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IN TAIWAN

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The problem basic to this study was one of determining why most of the students who have graduated from the Department of Agricultural Extension at National Taiwan University have not taken jobs in the field of Extension Education.

The purposes of this study were (1) to develop a Program of Preparation for Extension Personnel in Taiwan, (2) to suggest a way to implement this proposed curriculum in Taiwan, and (3) to suggest an in-service training program to upgrade levels of work performance of Extension field personnel.

Certain procedures were followed in this study. Existing Extension education training programs in universities in the United States and Taiwan were examined, analyzed and compared. The needs of Extension workers in Taiwan were determined by examining the possible educational job activities of the occupation. A proposed program

of pre-service training, induction training, and in-service training based upon the job needs of the occupation was developed.

Recommendations based on this study are (1) National Taiwan University to review this paper and use what suggestions for change in their present program that seem most appropriate, (2) to continually up-date job descriptions to more accurately reflect Extension work, (3) to review and evaluate Extension in-service programs to better serve personnel needs, and (4) Extension personnel should be trained in more specialized areas or disciplines relevant to their assigned educational role.

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PROGRAM OF PREPARATION FOR EXTENSION PERSONNEL IN TAIWAN

I. INTRODUCTION

Extension work is not new in Taiwan's long history. During the Japanese occupation from 1895 to 1945, Extension work flourished. At one time 13,000 Extension personnel were employed by the Farmers' Association, Taiwan Sugar Corporation, and other government agencies. In 1945, Taiwan was returned to China from Japanese occupation. Owing to the reorganization of the Farmers' Associations and financial and technical assistance from the Joint Commission on Rural Reconstruction, Extension developed rapidly.

Extension is an integral part of the operation of such agencies as the Taiwan Sugar Corporation, Tobacco and Wine Monopoly Bureau, pineapple, tea, jute and other interests. More than 3,000 personnel representing a number of agencies and/or organizations are directly or indirectly engaged in Extension functions.

In September 1960, the Department of Agricultural Extension was established within the College of Agriculture, National Taiwan University. This was the first such undertaking on the part of a College of Agriculture in all of Taiwan's long and colorful history.

Much of Taiwan's rural population now looks to the College of Agriculture for the stimulation, guidance, leadership, information,

and unique resources, Extension education, along with instruction and research, to help pave the way for a better way of life for all.

Statement of the Problem

Since its beginning in 1960, the Department of Agricultural Extension at National Taiwan University has graduated 225 students. Only a few of these graduates took positions as Extension education workers (see Table 1).

Table 1. Number of Students Working at Hsien and Township Level.

Year	No. of Graduates	No. of Hsien Supervisors	No. of Township Agents
1965	45	1	-
1966	49	-	-
1967	56	-	1
1968	16	-	-
1969	17	-	-
1970	15	-	-
1971	17	-	-
1972	<u>10</u>	<u>-</u>	<u>-</u>
Total	225	1	1

Source: Report on Agricultural Extension Department, National Taiwan University, Taiwan, Republic of China, 1973.

The following table shows the number of Extension workers at the Hsien and Township level for three phases of Extension education work in Taiwan (see Table 2).

Table 2. Number of Extension Personnel at Hsien and Township Level.

Phase of Extension Work	No. of Hsien Supervisors	No. of Township Agents
Agricultural Extension	33	521
4-H Club	30	293
Home Economics Extension	<u>25</u>	<u>246</u>
Total	88	1,060

Source: Report on Agricultural Extension Education Work in Taiwan, Taiwan Provincial Farmers' Association, Taiwan, Republic of China, 1972.

The basic purpose of the Agricultural Extension Program in the college is the preparation of persons to be an Extension supervisor or agent. There are 88 supervisors and 1,060 Extension agents in Taiwan.

The problem basic to the study was one of determining why most of the students who have graduated from the Department of Agricultural Extension have not taken jobs in the field of Extension Education. It is believed that many of the graduates have not taken positions in Extension work because the curriculum has not been relevant to the job opportunities.

Purpose of the Study

The primary purpose of this study was to develop a Program of Preparation for Extension Personnel in Taiwan. The suggested

program of preparation was based upon existing Extension training programs in the United States and the present program in Taiwan.

A second purpose was to suggest a way to implement this proposed curriculum in Taiwan.

A third purpose was a suggested training and development program of in-service training to upgrade levels of work performance of Extension field personnel.

Assumptions

It was assumed that the data used in this study is valid in terms of the goals. The materials from which data were collected are official documents and publications from Taiwan and the United States. No primary survey type data were utilized for the findings.

Procedures

Specific procedures for the study included the following:

1. Survey existing Agricultural Extension curricula to determine what the program requirements are in the United States. Initially, curricula to be examined include those universities which have graduate and undergraduate programs.
2. Survey the existing related Extension education training program in Taiwan to determine whether courses which are appropriate to the training of Extension workers are present.

3. Determine the needs of Extension workers in Taiwan by examining the possible educational job activities of the occupation.
4. Compare the curricula from the United States and from Taiwan and develop an Extension Education Program from the curricula which is based upon the job needs of the occupation. This step will include an examination of Extension service job descriptions.

Definition of Terms

A definition of terms is listed to facilitate the understanding of terms used in this study.

Extension Work: An out-of-school system of education in which adults and young people learn by doing. It provides service and education designed to meet the needs of the people (12, p. 1).

Extension Specialists: The specialists are the link between the research laboratory and field staff. They provide information on new developments in their subject-matter fields to the Extension agents (22, p. 7).

Extension Supervisors: Supervisors help county agents reach decisions and increase their effectiveness in all program activities. They have the primary responsibility for orientation of new workers and for organizing and promoting in-service training and

professional improvement. Supervisors administer county work, supervise county work and county staffs, and gather information to report to the director (5, p. 4).

Extension Program: An Extension program is a statement of situation, objectives, problems, and solutions. It is relatively permanent but requires constant revision. It forms the basis for Extension plan (12, p. 142).

