A PROPOSAL FOR STRENGTHENING THE PROGRAM OF AGRICULTURAL EDUCATION IN THE AGRICULTURAL, MECHANICAL AND NORMAL COLLEGE OF ARKANSAS

Thesis for the Degree of Ph. D.

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This is to certify that the

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A Proposal for Strengthening the Program of Agricultural Education in the Agricultural, Mechanical and Normal College of Arkansas
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H. P. Sweany
Major professor

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A PROPOSAL FOR STRENGTHENING THE PROGRAM OF AGRICULTURAL EDUCATION IN THE AGRICULTURAL, MECHANICAL AND NORMAL COLLEGE OF ARKANSAS

By

Richmond Cowan Davis

AN ABSTRACT

Submitted to the School for Advanced Graduate Studies of
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Approved H. P. Sweany

A PROPOSAL FOR STRENGTHENING THE PROGRAM OF AGRICULTURAL EDUCATION IN THE AGRICULTURAL, MECHANICAL AND NORMAL COLLEGE OF ARKANSAS

Purposes. To evaluate the program of agricultural education at the Agricultural, Mechanical and Normal College and to offer suggestions for its improvement.

Method. A questionnaire comprising the competencies required of teachers of vocational agriculture and county agents was developed. Revised in accordance with suggestions from an advisory group one questionnaire containing 202 items was ultimately designed for teachers of agriculture and one containing 146 items was designed for extension workers.

Using a rating scale, fifty-six teachers of agriculture and sixteen extension workers were asked to rate the degree of preparation received in their pre-service agricultural education program at the Agricultural, Mechanical and Normal College. Analyses were made of the curricular offerings in agricultural education at the College from 1929 to 1955 and of the present program in ten selected institutions. A comparison was made between the curricular content in these institutions and in the present program in agricultural education at the College.

Findings and Interpretations. Both teachers of agriculture and extension workers rated their degree of preparation in professional agriculture higher than that in technical agriculture. At the same time teachers of agriculture tended to rate their degree of preparation in professional education higher than did extension workers.

In determining the level of the degree of preparation, the areas of "youth leadership organizations", and "farm forestry" were classified as few. Many of the areas while falling within the median group had competencies rated as low. The year of graduation had no appreciable effect upon the distribution of the ratings of the respondents in professional education but did influence technical agriculture.

The present program of agricultural education at the Agricultural, Mechanical and Normal College was found to be very close to the median of the ten selected institutions in the number of hours required for pre-service training. In certain areas, the number of hours required did not seem to be closely related to the degree of preparation.

The following recommendations were suggested for improving the program of agricultural education:

1. The staff in the Division of Agriculture should consider more professional courses for extension workers.

2. Course offerings of the agricultural education program, in areas classified as low and in areas which contained abilities classified as low should be subjected to careful investigation by the Division of Agriculture.

3. A basic group of competencies for teachers of vocational agriculture and county agents should be developed by a committee composed of staff members of the Division of Agriculture and a representative group from vocational agriculture and extension work.

4. A committee on research be formulated, if one does not already exist, composed of staff members from both professional and technical areas.

5. A program of inservice training in agricultural education be developed.

6. An evaluation should be made of the use of existing facilities and equipment to determine possibilities of improving the training program.

7. Course offerings should be combined into fewer departments to facilitate the introduction of changes, the elimination of duplication and provide for better balance in the instructional program.

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The writer wishes to acknowledge a debt of gratitude to the many persons whose aid has been invaluable in the conduct and ultimate completion of this study.

The Guidance Committee, composed of the chairman Dr. H. P. Sweany and members Drs. H. M. Byram, R. C. Kramer, W. H. Roe, and F. W. Reeves, has by its deep interest and cooperative efforts, transcended the duties normally assigned to such a group. To these individuals sincere thanks are expressed. In addition, the writer expresses a deeper obligation to Dr. Sweany and is most grateful for the direction given by him throughout the entire program and for his penetrating analyses of the problems involved in the study.

Sincere thanks are expressed to the President of the A. M. and N. College, the staff of the Division of Agriculture, agricultural leaders in vocational education and extension work who participated in the study, and other unnamed individuals who have proffered suggestions and assistance.

Gratitude is expressed to Dr. M. Muntyan for the material assistance received as a result of his interest and for experiences in technique of research gained as a graduate assistant under his jurisdiction.

The writer is deeply grateful to his wife, Mrs. Gladys W. Davis, for her untiring devotion and material assistance throughout this investigation and herewith dedicates this manuscript to her.

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CHAPTER I

THE PROBLEM AND DEFINITION OF TERMS USED

Introduction

In providing for the promotion of vocational education the National Vocational Education (Smith-Hughes) Act also included provisions for "cooperation with the States in the preparation of teachers of vocational subjects".[1] Since 1931 the Agricultural, Mechanical and Normal College of Arkansas has been awarding the Bachelor of Science degree to persons whose preparation included training for teaching in Agriculture.

The Division of Agriculture proposes the following aims and objectives:

1. To prepare students to be teachers of Vocational Agriculture and County Agents
2. To make successful farmers of students and adults
3. To teach agriculture in keeping with the changing demands.
4. To provide undergraduates with the basic requirements necessary to enter graduate school in the various special fields of agriculture.

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[1]The National Vocational Education (Smith-Hughes) Act, Section 1, Public Law No. 347, Statute 703, Sixty-Fourth Congress, Approved February 23, 1917.

It further states that:

> The program of agricultural work is designed to prepare the student for county extension service, to prepare teachers of vocational agriculture, agriculture specialists, and for practical farm operation.

Such purposes and aims, of necessity, demand a dynamic curriculum changing constantly and constructively to meet the changing trends in agriculture and agricultural method.

Statement of the Problem

The general purpose of the study was to evaluate the program of agricultural education at the Agricultural, Mechanical and Normal College in order to offer suggestions for its improvement. More specifically, it was the purpose of this study (1) to ascertain the degree of professional competence attained by graduates in the field of agricultural education; (2) to ascertain the degree of technical competence attained by graduates in the field of agricultural education; (3) to analyse the course of study offered in agricultural education at the college; (4) to compare the program of agricultural education in the college with an analysis of selected institutions; (5) to develop from these data implications for the improvement of the program in agricultural education; and (6) to offer proposals for strengthening the program.

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[2]Bulletin of Agricultural, Mechanical and Normal College, Vol. XXII, No. 1, August, 1955.

Limitations of the Study

This study was limited to an analysis of the effectiveness of the agricultural education program in the Agricultural, Mechanical and Normal College. Although the Division of Agriculture offers the Bachelor of Science degree in both technical agriculture and agricultural education, this study did not encompass an analysis of the curriculum in technical agriculture as outlined by the college. It did, however, include such technical agriculture as might be considered necessary for adequate preparation of vocational agriculture teachers and county agents.

A second limitation was that this study pertained only to graduates of the former four year program offered in the Division of Agriculture and to graduates of the presently designated program of agricultural education. It was further limited to include only graduates who are, at present, engaged in agricultural education as county agents, vocational agriculture teachers, veterans instructors or members of the agricultural staff in the College.

A further limitation of this study was the type of instrument used to gather the information. As such, it is open to the criticism to which all questionnaire-obtained data are subject. Inclusive among these are a lack of understanding or of interest on the part of the respondent,

inaccurate replies, carelessness, and the inability to evaluate one's response in terms of the material set up in the questionnaire.

A further difficulty must be acknowledged in the attempt to interpret the effectiveness of the total program of agricultural education in terms of abilities. It must be recognized that there may be other abilities that were omitted from the group or minor factors which could not be adequately expressed in terms of required abilities which determine the degree of success attained by prospective teachers.

In order to evaluate the effectiveness of an educational program fairly, the abilities to be rated must be correlated with the objectives which are set up by the instructors of the courses within the program. An effort was made to do this but the degree to which it was accomplished must be recognized as a possible limiting factor.

The program of teacher education in agriculture has undergone many changes since the inception of a four-year program at the college. The frequency and multiplicity of these changes, even granted that they may have coincided with economic and technological developments, rendered difficult the construction of an instrument to measure fairly, over the span of years, the extent of adequate preparation of teachers. For instance, the extent to which

mechanization has supplanted animal power has rendered necessary a change in the emphasis of farm mechanics and agricultural instruction. Thus two graduates in agricultural education, one of recent years and one of fifteen or twenty years past, while answering truthfully as possible the same questionnaire would, at the same time, give varying pictures of their degree of preparation unless one remains cognizant of this fact.

Having to use the opinions of individuals increased the possibility of bias and made the evidence highly subjective. The value which was assigned to any item depended more or less upon the individual doing the rating, and might vary with the same individual from one time to another.

Finally, the findings and conclusions of this study are specifically applicable to the program of agricultural education in the Agricultural, Mechanical and Normal College of Arkansas. However, it is possible that use may be made of them in Land-Grant institutions or agricultural colleges of similar size and location, or by other institutions having similar curricula in agricultural education.

Assumptions

In the pursuance and ultimate completion of this study it was found necessary to make certain assumptions. Some of these assumptions may have been inferred in the opening statements but for purposes of clarification it is felt that they should be outlined in detail. It was assumed that:

1. It is necessary that the teacher of agriculture, and extension worker, should attain certain skills, knowledges, attitudes and points of view in order that he may possess appropriate abilities to teach present and prospective farmers for proficiency in farming.
2. In developing our present system of vocational education in agriculture under the National Vocational Education Act, an individual can normally be expected to attain these necessary abilities.
3. It is the function of the teacher education instructors to develop these abilities insofar as the individuals do not, at a given time, possess them.
4. The group of individuals selected to participate in the formulation of the questionnaire were

competent to identify the skills, knowledges, and attitudes necessary for teachers of agriculture.

5. The instrument used by graduates of the college was refined to the extent that it incorporated, in a comprehensible form, the competencies needed by the teachers of vocational agriculture and county agents in Arkansas.
6. The instructional staff of the Division of Agriculture of the College has as its aims and objectives, the development of the skills, knowledges and abilities which are needed by teachers and extension agents in Arkansas.
7. Graduates of the Division of Agriculture in agriculture education, who are presently employed in various capacities as instructors and leaders in the field of agriculture, are competent to rate their adequacy and ability-level possessed in the different areas studied.

Background of the Study

The Agricultural, Mechanical and Normal College site is on the north edge of the city of Pine Bluff, Arkansas, Jefferson County, on US.Highway 79, which leads to Memphis

and other points east and southwest to El Dorado. Education in Arkansas took on a profound significance for Negroes on April 25, 1873, when the legislative act sponsored by one Senator Clayton, became a law, thus planting the seed that in later years grew into its only state-supported college for Negroes. Senator Clayton's bill read in part:

> The Board of Trustees of the Arkansas Industrial University are hereby authorized to take into consideration the interests of the state especially the convenience and well-being of the poorer classes, and to select a suitable site and locate thereon a Branch Normal College which location, owing to the principal College's being located in the northwestern portion of the state, shall be made southeast or south of the County of Pulaski.

Originally known as Branch Normal College, the school opened on September 27, 1875, with an enrollment of seven students drawn from two counties. In 1929, the school was expanded into a standard four year degree granting institution, and in 1933 was "certified" as a standard four-year college. The college observed its 79th Anniversary, April 21-26, 1952, having grown from an enrollment of 36 in 1929, to approximately 2,400 in 1951. It is fully accredited by the North Central Association of Colleges and Secondary Schools, and the American Association of Colleges for Teacher Education. It is a member of the American Association of Colleges, the American Council on Education, a charter member of the National Accrediting Commission, is accredited

by the Arkansas State Department of Education, and has been approved by the United States Department of State for the exchange of foreign students.

The philosophy of the college, as formulated by the late President John Brown Watson, states:

> The end of education is to know God and the laws and purposes of His universe, and to reconcile one's life with these laws. The first aim of a good college is not to teach books, but the meaning and purpose of life. Hard study and the learning of books are only a means to this end. We develop power and courage and determination and we go out to achieve Truth, Wisdom, and Justice. If we do not come to this, the cost of schooling is wasted.

The purpose of the college is

> To provide such environment for learning and to promote such activities as should develop students into healthy, well-balanced personalities, useful citizens, clear and accurate thinkers, and effective leaders in the communities in which they may serve.

The specific aims of the college are:

1. To strengthen and encourage in individuals those habits of living which must be practiced if the community is to become significant and meaningful.
2. To contribute to the development of increased skill and self-direction through improved techniques of adjusting intelligently to new environment and through experience in utilizing new opportunities.

3. To enrich the lives of students through the promotion of cultural, religious and aesthetic aspects of life.
4. To train for the acquisition and maintenance of social, mental, and physical health.
5. To train for teaching in the elementary schools.
6. To train for teaching in secondary schools.
7. To train for teaching Agriculture, Mechanic Arts, and Home Economics and achieve such skills in them as to enable students to carry on the practical phases of these vocations.
8. To prepare for graduate and professional work.
9. To provide academic training for in-service teachers.[3]

The organization of the college includes the following divisions:

1. The Division of Arts and Sciences
2. The Division of Education
3. The Division of Agriculture
4. The Division of Home Economics
5. The Division of Mechanic Arts

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[3]Bulletin of Agricultural, Mechanical and Normal College, Vol. XXI, No. 1, Published by the Agricultural, Mechanical and Normal College, Pine Bluff, Arkansas, August, 1954.

The Division of Agriculture offers the Bachelor of Science degree in Agricultural Education and in Technical Agriculture. The state plan for vocational education designated the Agricultural, Mechanical and Normal College as the teacher-training institution for Negro teachers of vocational agriculture. Negro County Agents and Extension workers are also trained at the same institution.

The teacher-training course at the college was reorganized in 1929 at the same time the school was expanded into a standard four year college, with the understanding that the State Department of Education would consider employing teachers for high school departments of vocational agriculture after 1933 only if they had consummated four years of college training in agriculture.

The curriculum in agriculture has undergone much change since the initial program was instituted. Graduates from that division are found in differing phases of agriculture and extension work.

Importance of the Study

If it were possible for a culture to be wholly static, then it is highly probable that a curriculum for the schools of that society could be devised which would be, and would remain, entirely adequate for the purposes of that people. A curriculum in such a society would need

very little, if any, revision for it would continue to offer to those undergoing the formal educational process, experiences necessary for induction into the ways of the group.

As opposed to a static society, a dynamic culture is undergoing rapid change and of necessity requires constantly changing educational experiences in order to fit one into an evolving cultural pattern. In such a society constant adjustments must be made to technological advancements and changes in the social and political mores which render needless and obsolete many abilities, attitudes, and knowledges while making necessary the acquisition of others. Recognizing this the Association for Supervision and Curriculum Development makes this statement:

> Unless we would presume to deal with American education as something isolated from the patterns, products, modes of thought, historical perspective and living activity of American society itself as it is today, it will be necessary to look at the schools on the context of their common dynamic culture. Education does not exist in a vacuum. It is a dynamic process in the context of a culture which is itself dynamic.[4]

In a dynamic culture, such as ours, educators, along with the rest of society, should be concerned with the experiences provided by our educational institutions in carrying out their responsibilities for general and

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[4] 1953 Yearbook of Association for Supervision and Curriculum Development. Forces Affecting American Education. National Education Association of the United States, Washington, D. C. p. 23.

specialized training. Such responsibilities necessitate the formulation of aims and objectives and diligent effort toward their ultimate attainment. Teacher education institutions which have as their responsibility the preparation of individuals for duties in the varying areas of the teaching field, must remain ever cognizant of these principles.

Almost with the inception of vocational education in agriculture, the manifold demands and responsibilities placed upon this teacher in the communities which he served, made necessary careful evaluation of the aims and objectives of the program of agricultural education within the institution which prepared him. As far back as 1924, the Federal Board for Vocational Education in its Eighth Annual Report to Congress had this to say:

> The necessity for this special program of teacher training is based upon the responsibilities of the teacher of agriculture, who faces the most difficult job to be found anywhere in the educational field. He must be versed not only in the science and practice of agriculture in general but also in the agriculture of the community in which he is working in particular. He must also be a teacher of unusual capabilities in order to adapt himself to the use of methods which he most likely has never used and has never even been exposed to in his academic schooling. He must not only be able to teach adolescents but he must be able to teach mature minds--the adult farmer of the community. He must be able to render services to his community which are neither required, or expected, of any other member of a high school faculty. He is expected to have ability in

> leadership, not only in the field of agriculture but also in the civic and general educational field as well.5

Should one have had to look for guiding principles in the training of such an individual he might have gone back even further to a bulletin published in 1919 by the Federal Board of vocational education dealing with the principles of organization for the training of teachers of agriculture. The opening paragraph begins in this wise:

> A college or school designated for the training of teachers of agriculture is a social instrument set up for and responsible for the accomplishment of certain ends upon which society sets values. It is a good and useful instrument or institution in the degree in which it accomplishes the ends for which it is set up. It is likely to succeed in the degree that it is organized appropriately to those ends. The more clearly purposes are conceived, the more intelligently can functions be defined and organization planned. Hence the first step to arrive at is a clear conception of aim. Nor is this the first step only. There is a continuance process of utilization of the aim in every detail of planning and in every detail of operation of the established machinery. Clear definition of purpose is an essential condition, not only of making the right kind of a machine but also of keeping that machine in efficient operation.6

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[5]Federal Board for Vocational Education--Eighth Annual Report to Congress, office of Education, Washington, D. C., 1924, p. 88.

[6]Federal Board for Vocational Education--Agricultural Teacher Training, Bulletin No. 90, Agricultural Series No. 18, December, 1923, Washington, D. C. p. 1.

As early as 1926, the necessity for analyzing the job of the vocational teacher in order to ascertain the actual teaching situations and responsibilities to be dealt with, had become apparent. It was hoped that this analysis would make possible increased efficiency in the training institutions which prepared individuals for this profession. Again to quote from a report of the Federal Board for Vocational Education:

> . . .It is now considered that sufficient experience has been gained in determining the actual situations with which the vocational teacher must deal, the actual responsibilities which he must discharge, and the educational procedures, methods, and devices which are most efficient--so that it is now possible to give very careful consideration to increasing the efficiency of teacher training by modifying the teacher-training courses in directions indicated by actual analyses of these responsibilities and situations. . .7

The intervening years since 1926 have greatly increased this need for job analysis and curriculum revision. The terminology has changed during that period but the problem ever remains. The "actual situations" have become "educational experiences" and the "methods and devices" needed to cope with the situation have become "abilities" or "competencies". It is in this wise that Ralph J. Woodin expresses himself:

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[7]Federal Board for Vocational Education--10th Annual Report, Office of Education, Washington, D. C., 1926, p. 13.

> A statement of the factors of competency needed by the effective teacher of vocational agriculture should be developed by the staff of the department together with the supervising teachers and used by them as a basis for evaluating and further refining and improving the curriculum as well as for evaluating and guiding individual students in their professional growth and development.8

Gertrude Roskies expresses this same need in an article entitled "Here's What is Expected of You":

> Teacher education institutions need to determine experimentally what experiences on the pre-service and in-service levels will best fit their trainees to carry the program considered desirable for the high schools of their state.9

The purposes of institutions of higher learning, as evidenced by the functions, are fundamentally three-fold embracing that of instruction, research, and service. There is no distinct line of demarcation between these functions. To a greater or lesser extent they overlap, interweave, and interact. A continuous program of institutional research is essential to the effectiveness of a program of higher education. It is the highest undeveloped potential upon every kind of problem. One of its areas is to identify problems in the educative process itself, to assess handicaps and shortcomings, to redefine

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[8]Ralph J. Woodin, "An Evaluation of Selected Aspects of the Pre-Service Professional Curriculum in Agricultural Education at the Ohio State University". Unpublished Doctoral Thesis, The Ohio State University, 1951. p. 304.

