Water Management</td>
<td>10</td>
<td>10</td>
<td>60</td>
<td>--</td>
<td>80</td>
</tr>
<tr>
<td>5. Farm Building and Conveniences</td>
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Table 4. Wet Zone Hill-Country (over 2000 ft. elevation)

Periods taught each year

<table>
<thead>
<tr>
<th>Agricultural Science</th>
<th>Ag I</th>
<th>Ag II</th>
<th>Ag III</th>
<th>Ag IV</th>
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<tbody>
<tr>
<td>1. Crops</td>
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<td>Rice</td>
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<td>Vegetables</td>
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<tr>
<td>Fruits</td>
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<tr>
<td>Fodder &amp; grass</td>
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<tr>
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<tr>
<td>3. F.F.C.</td>
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<tr>
<td>4. Farm Management</td>
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<tr>
<td>5. Supervised Farming Program</td>
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Farm Mechanics

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<tr>
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<tr>
<td>3. Farm Power and Machinery</td>
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<tr>
<td>4. Soil and Water Management</td>
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180 180 360 180 900
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<th>Table 5. Dry Zone</th>
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<td><strong>Periods taught each year</strong></td>
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<th>Agricultural Science</th>
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The suggested programs of studies would provide the following advantages:

1. Develop a continuity which will lead to the over-all maturity of the boy in mind as well as body.
2. The courses could be better built around the developing farming programs of boys.
3. It would be possible to teach together the areas which belong together in practical farming.
4. The training of the boys would be better balanced and there would be a continuity of learning as well as variety.

Suggested Features for a Successful Supervised Farming Program

Various factors may be considered in considering a supervised farming program in a rural school in Ceylon.

The ultimate selection in a project may depend upon (a) age and experience of the boy, (b) type of project according to his religious beliefs, (c) the number of hours per week the boy could spare for work, (d) the number of hours of labor required per unit for producing each enterprise.

However, the project selected should enable the boy to expand in scope into a long time program which would ultimately lead him to become established in farming and related occupations.
It should also provide him with financial returns; the accumulation of which would help him to acquire land, livestock, equipment and necessary capital for his establishment in farming.

The size of project selected should be of a sufficient size to create interest and to acquire managerial ability.

A written agreement should be made between the father and the son, when the program involves a share in the home-farm business.

Cost accounts and farm accounts should be kept and frequently scrutinized by the vocational agricultural teacher and may be revised if and when necessary to reduce or extend expenses.

It may be wise to make necessary plans and provisions for improvement of family home and living.

The program should afford ways and means of gaining experience in group and cooperative effort.

In order to make the boy participate effectively in a democratic society, the objectives of the program should be clearly emphasized to the boy.
Table 6. Suggested Supervised Farming Programs

<table>
<thead>
<tr>
<th>PRODUCTION PROJECTS</th>
<th>IMPROVEMENT PROJECTS</th>
<th>SUPPLEMENTARY PROJECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sow 200 sq. ft. nursery for rice</td>
<td>Build fence around home garden</td>
<td>Disinfect rice seed</td>
</tr>
<tr>
<td>Sow broadcast 1/8 acre rice field</td>
<td>Set a home garden</td>
<td>Use pre-emergence weedicide on rice field</td>
</tr>
<tr>
<td>Sow 300 sq. ft. high land rice nursery</td>
<td></td>
<td>Sharpen farm tools</td>
</tr>
<tr>
<td>Transplant 1/4 acre rice</td>
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</tbody>
</table>

| **Second Year**     |                      |                        |
| Sow 300 sq. ft. high land rice nursery | Plant home garden | Plow 1 acre rice field |
| Transplant 1/4 acre rice | 1 plot radish | Bud graft 6 mango seedlings |
|                       | 1 plot pepper | |
|                       | 1 plot spring onion | |
|                       | 1 plot spinach | |
|                       | Lay lawn in home garden | |

| **Third Year**      |                      |                        |
| Transplant 3/4 acre rice | Continue growing home vegetable garden | Seed selection in paddy |
| Grow yams on thrashing floor | Prepare back yard poultry for 10 laying hens | Dusting and spraying rice fields |
| 1 heifer | | Plant 6 mango plants |
| 1 bred gilt | | Plant 6 papaya plants |
| | | 2 banana clumps |
| | | |
| | | |
| | | |
| | | |
Table 6. Suggested Supervised Farming Programs (Cont'd)