Home Economics Extension: Home Economics Extension is an adult education program for the homemaker. It reflects the needs of contemporary living, with emphasis on consumer education, management, and family economics (26).

Agricultural Extension: Agricultural Extension helps farmers adapt scientific methods to their individual needs. This applied knowledge helps farmers keep pace with the world's growing need for abundant, high quality food and fiber.

4-H Club: The 4-H Club is an organization that provides young people opportunities for mental, physical, social, and spiritual growth, and the development subject-matter skills.

Extension Agents: Extension agents are the key individuals in the Extension Service. They help people develop the resources they have--natural, human, social and economic--to make their community a better place to live. They help citizens get together and organize their efforts--to study facts, discuss issues, plan

and act for the good of all (27). There are three kinds of Extension agents: 4-H agent, home economist and agricultural agent.

4-H Youth Agents: 4-H youth agents work with public-spirited adult volunteer leaders to guide 4-H members (9 through 19) in 4-H practical projects by "learning by doing" (27).

Home Economists: Home economists reach the homemakers and their families with active educational programs designed to satisfy their needs at different stages of their life cycle.

Agricultural Agents: Agricultural agents conduct educational programs for farm people, with primary emphasis on teaching the knowledge and skill required for efficient production and marketing of agricultural commodities.

Background of Taiwan

Agricultural Background

Taiwan, the beautiful island province of the Republic of China, is located on the edge of the continental shelf, about 150 kilometers off the southeastern coast of the Chinese Mainland. Its total area is 35,960 square kilometers. This island is presently inhabited by about 15 million people. Plains less than 100 meters above the sea level account for 11,100 square kilometers of the area. These are the main agricultural regions on the island.

Lying in both tropical and subtropical zones, Taiwan is warm and has plenty of rainfall and sunshine. For this reason, crops can be grown all the year around. Taiwan's chief products are rice, sugar, bananas, vegetables, pineapple, citrus fruits, tea and timber.

Taiwan, girdled by the sea, has many large fishing grounds which abound in various kinds of fish. Because of the high temperature and humidity in Taiwan, animal diseases are by no means few. Besides, with the limited land area and the ever-increasing population pressure, almost all the utilizable land has been opened up to grow crops. Therefore, the raising of livestock such as swine, cattle, and ducks is generally a rural sideline. (16, p. 14).

Agricultural Extension Education

Historically present Agricultural Extension Education Program in Taiwan was started in December, 1952 with the initiation of 4-H Club work. Agricultural Extension and Home Economics Extension work were added to it in March, 1955 and November, 1956, respectively. So far, all the three phases of the Extension program have been carried out smoothly and effectively along with the agricultural information program.

The purpose of Agricultural Extension Education work in Taiwan aims, as in all other countries in the world, at helping rural people improve their life economically, socially, and physically as the result

of obtaining new knowledge, applying new skills and developing new attitudes.

The Agricultural Extension Education Program attempts to work with all members of the farm family for the betterment of farming as well as home-making.

The organization of Agricultural Extension Education Programs in Taiwan consists of three main categories. In principle, the governments on different levels such as the Provincial Department of Agriculture and Forestry on the provincial level, Hsien/City governments on the prefectural level, and township public offices on the township level act as sponsoring agencies administering the authority of supervision. Below the township governmental level, Farmers' Associations on various levels serve as executing agencies. The Joint Commission on Rural Reconstruction provides technical assistance and financial support for the overall program. In addition to these three main lines, a unique Extension advisory line is established. Every level advisory committee is composed of both the representatives of different agencies concerned and outstanding farmers (24, p. 3).

The Agricultural Extension Education work consists of three phases, Farm Extension for farm adults, 4-H Club work for rural youth (9 through 19) and Home Economics Extension program for farm women.

For this rural education program, many Extension teaching

methods have been adopted and applied compositively by Extension workers. Besides individual approaches and mass media, emphasis is placed on the use of group approaches through the organization of farm discussion groups, 4-H project clubs, and home improvement clubs in rural villages. All of the teaching methods are backed up by the distribution of printed materials and by the utilization of various audio-visual aids under the agricultural information program.

II. REVIEW OF LITERATURE

Need and Purpose of Training

If the Extension worker, as an adult educator, is to be effective in influencing and building up individuals and communities, he has to develop certain qualities and competencies upon which to draw while performing his numerous duties in the field. Based on experience, therefore, leading Extension educators have focused attention on the desirability of inculcating in the Extension workers certain qualities essential in the process of Extension Education.

Leagans (14) has propounded that to be an effective Extension worker in India certain important skills have to be acquired and competencies developed. These include a clear understanding of the roles of the Extension Service and how it operates; skill in human relations; knowledge and understanding of technical subject matter appropriate to one's job; ability to plan; ability to do things with one's own hands; ability to classify objectives and state them in a way that they are useful in guiding Extension activities; ability to organize people and things; skill at communications; skill at seeing the relationship between principle and practice; skill of enquiry; ability to provide meaningful learning experiences for the learner; ability to evaluate program achievement and teaching methods.

Kelsey and Hearne (12) emphasize that there is little doubt that the professional Extension worker has a major role in hastening the changes that lead to progress. Because of its nature, successful Extension work requires special training. Our economic and social structure is increasing in complexity. A modern farmer must be a good manager of his land, labor and capital. Extension workers must study agronomy, entomology, pathology, breeding, engineering mechanics, weather, marketing, management, public affairs, production outlook, consumer demands, and government. Hence a professional Extension educator must study in all these areas and, in addition, prepare himself in educational concepts, the psychology of learning, teaching devices, writing, speaking, and other skills of the profession such as organization and administration.

Quarrick (21) finds that the Extension worker today is likely to find himself caught up in a confusing swirl of change, which means that old standard ways of doing things either do not work or do not work well. Therefore, the worker must begin to look at things in a new way. In short, more and more he is going to be faced with problem-solving situations.