[9]Gertrude Roskies, "Here's What is Expected of You!" Practical Home Economics Magazine, 32:24:49. October, 1954. [This article was based on a review of "The Homemaking Program for Beginning Teachers", Unpublished Doctoral Thesis, Stanford University, 1953.]

educational objectives and to test for their attainment. Consequently, the curricula of an institution, the educational experiences planned by any division or department of that institution, should be a constant matter for research. Wheeler reiterates:

> Course and curriculum readjustments are always in the process; there can be no fixity if progress continues to be made. Research in this field, therefore, should be a continuous and long-time undertaking.[10]

Ragan's philosophy, although made with specific reference to the elementary curriculum seems applicable to all types of educational institutions and concurs with Wheeler's. He states:

> The dynamic nature of our society places several responsibilities on the curriculum maker. First, pupils must be taught to think for themselves and develop solutions to problems rather than memorize answers. Second, curriculum making must be a continuous process if it is to keep step with rapidly changing conditions and needs. Third, a more intimate relationship must exist between what is taught in school and what is going on in society.[11]

Thus it would seem logical to assume that any study which may aid in providing an institution with a means of improving educational experiences and, consequently in

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[10] John T. Wheeler, Curriculum Making in Agricultural Colleges. Athens, Georgia: The McGregor Company, 1932. p. 57.

[11] William B. Ragan, Modern Elementary Curriculum. New York: The Dryden Press, Inc., 1953. p. 76.

teacher education institutions of increasing the effectiveness of present and prospective teachers, is of the most vital importance

Definition of Terms Used

In order that there might be mutual understanding, it was felt that certain terminology should be defined and for present purposes, used in accordance with that definition (interpretation).

Curriculum. Curriculum was construed to mean a sequence of experiences set up in a school and interpreted in terms of courses. As such it was used to denote the whole body of courses in a school or college, or the body of courses offered in a single department of a school or college.

Course offerings. For the purpose of this study course offerings was interpreted to mean a body of courses either within the school as a whole or within a department of the school. The term was used interchangeably with curriculum and was construed to have the same meaning.

Professional education. Professional education was defined as the courses in the agricultural education program designed to improve the individual's ability to carry out the instructional process. This concept carried with it implications for an understanding and application of the

principles of learning, formulation of a philosophy of education, and abilities in planning, organizing and carrying out a program of vocational education in agriculture.

Technical agriculture. Technical agriculture was construed to include those courses in the agricultural education program designed to provide scientific and technical knowledge in agriculture. The intent is to equip the individual with the appropriate subject-matter and the necessary manipulative abilities to perform successfully and intelligently the activities involving scientific agricultural principles.

Agricultural education curriculum. Agricultural education curriculum was defined as that body of courses set up by the Agricultural, Mechanical and Normal College which is designed to prepare the student for county extension service, as a teacher of vocational agriculture, and for practical farm operation. As such it differs from the technical agricultural program which is designed to prepare agricultural specialists and to provide undergraduates with the basic requirements necessary to enter graduate school in the various special fields of agriculture.

Degree of preparation. The term "degree of preparation" was used to indicate the proficiency to perform a certain ability which the graduate felt that he had acquired through his preservice training.

Land-Grant Colleges. Land-Grant Colleges were defined as the colleges that were established under the Morrill Act of 1862 which granted to individual states lands to be sold for the endowment, support, and maintenance of colleges to teach "agriculture and the mechanic arts".

Agricultural, Mechanical and Normal Colleges. The designation "Agricultural, Mechanical and Normal College" was interpreted to mean the Agricultural, Mechanical and Normal College established at Pine Bluff, Arkansas, under the Clayton Legislative Act of April 23, 1873. The designation A. M. and N. College was used interchangeably to denote the same institution.

Organization of the Report

The first chapter of this study has presented a statement of the problem and a definition of the terms used. In Chapter II a review of pertinent literature is presented. The method of procedure followed in the investigation and the groups involved in the study are revealed in Chapter III. In Chapter IV will be found a presentation of the data which is an analysis of the training program in terms of abilities developed by students and analyses of curricula in selected institutions. In Chapter V the study is summarized and a report of the conclusions, implications and recommendations is submitted.

CHAPTER II

REVIEW OF PERTINENT LITERATURE

Introduction

A voluminous amount of literature has been written pertaining to curriculum and curriculum revision. Many studies have been made and much experimentation carried out to determine the kinds of subject-matter or the experiences which should be included in the educational process in order to best adapt the individual to his society.

For, in the broad sense of the word, education refers to the entire social process by which individuals acquire the ways, beliefs, and standards of society. Schooling is a specialized aspect of this social process. And the objectives of any educational institution, whether elementary, secondary or higher education can find justification for existence only in relation to this wider context of human development.

Education is a social invention in the sense that we start anew with each individual. These individuals are born with inherited potentialities which are moulded by the interaction of the culture, and the responsibility for the development of these personalities to their greatest

capacity rests with society. The future of mankind will be decisively determined by what man makes of himself through intelligence and institutions governed by moral will.

The individual by delving into the accumulated knowledge of the centuries begins to learn the meaning and purpose of life, to develop an understanding of the beauty and order of logic, and the significance of testing for truth. The heritage of the ages opens to him and through it he forms a sense of values which become the basis of his philosophy of life.

> The questions of life--be they personal, public, social, economic, or the like--are never present alone. They have their roots in the continuing experience of the human race. For any man to have the capacity to answer the questions that arise each day and to meet the situations and conditions that confront him in his personal life or in his life as a citizen of the state, he must have that fundamental background of knowledge and understanding which is the continuing experience of the human race.[1]

This knowledge and these capacities which are considered necessary for mankind to resolve these "questions of life" are, to a large extent, the responsibility of the school, and the curricula and its continuous revision necessary to include these vital factors, has been the

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[1]Report of cooperative Studies, Conducted under the Auspices of the Committee on Work Conferences on Higher Education of the Southern Association of Colleges and Secondary Schools, Higher Education in the South. Chapel Hill: The University of North Carolina Press, August, 1947.

subject of much debate. Conflicting opinions of curriculum content and methods of administration have, as a matter of course, arisen bringing into being various schools of thought. It is not the intent of the writer to attempt to resolve this conflict but rather, by a review of the thinking of recognized authorities in curriculum construction, to present principles which are and can be used in deciding upon and inculcating the educational experiences necessary for effective participation in our social order.

The review of literature in this study has been divided into three sections for ease and clarity of presentation. In the first section a review is given of general literature pertaining to curriculum construction and revision. Particular emphasis is placed upon the principles involved which may be used by teacher-education institutions in formulating programs of agricultural education.

The second section deals with studies, investigations, and writings pertaining especially to curriculum construction, and content in agriculture and agricultural education programs in teacher education institutions. The third section, on the other hand, deals with studies and investigations relating specifically to the curriculum for the program of agriculture and agricultural education at the Agricultural, Mechanical and Normal College of Arkansas.

It is not the intent of the writer to convey the impression that all of the voluminous amount of pertinent literature in sections one and two have been included in this review. However, it is felt that the opinions of the foremost present-day thinkers in curriculum development have been reviewed, and a number of their views presented. Also, that a sufficient number of the significant studies in agricultural education have been presented to give one a concept of the trend that these investigations have followed and the conclusions that have been reached.

Literature Pertaining to General Curriculum

As one begins to delve into the literature pertaining to curriculum making or re-making he immediately becomes cognizant of the great diversity of opinion among educators regarding the purposes of education and the many divergent procedures in curriculum construction. He may likely gain the impression that there is no basic body of data from which educationists may derive a common substructure of assumption and subject-matter for assuring gradual but certain mastery of the principles and procedures of curriculum making. However, upon deeper penetration into this labyrinth, certain features emerge which are common to all of these various approaches. Some of them are:

1. Each has a definition of education embodying its nature and educational objective.
2. Each either overtly expresses or innately implies the source of authority for the curriculum.
3. Each presents a philosophy of, or attitude toward, the relationship between content and teaching procedure.
4. Each has a way of conceiving the organizational principles of the curriculum.
5. Each has a method of evaluation-- criteria of progress.

Although all of these items are of importance in any curriculum construction or revision, for the purposes of this study the major review of general literature was concerned with the fourth item--principles of curriculum making or re-making. Nevertheless, because of the utter impracticability of conceiving of principles of organization without a consideration of educational objective and source of authority for curriculum construction, the literature pertaining to these items must also be considered.

John Dewey, one of the foremost educators of the twentieth century, thought essentially of education in terms "of social efficiency and of growth as the educational objective". He stated:

> Speaking generally, education signifies the sum total of processes by which a community or social group, whether small or large, transmits its acquired powers and aims with a view to securing its own continued existence and growth.2

More specifically he defines education in this way:

> Education may be defined as a process of the continuous reconstruction of experience with the purpose of widening and deepening its social content while at the same time the individual gains control of the methods involved.3

The American Association of School Administrators in the American School Curriculum, believe as educators

> That the purpose of education in the United States is the development of each individual for the fullest participation in the American democratic way of life.4

Kilpatrick feels that changed and changing economic and social conditions place upon the school a new program of educational activity and purpose. He puts it in this way:

> All this means that the school faces destiny. It must create in the young a more dynamic intelligence, a surer initiative, a self-disciplined character, a broad and liberal social outlook.5

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[2] John Dewey, Monroe's Cyclopedia of Education, William Heard Kilpatrick, editor, Source Book in the Philosophy of Education. New York: The Macmillan Company, 1925. p. 36.

[3] Op. Cit.

[4] Thirty-first Yearbook of American Association of School Administrators. American School Curriculum. Washington 6, D. C., 1953. p. 8.

[5] William Heard Kilpatrick, Remaking the Curriculum. New York: Newsom & Company, 1936. p. 9.

Tyler thinks of a study of the learners themselves as a source of educational objective when he remarks:

> Education is a process of changing the behavior pattern of people. This is using behavior in the broad sense to include thinking and feeling as well as overt action. When education is viewed in this way, it is clear that educational objectives, then, represent the kinds of changes in behavior that an educational institution seeks to bring about in its students. A study of the learners themselves would seek to identify needed changes in behavior patterns of the students which the educational institution should seek to produce.6

Smith, Stanley and Shores evaluate the tasks of education fundamentally as social obligations. They feel that "above all else it is education's task to encourage the growth of fundamental moral agreement among the people".[7] They agree with Kilpatrick in that economic, political and social practices must be integrated so that what is done in society will conform to professed ideals and policies. As such they believe that "it is one of the tasks of education in this period of maladjustment to develop persons capable of dealing constructively with these conflicts".[8] Democracy to them is a set of moral principles and it is

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[6] Ralph W. Tyler, Basic Principles of Curriculum and Instruction. Chicago, Illinois: The University of Chicago Press, 1950. p. 4.

[7] B. Othanel Smith, et al, Fundamentals of Curriculum Development. New York: World Book Company, 1950. p. 110.

[8] Loc. cit.

> the primary business of the school to make these principles clear, to show how they are to be used in social thought and action and to provide experiences in using them.9

The Commission on Secondary School Curriculum in studying the problems of general education from the approach through adolescent needs concluded that the processes and goals of education should be relevant to the needs of the learner as he interacts with his social medium. Thus it was stated that:

> The purpose of general education is to provide rich and significant experiences in major aspects so directed as to promote the fullest possible realization of personal potentialities, and the most effective participation in a democratic society.[10]

Bobbitt feels that education is the process of growing up right. As such he states:

> The curriculum-maker will always keep the functional objectives before him. If he has discovered them in his own social analyses, and if he has stated them in common-sense terms, then he can always see education as the process of developing human powers and qualities in human beings; and that anything else is irrelevant.11

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[9] Ibid., p. 111.

[10] Giles, et al, Exploring the Curriculum. New York: Harper & Brothers, 1942. p. 5.

[11] Franklin Bobbitt, How to Make a Curriculum. Boston: Houghton Mifflin Company, 1924. p. 44.

Robert M. Hutchins interpreted educational purposes in a somewhat different light from Bobbitt and many others. Should one wish to quote him he might find this statement:

> One purpose of education is to draw out the elements of our common nature. These elements are the same in any place or time. The notion of educating a man to live in any particular time or place, to adjust him to any particular environment, is therefore foreign to a true conception of education. Education implies teaching. Teaching implies knowledge. Knowledge is truth. The truth is everywhere the same. Hence education everywhere should be the same. I do not overlook the possibilities of differences in organization, in administration, in local habits and customs. These are details. I suggest that the heart of any course of study designed for the whole people will be, if education is rightly understood, the same at any time, in any place, under any political or economic conditions. Even the administrative details are likely to be similar because all societies have generic similarity.12

James H. Newlon attempts a summation of two schools of thought by saying:

> In the welter and confusion of our times, teachers are told by one school of thought that education can only follow the social consensus, must teach in controversial areas only that which is socially approved. Another school of thought--broadly speaking, the progressive--holds that although society cannot be reconstructed through education alone, education has, nevertheless, a positive and constructive role to play in the improvement of American life and must concern itself with current social problems. . .13

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[12] Robert M. Hutchins, Higher Learning in America. New Haven: Yale University Press, 1956. p. 67.

[13] Jesse H. Newlon, Education for Democracy in our Times. New York: McGraw-Hill Book Company, Inc., 1939. p. 16.

He further goes on to say:

> . . .The truth is that the struggle is on everywhere for the control of the minds of youth and adults. . .In this struggle the control of all agencies of communication is at stake. No greater issue, then confronts this country today than the problem of the social purpose for which our schools are to be employed, or how they can be made to further the purpose of democracy.[14]

A second important factor relevant to curriculum building is the source of authority. We find disagreement and differing interpretations in this area also. In the United States legal control of the public schools is vested in the government of the various states. However, the moral authority for designing the curriculum is a responsibility of the highest order and is as much a question as the legal one. With minor variations in certain areas the discussion relative to the source of authority can be summed up in four differing schools of thought.

One position taken by educationists is that Divine Will is the basis of educational authority in that the educator derives his authority from the revealed will of God. This position has been taken by many Catholics and sometimes by Jewish and Protestant educators. A quotation from Smith, Stanley, and Shores clarifies, to some extent, this position in education:

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[14] Loc. Cit.

> A distinguished Catholic layman, F. J. Sheed, argues that before we can educate we must know the purposes of life. For the individual teacher to undertake to determine these purposes on his own responsibility is imposition of the rankest sort. But the Catholic educator, Sheed continues, knows--not of himself but directly from the revealed word of God, what the purposes of life are. Hence, he has a certain and authoritative answer to the first problem in education--that is, the ends and purposes it should seek to serve.[15]

A second school of thought contends that education is grounded in eternal truth. Seeking the answer to the problem of authority in education in eternal and absolute truth, revealed by human reason and embedded in the great literature of the past, they usually call themselves humanists. Of this group perhaps the best known individual is Robert M. Hutchins, although a number of brilliant and able scholars are represented. Hutchins[16] insists that consistency and unity in education depend upon a proper ordering of truth in a logical series so that knowledge represents an orderly procession from truth to truth. Because all truths are not on the same level, that is are not equally important, the discovery and ordering of truth demands both a method and a principle of consistency and

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[15] B. Othanel Smith, et al, Fundamentals of Curriculum Development. New York: World Book Company, 1950. p. 130.

[16] Robert M. Hutchins, Higher Learning in America. New Haven: Yale University Press, 1936. pp. 59 - 87.

order. This ordering of truth must be achieved, first, by discovering the principles that lie at the base of all knowledge, and second, by deducing secondary truths from these first principles.

He criticizes utility in education and gives his concept of the intellectual virtues as follows:

> The trouble with the popular notion of utility is that it confuses immediate and final ends. Material prosperity and adjustment to the environment are good more or less, but they are not good in themselves and there are other goods beyond them. The intellectual virtues, however, are good in themselves and good as means to happiness. By the intellectual virtues I mean good intellectual habits. The ancients distinguish five intellectual virtues: the three speculative virtues of intuitive knowledge. . .of scientific knowledge. . . and of philosophical wisdom. . .To these they add the two virtues of the practical intellect: art. . . and prudence.17

A third school sets up science as the source of educational authority for the curriculum insisting that the scientific method is the only means of establishing truth. George Counts has said on this point:

> The Americans, with few exceptions, have the utmost confidence in the application of the scientific method to the field of education. Many prominent educators seem even to believe that there is no educational problem which is incapable of objective solution. They contend, moreover, that insistence on the employment of any other method is to waste time and scientific thinking. . .18

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[17] Hutchins, Loc. Cit.

[18] Francis E. Petersen, Philosophies of Education Current in the Preparation of Teachers in the United States. New York: Bureau of Public Teachers College, Columbia University, 1933. p. 32.

Difficulties arise with this group when the realm of values and aesthetics is presented. Since education is inescapably moral as well as intellectual, this realm must be dealt with. Smith, Stanley and Shores, in analyzing the position of this school of thought with regard to moral and aesthetic values say:

> . . .the scientist in education has undertaken to deal with values in one of three ways. He has, first, refused to consider them at all, on the ground that they represent subjective judgments, which cannot be verified. . .
>
> Second, another group of scientists, insisting that the first group has been unduly restrictive in barring all value judgments from the purview of science, has argued that values can be objectively treated on the descriptive level. . .
>
> Finally, a third group has sought to establish objectively the values education should attempt to inculcate in the learner, by discovering what values are dominant in the society for which the student is being educated.19

The fourth position held by educationists and one which seems to have more proponents than any of the others, is that the school is a social agent and derives its authority from the society which maintains it. The American Association of School Administrators contends that "within rather broad limits set by growth, it is the function of the school through its curriculum to stimulate interest toward

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19B. Othanel Smith, et al, Fundamentals of Curriculum Development. New York: World Book Company, 1950. p. 146.

the outcomes set by society".[20] The Commission on Social Studies of the American Historical Association concur as they state:

> Being a form of social action, education. . .is a function of a particular society at a particular time and place in history; it is rooted in some actual culture and expresses the philosophy and recognized needs of that culture.21

John L. Childs in an article entitled "Should the School Seek Actively to Reconstruct Society?" contends that the school is doubly social in nature. He says:

> Society organizes and maintains schools because it deems it necessary that specialized attention be given to the process by which the young are introduced into its manner of life. The school is thus doubly social in nature. As an institution, the school is society organized for action along a certain line, namely, the education of the young. But the school is social in another and more fundamental respect. The very materials which supply the substance of the school's program are also derived from the life of society. The group ways both of action and of thought are the ultimate sources from which the aims of the school and the content of its curriculum are drawn.22

Krug insists that the source of authority for the curriculum resides in society to such an extent that he

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[20]Thirty-first Yearbook, American Association of School Administrators.

[21]American Historical Association, Report of the Commission on the Social Studies, Conclusions and Recommendations of the Commission. New York: Charles Scribner's Sons, 1934. p. 31.