<table>
<thead>
<tr>
<th>PRODUCTION PROJECTS</th>
<th>IMPROVEMENT PROJECTS</th>
<th>SUPPLEMENTARY PROJECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand transplant 1 acre rice</td>
<td>Continue growing home garden vegetables</td>
<td>Threshing rice</td>
</tr>
<tr>
<td>Grow yams on threshing floor</td>
<td>Increase back yard poultry for 20 laying hens</td>
<td>Dehorning calf</td>
</tr>
<tr>
<td>1 dairy cow</td>
<td>Repair drains in home garden</td>
<td>Castrating hog</td>
</tr>
<tr>
<td>1 hog for meat</td>
<td>Lay irrigation system in home garden</td>
<td>Culling poultry</td>
</tr>
<tr>
<td></td>
<td>Conserve soil and water in garden</td>
<td>Pruning mango trees</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Green manuring rice field</td>
</tr>
</tbody>
</table>
Farm Placement

A project of this nature should be undertaken only when the boy is unable to find a home farm or rental opportunities are not available or inadequate. The project should involve production, improvement, and farm practice activities as well as farm jobs. The project should provide financial and managerial responsibilities and should be carried on for at least six months. Work on rubber, tea, cocoa, or coconut plantations may be suggested. The boy could work in the plantation after his school hours, as schools in Ceylon are from 7:30 a.m. to 1:00 p.m. He could also work on Saturdays and Sundays and during his vacations.

Group projects may also be undertaken under special circumstances when the boys do not have enough farming facilities at home. They may be groups of two or more and may produce in a large scale crops such as cabbage, potatoes, onions, pineapples or bananas.

Suggestions for the Teacher in Supervising Farming Programs

1. Prepare a map of the school area and locate the various projects on it.

2. To conserve the time wasted in travel, it would be best to travel on one area at one time.

3. Make visits after school hours.

4. Always inform the boy before you visit.
5. Be punctual, prompt and businesslike.
6. Dress for the occasion and be prepared to get your hands and clothes dirty.
7. The number of visits should depend on the necessity.
8. Invite the boy's parents or even a staff member during the visit.
9. If a number of boys carry out similar enterprises, carry out group instruction.
10. Avoid making decisions but help student decide for himself.
11. Aid the student to discover his problems.
12. Question the boy concerning production and marketing costs.
13. Read through his record, emphasize use of records.
14. Make your own notes and problems encountered and suggestions made.
15. Comment, encourage and be friendly and sympathetic toward the student.

Suggestions for Organizing a Future Farmers of Ceylon Similar to The Future Farmers of America

The Future Farmers of Ceylon may be formed as a national organization of, by, and for boys studying vocational agriculture in the secondary schools of Ceylon.

Director of Education may be authorized to provide authority to organize Future Farmers of Ceylon chapters throughout the country.
The Department of Education, Colombo, Ceylon, may be selected to be the headquarters of the F.F.C. A national convention may be held annually at a place or town decided by the student officers.

The adult advisory officers could be composed of four representatives from the Director of Education and two from the Department of Agriculture.

The officers should be as follows:

**Boys Officers**
- President
- 1st Vice-President
- 2nd Vice-President
- 3rd Vice-President
- 4th Vice-President
- Secretary

**Adult Officers**
- Advisor
- Executive Secretary
- Treasurer

The boys' officers should be elected annually at the national convention.

The F.F.C. should be a self-supporting organization nationally operated on membership dues and the membership dues may be decided by the delegates.

Suggested purposes of the F.F.C. organization may be: (a) develop character, (b) train for useful citizenship, (c) foster patriotism, (d) develop agricultural leadership, (e) to improve farm surroundings, (f) to create an interest in the intelligent choice of farming occupations, (g) to encourage and practice thrift.
It is suggested that the Constitution and the By-Laws of the Future Farmers of Ceylon be adopted from the Future Farmers of America with necessary alterations to suit the local situations.

**Useful Suggestions for the Vocational Agriculture Teacher in Organizing the F.F.C.**

1. The teacher in vocational agriculture should ask the Director of Education regarding the steps that should be followed in forming a F.F.C. Chapter.

2. The teacher should inform the principal of the school and the advisory council the aims and purposes of the organization.

3. The teacher should call a meeting of the boys enrolled in vocational agriculture and explain all the essential details of the Future Farmers of Ceylon organization. Impress on the boys that the teacher would only be connected with the organization as an advisory capacity. Explain to the class the essentials of a good chapter.

4. The students vote on whether or not to apply for a chapter.

5. The teacher may act as chairman until the officers are elected.

6. The president then should appoint committees according to the program of work.

7. Application for chapter should be made according to regulations in a proper form.

8. Secure equipment for chapter after approval to organize the chapter.
In order to produce a good chapter the teacher should bear in mind the following essentials:

1. Interested members
2. Capable officers and leaders
3. Challenging program of work
4. Sufficient finances
5. Responsibility shared by all members
6. Understand the purposes and objectives of the Future Farmers of Ceylon by every member of the chapter.

**Suggested Future Farmers of Ceylon Program of Activities**

The teacher and the students should cooperate in preparing an efficient program of activities for the F.F.C.