The effectiveness of the educational programs of Extension will depend on the abilities and skills of its professional staff. Well-qualified personnel with the capacity to grow and mature on the job and with the ability to adjust to changing demands are imperative if

Extension is to continue to be a vital force in meeting the needs of the people (4, p. 3).

Bjorklund (2) finds that the competence of individual staff members constitutes the most important single factor for success of Extension organization in implementing effective programs. One of the basic objectives of Extension Services is to provide adequate staff at all levels with personal qualifications, technical training and necessary experience to assist people in solving their own problems. Today training of personnel has become much more important than in the past for the following reasons:

1. Acceptance of Extension as an educational process with unique methods (new status as a profession).
2. Increasing number and complexity of the problems confronting farmers and homemakers.
3. Increasing range of the subject matter with which the individual Extension staff member is expected to deal.
4. General increasing level of education of rural people.
5. Increasing use of Extension process as a means of improving the level of living of rural people.
6. Increasing concern on the part of national leaders for the development of rural people (2, p. 2).

If the Extension worker wishes to grow in balanced development, rather than to make a maximum of the applied courses, Collings (7) asserts, he needs to give thought to wider choices throughout academic study, i. e., from basic physical and social sciences and the humanities.

Technology which changes so rapidly will have to be learned and re-learned by constant application throughout professional life. In-service training can best serve to shore up technical competence.

The Joint USDA-NASULGC Study Committee (6) reports that the field staff does not need the same level of specialization as the university staff, but they must have training and background in disciplines related to their assignment. They also must be able to relate to the audience they serve. To be effective they need to know about the educational process, the social action process, and the use of communications media as well as about technical agriculture or home economics. Continued training will help the staff adapt to the changing technical, economic and social environment.

Collings (8) believes that meeting the changing needs of commercial agriculture and rural people is forcing Extension workers to even higher levels of technical training. More attention must be given to planning with newly employed Extension personnel, for professional improvement on a learning-throughout-life basis. Then in-service training might more intelligently be planned to prepare for the different stages of academic work.

Extension work today demands an educational background especially designed to fit workers for the profession. The basic philosophy should be to have Extension workers as well trained as possible in broad fundamentals during their undergraduate work, and to develop

them into well qualified, technical persons by in-service training after they are employed. When workers are first employed, induction training is essential. This should be followed throughout the workers' careers by continuous in-service training (25, p. 42-44).

Curriculum for Extension Education in the United States

There are only five formal undergraduate curricula offered in Extension Education in the United States. Only one of these five is in Home Economics at the University of Wisconsin; and the other four in Agricultural Extension at the University of Georgia, New Mexico State University, the University of Wisconsin and the University of Maryland. Several universities have undergraduate courses in Extension Education available as electives.

Programs of study leading to the master's degree with a major in Extension Education are offered by more than 15 universities. These graduate programs are being reviewed only as they may pertain to in-service work in this paper.

University of Georgia

The concentration offered by this department is designed for men and women who wish to prepare for Cooperative Extension Service careers. It is open to men pursuing the B. S. A. curriculum in the College of Agriculture and to women in the school of Home Economics.

Students who choose this concentration, must complete all freshman and sophomore courses in their respective degree-course programs. Upon completion of these requirements, they are to prepare, in keeping with the requirements of their respective concentrations, a program for their junior and senior years, which must be approved by their major professor (10, p. 55).

New Mexico State University

The undergraduate curriculum in Agricultural and Extension Education is designed to provide considerable emphasis in animal science, agricultural economics and business, plant and soil science, and agricultural engineering courses. A minimum of 12 semester hours is required in each of the four preceding designated agricultural areas. A minimum of 54 semester hours in technical agriculture is required (18, p. 18).

University of Maryland

This institution offers instruction in education and other applied behavioral sciences needed by persons preparing to enter Extension work and other activities of an educational nature.

The Agricultural Extension Education curriculum is designed for those preparing to enter the Cooperative Extension Service. It may lead to a variety of other educational career opportunities in

agricultural business and industry, public service, communications, and to research and college training (17, p. 80).

University of Wisconsin - Agricultural Extension

The curriculum in Extension Education gives students planning to enter Extension work a basic training in the applied agricultural sciences, in the natural sciences, in the social sciences, and in business and industry. A major in Extension can be taken under one of four options, namely, natural resources, the social science option, the production and technology option, and the business and industry option. Under these options, the student chooses to major in Extension Education and takes supporting courses within any one of the four options. The exact sequence of courses is developed with the advisor. A four-year curriculum in Extension Education in the appropriate option will prepare one for work in County Extension programs, as well as for many positions in business and industry, government, foreign service, and the agricultural missionary field (28, p. 88).

University of Wisconsin - Home Economics Extension

A student preparing for work as an Extension home economist may take any major within the School of Family Resources and Consumer Sciences. However, a major in home economics education or home economics journalism is particularly helpful. An Extension home

economist needs a bachelor's and master's degree. Her college program should help her develop a sound foundation in home economics--basic preparation in all areas and specialization in one--and competency in planning, teaching, and evaluating home economics programs for youth and adults. Attention is given to courses emphasizing the sociological, psychological and economic aspects of living.

Undergraduate courses offered by the Home Economics Education and Extension Department which are open to any home economics major and that are valuable for students preparing for Extension include: Adult Programs in Home Economics, Home Economics News Writing and Home Economics Feature Writing. Students who have had little or no contact with Extension should take at least one of the Extension courses and the field practice course. Regardless of major, the student should elect courses from adult education, agricultural journalism, speech, sociology, rural sociology, psychology, anthropology, and Extension education (29, p. 26).

Oregon State University

Extension Methods courses will be valuable for anyone who plans to enter the professions relating to agriculture or home economics which calls for skills in teaching or consulting with adults and young people. Majors in agriculture and home economics interested in Extension as a career are encouraged to choose electives in humanities

and social sciences, as well as the courses in Extension Methods and Adult Education (19, p. 94).