[22]John L. Childs, "Should the School Seek Actively to Reconstruct Society?", Hollis L. Caswell and Doak S. Campbell, Readings in Curriculum Development. New York: American Book Company, 1937. p. 51.

would, in case of disputation on educational purposes, defer to the wishes of the citizenry. He maintains:

> Clearly since the schools belong to people as a whole, the development of school purposes should involve the participation of the people as a whole, conflicts should not occur between lay people and school people on basic educational purposes; when they occur, the point of view of lay people should prevail.[23]

Kilpatrick,[24] John Dewey,[25] Alberty,[26] Saylor and Alexander,[27] along with others too numerous to mention, all concur with the concept of the school as an agency of society and deriving its authority for the curriculum from it.

A third important factor in this study to be considered in curriculum making and remaking is the organizing principles or principles of construction or revision. As in other areas of curriculum building, one is confronted by major issues which divide curriculum makers into different camps. One of the issues to be met is differing opinions

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[23]Edward A. Krug, Curriculum Planning. New York: Harper and Brothers, 1950. p. 16.

[24]William H. Kilpatrick, Remaking the Curriculum. New York: Newsom and Company, 1936. p. 20.

[25]John Dewey, Education and Experience. New York: The Macmillan Company, 1938. p. 3.

[26]Harold Alberty, Reorganizing the High School Curriculum. New York: The Macmillan Company, 1953. p. 37.

[27]J. Galen Saylor and William M. Alexander, Curriculum Planning. New York: Rinehart and Company, Inc., 1954. p. 107.

relative to the necessity for analyzing child nature as opposed to the necessity for analyzing social needs which emphasize adult social needs.

Some of the other issues which are the cause of considerable differences in the construction of principles for curriculum are:

1. Whether the present organization is necessarily fixed and final
2. Whether the curriculum should be organized for individual instruction or a series of projects.
3. Whether the curriculum should be made by teachers, experts, or others.
4. In what sense the curriculum should consist of useful experiences.
5. Whether the curriculum should prepare for adult needs, child needs, or both.
6. Whether or not the curriculum should include a consideration of controversial issues

Obviously, the position that one takes will have a deep-seated influence on the subsequent steps in curriculum making.

A perusal of the materials on curriculum principles reveals many variations but also much similarity so that it is impracticable to attempt to include all contained in

the literature reviewed. But again, sufficient materials will be presented to give a concept of the varying curriculum principles involved.

The American Association of School Administrators recognized curriculum problems as being knotty, complex, and difficult. Realizing the impossibility of acquainting the individual with the vast accumulation of knowledge, they give this formula:

1. Decide on the school's objectives
2. Determine what learning experiences will best achieve these objectives
3. Organize the experiences for teaching and learning.
4. Judge whether the objectives are obtained[28]

Ragan[29] felt that the period since 1929 has been characterized by efforts, not merely to improve the curriculum within the traditional framework, but to reorganize it within the light of emerging social, psychological, and philosophical principles. These principles may be briefly summarized as follows:

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[28]Thirty-first Yearbook, American Association of School Administrators, American School Curriculum. Washington 6, D. C., February, 1953. p. 55.

[29]William B. Ragan, Modern Elementary Curriculum. New York: The Dryden Press, Inc., 1953. p. 17.

1. Our society is dynamic and emerging rather than static and finished
2. The aim of education is to develop individuals who are capable of preserving and improving our democratic way of life.
3. Learning is not a mechanistic process of adding parts to parts; it is a process of experiencing in which the total organism undergoes changes as a result of interaction with the environment
4. The proof of learning is behavior
5. It is the function of the school to teach children not only useful knowledge and skills but the use of these in the solution of actual problems of living
6. Whatever needs to be done to improve living in our society, it is the business of the school to help do it[30]

Alberty has a concept that regardless of any plan that may be adopted for curriculum reorganization, it is desirable that a systematic, continuous program be directed toward a better understanding of the student. Should a school desire to base its program upon the needs, problems, and interests of adolescents here are some of the steps he might take:

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[30]Ragan, Loc. cit.

1. Study the literature
2. Studying the students of the school
3. Formulating a statement of basic needs, problems, and interests
4. Improving the system of recording personnel data
5. Determining the design of the curriculum
6. Implementing the design of the curriculum
7. Deciding upon a concept of classroom method
8. Developing a program of evaluation[31]

Charters insists that the curriculum consists of both ideals and activities on the one hand and their method of realization on the other. Thus education has not only to show youth how to control objectives but also how to want to control them. His steps in curriculum construction may be stated as follows:

1. Determine the major objectives of education by a study of the life of man in its social setting
2. Analyse these objectives into ideals and activities to the level of working units
3. Arrange these in the order of importance
4. Raise to positions of higher order in this list those ideals and activities which are high in value for children but low in value for adults

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[31] Harold Alberty, Reorganizing the High School Curriculum. New York: The Macmillan Company, 1953. pp. 541-3.

5. Determine the number of the most important items of the resulting list which can be handled in the time allotted to school education, after deducting those which are better learned outside of school
6. Collect the best practices of the race in handling these ideals and activities
7. Arrange the material so obtained in proper instructional order, according to the psychological nature of children[32]

Ford[33] agrees with the concept that a sound philosophy of education is probably the most important factor in the selection and organization of materials and activities for the course of study. According to Ford the selection of teaching activities will be governed very largely by the educational aims most desirable for achievement.[34] He cites the guiding principles of Thorndike and Gates as aids in carrying out the idea:

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[32]W. W. Charters, Curriculum Construction, William H. Kilpatrick, editor, Source Book in the Philosophy of Education. New York: The Macmillan Company, 1925. p. 295.

[33]Frederick A. Ford, The Instructional Program. New York: The Prentice-Hall, Inc., 1938. p. 129.

[34]Loc. Cit.

In selecting subjects and activities for the curriculum, we should be guided by the following principles:

1. Subjects and activities should be given preference which develop information, skills, habits, attitudes, appreciations, and other reactions that improve adjustments to the physical world, to family, social, economic, and civic situations and that increase bodily and mental health and balance and recreational, ethical, religious, and intellectual resources. This is the fundamental criterion to which all others to be listed are subordinate.

2. Other things being equal, those subjects and activities should be favored for the school curriculum which are least likely to be provided satisfactorily by other agencies such as the church, theatre, Boy Scouts, and the like.

3. Other things being equal, subjects and activities should be selected for the school curriculum which will give proper range and proportion to the totality of education influences when school and out of school experiences are combined. Only thus will a properly balanced general education be secured.

4. In general, the value of subjects and activities should be judged more on the basis of primary or assigned learnings than on the basis of secondary or concomitant learnings since the former usually receive greater emphasis, are more surely achieved, and are easier to appraise.

5. In general, the more directly a fact, skill, or habit meets a genuine life demand the more valuable it is in itself and the more surely and fully the concomitant learnings will function in life.

6. Other things being equal, the more widely a primary fact, habit, or skill may be employed in life the more valuable it is both in itself and as a carrier of concomitant learnings.

7. Other things being equal, favor the subject matter and activities which are the most effective means of fostering such desirable

concomitants as improvement in ability to think, originality, sociability, initiative, trustworthiness, and the like whenever reliable experimental evidence is available.

8. Other things being equal, favor the subject matter and activities which not only meet present demands but which also prepare for forthcoming problems or emergencies rather than those which merely record the past, or reflect temporary, immediate interests or perpetuate academic interests resulting from the past teachings of the school itself.

9. Other things being equal, favor the subject matter and activities which are most interesting to pupils at the time.[35]

While stating their principles in different terminology Krug,[36] Saylor and Alexander,[37] seem to have the same implications. They contend that curriculum workers should be guided by fundamental principles in the formulation of a design for curriculum construction. This design should include the determination of the scope and sequence of educational experiences to be provided the student.

Ralph W. Tyler developed a rationale for viewing, analyzing, and interpretating the curriculum and instructional program of an educational institution. The purpose

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[35] E. L. Thorndike and A. I. Gales, Elementary Principles of Education, Frederick A. Ford, The Instructional Program. New York: Prentice-Hall, Inc., 1938. p. 129.

[36] Edward A. Krug, Curriculum Planning. New York: Harper and Brothers, Publishers, 1950. p. 291.

[37] J. Galen Saylor and William M. Alexander, Curriculum Planning. New York: Rhinehart and Company, Inc., 1954. p. 251.

was to help the student of education to understand more fully the kinds of problems involved in developing a curriculum and plan of instruction. It was hoped that the student might acquire some techniques by which these problems could be attacked. The rationale identified four fundamental questions which must be answered in developing any curriculum and plan of instruction. These are:

1. What educational purposes should the school seek to attain?
2. What educational experiences can be provided that are likely to attain these purposes?
3. How can these educational experiences be effectively organized?
4. How can we determine whether these purposes are being attained?[38]

It is understandable that the answers will vary from one level of education to another and from one school to another, so instead of answering these questions, an explanation was given of procedures by which these questions can be answered. This constituted a rationale by which problems of curriculum and instruction could be examined.

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[38]Ralph W. Tyler, Basic Principles of Curriculum and Instruction. Chicago, Illinois: The University of Chicago Press, 1950. p. 3-5.

Literature Pertaining to Curriculum and Curriculum Revision in Teacher-Education Institutions

The Federal Board for Vocational Education, with the incipience of vocational education, found it necessary, and the better part of wisdom to publish a bulletin dealing with the training of teachers in vocational agriculture. When published in 1919 there was no considerable body of adequate experience upon which to base opinion or to formulate principles. Consequently in 1921 the Agricultural Education Service of the Vocational Education Board brought together a representative group of men engaged in teacher education. The purpose was, if possible by using the experience gained during the intervening years, to set up criteria or principles to guide departments in the adequate training of prospective vocational teachers. The bulletin which was the result of this effort implied that the curriculum for the training institutions in each state was to be based upon conditions present in that locale. The purpose of teacher education was defined in this manner:

> Now the purpose of teacher-training institutions for teachers of agriculture is one which can easily be stated in general terms. In fact it appears so obvious that we have not always given it the thought that it deserves. From the social angle, this aim is the "turning out of individuals appropriately qualified in sufficient numbers to meet the demands of the State for competent teachers of agriculture".

> Institutions of any given State are for the purpose of turning out teachers for the service of that State, not for the service of another State where conditions may be different.[39]

Almost, if not all of the states have based their curriculum upon this purpose as defined by the Federal Board for Vocational Education. Wheeler, writing on curriculum making in agricultural colleges, agrees with the idea of varying course content with each state. He comments:

> It should require no argument to establish the fact that the professional courses in agriculture must vary in content from state to state in order to meet the training needs of county agricultural teachers, teachers of agriculture or dairy farmers if not for research workers. It is easily seen that farming varies widely in type from one section of our country to another.[40]

In analyzing the content which comprise courses in agriculture for prospective teachers Wheeler divides them into two categories: constant courses and variable courses. "Constant courses", asserts Wheeler, "should be expressed in terms of those common problems that a group of professional agricultural workers will most surely meet. Variable

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[39] Federal Board for Vocational Education, Agricultural Teacher Training. Bulletin No. 90, Agricultural Series No. 18, Washington, D. C., December, 1923. p. 1.

[40] John Taylor Wheeler, Curriculum Making in Agricultural Colleges, Athens, Georgia, The McGregor Co., 1932, p. 154.

courses should be developed to meet the regional adaptations and individual needs of those preparing for specific fields of service".[41] He offers the following principles for course reorganization:

1. Discover and keep the professional training aims of the institution before those responsible for course and curricula revision. (This is the first principle and should be held in view at all times by the individual teacher, by the department, or by the institution as a whole.)

2. Discover course content that meets the need of those taught.

3. Differentiate between constant courses and variable courses in all curricula.[42]

Magnitude of teacher needs. Hamlin feels that a four-year period is inadequate for preparing students to teach vocational agriculture and at the same time give them the general education necessary for teaching other subjects. He asserts that "a teacher of vocational agriculture should be trained to teach vocational agriculture and not vocational agriculture and other subjects".[43]

Hamlin's concept of the content of a curriculum in agriculture is expressed in this quotation:

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[41] Ibid., p. 157.

[42] Ibid., pp. 156-157.

[43] Herbert M. Hamlin, Agricultural Education in Community Schools. Danville: The Interstate Printers and Publishers, 1949. p. 366.

> Special curricula for teachers of vocational agriculture may be necessary in institutions which have not recognized the importance of training for this field and which continue to provide curricula better suited for other agricultural students than for prospective teachers. It is possible and desirable, however, to adapt a general curriculum in agriculture for use by prospective teachers. Such an arrangement provides a core in agriculture valuable to all students and an elective sequence for teachers which include the requirements for a teaching certificate and for approval for teaching vocational agriculture. Room may still be left for a considerable number of electives to be chosen with guidance from competent counselors. The basic training of teachers in agriculture needs to be general though opportunities should be allowed for some specialization in one agricultural field, so that a young teacher may have a best foot to put forward.44

Phipps and Cook concurred with this point of view to some extent. They felt that teaching and administering a complete program of vocational agriculture in our changing and complex society necessitates constant attention to professional improvement. So many and diverse are the requirements placed upon the agricultural instructor that even if the entire four-year period was spent in preparation in vocational agriculture subjects only that "it is impossible for a student to become adequately proficient in performing all of the diverse duties of a teacher of vocational agriculture through preservice training alone".[45]

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[44] Ibid., pp. 366-367.

[45] Lloyd J. Phipps and Glen C. Cook, A Handbook on Teaching Vocational Agriculture. Danville: Interstate Printing Company, 1952. pp. 46-47.

Effectiveness of preservice courses. Hutson contends that the professional and technical difficulties encountered by teachers of vocational agriculture during their first year can serve as a basis for curricular revision. In a study of eighty-six teachers in the public schools of Arkansas in 1951-53 he found that

> Thirty-one percent of the causes of major problems encountered by the teachers as beginning teachers of vocational agriculture were directed toward inadequacy of instruction in professional courses and lack of, or limited activities during the period of preservice training.46

Hutson's conclusions are that

> It appears that the opinions of teachers relevant to the nature and extent of problems encountered in performing selected activities concerning various aspects of the program in vocational agriculture should provide a partial basis for determining revisions and adjustments in the professional program in pre-service training at the University of Arkansas for prospective teachers of vocational agriculture.
>
> The major problems identified by the study should provide some valid basis for planning a systematic program of follow-up assistance to beginning teachers of vocational agriculture. The data suggest areas of emphasis in planning the professional program of in-service training.47

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46 Denver B. Hutson, "A Study Concerning Professional Problems Encountered by Beginning Teachers of Vocational Agriculture". The Agricultural Education Magazine 26:284-86, June, 1954, based on "A Study of the Professional Problems Encountered by Beginning Teachers of Vocational Agriculture in Arkansas", Unpublished Doctoral Thesis, University of Missouri, 1953. p. 277.

47 Hutson, loc. cit.

Kirkland conducted a similar study dealing with professional and technical difficulties encountered by teachers in Tennessee during their first year of teaching vocational agriculture. He prepared a list of the professional and technical areas with activities which were considered essential in each area. His findings were:

> The difficulty reported by the highest percentage of teachers was inability to perform activities in the area of long-time and annual program, all-day program, adult farmer program, and physical plant and facilities. Many of the difficulties were ascribed by teachers to a lack of participation during the preservice training program.[48]

Kirkland, as a result of the study, would use these major recommendations for improving the program of preservice training:

1. That the University examine its program of participating experiences in order to get a greater degree of efficiency in training.
2. That the Department of Agricultural Education, in cooperation with the departments of technical agriculture of the University develop a list of technical abilities which are essential for prospective teachers to possess.
3. That an evaluation be made of the present program in preservice training.

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[48] James B. Kirkland, "A Study of the Professional and Technical Difficulties Encountered by Teachers During Their First Year of Teaching Vocational Agriculture". Unpublished Doctoral Thesis, Ohio State University, 1947. 464 pp. [in] Summaries of Studies in Agricultural Education, Vocational Education Bulletin No. 180, Supplement No. 2, No. 237, Agricultural Series No. 57, United States Office of Education, p. 55.

4. That the technical departments be encouraged to modify their courses in order to give the teachers more specific information and technical skills in the fields where such are needed.

5. That the guidance program be improved.

6. That more inservice training of teachers in technical agriculture be provided.49

Taylor, in like manner, having evaluated the pre-service professional training courses in agricultural education at the University of Arizona proposed that:

1. A major part of preparation concerned with professional improvement, getting established in the school and community, and maintaining satisfactory school relationships should be postponed to the inservice training period.

2. Additional emphasis in the preservice training programs at the University of Arizona should be given to most areas of professional abilities needed by beginning teachers, especially those areas considered crucial.

3. The preservice training program should provide additional content and practice in methods and procedures needed by beginning teachers, with a relative reduction in time devoted to developing background and philosophy.50

More specifically, Taylor made the following recommendations for improving teacher education at the University of Arizona:

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[49] Loc. cit.

[50] Bob E. Taylor, "An Evaluation of the Pre-Service Professional Training Program in Agricultural Education at the University of Arizona". Unpublished Master's Thesis, The University of Arizona, 1953. pp. 285-287.

1. Approximately three semester hours of professional course work be added to the agricultural education curriculum.

2. The sequence of professional courses be adjusted to provide a course to furnish orientation, background, and understanding of the vocational agriculture teaching profession.

3. The supervised teaching course be lengthened, possibly to include the entire second semester in the senior year.

4. A graduate summer-school course dealing with problems of beginning teachers be offered for teachers who have completed their first year on the job.

5. Workshops be scheduled regularly for supervising teachers in Arizona to provide specific preparation in their duties.[51]

Basing his study upon technical agriculture rather than professional training, Rhoad attempted to determine the abilities possessed by prospective teachers in this area. These data were to be used as a basis for determining courses and course content in the agricultural education curriculum. Members of the subject-matter departments of the College of Agriculture of Ohio State University suggested a list of 835 abilities that teachers of vocational agriculture should possess. Out of this number a jury of five training teachers selected 557 abilities and designated them as "essential". Rhoad's findings and interpretations were as follows:

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[51] Loc. cit.

A study of 557 essential manipulative abilities in many areas of technical agriculture showed the men scoring 51.01 percent. Individual scores ranged from 34.3 per cent to 72.2 per cent. The trainees lacked about half of the essential abilities. In addition, they showed a decided lack of experience in those abilities closely related to the doing of good quality work.

Recommendations included such items as (1) early and thorough guidance to help prospective teachers get better farm experience, (2) revision of course offerings of the College of Agriculture, and (3) revision of content in certain courses.[52]

Opinions of experienced teachers. Couch undertook to measure the effectiveness of undergraduate college courses for meeting the needs of experienced teachers of vocational agriculture. He concluded that

1. The teachers of agriculture, as a whole, fail to see the need of, and to appreciate, the courses listed among the ones "required by the New York State College of Agriculture.

2. A wide choice among the courses listed under the Biological and Physical Sciences and Social Studies should be continued.

3. A considerable amount of revision should be made in several of the technical agricultural courses.

4. More student participation for the development of skills and experiences would be desirable.

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[52]Claude Elton Rhoad, "A Study of the Comprehensiveness of Abilities in Technical Agriculture Attained by Prospective Teachers of Vocational Agriculture in Ohio Previous to Their Entrance into Student Teaching". Unpublished Doctoral Dissertation, Ohio State University, 1943. 342 pp. [in[Summaries of Studies in Agricultural Education Vocational Division Bulletin No. 237, Agricultural Series No. 57, U. S. Office of Education. p. 85.