The activities selected should be based on the farming enterprises so as to benefit the local chapter of the F.F.C.

The program of activities for the F.F.C. may be set up according to the following headings:

1. Supervised farming activity to assist members to develop in scope and extent and finally to establishing in farming.
2. Cooperative activities to assist members in practicing cooperation.
3. Community service activities to assist members to develop activities and projects which benefit the community.
4. Earning and saving activities to assist members to practice thrift.
5. Scholarship
6. Recreation

Suggested Calendar of Work for a F.F.C. Local Chapter

In addition to regular monthly meetings, the following activities are suggested:

January
10th Committee meeting of office bearers.
20th Committee meeting report on the program of activities recommended.
30th "Dignity of Labor-Week". Clean up the school premises.

February
10-12th Harvest school farm rice fields and other products.

March
Committee meeting of the executive members to discuss the program for the southwestern monsoon season.
25-30th Cooperative preparation of the school rice fields.
27th Plowing contest

April
7-15th Members take part in the National Health Week.
25-30th (1) Cooperative transplanting of the rice fields.
     (2) Setting of eggs in the chapter incubator for distribution to members
May
10th  Community weeding of rice, vegetable and home garden campaign. Demonstrate value and use of weedicides.
25th  School parlimentary speaking contest.

June
1st   Pest and diseases control campaign in the community.
5th   Executive meeting.
25th  Inter-chapter public speaking contest.
30th  District public speaking contest.

July
15-18th  National convention.

August
5-10th  Visit "Gal Oya" multi-purpose scheme.
30th  Send judging team to the "National Dairy Contest".

September
5-10th  Harvesting of southwestern monsoon season crops.
11-15th  Sell cooperatively.
18th   Awards for best crop yields.
28th   Chapter sports meeting followed by concert.

October
1-10th  Prepare fields for planting for the northeastern monsoon season.
20-30th  "Soil Conservation Week".
November

1st    Executive meeting to evaluate the work of the local chapter during the year.

15th   Election of office bearers for the new year.

30th   Father-Son banquet and awards for outstanding performances.

Suggestions for the Provision of Physical Facilities for a Vocational Agriculture Department in a Senior Secondary School

It may be beneficial to house the agriculture department (class) separately due to the nature of its activities. The agricultural teacher, the principal and the community should decide the building according to the needs of the school area. However, easy access should be one of the main considerations. The size, facilities, and details depends on the number of boys enrolled and their needs.

The typical vocational agriculture classroom should be well equipped and arranged as to provide all possible opportunities to acquire the highest principles of farming and related agricultural activities, namely animals, dairy, and poultry husbandry, forage and vegetable cultivation, horticulture, and training in soil science, marketing, rural economics, farm management, accounting and farm mechanics.

As most of the schools in Ceylon are equipped with workshops for metal woodwork, they may be utilized to teach the basic skills
that are required for farm shop work such as welding and sharpening of tools. The agriculture teacher could work in collaboration with the metal and woodwork teacher in order to provide basic essential skills in the farm shop. The program could be expanded into a separate well-equipped workshop when the vocational agriculture program is developed in Ceylon. The change could be a gradual one beginning in the area where the needs are greatest and expand into other areas as the funds permit.

**Vocational Agriculture Teachers**

Teachers in agriculture at this stage of urgency should be diploma-holders of the School of Agriculture, Peradeniya/Kandasale with an additional training in pedagogy. This pedagogical training would include courses in:

1. Educational psychology
2. Methods of teaching
3. Community programs in agricultural education
4. Curriculums in agriculture
5. Adult education in agriculture
6. Supervised student teaching

It is suggested that a program be evolved to provide these teachers, after a few years of teaching, further training leading to a degree in agriculture at the University of Ceylon.
Suggestions for the Selection and the Working of an Advisory Council

As the Department of Education follows a rigid system of transfers of teachers and principals, an advisory council would be of immense importance to acquire the objectives of a program of vocational agriculture without much interruption.

Prior to the formation of an advisory council the teacher should seek the advice and aid from the principal. He may then apply for permission from the Director of Education through the principal of the school and the Education Officer of the area.

The principal and the agriculture teacher may decide on the number of members, method of selection and the relationship of the council to the agricultural teacher and the principal. Also, the activities, extent and scope of the council should be decided upon.

It would be best to nominate public spirited, interested and those willing to donate their leisure and energy. The inclusion of the agricultural extension officer would be beneficial.

The principal and the agricultural teacher may remain as ex-officio members.

Members may be nominated from all geographical zones. They should represent all types of farming enterprises predominating in the area represented.

The inclusion of a woman member in the council would be a desirable feature.
In order to make up a good council of about nine members, a member from the town may also be nominated.

However, it may be wise for the Education Officer of the area to be given the sole authority in approving the proposed names.