Curriculum for Extension Education in Taiwan

The Agricultural Extension Department at National Taiwan University is the only one offering a formal undergraduate curriculum in Taiwan. The department offers two major curricula, namely: the Agricultural Extension Education Division and the Rural Sociology Division. Each of the four-year curriculums is designed to give the student training in humanities, social science, basic science and in his major area of concentration to meet the requirements for educators in these areas. A minimum of at least 142 semester hours are required for graduation.

Graduate programs in this department are offered in Extension Education, Extension Administration, and Rural Sociology, all of which lead to the master of science degree (23, p. 304).

Analysis of the Curriculums - U. S. A. and Taiwan

The programs in Agricultural Extension at the University of Georgia, New Mexico State University, the University of Maryland and the National Taiwan University are concerned with three large areas of study--general education, technical subject matter and professional education (see Table 3).

Table 3. Comparison of Pre-service Agricultural Extension Program Requirements.

Subject Area	Univ. of Georgia	Univ. of Maryland	New Mexico State Univ.	National Taiwan Univ.
General Ed.				
1. Humanities	20	17	8	31
2. Social Science	25	21	9	16
3. Math & Statistics	10	7	7	6
4. Physical Science	15	8	8	8
5. Biological Science	20	8	8	10
6. Physical Ed.	6	4	2	0
Technical Subject Matter	60	31	61	26
Professional Ed.	15	19	25	35
Electives	<u>14</u>	<u>18</u>	<u>2</u>	<u>10</u>
Total Credits	185	133*	130*	142*

* Semester credits

General education includes six fields as follows:

1. Humanities: Art, English, Journalism, Modern Language, Philosophy and Speech Communication.
2. Social Science: Anthropology, Economics, History, Geography, Political Science, Psychology and Sociology.
3. Mathematics and Statistics
4. Physical Science: Chemistry and Physics

5. Biological Science: Botany, Entomology, Microbiology,
and Zoology.

6. Physical Education

The curriculum of agricultural subject matter gives students an opportunity to acquire such technical knowledge and skill in plant and soil science, animal science, agricultural economics and agricultural mechanics.

The curriculum of professional education includes those courses in "societal" foundations of education, Extension education and adult education.

Davis, discussing the competencies needed by Extension workers, emphasizes:

The first and the foremost requirement for all Extension responsibilities is the need for technical competence, i. e., within the program areas of Extension everyone must be an expert in something--have special insight in some field needed by and important to clientele (9, p. 195).

George Hyatt states:

Technology or technical subject matter is the core of Extension program content. All successful Extension educational efforts require significant technical subject matter or content appropriate to the problem. In order to effectively perform our roles as educators, we must have adequate knowledge of subject matter related to our jobs and an understanding of its relationship to the problems of people (11, p. 137).

The percentage of general and professional education at National Taiwan University is more than that at the Universities of the United

States and the percentage of agricultural subject matter is less (see Table 4).

Table 4. Percentage Summary of Agricultural Extension Preparation Programs.

Institute	General Ed.	Technical Subject Matter	Professional Ed.	Electives
University of Georgia	48%	32%	8%	12%
New Mexico State University	32%	46%	20%	2%
University of Maryland	50%	23%	14%	13%
National Taiwan University	50%	19%	23%	8%

Table 4 may indicate why most of the students majoring in Agricultural Extension in Taiwan do not take positions in Extension work. The limited agricultural subject matter required would permit little confidence in the Extension worker. Therefore, the Agricultural Extension program in National Taiwan University should be revised to better prepare Extension workers in technical subject matter.

At National Taiwan University, there is no school of Home Economics offering a training program for Extension home economists. Yet this University is the only institution providing Extension education courses for Extension workers in Taiwan. In the proposed

program, a Home Economics Extension program will be included.

Training Program for Professional
Improvement in the U. S. A.

Boone (3, p. 277) explains that the Cooperative Extension Service in the United States has a comprehensive professional development program. This program is based upon a continuing analysis of the training needs and desired levels of staff competency in relation to changing job expectations and requirements. This program provides three kinds of opportunities for Extension staff member:

1. Orientation and induction for newly employed personnel and for those changing position within the organization.
2. Opportunities for experienced personnel to better understand their clientele, the program content, and the teaching process.
3. Learning experience related to leadership and management for administrative personnel.

A Committee of Specialists and Administrators reports that the development of able, effective agents requires training in all phases of their work. The areas of training are indicated by the following (1, p. 28-31):

1. Understanding of Extension objectives, philosophy, and organization.

2. Knowledge of the science and practice of farming.
3. Understanding the nature of research.
4. Performing the education job.
5. Attitude toward his job.
6. Administration and training of personnel.
7. Measuring results and reporting on Extension.

Training Program for Professional
Improvement in Taiwan

It is felt by many observers that the competency level of the Extension staff in Taiwan is generally low. Therefore, Extension personnel training in Taiwan needs to be emphasized. For the most part, the following training opportunities are continuously given to Extension workers for their professional improvement (15, p. 26):

1. Induction Training. Induction training short courses lasting about ten days are held for new Extension employees.
2. In-service Training. (a) Two to three weeks on-the-job training on Extension organization and methods for Extension supervisors and a two weeks class for county agents are conducted by the Department of Agricultural Extension, National Taiwan University. (b) Two to three days general type subject matter short courses for county agents are conducted by seven district Agricultural Improvement

Stations. (c) Two to three weeks special subject matter training schools for supervisors and county agents are conducted by college or research institutes.

III. PROPOSED PROGRAM

Preliminary Considerations

The major function of Extension work in the United States is to aid in diffusing among all the people the useful and practical information on subjects related to agriculture, forestry, veterinary medicine and home economics and to encourage the application of this information. It provides informal education which helps people solve the problems encountered in home economics, youth development and agriculture.