5. It might be desirable to have special sections on some courses for the agricultural education group of students.

6. Too many teachers have followed one pattern in preparing to teach vocational agriculture in the areas representing several types of farming in New York State.[53]

Jack Harper[54] found that teachers in the State of Louisiana felt that they had been given insufficient training in the following order: (1) Farm Shop, (2) Food Preservation, (3) Field Crops, (4) Livestock and Poultry, and (5) Horticulture. At the same time they rated these sections as ones in which they needed least training in the following order: (1) Horticulture, (2) Livestock and Poultry, (3) Field Crops, (4) Food Preservation, and (5) Farm Shop.

Woodin evaluated the major aspects of the preservice professional curriculum in agricultural education at the Ohio State University in terms of contributions to professional competency of students. He discovered that certain participating experiences basic to competency were

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[53]Stuart Tarble Couch, "The College Preparation of Teachers of Vocational Education in Agriculture." Non-thesis Study, Cornell University, 1949 [in] Summaries of Studies in Agricultural Education, Bulletin No. 242, Supplement No. 3, United States Office of Education, pp. 7-8.

[54]Jack Landon Harper, "Operative Skills Essential to the Teachers of Vocational Agriculture in the State of Louisiana." Master's Thesis, Louisiana State University, Baton Rouge, 1948. pp. 111-113.

secured by less than 50 per cent of the student teachers. On the basis of the facts and implications reported in the study augmented by personal experiences Woodin made ten recommendations on the professional curriculum. Included among them were:

1. Continuance of the present curriculum strengthened by changes within the present courses.
2. The need for the further refinement of the statement of competency.
3. More and better balanced participation experiences with greater awareness of their interrelationships.
4. Continuation of the second quarter of student teaching (in a different quarter of a different year).
5. Continuous study of the curriculum in terms of its value to the individual student.55

Sutherland and LeCount made a survey of two hundred graduates of the College of Agriculture of the University of California and secured the following suggestions for adjustments in undergraduate training:

1. A broader program of courses.
2. More practical instruction in agricultural courses.

55Ralph J. Woodin, "An Evaluation of Selected Aspects of the Pre-Service Professional Curriculum in Agricultural Education of the Ohio State University". Unpublished Doctoral Dissertation, The Ohio State University, 1951. pp. 304-307.

3. More practical field work and experience.

4. More instruction in agricultural engineering and the general field of agricultural economics.[56]

Phipps, in a study involving the problems of beginning teachers of vocational agriculture, found considerable evidence that

> Prospective teachers of vocational agriculture at the University of Illinois are completing their undergraduate training without self-confidence, ability, or understanding in certain areas of technical agriculture. . .The activities and difficulties of most concern to beginning teachers were, however, in the professional field rather than the subject-matter fields. First year teachers were especially deficient in their ability to deal with adult education, guidance, supervised farming, the FFA, planning programs and securing and using instructional facilities and materials. There is a need for systematic follow-up with first-year teachers.[57]

Wald conducted a study in Idaho relative to the degree to which individual courses contributed to the training needs of teachers of agriculture. He interviewed one

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[56]Sidney S. Sutherland and Samuel N. LeCount, "A Survey of Degree Graduates of the College of Agriculture, Davis." Non-thesis study Mimeographed Circular, 1949. University of California. p. 13. College of Agriculture, University of California, Davis.

[57]Lloyd J. Phipps, "Internship for Prospective Teachers of Vocational Agriculture in Illinois." Doctoral Thesis, University of Illinois, 1949. [in] Summaries of Studies in Agricultural Education, Vocational Division Bulletin No. 242, Agricultural Series No. 59, Supplement No. 3, United States Office of Education, p. 36.

hundred present and former teachers of agriculture for a rating of the courses which he had listed. His findings were the following:

> Of the required courses rated, the course which ranked highest was Observation and Practice Teaching and the one receiving the lowest rating was the History of Education. Feeds and Feeding, an elective course, had the highest weighted rating of all the courses surveyed.
>
> There seemed to be a strong tendency of the survey participants to favor additional work in Agricultural Economics, Animal Husbandry, and Agronomy. There also seemed to be a strong desire for more courses which stress laboratory work in which skills that are to be taught can be mastered by the prospective teacher.[58]

Bender listed the following curriculum revisions needed by the teacher education institution in Ohio:

1. More participating experience and more responsibility for the trainee.
2. Better balance of participation and activities throughout the year, and especially in the activities during the first three weeks of school.
3. Earlier contact by the trainee with the professional training program and particularly with vocational activities in a department of vocational agriculture.

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[58]George J. Wald, "Pre-employment Value of Certain Courses for Vocational Agriculture Teachers in the State of Idaho," Master's Thesis, 1949, University of Idaho. [in] Summaries of Studies in Agricultural Education, Vocational Division Bulletin No. 242, Supplement No. 6, Agricultural Series No. 59, United States Office of Education, pp. 49-50.

4. More emphasis on guidance in the early phases of the training program particularly.[59]

Morris, in a study to determine the professional competencies needed by beginning teachers of vocational agriculture, seemed convinced by opinions of competent teachers, that the area of "public relations" demands the concern of teacher educators in formulating or revising the agricultural education curriculum. Emphasizing this area particularly in his recommendations he remarks:

> Prospective teachers should be observed very closely to ascertain how well they get along with others. Those prospective teachers who do not acquire a high level of preservice development in the competencies of this area should probably be guided out of the teaching profession. Beginning teachers found to be deficient in these competencies should be given immediate follow-up instruction. Prospective teachers should be encouraged to enroll in such courses as Sociology, Economics, and Psychology in order to acquire basic understandings in human relations. The competencies should be emphasized in Agricultural Education Courses.[60]

He further recommends that

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[59] Ralph E. Bender, "An Evaluation of the Participating Experiences in the Pre-Service Professional Training Program of Teachers of Vocational Agriculture at Ohio State University," Master's Thesis, 1940). [in] Summaries of Studies in Agricultural Education, Vocational Bulletin No. 237, Agricultural Series No. 57, United States Office of Education. p. 8.

[60] Jesse Anderson Morris, "Professional Competencies Needed by Beginning Teachers of Vocational Agriculture." Unpublished Doctoral Dissertation, Michigan State University, 1956. p. 110.

> . . .the professional competencies listed in this study and their ratings, should be used to evaluate the competencies that Negro teacher trainees are developing in the pre-service training programs of colleges training such teachers.61

Objectives as a basis of curricular revision. It is entirely possible that unless a constant evaluation is made of the major objectives of an institution, they may become subverted and minor objectives take precedence. That, in the opinion of Claud Marion, is what has happened to Negro Land-Grant Colleges. In his study, he contends that

> Although the main purpose of Negro Land-Grant Colleges was "agricultural and mechanical", the emphases have become unbalanced in favor of the so-called Liberal Arts.62

His comments on course content in the following vein:

> The curricular offerings were unbalanced and top-heavy with all-inclusive courses. Technical agricultural courses constituted less than fifty percent of the course requirements for graduation . . .As a whole the college farms were not planned as training laboratories, but rather for the college cafeterias and dining rooms. . . Very few institutions permitted students to gain

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61 Ibid.

62 Claud C. Marion, "A Qualitative and Quantitative Study of the Effectiveness of Instructional Programs in Negro Land-Grant Colleges," Doctoral Dissertation, Cornell University, 1948. [in] Summaries of Studies in Agricultural Education, Vocational Bulletin No. 242, Supplement No. 3, Agricultural Series No. 59, United States Office of Education. p. 29.

> desirable farm skills in the handling and use of heavy machinery. . .Very few courses were offered in the leading cash enterprises of the States.63

Sing would plan the development of curricula in teacher education institutions using the thesis that objectives of local departments of vocational agriculture should provide the aims. In a study based upon teacher education in New York State, he states:

> The trainees should be well-cultured to meet the proper needs of pupils in agricultural departments, so the objectives of vocational education in agriculture in secondary schools should be considered as the guiding star for planning of teacher training programs.64

> Each individual department in the secondary school may be based upon the local conditions to set up its specific objectives. Following the objectives, then the scope, content, and organization of the educational program could be shaped in form. In turn, the teacher training program should be based upon the objectives of the agricultural departments.65

Scarborough conducted a study that was concerned with seeking direction rather than determining a blueprint for agricultural education in North Carolina. The plan for the study was based upon the assumption that all people affected by a program should have a part in its development.

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63 Ibid.

64 Ren-Tang Sing, "A Study of the Plans and Procedures Used in Teacher Education for Training Teachers of Vocational Agriculture in New York State" Unpublished Master's Thesis, Cornell University, 1949. p. 8.

65 Ibid., p. 13.

In conformity with this assumption the study involved (1) farm boys enrolled in vocational agriculture classes, (2) parents of boys, (3) other farmers enrolled in agricultural classes, (4) students in agricultural education at North Carolina State College, (5) recent graduates now teaching, (6) supervising teachers, (7) principals, (8) faculty members at North Carolina State College, and (9) leaders in agricultural education. Inquiry forms, supplemented by personal interviews, were developed and used for securing reactions from these groups. As a result of the study, specific proposals were made based upon the evaluation of the program in effect. In presenting the proposals, a somewhat explanatory introduction was made use of in this wise:

The following suggestions would, it is believed, lead to more functional courses in agriculture for prospective teachers of vocational agriculture:

1. Develop the viewpoint that any course should be evaluated in terms of clearly stated objectives; the objectives are in terms of abilities to be developed by the students in the course.

2. Secure suggestions (specific, written) from department heads, or the persons designated, of the abilities needed in his area by teachers in working with farm people; that is, the poultry department would prepare a list of abilities needed by a teacher in helping farmers solve their poultry problems.

3. Using the information secured from the departments, work with each department in fitting these needs into objectives of courses taken by prospective teachers.

4. Eliminate the idea held by some that to make a course functional, practical, or otherwise directly usable to the student necessarily means lower standards.

5. Provisions be made for acquiring needed farm skills, with particular attention given to use of laboratory periods for this purpose.

6. Services of members of the teaching faculty of the school of Agriculture should be used at every opportunity in working with teachers of vocational agriculture. Workshops and short courses would be beneficial to the teachers in service and the experience would be reflected in classes at college for the prospective teacher.

7. Appointment of a small committee, perhaps five to seven persons, for continuous study and evaluation of offerings and needs in agriculture, etc. etc.

8. A student committee would be secured from those enrolled in agricultural education. Each class would be represented, perhaps two members from each of the four classes. One meeting each term would be devoted to the problem of acquiring needed skills and abilities in agriculture.

9. Study the possibility of correlating some work in agriculture with student teaching. Example: A special problem in agricultural economics with a study of the practices in marketing eggs in the community where student teaching is done.

10. Particular attention given to better correlation of courses within a department to fit into major objectives of the area. (This should develop in connection with others named but could be tackled separately if others did not develop.)[66]

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[66] C. C. Scarborough, A Proposed Program of Education for Prospective Teachers of Vocational Agriculture in North Carolina. Unpublished Doctoral Thesis, 1951, College of Education, University of Illinois. pp. 86-88.

Literature Pertaining to Agricultural Education in the A. M. & N. College

There is a dearth of information relating to studies referring specifically to curriculum content in agricultural education at the Agricultural, Mechanical and Normal College. There was a study made by Sellers J. Parker in 1949 which has direct implications for course content in the technical phase of the agricultural education program of the college.

In this study he used graduates of the college in agriculture to define the problems which confronted them in their teaching programs. From the individual members of the agricultural staff a list of all the skills that had been taught in their technical courses in agriculture was obtained. With information derived from vocational teachers, the instructional staff of the college, and farmers in various communities he defined (1) the pertinent problems in technical agriculture in Arkansas, (2) the importance of the problems, and (3) the need for pre-service training in teaching these problems.

The problems were grouped under general headings of soil erosion, orcharding, diseases and parasites of livestock, cotton production, home gardens, truck crops, farm shop, and community organizations.

The most important jobs were found as follows:

A. Soil erosion
   1. Setting up a system of planting strip crops
   2. Contour cultivation
   3. Terracing land

B. Orcharding
   1. Control of the common diseases and insects of fruit trees
   2. Placement of fertilizer to minimize winter injury of fruit trees.
   3. Increase the quality of fruit, particularly in storage
   4. Laying out orchards with special reference to pollination
   5. Planning a spraying calendar for fruit growers

C. Diseases and parasites of livestock
   1. Control of the bot fly on horses
   2. Control of lice on swine and poultry
   3. Control of the common diseases of swine, cattle and poultry
   4. Vaccination of swine for cholera
   5. Vaccination of cattle
   6. Control of warbles in cattle, swine plague, caponizing

7. Castration of swine and fitting animals for show and exhibits

D. Cotton production

1. Fertilizer placement
2. Grading of cotton
3. Control of the common insects of cotton

E. Home Gardens

1. Establishment of year-round gardens
2. Construction of hotbeds
3. Construction of vegetable storage for home use

F. Truck crops

1. Premature seeding of cabbage, lettuce, and spinach
2. Obtaining a desirable stand of fall crop of Irish potatoes
3. Control of corn earworm

G. Farm Shop

1. Cutting steps and rafters
2. Calculating board feet in lumber
3. Building brooder and poultry houses
4. Sharpening plow points
5. Making single trees
6. Plans for common farm buildings
7. Reading common blue prints

8. Repairing and operating common farm machinery

H. Community organizations

1. Organization of evening classes, part-time groups and cooperatives

2. Organization of N. F. A. groups

Parker recommended as problems for further study the following:

1. An extensive study of the farming practices and resources of Arkansas as a basis for evaluating the teacher-training programs.

2. Regional study of the farming practices as a basis for specialization in Arkansas.

3. A study of the marketing possibilities as a basis for the course offerings in this field.

4. A follow-up study of students becoming established in farming in Arkansas.[67]

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[67] Sellers Jerial Parker, "The Implications of Selected Problems in Teaching Vocational Agriculture for Placing Emphasis on the Content of the Teacher-Training Program at the Agricultural, Mechanical and Normal College in Arkansas". Doctoral Dissertation, Cornell University, 1949.

Summary

A summary of the review of literature is presented to give a concise survey of the significant viewpoints, findings, and conclusions in each of the designated areas.

Literature Pertaining to General Curriculum

1. Although there is great diversity among educators regarding the nature and purpose of education and much divergence in curriculum construction, yet there are common features which are accepted as necessary by all curriculum makers.

2. These common features are a definition of education, a source of authority for the curriculum, a philosophy of relationship between content and teaching procedure, a concept of organizing curriculum principles, and a method of evaluation.

3. Education and educational objectives have been defined in many ways, varying in phraseology and purpose, but the major schools at present, seem to be that a progressive education and that of traditional (Essentialism) education.

4. The source of authority for the curriculum is a very pertinent factor. The concern is not with the legal basis, which is well-defined in our United States,

but rather with the moral consensus which is a responsibility of the highest order.

5. Although there are four major positions taken by different educators relative to the source of authority for the curriculum, most modern educators regard the school as the agent of and deriving its authority from the society that maintains it.

6. The group ways, both of action and thought, are the ultimate sources from which the aims of the school and the content of the curriculum are drawn.

7. In the organization of principles as guides in curriculum construction, definite positions must be taken on major issues which obviously will have a deep-seated influence upon curriculum making. Some of the major issues are:

A. The fixity of the present organization

B. Organization for individual instruction or a series of projects

C. Curriculum development by teachers, experts or others

D. The value of useful experiences in the curriculum

E. Preparation by the curriculum for adult needs, child needs, or both

F. The inclusion or exclusion of controversial issues

8. Many differing principles for curriculum making or remaking have been suggested. Some are very broad and flexible in their construction while others are more minute in detail with definite procedures to be followed. A basic consideration for each curriculum maker is to keep always before him the functional objectives.

9. Most of the principles for curriculum construction have implications for the attainment of educational objectives conceived in terms of the demands of social circumstances.

Literature Pertaining to Curriculum and Curriculum Revision in Agricultural Education

1. The Federal Board for Vocational Education defined the purpose of teacher education institutions for agriculture teachers as "the turning out of individuals appropriately qualified in sufficient numbers to meet the demands of the State for competent teachers of agriculture."

2. Curriculum in agriculture should possibly be divided into "constant" courses and "variable" courses, the one expressed in terms of common problems and the other in terms of regional adaptation.

3. A four-year period is inadequate for preparing teachers of vocational agriculture if at the same time adequate preparation is given for the teaching of other subjects.

4. The duties of the agricultural teacher are so many and diverse in our changing culture until it is impossible to prepare the student adequately during the preservice period.

5. Teacher education institutions should reexamine their preservice courses to ascertain if they are meeting as adequately as they could, the needs of their graduates teaching in the field of agricultural education.

6. The opinions of teachers relevant to the nature and extent of problems encountered in performing activities concerned with the program of vocational agriculture should provide a basis for determining revisions and adjustments in the preservice training program.

7. The difficulty reported by the highest percentage of teachers was inability to perform activities in the areas of long-time and annual programs, adult farmer programs, all-day programs, and physical plant and facilities. Many of the difficulties are ascribed by teachers to a lack of participation during the preservice program.

8. Most studies indicate a need for inservice training and systematic follow-up with first year teachers. If preservice training is inadequate to prepare the teacher of agriculture to perform his duties, then teacher education institutions should provide educational services for teachers on the job.

9. Negro Land-Grant institutions should revaluate their major purpose to ascertain if the emphasis is still upon training in "agriculture and the mechanic arts".

10. There are possibilities that the objectives of local departments of vocational agriculture should provide the aims for the teacher education institutions.

11. The area of "public relations" is of such vital importance until it should be of great concern to teacher educators in curriculum making or re-making.

12. Some studies in technical agriculture indicated that prospective teachers lacked about half of the essential abilities necessary to the doing of good quality work. Therefore, technical departments should be encouraged to modify their courses in order to give teachers more specific information and technical skills in the fields where such are needed.

13. Too many teachers have followed one pattern in preparing to teach vocational agriculture in the areas representing several types of farming.

14. More emphasis should be placed on guidance, particularly in the early phases of the teacher education program.

15. A program of teacher education, if it is to be most functional, must be designed to meet the needs of the prospective teachers enrolled in the program, furthermore, it must provide for the maximum growth of the individual.

Literature Pertaining to Agricultural Education in the Agricultural, Mechanical and Normal College

1. Preservice training should be based upon the problems faced by graduates of the school as they engage in their teaching duties.

2. In the technical agriculture phase of agricultural education, the most important problems confronting the teachers of Arkansas are in the following areas:

A. Soil erosion

B. Orcharding

C. Livestock production

D. Cotton production

E. Home gardening

F. Truck crop production

G. Farm shop

H. Community organizations

CHAPTER III

METHOD OF PROCEDURE AND SOURCES OF DATA

Introduction

The method of procedure and sources of data are treated in the following sections: (1) the planning of the study; (2) the development of the questionnaire; (3) the survey of the graduates; and (4) the analyses of the questionnaire and curricular data.

The Planning of the Study

As has been mentioned in the statement of the problem, the Agricultural, Mechanical and Normal College was designated in the state plan for vocational education as a teacher education institution. This presupposes that the curriculum for the preparation of teachers in this area would require cooperative efforts between that institution and the board for vocational education or its staff representatives. Thus in any study which proposes changes in the program of agricultural education at the college must take into consideration the agencies involved.

In planning the study it was decided that the greatest efficiency in carrying it out could be secured by consultation with (1) the President of the college,

(2) the staff of the Division of Agriculture, and (3) the state supervisor of vocational agriculture and other selected representatives from that department.