As in the United States of America, the duration of office of an advisory council may be limited to three years. A definite rotation may be followed. It should be the practice to allow at least one year to elapse before an out-going member of the council may be eligible again for reappointment. The advisory council may evaluate the agricultural situation of the community including the education needs of the community and develop a long-term program. Discussion should also be centered around agricultural placement opportunities in conducting the supervised farming programs and in developing a challenging program of work for the F.F.C. chapter.

Administration

In order to obtain the best results in a complete vocational education program in agriculture in the rural schools in Ceylon, it would seem reasonable to suggest that a Deputy Director be assigned in charge of the Vocational Education Division. The Deputy Director would assist the Director of Education in carrying out the government policies, obtaining funds, setting standards, transfer and appointment of a staff for the Vocational Education Division. There would be two assistant directors, one for vocational agriculture and
one for home economics, each of whom would be responsible for their respective divisions. Some of their duties would be (a) to organize and set standards for teacher training, (b) to set standards for curriculum, program of studies and evaluation, and (c) to arrange for refresher courses and direct research studies.

At the district level, the district supervisors in vocational agriculture could advise and supervise the work of the local agricultural teacher.

**Suggestions for Evaluating a Program of Vocational Agriculture**

1. Records of supervised farming programs' accomplishments.
2. Studies of occupational success after leaving school.
3. Surveys of results, practices, attitudes, and opinions of persons with and without instruction.
4. Examinations.
5. Attendance records.
Chapter VI

SUMMARY

Looking at the history of the world in general and of Ceylon in particular, it seems obvious that the prosperity of a country, its rise and fall, depends on its agriculture. This fact is amply proved by the dominant position held by the United States of America. As far as one can see the abundance of food and the high standard of living in the United States of America have been aided by a well thought-out, defined yet integrated plan of education.

A high school boy is adequately equipped to engage in farming as he steps out of school. However, to qualify for specialized and professional fields of general agriculture, college training is necessary.

Ceylon, today, is faced with overwhelming problems such as finding food for her fast growing population, raising the present standard of living of her rural people and finding employment for them. The basic remedy is in a dynamic development of agriculture. A true and faithful appraisal of the present situation in agriculture has to be made immediately. The faulty concepts have to be changed fast and old methods replaced by new devices.

We have not only to reorient our ancient, obsolete methods but also to bring under cultivation 3.25 million acres that await the plow.
Crop and livestock science has developed to such an extent that the common farmer finds it difficult to understand its implications. In years to come it promises to become even harder. Thus it is clear that the system of education has to be better calculated to close this gap between research and practice, especially for those preparing to enter agricultural occupations.

This study was undertaken to consider only certain activities and programs of vocational agriculture in the United States of America that might be adapted in setting up a program of vocational agriculture in Ceylon in order to provide systematic instruction in agriculture for those students who are preparing to enter into farming and related agricultural occupations.

This study has been made to provide a useful program of vocational agriculture for the rural schools of Ceylon by closely following the methods adopted in the United States of America.

The vastness of the program of vocational agriculture in the United States of America has compelled the author to limit his study to the problems of setting up a program of vocational agriculture in a rural secondary school in Ceylon.

In order to give a true and an impartial view of Ceylon to the readers the author has given a broad description of the relief, climate, crops, the educational system, and the agricultural possibilities of the country.

The procedure adopted in this study is to analyze the various fields that make up a complete vocational agricultural
program in a high school.

These include: (a) The classroom activities, (b) the supervised farming program, (c) the farm mechanics activities and (d) the F.F.A.

Also due attention has been paid to the laws that govern the vocational educational acts in the United States of America. The part the Congress and the state plays, and lastly, the function of advisory councils, which is indispensable to the success of a local vocational agriculture program in Ceylon.

Recommendations

The author makes the following proposals and suggestions:
(a) A complete program of vocational agriculture should be introduced in the rural secondary schools of Ceylon. (b) The total program of vocational education in agriculture should be flexible enough to suit the individual community. (c) A suitable supervised farming program should be included, so that a boy could develop a long term program which would ultimately lead to his establishment in farming or in a related agricultural activity. (d) A future farmers organization of Ceylon should be formed as a national organization under the authority of the Director of Education. The provision for this organization should further provide for the formation of Future Farmers of Ceylon chapters in the secondary schools throughout the country. (e) Well organized classroom instruction should be supplemented by
a fully equipped workshop. (f) A broad outline of the content of courses, the administrative set up and the providing of teachers are suggested in the study. (g) Advisory councils, consisting of devoted local residents, should be set up to advise the principal and the agricultural teacher on the agricultural needs of the community. (h) In the study some suggested examples are provided as guidance in selecting a supervised farming project, and activities for the F.F.C.
BIBLIOGRAPHY