Extension's primary areas of program emphasis today are (20):

1. Agricultural production, management and natural resources development--this project is concerned with the application of science and technology to organization, operation and development of agricultural and natural resources.
2. Marketing and use of agricultural products--this project is concerned with the effectiveness and efficiency of marketing and use of agricultural commodities and includes programs concerned with farm supply services.
3. Home economics--includes programs in child development and human relations, foods and nutrition, home management and equipment, family economics, clothing and textiles,

housing, and home furnishings.

4. 4-H Club and other youth program--provides educational opportunities for youth in programs that give practical experience in projects that aid in leadership, character, citizenship, and skill development as a supplement to formal school programs.

To guide the broad social, economic and cultural changes required in today's society, Extension workers must attain a high level of professional competence. Participation in college level programs is essential. Certain qualities are desired in Extension workers.

They should have developed effective abilities to search for, find and evaluate knowledge and to be able to pass this knowledge on to others who have need of such information. They should have developed a strong background in the behavioral sciences, in the technical subject-matter fields appropriate, and in the theories of planning and management.

In the National Taiwan University, the main purpose of the Agricultural Extension Department is to provide college training for students who wish to prepare for Extension work. It also provides the out-of-school training programs for all Extension field personnel in order to develop their professional competency to the highest degree and to improve the effectiveness of Agricultural Extension work in Taiwan. This department also designs and conducts research and

evaluation studies in Agricultural Extension. The department measures the effectiveness of current programs, projects, methods of Agricultural Extension and accumulates pertinent data for policy decision in the future Extension activities in Taiwan.

Proposed Pre-service Training Program

In view of the rapidly changing world and advancement of technical and specialized fields, pre-service training program has been elaborated upon by Kraft in the following statement:

For many years educators have ignored technological changes in higher technical education and vocationally oriented training; they have persisted in preparing students for a world viewed from an inherited, often locally oriented outlook. Only recently have educators recognized the need for a positive attitude toward space age technology; thus, constructive ideas have been developed regarding the adjustment of vocational and technical curricula in order to prepare students for their future roles. . . . The system of vocational training and higher technical education must be endowed with a capacity for change and innovation so it can adequately respond to the legitimate pressures and demands of modern society (13, p. 495-511).

This proposed program of Extension Education is designed to meet the ever-changing needs of Extension personnel in Taiwan. It is characterized by an individualized, interdisciplinary approach to education. The interdisciplinary nature of the area makes it possible for Extension workers to add to their technical knowledge at the same time they are improving their effectiveness as educators. Fields

available for study include the technical subject-matter fields of agriculture and home economics, Extension methods, other social science and many other allied academic fields offered in the various colleges of the university.

The main purpose of this proposed program is to prepare the student to be competent in each of the following aspects of his work.

He will be able to:

1. Formulate, develop, and execute an adult educational program in Agriculture or Home Economics and 4-H Youth program related subject matter areas.
2. Provide for recruitment, training and recognition of volunteer lay-leaders in both youth and adult program.
3. Serve as a member of a team of Extension agents, area supervisors, specialists and Extension administration in planning and carrying out an effective Extension education program.
4. Assist citizen groups to determine local program needs, priorities and directions.

The departmental academic programs for undergraduates is divided into two divisions--Agricultural Extension Education Division and Home Economics Extension Education Division.

A four-year program of Extension Education is projected in Table 5 with three large areas of study--40 percent of general

education, 40 percent of technical subject matter, and 20 percent of professional education. The first two years consist of course work in basic technical subject matter and general education. Beginning in the junior year, the student enrolls in professional education.

Table 5. Areas of Study and Hours Credits--Proposed Program of Extension Education for Pre-service Training.

Subject Area	Freshman	Sophomore	Junior	Senior	Total Credits
General Education	34	23			57
Technical Subject Matter	8	18	16	15	57
Professional Education			16	12	28
Electives	—	—	<u>0-8</u>	<u>0-13</u>	—
Total Credits of Semester Hours	42	41	32-40	27-40	142-163

National Taiwan Normal University and National Taiwan University are in the city of Taipei and close by. The main purpose of the National Taiwan Normal University is the preparation of teachers for secondary schools. It has the departmental academic program of Home Economics leading to the degree of Bachelor of Arts in Education. It is suggested that the National Taiwan University develop the cooperative training program for a Home Economics minor with the National Taiwan Normal University in Extension Education. That is, the student of the National Taiwan University who majors in Extension

Education and wants to become a Home Economist can take 57 credits from the Department of Home Economics at the National Taiwan Normal University.

The following pages contain a breakdown of the course work year-by-year.

Department of Extension Education Curriculum

A. Division of Agricultural Extension Education

Freshman Year

	<u>Credits</u>
Chinese	8
English	8
The Philosophy of Dr. Sun Yat-sen	4
History of Modern China	3
General Chemistry	8
A Concept of Agriculture	2
General Botany	3
Introductory Animal Science	3
Basic Horticulture	<u>3</u>
	42

Sophomore Year

Introduction to Psychology	3
General Economics	4
General Entomology	3
General Zoology	3
General Plant Pathology	3
Mathematics	4
Agricultural Economics	3
Soil Management and Conservation	3

	<u>Credits</u>
Agricultural Mechanics	3
Statistics	3
Poultry Science	3
Genetics	3
Farm Implements	<u>3</u>
	41

Junior Year

Crop Production	4
Farm Management	3
Animal Feeds and Feeding	3
Poultry Feeds and Feeding	3
Economics of Agricultural Production	3
Educational Psychology	3
Extension Education	2
Communication in Extension Education	3
Principles of Adult Education	3
Extension Work in Agriculture and Home Economics-- Adult Program	3
4-H Organization and Procedure	2
Electives	<u>0-8</u>
	32-40

Senior Year

Livestock Production	3
Cereal Crops	3
Poultry Production	3
Fruit Production	3
Vegetable Production	3
Extension Methods	3
Leadership and Organization	2

	<u>Credits</u>
Program Planning and Evaluation	3
Field Work in Extension	3
Electives	<u>0-8</u>
	27-40

A brief course description of agricultural subject matter courses is provided on the following:

A Concept of Agriculture: 2 cr. A perspective of agriculture in society and an understanding of educational and training opportunities.