In accordance with this decision a conference was arranged with the President of the College. During this interview the general concept of study was discussed and suggestions given relative to its scope and other individuals to be contacted who might prove helpful in promoting it. The President injected the idea of including the place of the college farm in the training program as a part of the study. However, upon further discussion it was concluded that for best results a separate research project in this area should be instigated. The President was in full accord with the tentative purposes of the study, hoping that it would reveal the areas which are in need of curricular improvement.

The interview with the staff of the Division of Agriculture was prolific in suggestions for setting up the study. A committee was appointed to aid in the development of the questionnaire. This was felt a necessary part of the plan in order to coordinate, as much as possible, the objectives of the staff with abilities outlined as necessary for teachers of agriculture.

The supervisory staff of the State Department of Vocational Agriculture, in the following conference, was

represented by three area supervisors. Their experience in supervising departments of vocational agriculture in which the instructors were graduates of the college, made it a matter of great concern to them that the questionnaire to be developed should include adequate coverage in the areas of community and public relations, agricultural engineering, and farm forestry.

Suggestions were received from the teacher education staff of the Michigan State University relative to the areas to be included, groups to be studied, data to be included, and individuals to be contacted.

The Development of the Questionnaire

Data for the questionnaire were secured by reviewing literature pertaining to teacher education with particular emphasis upon teacher education in agriculture. Studies dealing with the duties and responsibilities of teachers were reviewed. Books and pamphlets dealing with the knowledges, skills and abilities desirable for teachers of agriculture were analyzed. Use was made of materials pertaining to competencies required of teachers of agriculture and of information developed by the staff of the university or gathered from enrollment in graduate courses.

The data from these sources were compiled and from it a preliminary list of abilities or competencies required

of teachers of vocational agriculture and of county agents was developed. These competencies were divided into two general categories designated as professional education and technical agriculture. Under these two categories were twenty-three different areas. At the end of this preliminary questionnaire an area was prepared which requested suggestions concerning additional emphasis or deemphasis of the training in these areas in order to provide for more effective preparation in agricultural education. This section permitted the respondent to make suggestions relative to training which had been found needful in his experience as an educator.

This preliminary list of abilities or competencies was presented to the members of a research seminar and of a course in evaluation in higher education at the Michigan State University for review and criticism. Suggestions from these groups resulted in the deletion of some items and in the combination of several similar items in the various areas. The major criticism was the length of the instrument.

The questionnaire in its revised form was taken to Arkansas for consideration by selected individuals who were designated as an advisory group. This group consisted of the following:

1. Representatives from the state supervisory staff in vocational agriculture.
2. Representatives from the staff of the Division of Agriculture at the Agricultural, Mechanical and Normal College.
3. Representatives from the state supervisory staff in the Extension Service for Negroes in Arkansas.
4. A committee selected from the vocational agriculture teachers of the state.
5. A committee selected from the county agents of the state.

These two last-named groups were added when the writer attended the annual meetings of the vocational agriculture instructors and county agents. At these meetings permission was given for a discussion of the study and a request for any aid which might be given by these groups. These discussions resulted in the appointment of the two committees, one consisting of three persons representative of the county agents, the other consisting of five persons representative of the teachers of vocational education in agriculture.

Due to the impracticability of getting these groups together and the unwieldiness of such a group even if such had been possible, it was decided to set dates and work

with each group separately. In carrying out this decision, notes were made at each meeting concerning suggested changes in the questionnaire and discussed by each succeeding group.

These meetings with the committees of the advisory group resulted in certain major and several minor changes in the questionnaire. It was suggested that the professional category, instead of being all-inclusive, should be separated thereby permitting county agents and vocational agriculture teachers to deal only with the aspects which were specifically related to their type of work. The technical category would remain the same for both.

The professional category for county agents now consisted of three areas while the professional category for vocational agriculture teachers consisted of ten areas. The questionnaire for county agents was reduced to include 146 instead of 225 items. The instrument for vocational teachers of agriculture was reduced from 225 items to 215 and was ultimately refined to include 202 items.

The Survey of the Graduates

In order to determine the graduates to be surveyed, lists of the county agents and vocational agricultural teachers were secured from the Negro Agricultural Agent of

the Agricultural Extension Service and the Division of Agriculture of the Agricultural, Mechanical and Normal College, respectively. The State Supervisor of the Institutional On-Farm Training Program was contacted to ascertain the departments of vocational agriculture in which the training program for veterans was still in effect. A check was then made with the secretary of the Alumni Association of the college to determine which of these individuals were graduates of that institution. A distribution of the graduates of agriculture according to position is found in Table I.

TABLE I

DISTRIBUTION OF GRADUATES OF AGRICULTURE ACCORDING TO POSITION IN AGRICULTURE IN STATE

Position	No. of Positions	Graduates Employed	Percentage
Teachers of Vocational Agriculture	54	44	81.4
County Agents	23	15	65.2
State Extension Staff	3	2	66.6
Agricultural Staff at College	8	5	62.5
Institutional On-Farm Training	15	10	66.6
Totals	103	76	
Per cent of Total			73.7

It was found that of the twenty-three Negro County Agents in Arkansas, fifteen were graduates of the college. Of the fifty-four teachers of vocational agriculture, forty-four were graduates of the college. Of the State Supervisory staff in the Extension two were graduates of the college while of the eight members of the instructional staff in the Division of Agriculture, five were graduates of the college. Of the fifteen departments with veteran training programs, ten of the instructors were graduates of the college.

After all revisions were completed, the questionnaire adapted for county agents' usage was sent to the fifteen county agents and two state supervisors in the Extension Service. Although the general import and structure of the questionnaire had formerly been discussed at the annual meeting, a letter was written explaining the reason for sending it and requesting cooperation in the study.

A called meeting of the vocational agriculture teachers by the state supervisor, facilitated the distribution of the questionnaire designed for their use. At this meeting time was allowed for discussion of each area of the instrument. A thorough understanding of each item and of the procedure for filling it out was thus possible.

After the discussion of the questionnaire was completed, a copy complete with a stamped, self-addressed envelope, was distributed to the forty-three graduates of the college present and to the ten schools with veteran instructors who were also graduates. The one teacher of vocational agriculture who was absent was contacted by personal visit and given a questionnaire. Copies of the questionnaire were given to the five members of the instructional staff of the Division of Agriculture.

The graduates in the study were asked to rate the "degree of preparation" which they felt had been given them by the college in their preservice training. A rating scale with numerical values ranging from "0" to "3" was designated for use. In the evaluation the "0" was designated as "None" and the "3" was considered "adequate" for successful participation in that area with the range of values in between corresponding to the interpretation.

The distribution and response to the questionnaires supplied to graduates is shown in Table II.

TABLE II

RESPONSE OF GRADUATES OF AGRICULTURE TO QUESTIONNAIRE ACCORDING TO POSITIONS HELD

Position Held	Graduates Receiving	Graduates Responding	Per cent Responses
Teachers of Vocational Agriculture	44	43	97.7
County Agents	15	14	93.3
State Extension Staff	2	2	100.0
Agricultural Staff at College	5	5	100.0
Institutional On-Farm Training	10	8	80.0
Totals	76	72	
Per cent of totals			94.7

One follow-up letter was sent to a county agent, while twenty-one follow-up letters were sent to vocational agriculture instructors and teachers of veterans. The final returns by groups ranged from a low of 80 per cent to a high of 100 per cent. Of the seventy-six graduates who were provided questionnaires, seventy-two or 94.7 per cent responded. The writer feels that the percentage of returns was made possible by numerous personal contacts and attendance at meetings in which these people were involved. The majority of the graduates who were employed in the field of agriculture seemed eager to aid in any study which might possibly lead to an improved program in teacher education.

Analysis of Questionnaire and Curricula Data

The questionnaires received from the graduates were separated into two groups for tabulation. One group consisted of county agents and State Extension Service personnel. The other group was composed of vocational agriculture instructors, teachers of veterans, and members of the instructional staff in agriculture.

A tally was made of responses indicating the degree of preparation in each ability or competency developed in preservice training. Using the actual numerical rating assigned by each graduate, the rating of the degree of preparation was computed for each item in the area.

The mean of the rating of the degree of preparation was computed, for competency. This mean was used to rate the "degree of preparation" for that competency.

Due to the difference in the number and kinds of abilities in professional education for county agents and vocational agriculture teachers, it was found necessary to compute them separately, and make comparisons within the group.

In technical agriculture the same items were used for both groups. The chi-square technique was used to determine whether the two populations were homogeneous. Upon being found that there was no statistically significant difference between the two groups, the data were combined for analysis.

An analysis was made of the curricular offerings in the Division of Agriculture at the Agricultural, Mechanical and Normal College from 1929 through 1955. The categories designated for analyzing the curriculum in agricultural education were

1. General Education
    a. Biological and Physical Sciences
    b. Communication Skills
    c. Social Sciences and Humanities
    d. Military and Physical Education
2. Professional education
    a. General methods
    b. Special methods
3. Technical agriculture
    a. Animal industry
    b. Plant industry
    c. Agricultural economics
    d. Agricultural engineering

For comparison, case studies were made of selected land-grant colleges and universities or institutions offering a program of training in agricultural education. These institutions were selected on the basis of such factors as comparable size, similar geographical location, or uniqueness in the type of program in agricultural education.

Summary

A summary of the method of procedure utilized in conducting the study and the sources of data are herewith presented.

1. In the planning of the study, conferences were held with the President of the college, the instructional staff of the Division of Agriculture, and representatives of the state supervisory staff of vocational agriculture.

2. A questionnaire comprising the abilities or competencies required of teachers of vocational agriculture and county agents was developed from materials relating to teacher education. It was composed of two general categories embracing twenty-three different areas.

3. This questionnaire was reviewed and criticized by two groups of graduate students of Michigan State University. It was revised in accordance with suggestions and taken to Arkansas for consideration by selected individuals who were designated as an advisory group representative of vocational agriculture and the Extension Service.

4. After a series of meetings with the committees comprising the advisory group, the questionnaire was revised and submitted to graduates of agricultural education presently employed in various teaching categories in agriculture in Arkansas.

5. These graduates were asked to rate the "degree of preparation" in each of these abilities which were developed in his preservice training by using a rating scale ranging from "0" to "3".

6. Of the seventy-six graduates to whom questionnaires were distributed, 94.7 per cent or seventy-two of them responded.

7. In professional education, returns from vocational agriculture and extension work were tabulated separately. In technical agriculture, the chi-square technique substantiated the homogeneity of the responses of the two groups and the data were combined for analysis.

8. An analysis was made of the curricular offerings in agricultural education at the Agricultural, Mechanical and Normal College from 1929 through 1955.

9. For comparison, case studies were made of selected institutions based upon such factors as comparable size, similar geographical location, or uniqueness of program in agricultural education.

CHAPTER IV

THE PRESENTATION OF DATA

Introduction

This chapter presents analyses of the agricultural education program at the Agricultural, Mechanical and Normal College in terms of abilities developed by graduates in that division and analyses of curricula in agricultural education in selected institutions. It has been divided into the following sections for ease in presentation: (1) analyses of questionnaire data; (2) analyses of curricular data; and (3) summary.

Analyses of Questionnaire Data

Organization of data. As has been mentioned before, the original instrument designed for use in this study was ultimately refined to the extent that the professional education category for extension workers and teachers of agriculture was separated while the technical agriculture category remained the same for both groups. Thus, in actuality, there were two questionnaires, one for county agents and extension workers and another for persons engaged in vocational agriculture and like work.

The questionnaire for extension workers consisted of three areas in the professional education category. These areas were concerned with the duties and responsibilities of these workers in developing rural leadership, cooperating with agricultural agencies, working with key agricultural men in the community and the like. Table III shows these areas with the number of specific items in each area.

TABLE III

NUMBER OF ABILITIES IN AREAS OF PROFESSIONAL EDUCATION FOR EXTENSION WORKERS

Area	No. of Abilities
A. General Responsibilities	10
B. Physical Facilities	6
C. Professional Improvement	5
Total	21

The professional education category for teachers of agriculture was ultimately reduced to include ten areas with seventy-seven abilities. These areas were concerned with the work of the vocational agriculture teacher in connection with the general school program, formulation of a long-time program of agriculture, initiating good classroom procedures and other professional responsibilities.

Table IV indicates the area in this category and the number of items in each area.

TABLE IV

NUMBER OF ABILITIES IN AREAS OF PROFESSIONAL EDUCATION FOR TEACHERS OF AGRICULTURE

	Area	No. of Abilities
A.	General School	4
B.	Long-time Program of Agriculture	5
C.	Classroom Teaching	10
D.	Farming Programs for High School Students	15
E.	Youth Leadership Organizations	12
F.	Adult and Young Farmer Education	8
G.	Community and Public Relations	6
H.	Guidance and Counseling	6
I.	Physical Facilities	6
J.	Professional Improvement	5
	Total	77

The technical agriculture category contained the same areas and abilities for all graduates of agriculture involved in the study. These areas were intended to cover the technical training necessary for effective work by all persons in the field of agricultural education. They included abilities or competencies in the areas of beef, swine, and

dairy production; poultry husbandry, horticulture, soils, farm crops, forestry, agricultural engineering, and agricultural economics. Table V lists the areas and the specific abilities concerned with training in this category.

TABLE V

NUMBER OF ABILITIES IN AREAS OF TECHNICAL AGRICULTURE FOR GRADUATES IN AGRICULTURAL EDUCATION

	Area	No. of Abilities
A.	Livestock (General)	10
B.	Beef Enterprise	13
C.	Swine Enterprise	7
D.	Dairy Enterprise	8
E.	Poultry Husbandry	13
F.	Horticulture	19
G.	Farm Crops	11
H.	Soils	6
I.	Farm Forestry	11
J.	Agricultural Engineering	18
K.	Agricultural Economics	9
	Total	125

The specific items in each of the areas (see appendix) were an attempt to interpret the duties and responsibilities

of the county agent and vocational teacher in terms of knowledges, skills and abilities or competencies.

Rating of abilities. The county agent, teacher of vocational agriculture, and others were asked to rate the degree of preparation in each specific item or ability which had been given him during the preservice training period. It was intended that the term "degree of preparation" should encompass the quality of training, as well as the scope. A rating scale ranging from "0" to "3" was used with "3" being considered the adequate degree of preparation.

The means of the ratings were computed by using the numbers assigned by each respondent. Means for each competency, area, and category were computed for the fifty-six teachers of agriculture and the sixteen extension workers. In Table VI, the degree of preparation in professional education for extension workers and agricultural teachers, and in technical agriculture for all graduates, is indicated by the mean of each category.

TABLE VI

DEGREE OF PREPARATION BY CATEGORIES

Category	No. of Items	Mean
Professional education for teachers of Agriculture	77	2.02
Professional education for extension workers	21	1.80
Technical agriculture for all graduates	125	1.64

This table indicated a higher degree of preparation in professional education for both extension workers and agricultural teachers than in technical agriculture. It also indicated a higher degree of preparation in professional education by vocational teachers than by extension workers according to the ratings assigned by these individuals.

An analysis of the rating of the degree of preparation by areas revealed some pertinent facts. In the professional education category for teachers of agriculture, as indicated in Table VII, there was a range in the means from a low of 1.73 to a high of 2.17. The areas of "guidance and counseling", with a mean of 1.73, "youth leadership organizations" with a mean of 1.90, and "community and public relations" with a mean of 1.96 were the lowest rated areas within the category. The areas of "long-time program of agriculture" having a mean of 2.17,

"classroom teaching" with a mean of 2.14 and the "general program" of the school with a mean of 2.10 were the highest areas.

The range of the means of each area was significant in that it revealed some abilities with relative low ratings and others with relatively high ratings within the same area. The area of "community and public relations" has a range from .94 to 2.32, "youth leadership organizations" had a difference between means of 1.02 ranging from 1.21 to 2.23, and the area of "professional improvement" ranged from a mean of 1.33 to 2.39. In some of the other areas the means of the ratings were relatively close together indicating more uniformity in the degree of preparation though not always a high degree of preparation. An example of this is evidenced in the area of "guidance and counseling" which has a difference between means of .37 ranging from 1.66 to 2.03. On the other hand, the means for abilities in some areas were relatively close together with uniformly high means scores such as the area of "general school" having a difference between means of .29 with mean scores ranging from 1.94 to 2.23.

TABLE VII

DEGREE OF PREPARATION BY AREAS IN PROFESSIONAL EDUCATION FOR TEACHERS OF AGRICULTURE

	Area	Range	Mean
A.	General School	1.94 - 2.23	2.10
B.	Long-time Program of Agriculture	1.82 - 2.28	2.17
C.	Classroom Teaching	1.50 - 2.58	2.14
D.	Farming Program for High school Students	1.60 - 2.28	2.09
E.	Youth Leadership Organizations	1.21 - 2.23	1.90
F.	Adult and Young Farmer Education	1.83 - 2.35	2.09
G.	Community and Public Relations	.94 - 2.32	1.96
H.	Guidance and Counseling	1.66 - 2.03	1.73
I.	Physical Facilities	1.42 - 2.42	1.98
J.	Professional Improvement	1.33 - 2.39	2.07

The areas in professional education were rated relatively lower in degree of preparation by extension workers than by teachers of agriculture. These areas showed similarity to the areas in the professional education category for agricultural teachers in having lower and higher areas. One significant difference, however, was the wide spread between the means of the abilities in all areas. The area of the "general responsibilities" with a mean of 2.03 had a difference between mean scores of .63 ranging from 1.68 to 2.31, "physical facilities" area had a lower

mean of 1.54 with a difference between means of 1.19 and a range from 1.06 to 2.25, and "professional improvement" with a mean of 1.66 had a difference between means of 1.12 ranging from a mean of 1.06 to a mean of 2.18. Table VIII indicates the degree of preparation for extension workers in this category.

TABLE VIII

DEGREE OF PREPARATION BY AREAS IN PROFESSIONAL EDUCATION FOR EXTENSION WORKERS

Area	Range	Mean
A. General Responsibilities	1.68 - 2.31	2.03
B. Physical Facilities	1.06 - 2.25	1.54
C. Professional Improvement	1.06 - 2.18	1.66

The technical agriculture category as recorded in Table IX, rated by all of the seventy-two graduates according to degree of preparation, was scored relatively lower than the professional areas. The lowest areas in this group were "farm forestry" with a mean of 0.77, "agricultural engineering" with a mean of 1.35, and "dairy enterprise" with a mean of 1.51. The highest areas were "poultry husbandry" with a mean of 2.12, "swine enterprise" with a mean of 1.94, and "livestock" (general) with a mean of 1.92.

The range in the mean scores of the abilities in these areas indicated many abilities with low ratings and a wide range between mean scores in most of the groups. The greatest differences were found in the areas of "horticulture" with a spread of 1.45 ranging from means of .95 to 2.40, "farm crops" with a spread of 1.16 ranged from 1.11 to 2.27, and "beef enterprise" which had a spread of 1.00 with the range between 1.13 to 2.13. "Farm forestry" is uniformly lower in its ratings having a difference between means of only .60 but ranging from a mean of .45 to a mean of 1.05.

TABLE IX

DEGREE OF PREPARATION BY AREAS IN TECHNICAL AGRICULTURE FOR ALL GRADUATES

	Area	Range	Mean
A.	Livestock (General)	1.38 - 2.13	1.92
B.	Beef Enterprise	1.13 - 2.13	1.66
C.	Swine Enterprise	1.54 - 2.25	1.94
D.	Dairy Enterprise	1.00 - 1.97	1.51
E.	Poultry Husbandry	1.68 - 2.44	2.12
F.	Horticulture	.95 - 2.40	1.70
G.	Farm Crops	1.11 - 2.27	1.90
H.	Soils	1.37 - 1.75	1.60
I.	Farm Forestry	.45 - 1.05	.77
J.	Agricultural Engineering	.56 - 2.04	1.35
K.	Agricultural Economics	1.45 - 1.73	1.61

Levels of the Degree of Preparation. In order to provide aid for those interested in ascertaining weaknesses in the program of agricultural education of the Agricultural, Mechanical and Normal College, levels of the degree of preparation were assigned for all areas and for abilities within the areas.

Determination of levels. The areas were separated into three divisions to indicate the degree of preparation found in each. The divisions assigned were "low", "median", and "high". The level of the degree of preparation for an area, or a specific ability within that area, was determined by a comparison of its mean score with the mean score in its particular category. It was thought that this would have significance for the instructional staff having to do with the development of competency in these areas.

All areas or abilities within the areas, having a mean score falling more than one standard deviation above the mean of that group were considered high in degree of preparation. Areas with mean scores falling more than one standard deviation below the mean of the group were considered low in degree of preparation. All areas with mean scores falling between one standard deviation above the mean and one standard deviation below the mean were classified as the median group in degree of preparation.

The mean of the professional education category for teachers of agriculture was found to be 2.02 with a standard deviation of .30. Thus, any area or ability with a mean score of less than 1.72 was considered low, while any mean score in this group above 2.32 was considered high. Figure 1. indicates the mean scores of this group and their classification.

Upon analysis it was found that no area could be classified as high in this group. On the other hand the area of "youth leadership organizations" with a mean score of 1.51 was classified as low with "guidance and counseling" falling just within the median category.

With the range of mean scores as indicated in Table VII it is obvious that some of the abilities in all of these areas with the exception of "general school", "long-time program of agriculture", and "adult and young farmer education" will fall into the low classification. Using Table VII as reference again it will be found that some abilities within the areas of classroom teaching, and young farmer education, physical facilities and professional improvement should be classified as high in degree of preparation.

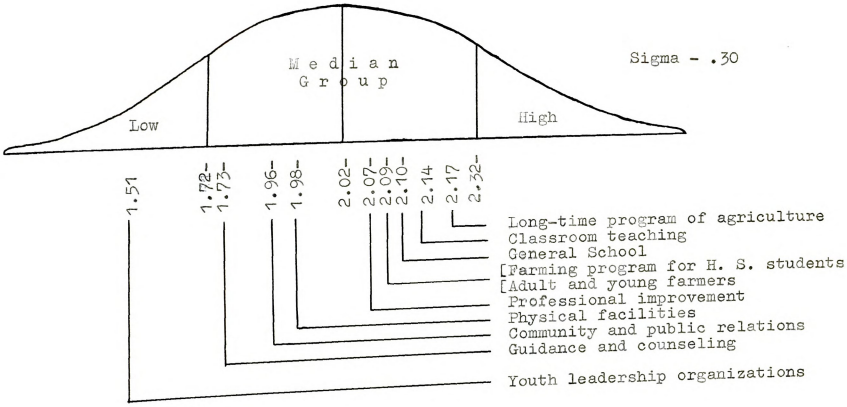

Fig. 1. Levels of "degree of preparation" in professional education for teachers of agriculture.

The following areas with the abilities classified as low are listed:

A. Classroom teaching (10 abilities)

Prepare, obtain and use audio-visual materials and methods in a classroom situation.

B. Farming Program for High School Students (15) abilities

1. Assist students in making out Modern and Superior Farmer applications
2. Assist students to make adequate financial arrangements

C. Youth Leadership Organizations (12 abilities)

1. Assist the reporter in preparing news items
2. Make application for special funds to State Office

D. Community and Public Relations (6 abilities)

1. Plan and conduct radio and T.V. programs
2. Speak before farm or business groups.

E. Guidance and Counseling (6 abilities)

1. Help pre-vocational pupils and parents in planning their high school programs
2. Use data from parents, school, and other sources in the guidance of individual pupils

3. Confer with individual pupils on guidance problems
4. Follow up progress of individual pupils in meeting personal problems
5. Assist students in self-evaluation of their work

F. Physical Facilities (6 abilities)

1. Requisition and secure materials

Operate and use visual aids materials

G. Professional Improvement (5 abilities)

Conduct research studies within the department

The abilities within these areas are classified in the high category:

A. Classroom teaching (10 abilities)

Organize classroom study around community farm problems

Develop a program of instruction for all agricultural groups in the community

B. Adult and Young Farmer Education (8 abilities)

Plan for adult and young farmer class discussions and demonstrations

Make farm visits to adult and young farmer class members and work with them in planning and carrying out approved practices

C. Physical Facilities (6 abilities)

Maintain good housekeeping standards including proper use and care of equipment

D. Professional Improvement (5 abilities)

1. Develop and maintain a good credit rating in a community

The mean of the professional education category for extension workers, was 1.80 with a standard deviation of .37. All of the areas in this group were classified as median, with the mean scores falling between 1.43 and 2.17 as indicated in Figure 2.

The abilities within this group of particular significance which are classified as low are the following:

A. Physical Facilities (6 abilities)

Index and file reference materials

Operate and use visual aids materials

B. Professional Improvement (5 abilities)

Conduct research studies within the county

The abilities classified as high in these areas are:

A. General Responsibilities (10 abilities)

Meet and work with key agricultural men in community

Cooperate with agricultural agencies in the county

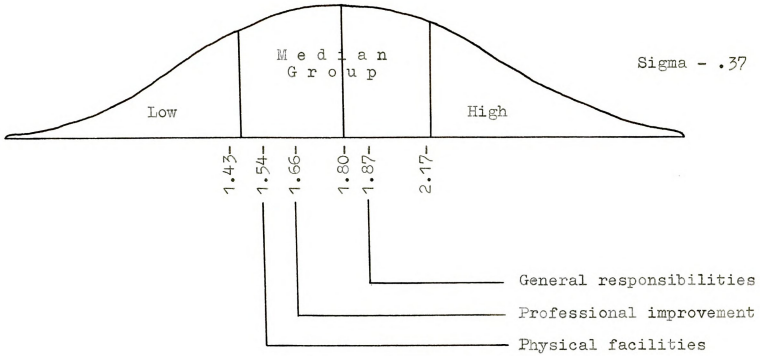

Fig. 2. Levels of "degree of preparation" in professional education for extension workers.

Lead group discussions

Develop rural leadership through youth and adult organizational programs

Adequately fill out and submit required reports

B. Physical Facilities (6 abilities)

Maintain good housekeeping standards including proper use and care of equipment

C. Professional Improvement (5 abilities)

Practice an acceptable code of professional ethics

The mean of the technical agriculture category was determined as 1.64 with a standard deviation of .46. One standard deviation above and below the mean allowed for a range in mean scores from 1.18 to 2.12. The area within this category classified as low was "farm forestry", while the area classified as high was found to be "poultry husbandry". Figure 3 outlines the levels of degree of preparation in technical agriculture.

The abilities within this group classified as low are the following:

A. Beef Enterprise (13 abilities)

De-horn at the proper time and by approved methods

B. Dairy Enterprise (8 abilities)

Test milk for butterfat and/or sediment

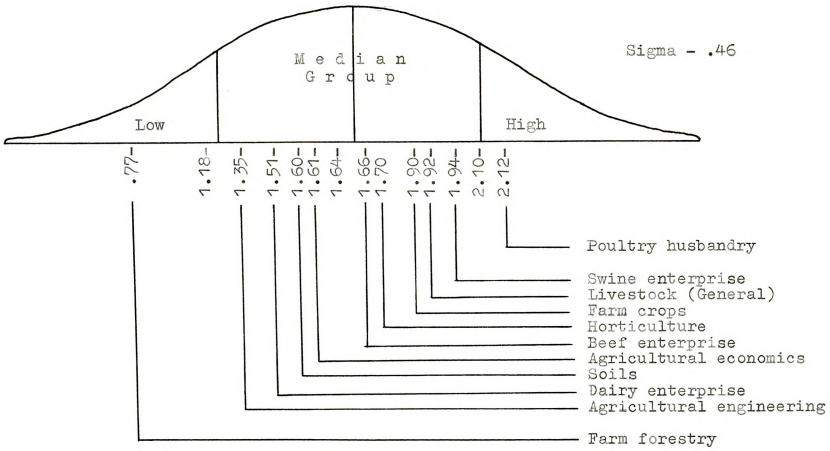

Fig. 3. Levels of "degree of preparation" in technical agriculture.

Use D. H. I. A. records in teaching program

Use A. B. A. records in teaching

C. Horticulture (19 abilities)

Graft and bud fruit trees and shrubs

Identify common varieties of apples, cherries, peaches, pears and other small fruits

D. Farm Crops (11 abilities)

Install and operate ventilation and drying equipment when needed

E. Farm Forestry (11 abilities)

Lay out and plant wind breaks

Line out seedlings

Plant and establish farm and school forests

Identify trees in the farm woodlot

Locate land by legal description

Grade and measure standing trees

Determine rate of tree growth

Protect forest from fire, graying, insects and animals

Manage forest for timber production

Manage Christmas tree plantations

Scale logs

F. Agricultural Engineering (18 abilities)

Arc welding

Acetylene welding

Motor maintenance (electric)

Plan irrigation set up for a farm

Block laying

The abilities within this group classified in the "high" category are listed below:

A. Livestock (General) (10 abilities)

Feed breeding stock balanced rations adjusted to season and management factors such as feed supplies and production program

Maintain health of herd by proper prevention methods and by application of approved treatment practices in cooperation with local veternarian

B. Beef Enterprise (13 abilities)

Feed adequate and economical ration

C. Swine Enterprise (7 abilities)

Breed sows for litters at most desirable season

Care for sow and litter at farrowing time

Methods of feeding and management of sow and litter

D. Poultry Husbandry (13 abilities)

Purchase baby chicks for the laying flock at most appropriate time

Clean and disinfect brooder and laying houses

Select feed, minerals, and vitamins for balanced rations

Provide suitable housing for baby chicks, broilers or laying flock

Construct poultry equipment such as brooder houses, brooders, and feeders

Treat poultry flocks for parasites and diseases

Care for the laying flock

Care for eggs for best quality and marketing requirements

Select pullets for the laying flock

E. Horticulture (19 abilities)

Prepare soil for vegetables

Select proper varieties of vegetables

Plan home garden to provide adequate supply of vegetables

F. Farm Crops (11 abilities)

Select proper varieties of each of the common farm crops for farms of the community

Plant recommended crops at proper depth and spacing for the crop

Grow crops in soil best adapted to them

Cultivate crops by recommended practices

Degree of preparation and year of graduation. There was some conjecture relative to the effect of the year of graduation upon the rating of the degree of preparation received through the pre-service training in agricultural education. It was highly possible that the early graduates might rate the program lower or higher than more recent graduates due to such factors as a difference in curricular content or changes in instructional personnel. It was also possible that the over-all rating of the program might have been unduly affected by such factors.

In an effort to determine if this might be the case, the respondents were grouped according to year of graduation and the mean scores of their responses computed. The mean for each category of graduates was computed for aid in locating the median group of mean scores. Because of the tendency to rate professional education higher than technical agriculture, the total program of agricultural education was again separated into these two categories. It was assumed that this would eliminate some of the "averaging out" and prove of greater significance.

Table X shows the distribution of graduates in professional education according to degree of preparation and year of graduation. The mean scores falling on both sides of the median range of 1.69 to 2.13 were almost equally distributed for all years of graduation. The indications were that the year of graduation has had no appreciable effect upon the ratings of the scorers. The assumption was also made that curricular and personnel changes had little bearing upon the degree of preparation in this category.

TABLE X

DISTRIBUTION OF GRADUATES ACCORDING TO DEGREE OF PREPARATION IN PROFESSIONAL EDUCATION AND BY YEAR OF GRADUATION

Year of Graduation	Mean Score	Range of Group Scores .78 to 1.23	1.24 to 1.68	1.69 to 2.13	2.14 to 2.58	2.59 to 3.00
Prior to 37	1.97		1	3	2	
37 - 40	1.77	1	4	2	4	1
41 - 44	2.01		4	3	1	3
45 - 58	1.83	2	2	3	1	3
49 - 52	1.98	4	7	7	8	6
Total		7	18	18	16	13

The "distribution of graduates according to degree of preparation in technical agriculture" presented a somewhat different picture. The distribution of the mean scores

in this instance was somewhat skewed with a larger number of lower scores occuring with graduates up to 1945. The scores are more equitably distributed with the 1945 - 48 group. In the 1949 - 52 group, on the other hand, twice as many mean scores occurred in the range between 1.97 and 3.00 than in the range between .40 and 1.44. Thus, the conclusions gathered from the data presented in Table XI was (1) that the larger number of graduates, prior to 1945, had a somewhat lower level of preparation, and (2) that in more years, since 1949, the scope and quality of technical training has improved. Whether this has been due to an improvement in curriculum, a change in instructional staff, or a higher quality of student could not be ascertained from these data.

TABLE XI

DISTRIBUTION OF GRADUATES ACCORDING TO DEGREE OF PREPARATION IN TECHNICAL AGRICULTURE AND BY YEAR OF GRADUATION

Year of Graduation	Mean Score	Range of Group Scores .40 to .92	.93 to 1.44	1.45 to 1.96	1.97 to 2.48	2.49 to 3.00
Prior to 37	1.50		4	1	1	
37 - 40	1.25	5	2	3	2	
41 - 44	1.62	2	3	3	1	2
45 - 48	1.57		4	4	1	2
49 - 52	1.78	3	3	14	10	2
Total		10	16	25	15	6

Group suggestions. The questionnaires for all graduates contained a section which requested suggestions improving the preparation in agricultural education. The inference was that these suggestions should be based upon needs experienced by these individuals in the performance of duties and responsibilities associated with their particular kind of work. The suggestions contained a wide range of instructional areas, abilities, and needed improvements.

The suggestions for improvement in professional training included such areas as "youth leadership training", "public relations", "guidance and counseling". Among the abilities listed were "use of audio-visual materials", "presentation of radio and television programs", and "training for N.F.A. Contests". Improvement in facilities, equipment and instructional staff included such items as better libraries and adequate facilities. These suggestions are included in Table XII.

Suggestions from graduates regarding improvement in pre-service training in technical agriculture included a wide range of areas and abilities. More of the respondents seemed interested in an improvement in this category than in professional education judging from the participation. Some of the areas deemed needful of improvement were "farm forestry", "livestock production", and "agricultural engineering", listed in many instances as "farm shop", or "farm mechanics".

TABLE XII

SUGGESTIONS BY GRADUATES FOR IMPROVEMENT IN PROFESSIONAL EDUCATION

Area, Ability or Improvement	Number of Times Mentioned
A. Area:	
1. Guidance and counseling	10
2. Youth leadership training	9
3. Organization of adult and young farmers	7
4. Reports and reporting	6
5. Public relations	4
6. Classroom procedures	2
7. Farming programs for High School students	2
B. Abilities:	
1. Use of audio-visual aids	9
2. Presentation of radio and television programs	6
3. Development of course of study	2
C. Improvements needed:	
1. Adequate facilities	6
2. Better libraries	3
3. More teachers	3
D. No responses	12

The pertinent abilities listed by the largest number were "maintaining tractor drawn equipment", "welding", and "preparing farm products for marketing". Table XIII contains the suggestions of the graduates.

TABLE XIII

SUGGESTIONS FOR IMPROVING THE TRAINING IN TECHNICAL AGRICULTURE

Area, Ability or Improvement	Number of Times Mentioned
Area:	
1. Forestry	13
2. Livestock production	10
3. Agricultural engineering	9
4. Plants	9
5. Soils	9
6. Farm management	5
Abilities:	
1. Welding	14
2. Maintenance of tractor drawn equipment	13
3. Preparing farm products for marketing	4
4. Terracing	4
5. Dehorning	3
6. Land surveying	2
7. Storing small grains: moisture content	2
Improvements:	
1. Adequate equipment and facilities	6
2. Increased number of improved workshops	3
3. More teachers	2
4. More short courses	2
5. No responses	13

Analyses of Curricular Data

If, as some sociologists maintain, an unknown society can be described completely from knowledge of its educational system, then certainly the assaying of curricular changes within an institution or a department of an institution

should provide pertinent information to those interested in improving an educational program. The assumption that this is true and further, that a comparison of the potential experience comprising the instructional program of an institution with those offered in other institutions is a fruitful source of information, justifies the inclusion of this section in the presentation of data.

An analysis of curriculum in agricultural education at the Agricultural, Mechanical and Normal College. This analysis deals with agricultural education at the Agricultural, Mechanical and Normal College since the inception of a four-year program in 1929 up to an including 1955. The curricular content from 1929 to 1954, presented in two tables, is based on quarter hours. The year 1955-56, used for comparison with other institutions is based on semester hours due to a change in the college organization. As such, it was necessary to arbitrarily set up certain categories for clarity and ease of comparison.

The main categories were defined as "general education", "professional education", and "technical education". Under "general education" can be found the biological and physical sciences, communication skills, social sciences and humanities, and military and physical education. General methods located under "professional education" were defined

as embracing all general instructional procedures for classroom instruction as apart from "special methods", located in the same category, which embrace instructional procedures for a specific program. It is felt that the areas found under "technical education" are so self-explanatory as to need no further definition.

The "electives" under general education and technical education were defined as referring to courses to be selected within those specific categories while free electives allowed the student to select from any body of courses offered in the institution.

In Table XIV, the course content for the years 1929-1937 is presented. The hours required in the "biological and physical sciences", during those years, fluctuated a great deal. Forty-seven hours were required in 1929 with an increase to fifty-six hours in 1930 and a drop to thirty-three hours in 1931. There was an increase of three hours in 1932 and of nineteen hours in 1933 raising the total to fifty-six hours and remaining rather constant through 1937.

The hours required in "communication skills" also fluctuated during this period. There was a drop from twenty-seven hours in 1929 to eighteen in 1930 and an increase to twenty-three in 1931. The drop to nine hours occurred in 1932 and remained at that level for four years being increased fifteen for the years of 1936 and 1937.

The area of "social sciences and humanities" had a requirement of eighteen hours in 1929 with an increase to forty hours in 1930. These required hours fluctuated in 1931 and 1932 becoming fixed at twenty-one in 1933 and remaining so for a five-year period.

It is significant that there was no military and physical education required during this period. Health education was listed in the Division of Education, falling into the area of "social sciences and humanities".

In professional education the hours required in the area of "general method" varied from twenty-one in 1929 to zero in 1932. This was increased to twelve in 1933 becoming fixed at nine from 1934 to 1937.

The hours required in "special methods" in agricultural education were also unstable through 1932, seven hours being required in 1929 and 1930 while no hours were felt necessary for students in 1931 and 1932. In 1933 the requirements were increased to twenty-two hours with very little change occuring through 1937.

The area of "animal industry" while relatively unstable during the first three years, underwent few changes after that period. The greatest variation was an increase of three hours in 1936.

Plant industry followed a similar pattern of instability in hours required for the first three years.