Agricultural Economics: 3 cr. An introduction of farm management, marketing, agricultural business, finance, and land economics; farm policies and programs.

Agricultural Mechanics: 3 cr. - 1 Lec. 2 Lab. Hand and power tools for wood and metal working, arc and acetylene welding; construction of wood and metal farm appliances; concrete work.

Farm Implements: 3 cr. - 2 Lec. 1 Lab. Power farming implements; operation, maintenance, adjustments, calibration and use.

Farm Management: 3 cr. - 2 Lec. 1 Lab. Organization of the farm unit. Factors which influence farm profits.

Introductory Animal Science: 3 cr. The role of the livestock industry in food production. The biological basis of variation in livestock and their products. The application of the sciences in improving livestock production.

Animal Feeds and Feeding: 3 cr. - 2 Lec. 1 Lab. Digestion, utilization and function of nutrients. Classification, composition, source and value of feeds. Feeding standards and balancing of rations.

Livestock Production: 3 cr. - 2 Lec. 1 Lab. Lecture and laboratory in the production of beef cattle, sheep and swine; breeding programs, management, diseases, parasites, building, equipment and feeding.

Poultry Science: 3 cr. General course in poultry production, covering poultry breeds and types, house construction, poultry feeding, incubation and brooding, and preparation of market poultry and eggs. Lecture, demonstrations, assigned references and field trips.

Poultry Feeds and Feeding: 3 cr. - 2 Lec. 1 Lab. Nutritional requirements; formulation of ration; common nutritional deficiencies; feeding practices.

Poultry Products: 3 cr. - 2 Lec. 1 Lab. Preparation of poultry and eggs for market. Commercial handling of poultry products.

Economics of Agricultural Production: 3 cr. Static economic analysis of agricultural production problems; resource combinations, nature of costs, enterprise combinations, farm size, tenure arrangements, nature of management and decision making, economics of conservation.

Soil Management and Conservation: 3 cr. - 2 Lec. 1 Lab. Identifying, analyzing, and solving problems; wise use of soil for

agriculture and alternate purposes; conservation farming; climate, topography, vegetation, geomorphology, soil; drainage, irrigation, erosion control, tillage, fertility, organic matter, crop rotation, salinity-alkalinity.

Crop Production: 4 cr. - 3 Lec. 1 Lab. Fundamental principles and illustrative facts; planting, culture, rotation, production, hazards, quality, and improvement of cereals, forages and other agronomic crops. Identification of crop and weed plants and seeds.

Basic Horticulture: 3 cr. - 2 Lec. 1 Lab. Culture of horticultural plants: soil, water, climate in relation to growth yield, and quality; vegetative propagation and post-harvest physiology.

Genetics: 3 cr. - 2 Lec. 1 Lab. Principles of inheritance in plants and animals and their significance in biology and agriculture. Laboratory problems and experiments illustrating the principles of heredity.

Cereal Crops: 3 cr. - 2 Lec. 1 Lab. Production, distribution, adaption, ecological relationships, morphological and taxonomic relationships, markets, utilization, and quality aspects.

Fruit Production: 3 cr. Systematics of tree and small fruit crops. Principles of tree and small fruit nutrition, hardiness, dormancy, blossoming and fruit setting. Use of dwarf and regular stocks for home and commercial production.

Vegetable Production: 3 cr. Systematics of vegetable crops, principles of production, and influence of culture on quality and markets.

B. Division of Home Economics Extension Education

Freshman Year

	<u>Credits</u>
Chinese	8
English	8
The Philosophy of Dr. Sun Yat-sen	4
History of Modern China	3
General Chemistry	8
* Family Relations	4
* Clothing Construction	4
Home Economics News Writing	<u>3</u>
	42

Sophomore Year

General Economics	4
Introductory to Psychology	3
Biology	3
Microbiology	3
Sociology	3
Mathematics	4
Statistics	3
* Home Decorating and Furnishing	5
* Family Meal Preparation and Serving	5
* Elementary Textiles	3
* Nutrition	<u>4</u>
	40

* Home Economics subject matter is offered at the National Taiwan Normal University.

Junior Year

	<u>Credits</u>
* Introduction to Child Development	5
* Advanced Meal Planning and Serving	5
* Selection, Use and Care of Household Equipment	5
Education Psychology	3
Extension Education	2
Communication in Extension Education	3
Principles of Adult Education	3
Extension Work in Agriculture and Home Economics--Adult Program	3
4-H Organization and Procedure	2
Electives	0-9
	<hr/> 31-40

Senior Year

* The Family	4
* Individual and Family Nutrition	5
* Principles of Family Economics	4
* Home Management	4
Extension Methods	3
Leadership and Organization	2
Program Planning and Evaluation	3
Field Work in Extension	4-9
Electives	0-6
	<hr/> 29-40

* Home Economics subject matter is offered at the National Taiwan Normal University.

A brief course description of home economics subject matter courses is provided:

Family Relations: 4 cr. Designed to assist students in preparation for marriage and family living. Personal development and family living, planning for marriage, achieving a happy marriage.

Introduction to Child Development: 5 cr. - 4 Lec. 1 Lab. A survey of the physical, cognitive and personality development of children with emphasis upon the years two to ten.

The Family: 4 cr. Family study from many different angles, utilizing data from the fields of anthropology, individual and social psychology, history, sociology, economics and psychiatry.

Clothing Construction: 4 cr. 2 Lec. 2 Lab. Principles of selection, construction, pattern alteration and fitting. Organization and creativity in construction techniques and design.

Elementary Textiles: 3 cr. - 2 Lec. 1 Lab. Introduction to textile study from fibers to finished fabrics: history, developments, properties, and performance characteristics. Emphasis on consumer selection for suitable end-uses and care.

Family Meal Preparation and Serving: 5 cr. - 3 Lec. 2 Lab. Introductory course in foods and nutrition. Relates nutritional needs of family members to the planning, preparation and service of meals.

Advanced Meal Planning and Serving: 5 cr. - 3 Lec. 2 Lab. Basic information on food selection, buying, and preparation of family

needs. Principles of cookery, cost comparisons and meal service are included.

Nutrition: 4 cr. The chemical and physical changes involved in the digestion and metabolism of foods. Nutritive value of foods; relative costs of foods; family dietary calculations.

Individual and Family Nutrition: 5 cr. - 3 Lec. 2 Lab. A study of nutrition needs of the family and its individuals. Includes a study of food costs in relation to nutritive value.

Home Decorating and Furnishing: 5 cr. A basic course in furnishing the home for contemporary living. Students have opportunity to apply design principles in planning furnishings for homes.

Selection, Use and Care of Household Equipment: 5 cr. - 2 Lec. 3 Lab. A study of household equipment in relation to principles of operation. Basic information about utilities, kitchen and laundry planning and home lighting.

Principles of Family Economics: 4 cr. Changes in economic requirement during the family life cycle; management of family financial resources; relationships between level of family living and the national economy.

Home Management: 4 cr. A study of the management of family resources, time, money and effort as they affect family living.

Professional Education

	<u>Credits</u>
Education Psychology	3
Extension Education	2
Communication in Extension Education	3
Extension Methods	3
Principles of Adult Education	3
Extension Work in Agriculture and Home Economics -- Adult Program	3
4-H Organization and Procedure	2
Leadership and Organization	2
Program Planning and Evaluation	3
Field Work in Extension	4-9
	28-33

A brief course description of the professional courses is provided:

Educational Psychology: 3 cr. Laws of learning and application to classroom; motivation; transfer of training; memory; forgetting; psychology of school subjects.

Extension Education: 2 cr. The history, philosophy, objectives, policy, organization, legislation and methods used in Extension work.

Communication in Extension Education: 3 cr. The synthesis and application of concepts and principles of communications in the Extension education.

Extension Methods: 3 cr. Methods and techniques in applying

the principles of education to teaching agricultural and home economics content.

Principles of Adult Education: 3 cr. This course is designed to give the student a broad overview of the nature, scope and importance of adult education; some social and psychological factors that affect adult motivation and learning; and methods and techniques for providing adult learning experiences.

Extension Work in Agriculture and Home Economics--Adult Programs: 3 cr. Extension work in agriculture and home economics, its development, organization, programming and leadership--adult programs.

4-H Organization and Procedure: 2 cr. A study of the youth phase of Extension work. Emphasis is placed on the philosophy, objectives, organization, leadership development and methods used in conducting 4-H Club work at the local and county level.

Leadership and Organization: 2 cr. The application of relevant concepts and principles from leadership theory, group dynamics, social organization, and organization to the problems of leading and organizing Extension education programs.

Program Planning and Evaluation: 3 cr. Developing programs and evaluating results in agricultural or home economics teaching and Extension. Situation analysis, objectives, policies, content, procedures, and evaluative criteria.

Field Work in Extension: 4-9 cr. Field practice in County Extension work under supervision of professor of Extension Education and County Extension agents.

Staff Training and Development

In view of the rapidly changing world and advancement of technical and specialized fields, it is necessary that provision be made for the continuous in-service training of Extension personnel. This is to insure that they will be equipped to carry on the job of Extension in the best tradition.

As agriculture and rural living has developed and as the Extension program has become more widely accepted, Extension workers are devoting more time to group teaching, program planning, organization, program coordination, and the use of more and newer teaching methods. This has changed Extension procedures from personal service to group leadership; from making the program to guiding it; from quantity to quality of results and from individual problems of farmers and homemakers to the farm and home unit approach.

These changing functions of Extension workers have made it necessary to master additional competencies through various training opportunities. This gap between the preparation of Extension worker and what the present day job demands of him is gradually being emphasized, and on this basis, it is important to develop more effective and

coordinated Extension Training Programs.

Induction Training

Every new employee, regardless of previous training, education and experience, needs to be introduced to his new job. All new personnel have educational needs in each of the following areas:

1. The Township
 - a. Its people
 - b. Its location and size
 - c. Its towns and cities and their population
 - d. Its roads and highways
 - e. Its schools: number and kind
 - f. Its communication facilities
 - g. Other pertinent facts having an influence on program development
2. Township Employees and Organization
 - a. Extension workers
 - b. Township Organization - Extension
 - 1). Township Agricultural Extension Committee
 - 2). Township Council of Home Demonstration Clubs
 - 3). Township 4-H Club Organization
 - 4). Township Community Council
 - c. Township Organization - others

- 1). Farm Bureau
- 2). Service clubs, professional groups and others
3. Township Program Planning and Reporting
 - a. The Township Plan of Work Projection
 - 1). How was it developed?
 - 2). Study carefully the subject matter section in home economics, agriculture and 4-H club section.
 - b. Study the Annual Plan of Work
 - c. Study the Progress Report for last year.
4. New Extension Agent Reviewed
 - a. The role of subject-matter specialists in Extension program?
 - b. What specialists do to assist agents? Describe, showing which specialists were there.
5. Extension Observation and Special Emphases in the Township
 - a. Explanation
 - 1). How the township agent works with individuals and groups in carrying out his educational responsibilities.
 - 2). Township financial policies and procedures.
 - 3). Role and methods of work of Township Extension Committee.
 - 4). Major Extension work currently being done in

cooperation with other agencies.

b. Introductions

- 1). Meet other township officials who work in close cooperation with Extension.
- 2). Meet at least one plot-test demonstration family, if this program is currently being carried on in the township.

c. Visits

- 1). Make one or more farm and home visits to observe the kinds of work done and methods used by the township Extension leader.
- 2). Visit at least one result demonstration.
- 3). Visit a plot-test demonstration farm.