There was a reduction from thirty-two hours in 1930 to twenty-one hours in 1931. In 1932 the pattern for hours required in this area being rather constant.

Agricultural economics as such, was practically nonexistent in the curriculum of agricultural education until 1933. At that time eight hours was introduced with no changes occurring in the hours required.

In agricultural engineering the requirements changed very little from 1929 to 1936. The greatest variation occurred in 1937 with the increase of eight hours although there were minor variations during the first four years.

There were no electives relating specifically to "general education" or "technical agriculture" but the area of free electives is significant. In only three years, 1930 to 1932, were electives available to students. However, in 1930 forty-seven hours or about one-fourth of the training period was allocated to electives.

TABLE XIV

CURRICULUM IN AGRICULTURAL EDUCATION AT THE A.M.& N. COLLEGE FROM 1929 to 1937[1]

Categories and Areas	1929	1930	1931	1932	1933	1934	1935	1936	1937
General Education:									
Biological and Physical Sciences	47	56	33	36	56	56	49	54	56
Communication Skills	27	18	23	9	9	9	9	15	15
Social Sciences and Humanities	18	40	24	16	21	21	21	21	21
Military and Physical Education									
Electives									
Professional Education:									
General Methods	21	9	15		12	9	9	9	9
Special Methods	7	7			22	22	20	20	20
Technical Agriculture:									
Animal Industry	18	12	24	18	18	18	18	21	21
Plant Industry	32	32	21	26	28	28	28	26	26
Agricultural Economics	3				8	8	8	8	8
Agricultural Engineering	11	15	12	9	10	10	10	10	18
Electives									
Free Electives		2	14	47					

[1]Bulletins of Agricultural, Mechanical and Normal College of Pine Bluff, Arkansas, from 1929 to 1937.

Curricular content in agricultural education covering the period from 1938 to 1954 is shown in Table XV.

The biological and physical science areas received great emphasis with a requirement of seventy hours in 1938. However, there was a decrease in 1939 of twenty-four hours and the requirements fluctuated about the "forty-six hour" figure for the entire period.

The area of "communication skills" vacillated very little during 1938 to 1954. There was a gradual increase up to twenty-one hours in 1953 which was reduced again to eighteen hours in 1954.

The "social sciences and humanities" requirements were reduced to nine hours in 1938. Then from 1939 to 1945 the agricultural education curriculum contained no specific subject matter in this area. In 1946, the social sciences and humanities again appeared in the program with not too much variation in requirements from then on.

Military and Physical Education, in reality physical education was significantly absent until 1946 when three hours became a requirement.

The area of "general methods" was increased from three hours in 1945 to eight hours in 1946. This indicates a reversal of the trend in 1938 in which the reduction from nine hours to three hours occurred.

TABLE XV

CURRICULUM IN AGRICULTURAL EDUCATION AT THE A.M.& N. COLLEGE FROM 1938 to 1954[2]

Categories and Areas	1938	1939 -41	1942 -44	1945	1946 -47	1948 -49	1950 -51	1952 -53	1954
General Education:									
Biological and Physical Sciences	70	46	43	46	46	48	51	58	49
Communication Skills	15	15	15	15	18	18	18	21	18
Social Sciences and Humanities	9				29	22	22	17	28
Military and Physical Education					3	3	3	3	3
Electives									
Professional Education:									
General Methods	3	3	3	3	8	9	9	9	11
Special Methods	21	21	24	21	18	21	25	22	21
Technical Agriculture									
Animal Industry	18	32	27	32	18	18	21	21	21
Plant Industry	24	35	30	35	23	21	15	18	15
Agricultural economics	6	9	9	12	12	12	12	6	9
Agricultural engineering	13	12	12	12	15	19	21	18	18
Electives	1	3	10						
Free Electives		7	7	7	6	6	6	12	12

[2]Bulletins of Agricultural, Mechanical and Normal College of Pine Bluff, Arkansas, 1938 to 1954.

The area of "special methods" presented no significant changes during this period. An average of about twenty-two hours was allocated for preparation in this area.

The "animal industry" area revealed some striking dissimilarities in that there was an increase from eighteen hours to thirty-two hours in 1939 and a decrease from thirty-two hours back to eighteen hours in 1946. There is little change occurring after that time.

Course requirements in "plant industry" presented a pattern somewhat similar to that of animal industry in that there was an increase from twenty-four hours in 1938 to thirty-five hours in 1939. There was the somewhat corresponding decrease from thirty-five hours in 1945 to twenty-three hours in 1946. There were no particularly significant variation after that time with the exception of the reduction from twenty-one hours to fifteen hours in 1950.

The hours in "agricultural economics" showed a gradual increase from six to twelve. However, there was a sharp reduction from twelve hours to six hours in 1953. Most of the time the requirement fluctuated about the twelve-hour mark.

From 1938 to 1948 the hours in agricultural economics remained rather constant. Instructional hours were increased from fifteen to nineteen in 1948 and increased again in 1950 to twenty-one hours.

Of particular significance in the area of electives were the ten hours allocated in 1944 to technical agriculture. This was an attempt to provide on-farm instruction by allocating a period for instruction on the farm in any area deemed needful by the instructors. This practice was abandoned in 1945 and the customary procedure of requiring a given number of hours in certain areas with free electives reinstated.

Agricultural education curricula in ten selected institutions. The agricultural education program in ten selected institutions for 1955-56 were analyzed. A prior statement revealed that these institutions were selected on the basis of such factors as comparable size, similar geographical location, or uniqueness in the type of program in agricultural education. For greater ease in comparison, term hours in institutions organized on a quarter basis were converted to semester hours. Table XVI indicates the program of Agricultural education in these institutions.

TABLE XVI

AGRICULTURAL CURRICULA IN SELECTED INSTITUTIONS (SEMESTER HOURS)[3]

Categories and Areas	Institutions									
	A	B	C	D	E	F	G	H	I	J
General Education:										
Biological and Physical Sciences	32	29	35	30	16	21	19	10	28	33
Communication Skills	11	6	12	9	9	9	12	6	9	12
Social Sciences and Humanities	9	13	12	6	16	31	15	14	17	9
Military and Physical Education	10	11	12	16	11	4	2	3	6	12
Electives			3					10		
Professional Education:										
General Methods	6		11	3	9	9	6	15	3	8
Special Methods	14	26	14	16	14	18	23	24	20	14
Technical Agriculture:										
Animal Industry	3	17	8	29	17	18	16	15	12	16
Plant Industry	7	11	13	22	23	18	17	15	18	16
Agricultural Economics	4	7	5	9	8	9	5	6	5	4
Agricultural Engineering	10	10	7	11	10	9	8	8	11	10
Electives	16	10	10				2	16		
Free Electives	18	10				6			6	12
	140	140	142	151	133	152	125	142	135	146

[3]Bulletins from Ten Selected Institutions (Appendix C)

In the biological and physical sciences institution C with thirty-five hours, institution J with thirty-three hours, and institution A with thirty-two hours had the highest requirements. Institution E and institution H had the lowest requirements with sixteen and ten hours, respectively.

In "communication skills", two institutions required only six hours. Four institutions required nine hours for adequate preparation in this area. Institution C and institution G on the other hand required twelve hours, twice as many as the institutions with the lowest requirements.

In the area of "social sciences and humanities" institution F required thirty-one hours for proficiency, which is fourteen hours more than institution I, the next highest school in requirements. Institution E with sixteen hours, institution G with fifteen hours, and institution H with fourteen hours in about the same range. Institution D with six hours was low in the group requiring only six hours.

Some institutions required as many as sixteen hours in the area of "military and physical education". Five schools required approximately eleven hours. On the other hand, institution G required only two hours in this area.

The area of "general methods" presents a varied picture in this table. Institution H had requirements of fifteen hours as compared with institution D and

institution I which required only three hours. Institution E and institution F required nine hours, and institution J required eight.

Most schools seemed to consider the area of special methods as important, none requiring less than fourteen hours. Institution B and institution H had the highest requirements with twenty-six hours and twenty-four hours considered necessary. Four institutions required fourteen hours.

In the area of animal industry, the program of agricultural education in institution D designated twenty-nine hours as necessary for adequate preparation. Institution A, on the other hand, had designated only three required hours, but has provisions for sixteen hours of electives. Two schools required sixteen hours and two required seventeen hours.

Institutions D and E required the highest number of hours in the area of plant industry. Institution A again, had the lowest requirements with the electives providing additional training. The range, in hours required, in this area, is not very great with the exception of institution A which had requirements of only seven hours.

In the area of "agricultural economics" and "agricultural engineering" most of the ten schools had very similar requirements. Two schools required four hours in

agricultural economics, three required five hours, and two, with the highest requirements considered nine hours as necessary. In agricultural engineering the requirements in all of the schools were practically the same.

In the area of electives two schools had electives in general education. Five schools had electives in the area of technical agriculture. Five schools had free electives in their agricultural education program. Institution A had thirty-four hours of electives with sixteen in the area of technical agriculture. Eighteen of the hours were free electives providing for selection in any area of the institution.

Most of the ten selected schools required approximately the same total number of hours for a four-year program in agricultural education. Five schools required about 140 hours while two schools required about 150 hours. Institution G was the low school with 125 hours required while institution F was the high institution with 152 hours required.

Comparison of programs in agricultural education in the Agricultural, Mechanical and Normal College for 1955-56 was compared with the programs in the ten selected schools. In Table XVII, this comparison is made using the range of semester hours required and the median of hours required in these ten institutions.

TABLE XVII

COMPARISON OF SEMESTER HOURS IN AGRICULTURAL EDUCATION OF THE A.M. & N. COLLEGE WITH THOSE OF TEN SELECTED INSTITUTIONS

Categories and Areas	Selected Institutions[4]		A.M. & N. College[5]
	Range (Sem. Hrs.)	Median	1955 Curriculum
General Education:			
Biological and Physical Sciences	10 - 35	18.3	29
Communication Skills	6 - 12	9	9
Social Sciences and Humanities	6 - 31	13.7	15
Military and Physical Education	2 - 12	10.3	2
Electives	3 - 10	6.3	
Professional Education:			
General Methods	3 - 15	8	6
Special Methods	14 - 26	17	13
Technical Agriculture			
Animal Industry	3 - 29	16	14
Plant Industry	7 - 23	16.9	16
Agricultural Economics	4 - 9	5.7	10
Agricultural Engineering	7 - 11	10.2	12
Electives	2 - 16	12.7	
Free Electives	6 - 18	11.3	

[4]Bulletins from Ten Selected Institutions.

[5]Bulletins from A. M. & N. College, Pine Bluff, Arkansas, 1955.

In the biological and physical sciences, communication skills, and the social sciences and humanities, the Agricultural, Mechanical and Normal College is very close to the median. In the area of military and physical education the College falls far below the median, one possible reason being that no military training is provided in the College.

In professional education the program of agricultural education in the College is just below the median in hours required in "general methods". However, in the area of "special methods", the hours required fall far below the median and are even below the institution with the lowest number of hours required.

In the "technical agriculture" category the program of the College falls near the median in the areas of animal industry and plant industry.

In the areas of agricultural economics and agricultural engineering, the agricultural education program of the College is above the median. In both agricultural economics and agricultural engineering the hours required are above the requirements of any of the ten selected institutions.

In the area of electives, the program of agricultural education for the year of 1955-56 falls short of the median

for all of the course offerings are required. This may be accounted for in part by the fact that the college requires fewer hours for graduation than any of the ten institutions save one.

Summary

This section presents a summary of the pertinent information secured from analyses of the questionnaire and curricular data. The data pertained to the program of agricultural education in the Agricultural, Mechanical and Normal College. The same general organizational pattern as that used in the presentation, will be followed.

Analysis of Questionnaire Data

Organization. The questionnaires for extension workers and teachers of agriculture were separated into professional education and technical agriculture categories. The professional education category for extension workers contained three areas comprising twenty-one abilities. The questionnaire for teachers of agriculture consisted of ten areas embracing seventy-seven abilities.

The technical agriculture category was composed of eleven areas with 125 abilities intended to cover the technical training necessary for all persons in the field

of agricultural education. The same areas and abilities in technical agriculture were included in both questionnaires. A third section of the questionnaires was designed for gathering suggestions from graduates relative to improvement of the agricultural education program.

Rating of abilities. Using a rating scale ranging from "0" to "3", the fifty-six teachers of agriculture and sixteen extension workers were requested to indicate the degree of preparation obtained in the pre-service training program.

An analysis of the rating of the questionnaires from both groups revealed a higher degree of preparation in professional education than in technical agriculture. Some areas presented a wide range in the ratings of the abilities while others were more uniform in their scores.

Levels of the degree of preparation. The areas were separated into three divisions to indicate the degree of preparation. The divisions assigned were "low", "median", and "high". The mean score of the professional education category for extension workers and the professional education category for teachers of agriculture determined the degree of preparation for all of the areas falling in this group. The mean of the technical agriculture category

for all graduates determined the degree of preparation for its areas and abilities.

In the professional education category for teachers of agriculture the area of "youth leadership organizations" was classified as low with guidance and counseling falling just within the median group. Two areas had abilities classified as low while one area had abilities classified as high. No area within this category was classified as high in degree of preparation.

In the professional area for extension workers all areas were classified as median. Two areas had abilities classified as "low". Three of the areas had abilities classified as "high" in degree of preparation.

In technical agriculture the area of "farm forestry" was "low" while the area of "poultry husbandry" was classified as "high". Six areas had abilities falling into the low category with a like number of areas having abilities classified as high.

Degree of preparation and year of graduation. The data relative to the effect of the year of graduation upon the rating of the preservice training program was analyzed according to the professional or technical category. In professional education the indications were that the year of graduation had no appreciable effect upon the degree of preparation.

In technical agriculture the year of graduation seemed to have had some effect upon the degree of preparation presumed by the graduates. The data indicated that the earlier graduates tended to be lower in preparation than the graduates of more recent years. The reason for this was not ascertained from the data.

Group suggestions. The suggestions for improvement in both professional and technical categories contained, significantly enough, the areas classified as low or areas having the greater number of abilities classified as low. Much of this lack of preparation seemed to have been felt by the graduates as being attributable to inadequate facilities and a need for more teachers.

Analyses of Curricular Data

Analyses of curricular changes through the years, within an institution or a department of the institution should provide information useful to curriculum makers. These analyses were made of the curriculum in agricultural education at the Agricultural, Mechanical and Normal College from 1929 to 1955, and of the present curriculum in agricultural education of ten selected institutions. The main categories under which these programs were analyzed were (1) "general education", (2) "professional education", and (3) "technical agriculture."

Analysis of Curricula in agricultural education at the Agricultural, Mechanical and Normal College. In the area of the biological and physical sciences there has been a great deal of fluctuation in the hours required for the program. The highest requirements were seventy hours in 1938 and the lowest were thirty-three in 1931. Approximately forty-seven hours have been required for the past few years.

In "communication skills" the years between 1929 and 1937 were a period of fluctuation. However, there has been little change since that time. Fifteen hours in communication skills seemed the most constant requirement.

The area of social sciences and humanities have undergone many changes in the hours required. Although forty hours were the minimum requirement in 1930, from 1939 to 1945 the program of agricultural education contained no specific subject matter in this area. An antithesis to this is in military and physical education which was significantly absent from the program until 1946 when three hours became the requirement.

In professional education, the area of general methods showed a great deal of variation in requirements ranging from twenty-one in 1929 to none in 1932. The hours required in "special methods", were also unstable through 1933, however, much more stability was evidenced in this area than in "general methods".

In technical agriculture the area of animal industry while relatively unstable for the first few years underwent little change after that period until 1944 when there was an increase of fourteen hours. The area of plant industry seemed to have followed a similar pattern. The area of agricultural economics as such was practically nonexistent in the curriculum until 1933. Although there have been fluctuations in the requirements, the trend has been to increase the number of hours in this area. With minor variations in the requirements in the area of agricultural engineering, there was a tendency toward an increase in number of hours required.

Agricultural education in ten select institutions. In "general education" a great deal of variation was found in the all of the areas including military and physical education. The biological and physical sciences had requirements varying from ten hours to thirty-five hours, the communication skills from six to twelve, social sciences and humanities from six to thirty-one, and military and physical education from two to sixteen hours.

In professional education the pattern seemed much the same as that of general education. The range in general methods was from three hours to fifteen hours.

Most schools seemed to consider the area of special methods as important, none requiring less than fourteen semester hours and ranging upward to twenty-six hours.

In technical agriculture there was more similarity in requirements than in the two other categories. There was still some variation, the greatest being in the areas of the animal and plant industries. In agricultural economics and agricultural engineering most of the schools had similar requirements.

Most of the ten schools required about the same total number of hours for graduation, the range being from 125 semester hours to 152 semester hours. Electives played an important part in determining the total number of hours. In schools which had electives in the program of agricultural education, they played an important part in determining the number of hours devoted to any particular area.

Comparison of programs in agricultural education. The present program of agricultural education in the College was compared with that of the ten institutions, using the range and median of required semester hours. As such, in general education the program in the College is very close to the median. In professional education the area of general methods is just below the median while the area of special methods is far below the median. In technical agriculture

the areas of animal industry and plant industry are close to the median while the areas of agricultural economics and agricultural engineering are above the median.

from an advisory group, composed of representatives of vocational agriculture and the Extension Service, one questionnaire was ultimately designed for teachers of agriculture and one for extension workers. The questionnaire for teachers of agriculture contained 202 items while the questionnaire for extension workers contained 146 items.

Using a rating scale with degrees ranging from "0" to "3", fifty-six teachers of agriculture and sixteen extension workers were asked to rate the degree of preparation received in their pre-service agricultural education program. Of the seventy-six graduates of the college to whom questionnaires were distributed, 94.7 per cent or seventy-two of them responded. In professional education, the responses were tabulated separately while in technical agriculture the data were combined because no statistical difference was found between the ratings.

Mean scores were computed for each area and each ability. In an analysis of the level of the degree of preparation the standard deviation of the mean scores was used to separate the data into three groups. Any score falling within one standard deviation of the mean was classified in the median group. Others falling outside were classified in either the high or low groups.

Analyses were made of the curricular offerings in agricultural education at the Agricultural, Mechanical and

Normal College from 1929 to 1955 and of the present program in ten selected institutions. A comparison was made between the curricular content in these institutions and the present program in agricultural education at the college.

Significant findings. The significant findings of the study are presented in this section of the Chapter. The presentation follows a similar pattern to that used in the investigation. It was believed that this procedure would facilitate the understanding of this section. In an analysis of questionnaire data these findings became evident.

1. In evaluating the total program of agricultural education in the Agricultural, Mechanical and Normal College, it seemed advisable to separate professional education into one category for extension workers and another for teachers of agriculture, while the technical area could remain the same for both groups.

2. Both teachers of agriculture and extension workers rated their degree of preparation in professional education higher than that in technical agriculture. At the same time teachers of agriculture tended to rate their degree of preparation in professional education higher than did extension workers.

3. The range in mean scores of the "areas" was 1.73 to 2.17 while the range in mean scores of the "abilities" constituting the areas was .94 to 2.58 in professional education as rated by teachers of agriculture in determining the degree of preparation.

4. Extension workers, in rating the degree of preparation in professional education, had a range in the mean scores of the "areas" from 1.54 to 1.87 while the range in mean scores of the "abilities" constituting the areas was 1.06 to 2.31.