6. Technical Subject Matter Involved in His Position

Ideally, the newly appointed Extension agent should be attached with some experienced agent for a period of one to three months. He works as an assistant to the regular Extension agent and learns about local organization, office routines and practical application of Extension techniques. Some of this induction period may be spent on an experimental farm to gain experience in the latest techniques of farming and farm management. They could also spend time on a plot-test demonstration farm, on which are used certain varieties of pesticides used on certain plants, to obtain practical knowledge guiding teaching

methods, and diffusing information. This training provides an opportunity to the newly appointed Extension agent to become oriented in the Extension Service.

In-service Training of Extension Workers

The information on the immediate previous pages emphasizes the induction period of new employees. In addition, regular employees need continual in-service training in order for them to keep abreast of new directions and new information important to the successful fulfillment of their job.

The general goal of in-service training is to (1) fill in gaps in the previous preparation; (2) develop ability to carry out the Extension program; and (3) stimulate continued growth of Extension personnel.

In-service training programs should include such social science and philosophy subjects as are implied by the general purposes of the Extension Service and such professional and technical subjects as are appropriate to specific purposes of the Extension programs.

During appropriate times of the year, the Agricultural Extension Department of National Taiwan University should provide Extension workers opportunities for understanding new objectives and policies of Extension Service, introduce a new program idea and teaching method, and teach them how to apply new knowledge of subject-matter (in both the physical and behavioral science disciplines) to the problems

of families in the home, the community, and on the farm.

The areas of in-service training program for Extension workers are classified as follows:

1. The Extension Service
 - a. Introducing new Extension objectives, policies and procedures and review old ones.
 - b. Recent job operation and standards, personnel evaluation.
 - c. Changing role of responsibilities and qualifications of Extension personnel at all levels within the organization.
2. Human Development
 - a. Developmental processes of people, behavior patterns in modern age.
 - b. Understandings and skills needed in human relations.
3. Practical Program Planning to Meet People Needs
 - a. New program determination; how to determine, analyze, and evaluate situations, how to identify, clarify, and give priority to problems; how to determine and state objectives clearly.
 - b. New program execution; how to organize and carry out plans of action (plan of work, teaching methods, management of time and energy).
 - c. Practical program evaluation; how to measure results of teaching efforts in terms of stated objectives.

- d. The role of the Extension worker, use of lay leaders and committees, the involvement of people.
4. Social Systems
 - a. Group processes, social action.
 - b. Community and Rural Development.
 - c. Leadership Development Workshop.
 5. Teaching Improvement
 - a. Teaching-learning process--new methods and techniques.
 - b. Adult Education Program--working with older adult.
 - c. Communication Workshop.
 6. Technical Improvement
 - a. Up-to-date information in subject matter fields pertinent to the job, as:
 - 1). How to increase production from application of irrigation and fertilizers.
 - 2). How to increase production of more high tonnage and high value crops.
 - 3). How to increase forage production.
 - 4). Adoption of new, improved crop and horticulture plants and varieties.
 - 5). How to improve livestock and crop management practices.
 - 6). Disease, pest and weed control practices.

- 7). Equipment and facility improvement.
 - 8). Rights and responsibilities of parents and children.
 - 9). How to improve family life.
 - 10). Adoption of new, improved family health.
 - 11). Home economics education for very low income and otherwise disadvantaged.
8. Evaluation
- a. Methods and techniques of measuring both progress and end results in relation to program objectives.
 - b. Review agriculture, home economics and 4-H programs and evaluate overall programs.

Training is done to the end that Extension workers will strengthen competencies to evaluate the effectiveness of their work, to maintain good relations with co-workers, to keep them up-to-date in subject matter and teaching methods, and to be more skillful in developing Extension programs.

IV. SUMMARY AND RECOMMENDATION

Summary

The Agricultural Extension Department at National Taiwan University has graduated 225 students. Only a few of these graduates took positions as Extension education workers. It is believed that many of the graduates have not taken positions in Extension work because the curriculum has not been relevant to the job opportunities.

The purposes of this study were to develop a Program of Preparation for Extension Personnel in Taiwan, to suggest a way to implement this proposed curriculum in Taiwan, and to develop an in-service training program to up-grade competency levels of Extension field personnel.

Certain procedures were followed in this study. Existing Extension education training programs at the universities in the United States and Taiwan were examined and analyzed. The needs of Extension workers in Taiwan were determined by examining the possible educational job activities of the occupation. The study's design compared the curricula from the United States and from Taiwan and developed an Extension Education Program for the undergraduate curricula which is based upon the job needs of the occupation. This step includes an examination of Extension Service job descriptions.

A proposed program of Extension Education was designed to meet the ever-changing needs of Extension personnel in Taiwan. It consists of the following:

1. A pre-service training program where the undergraduate course work was revised to include more agriculture and home economics subject matter.
2. An induction training program for the orientation of new employees just beginning their Extension career.
3. An in-service training program for increasing the competencies of current Extension personnel.

Recommendations

Continuous examination, analysis and evaluation of existing Extension educational training programs are an important responsibility of the Extension Education Department at National Taiwan University and Extension personnel. The following recommendations are suggested:

1. To continue "in-service learning" through conferences, short courses, seminars, independent study and reading, and university graduate work.
2. The job of the Extension worker is changing with changing times and conditions so the job and position descriptions must continue to change in order to reflect accurately the

work of the Extension staff member.

3. Extension personnel should be trained in more specialized areas or disciplines relevant to their assigned educational role.
4. Provision should be made for constant review and evaluation of the Extension Education Training Programs.
5. National Taiwan University should carefully review this paper in light of the suggestions for curricula revision.
6. The Extension division should review this paper, particularly those actions dealing with personnel induction and in-service training.
7. Extension personnel should be granted sabbatical leaves to pursue advanced degrees in other countries, and return to Taiwan to serve as training officers at the different levels of the agency.
8. In view of recent trends, additional study could be directed to the development of performance-based competencies needed by Extension personnel.

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