5. The range in the mean scores of the "areas" in technical agriculture was .77 to 2.12 while the range in mean scores of the "abilities" constituting the areas was .45 to 2.44 as rated by all graduates in the study in determining the degree of preparation.

In determining the levels of the degree of preparation in the three categories of professional education for teachers of agriculture, professional education for extension workers, and technical agriculture for all graduates, the findings were these:

1. The area of "youth leadership organizations" was classified as low with the area of "guidance and counseling" falling just within the median group in professional education for teachers of agriculture. No area

was placed in the high group. Seven of the areas had abilities classified as low while only four of the abilities classified as high.

2. All of the areas in the professional education category for extension workers were classified in the median group. Two of the areas had abilities in the low classification while all of the areas had some abilities classified in the high category.

3. The area classified as "low" in technical agriculture was "farm forestry". The area classified as "high" was "poultry husbandry". Six of the areas had abilities classified as low; farm forestry having the greatest number followed by agricultural engineering. Six of the areas also had abilities classified as high with poultry having the largest number and farm crops the next largest number.

Data relative to the effect of the year of graduation upon the rating of the pre-service training program were analyzed according to the professional or technical category. The findings were these:

1. The year of graduation had no appreciable effect upon the distribution of the ratings of the respondents in professional education.

2. Graduates prior to 1945 tended to have a lower degree of preparation in technical agriculture.

Graduates of the College in agricultural education were requested to offer suggestions for improvements of the program. The findings in this area were:

1. In professional education, the areas listed as in need of additional training were "youth leadership", "public relations", and "guidance and counseling".

2. In technical agriculture, the areas mentioned the greatest number of times for additional improvement were in the following order: "farm forestry", "livestock production", "agricultural engineering", "horticulture" and "soils".

3. Other suggestions for improvement included more teachers, better libraries, and improved facilities and equipment.

An analysis was made of the curricula in agricultural education since the inception of a four-year program and of the present curricula of ten selected institutions. A comparison was made between the course offerings at the college in 1955 and these institutions. The significant findings are these:

1. The general education requirements in the curriculum of agricultural education at the college underwent many changes especially during 1929-1933 and 1948-1954. No great amount of stability was evidenced for any length of time in this area. From 1939-1945, the program of

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary

This was a study to evaluate the program of agricultural education at the Agricultural, Mechanical and Normal College of Arkansas in order to offer suggestions for its improvement. The purpose of this study were (1) to ascertain the degree of professional competence attained by graduates in the field of agricultural education; (2) to ascertain the degree of technical competence attained by graduates in the field of agricultural education; (3) to analyse the course of study offered in agricultural education at the college; (4) to ascertain from these data implications for the improvement of the program in agricultural education, and (5) to offer proposals for strengthening the program.

Method of procedure. In the planning of the study conferences were held with the President of the college and other representative leaders in agriculture in the state. A questionnaire comprising the abilities and competencies required of teachers of vocational agriculture and county agents was developed from materials relating to teacher education. Revised in accordance with suggestions

agricultural education contained no specific subject-matter in the social sciences and humanities.

2. In professional education much more stability was found in special methods than in general methods although there was a great deal of variation in hours required for the entire category.

3. The areas of animal and plant industry in technical agriculture at the College seemed to have followed similar patterns in course requirements, remaining rather stable after the first few years, then fluctuating sharply in 1939 and 1945. Although there were variations in agricultural economics and agricultural engineering, the trend was toward an increase in the number of hours required.

Analyses were made of curricula in ten institutions. The findings were that:

1. A great deal of variation was found in all of the area requirements in general education in ten selected institutions including military and physical education; the greatest range being in the social sciences and the humanities.

2. Professional education followed much the same pattern as that of general education in the range of hours required. None required less than fourteen semester hours nor more than twenty-six hours.

3. There was much more similarity in requirements in technical agriculture than in the other two categories. The greatest variations were in the animal and plant industries.

4. Half of the institutions analyzed made use of electives to give breadth and choice to the instructional program.

5. Most of the schools required about the same total number of hours for graduation with the range from 125 semester hours to 152 semester hours.

A comparison was made of the present program in agricultural education at the Agricultural, Mechanical and Normal College with that of the programs in the ten institutions with the following results:

1. The present program of agricultural education in the Agricultural, Mechanical and Normal College was found to be very close to the median of the ten institutions in general education.

2. In professional education the area of general methods was just below the median. In special methods the College required fewer hours than any of the other institutions.

3. Much similarity existed in the hours of technical agriculture in the plant and animal industries. The Agricultural, Mechanical and Normal College required more

hours in agricultural economics and agricultural engineering than did the other institutions.

4. In the area of electives the Agricultural, Mechanical and Normal College was far below the median. No provisions were made for electives in the program of agricultural education.

Conclusions

The significant findings, based upon analyses of the data, have provided the foundation from which the following conclusions have been drawn:

1. Pre-service training in professional education provides teachers of agriculture with a higher degree of preparation for their job than extension workers.

2. Graduates of the College in agricultural education have a greater degree of proficiency in professional education than in technical agriculture.

3. Pre-service training in certain areas of the agricultural education program, and in certain abilities within areas, is inadequate to meet the needs of teachers in agriculture and extension workers.

4. Graduates of recent years are more adequately prepared in technical agriculture than the older graduates were.

5. The curriculum in agricultural education has been subjected to almost constant, and oftimes drastic, revisions since the inception of a four-year program.

6. There is a great deal of variation in the hours of the different areas of the curricula in agricultural education among the selected institutions.

7. The curriculum in agricultural education of the Agricultural, Mechanical and Normal College compares favorably in "hours required", with the median of the ten selected institutions.

8. In certain areas the number of hours required did not seem to be closely related to the degree of preparation.

A Proposal for Improving the Program of Agricultural Education at the College

The suggestions for improving the program of agricultural education in the Agricultural, Mechanical and Normal College are based on the conclusions derived from this study.

1. The staff in the Division of Agriculture should consider more professional courses for extension workers. The first aim proposed by the Division of Agriculture is "to prepare students to be teachers of agriculture and county agents". The extension workers tended to rate their

degree of preparation in professional training lower than did teachers of vocational agriculture. Upon examination of the professional courses it was found that only one course of two semester hours is offered for extension workers in comparison with thirteen semester hours in special methods required of prospective teachers of vocational agriculture. It was also found that prospective teachers of vocational agriculture participate in a student teaching program but no such provision is made for prospective county agents. It is recognized that more professional training may be needed by vocational teachers for effective performance in their specific type of work but it should also be recognized that county agents should be able to perform just as effectively in their area.

This study reveals that, at present, more than 65 per cent of the county agents, presently employed in the State of Arkansas, are graduates of the College. Many, if not most of these, are graduates of the program in agricultural education which required no specific training in this area. It is needful that such individuals, along with other prospective extension workers, should have opportunity, during the pre-service period for adequate professional training.

2. Course offerings of the agricultural education program, in areas classified as "low" and in areas which

contain "abilities" classified as "low", should be subjected to careful investigation by the Division of Agriculture with recommendations for approval. This improvement may best be carried out by further investigation as to the probable cause or causes of the weaknesses in the training program. Some suggestions for improvement in this regard, offered as a result of this study, are the following:

a. Since no specific training in farm forestry is provided for in the curriculum and because graduates have expressed a need for it, that the staff should consider the addition of a course in that area.

b. The area of youth leadership organizations is so important in preparing citizens as leaders that greater emphasis should be placed on it in the instructional program. The supervised practice period should be reorganized to provide greater development of abilities in this area.

c. The area of guidance and counseling though not classified as low, is so close to that category that a re-evaluation of courses and of objectives in that area should be carefully considered.

d. A re-defining of objectives in courses providimg development of abilities classified as low seems necessary. It is highly probable that abilities found needful by graduates in the pursuance of their work are not being given proper emphasis by the instructional staff.

e. A study should be made of areas and abilities classified in the high group to determine the reason for their level of preparation. This analysis should prove helpful in providing recommendation for strengthening weak areas.

f. Further, a study should be made, not only of the low and high areas but also of the total program of agricultural education, to ascertain the necessity for more careful screening of the students enrolling in the program.

g. The program of agricultural education compares favorably with other institutions in number of hours required, therefore the quality of teaching should be considered a probable source of weakness.

3. A basic group of competencies for teachers of vocational agriculture and county agents should be developed by a committee composed of staff members of the Division of Agriculture and a representative group from vocational agriculture and the extension service. The basic purpose of teacher education institutions is to provide an adequate supply of qualified teachers of agriculture for a particular State. This presupposes the development of a program of agricultural education based upon a job analysis of the discovered needs of a geographic area. Many institutions have allowed their teacher education programs to drift into

academically derived course content rather than be given direction by a deeper, more penetrative analysis of the teaching job.

These basis competencies, developed by a composite group of agriculturists, should provide the foundation for the agricultural education program at the Agricultural, Mechanical and Normal College. An evaluation of the objectives of the present courses in terms of these basic competencies should be made together with a reorganization of these courses to facilitate their development. A curriculum based upon these competencies, redefined as course content, should more adequately meet the pre-service training needs of teachers of vocational education in agriculture and county agents.

4. A committee on curriculum research be formulated, if one does not already exist, composed of staff members from both professional and technical areas. This need is evidenced by the constant and oftimes drastic revisions in the agricultural education program through the years. It is an axiomatic statement that "progress means change but that change does not always mean progress". The curricula in American schools, from the elementary level through institutions of higher education, are notoriously hospitable. It should be of concern to the entire staff that each curriculum revision be based upon research and

a constant awareness of the functional objectives of the program. The time allotted to pre-service education is of such value that it can ill afford to be dissipated in the pursuance of extraneous and irrelevant course offerings.

5. A program of inservice training in agricultural education be developed. It is entirely probable that the low degree of preparation found in some areas and abilities is not at all due to the quality of teaching, inadequate facilities and equipment or the inabilities of the student. Rather, it is highly probable that some of it may be due to the fact that the four-year period of training is inadequate to develop the degree of competency needed for effective participation in agricultural education.

The inservice training program should consist of workshops, short courses, and day district or other types of meetings planned in conjunction with persons directing vocational agriculture and extension services. Desirable meeting time should consider the working conditions of all concerned. This should not be interpreted to mean that these groups should meet jointly although such might be feasible and entirely desirable. Rather the meaning is that the planners should take cognizance of the limited time available to teachers of agriculture and county agents for such training. Year-round employment makes necessary

the full use of Saturdays and sectionalized training groups. Curriculum content for the training program should be based upon the felt needs of the groups involved.

6. A re-evaluation should be made of the use of existing facilities and equipment in the training program. This evaluation should include not only classrooms and laboratories but the college farm or farms as well. Weaknesses in the instructional program are oftimes attributed to a need for more or better facilities and equipment when full use is not being made of those already present. Each instructor should take stock of the facilities at his disposal and devise ways and means by which they may be used more effectively.

The fundamental purpose of educational institutions is to provide learning experiences for the student. All materials and resources should be contributory factors to making these experiences the best ones possible. Not only the instructional staff, but all personnel connected with an institution, should keep before them this fundamental purpose in the expenditure of monies and the use of resources provided for education.

7. Course offerings in the agricultural education program should be combined on a broader basis to facilitate the introduction of changes, the elimination of duplication

and provide for better balance. This proposal is made with full awareness that there is no one best method to set up and carry out an institutional or divisional program. However, researchers in curriculum making and revisions are constantly unearthing new facts and trends that the progressive institution can well make use of in developing their programs. At present, the trend in programs of agriculture is away from a number of small departments with separate course offerings, and toward consolidation into a few major departments with integral course offerings.

The proposal is that all course offerings be combined under major departments. Such a combination would be very similar to that used in reporting programs of agricultural education. In technical agriculture for instance, all courses in dairy production, livestock production and poultry husbandry would be grouped under the department of "animal industry". A like procedure would be used in consolidating all courses connected with horticulture, soils, et cetra, under "plant industry", followed by agricultural economics and agricultural engineering. Professional education courses would likewise be grouped under "general methods" and "special methods". Such a consolidation should eliminate the tendency of small departments to overemphasize the need for courses in their specific area and result in better balance in the program of agricultural education.

The findings in this study give little support to the need for a five-year program in agricultural education at the College. Some areas investigated were far below the median of the ten schools in hours required yet were rated high in the level of preparation. Other areas had requirements far above that of any of the ten institutions yet were rated low in the level of preparation. This tends to disprove a need for an increased period of training and describes the causal factors to other weaknesses in the program.

In the development of this study it has become apparent that the following areas are in need of research:

a. An investigation is needed to determine the probable causes for the levels in the degree of preparation in the various areas and abilities.

b. There is need for information relative to the quality of teaching of agricultural education at the Agricultural, Mechanical and Normal College.

c. Studies are needed to determine the effect of the quality of student upon the degree of preparation ascribed by him.

d. A study should be made of the place of the college farm in the training program in agricultural education.

e. An investigation should be carried out to ascertain the effect that personnel and changes in personnel have had upon revision of the curriculum in agricultural education at the College.

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APPENDICES

APPENDIX "A"

THE ADVISORY GROUP

The following committees were designated as an advisory group and were used in the revision of the questionnaire:

I. State Department of Education (Vocational Agriculture Division)

1. Mr. Frank R. Johnston
2. Mr. Grady Knight
3. Mr. T. A. White

II. Agricultural, Mechanical and Normal College (Division of Agriculture)

1. Mr. R. C. Haynie
2. Mr. O. R. Holiday
3. Mr. A. G. Kirby

III. Agricultural Extension Service

1. Mr. Clarence T. Freeman
2. Mr. Lester Hopkins
3. Mr. Lewis J. Jackson
4. Mr. Charles Reed

IV. Vocational Agricultural Teachers

1. Mr. Elmer C. Burnett
2. Mr. Raymond Faucette
3. Mr. Ira W. Harris
4. Mr. Hugh H. Simmons
5. Mr. William Smith

APPENDIX "B"

QUESTIONNAIRE TO EVALUATE THE PROGRAM OF AGRICULTURAL EDUCATION
IN THE AGRICULTURAL, MECHANICAL AND NORMAL COLLEGE

Name_____ Address_____

Date of Graduation from A. M. & N. College_____

Experience: Please list the number of years you have engaged in the following occupations:
1. Vocational Agriculture Instructor_____Veterans Instructor_____
2. County Agent_____ Others_____

Education: Please check ( ) the statement which best describes your education.
1. Bachelor's Degree ( ): 2. Bachelor's Degree with some work beyond ( ):
3. Master's Degree ( ): 4. Master's Degree with some work beyond ( ).

Directions

In the column labeled "Degree of Preparation", please use the scale below to rate the training given to you by the College that prepared you to successfully participate in each of these areas.

0 1 2 3
None Adequate

APPENDIX "C"

PROFESSIONAL EDUCATION FOR TEACHERS OF AGRICULTURE

	Total Score	Mean Score
A. General School - 2.10		
1. Assist with general school responsibilities and activities	118	2.10
2. Confer with superintendent and principal concerning school and department problems	120	2.14
3. Participate in general faculty and all teachers meetings	125	2.23
4. Cooperate with general record keeping of the school system	109	1.94
B. Long-time Program of Agriculture - 2.17		
1. Formulate a long-time plan with criteria for evaluating a program of vocational agriculture	124	2.21
2. Select desirable ways and means of achieving the objectives of the program	127	2.26
a. Make and interpret survey	128	2.28
b. Organize and use an advisory council	102	1.82
c. Participate in community organizations and/or program	128	2.28
C. Classroom Teaching - 2.14		
1. Organize classroom study around community farm problems	145	2.58
2. The problem-solving method in lesson planning and teaching	126	2.25
3. Prepare, obtain and use audio-visual materials and methods in a classroom situation	84	1.50

		Total Score	Mean Score
4.	Lead a group discussion	123	2.19
5.	Use committee organization in the classroom	105	1.87
6.	Prepare, give and grade a test properly	119	2.12
7.	Handle discipline problems in the classroom and shop	121	2.16
8.	Work with students in planning their instructional and farm activities following classroom problem solutions	126	2.25
9.	Develop a program of instruction for all agricultural groups in the community.	132	2.35
10.	Bring subject-matter up to date as needed	122	2.17
D.	Farming Programs for High School Students - 2.09		
1.	Plan and supervise farming program with parents and students	125	2.23
2.	Combine an instructional program with the farming program	127	2.26
3.	Keep a record of supervising visits and suggestions to follow-up at the next visit	128	2.28
4.	Assist students (both in-school and out-of-school) in securing improved seed or livestock	127	2.26
5.	Assist students in the developing of suitable goals for their farming programs and for each of the enterprises included in program	119	2.12
6.	Check students' records for completeness and accuracy	126	2.25
7.	Mse records of farming programs in the classroom Instruction program	114	2.03
8.	Make preliminary and final reports of farming programs to State Office	126	2.25
9.	Teach students to summarize and analyze their financial records	116	2.07
10.	Aid students in planning long-time programs of supervised farming	113	2.01

	Total Score	Mean Score
11. Create interest in farming programs by means of field trips, newspaper articles, production records, photographs, etc.	120	2.14
12. Assist students in keeping the supervised farming record book	126	2.25
13. Assist students in making out Modern and Superior Farmer applications	90	1.60
14. Assist students to complete the farming program reports	112	2.00
15. Assist students to make adequate financial arrangements	94	1.67
E. Youth Leadership Organizations - 1.90		
1. Serve as an adviser for a leadership organization	125	2.23
2. Work with members in the development of Program of Work	118	2.10
3. Work with executive committee in planning each meeting of organization	104	1.85
4. Assist the reporter in preparing news items	94	1.67
5. Work with committee planning for initiation and advance membership	106	1.89
6. Train officers in the performance of their duties	108	1.92
7. Work with members in the development of teams for appropriate district, regional or state contests	114	2.03
8. Help plan banquets and meetings where organization is involved	108	1.92
9. Help members prepare exhibits and displays	106	1.89
10. Prepare organizational reports	102	1.82
11. Make annual reports to State Office	125	2.23
12. Make application for special funds to State Office	68	1.21

	Total Score	Mean Score
F. Adult and Young Farmer Education - 2.09		
1. Contact and recruit class members	116	2.07
2. Work with committees for planning programs and activities	117	2.08
3. Plan for adult and young farmer class discussions and demonstrations	130	2.32
4. Lead group discussions	124	2.21
5. Write news articles regarding adult and young farmer classes	108	1.92
6. Plan for and conduct field trips and tours of adult classes	112	2.00
7. Make farm visits to adult and young farmer class members and work with them in planning and carrying out approved practices	132	2.35
8. Evaluate effectiveness of adult and young farmer program	103	1.83
G. Community and Public Relations - 1.96		
1. Participate in farm organization meetings	120	2.14
2. Meet and work with key agricultural men in the community	137	2.44
3. Meet and work with business and professional men in the community	126	2.25
4. Meet with agricultural agencies in the community	130	2.32
5. Plan and conduct radio and TV Programs	53	.94
6. Speak before farm or business groups	95	1.69
H. Guidance and Counseling		
1. Help pre-vocational pupils and parents in planning their high school programs	93	1.66
2. Use data from parents, school, and other sources in the guidance of individual pupils	94	1.67

	Total Score	Mean Score
3. Confer with individual pupils on guidance problems	96	1.71
4. Follow up progress of individual pupils in meeting personal problems	95	1.68
5. Counsel students regarding vocational choice, college entrance, farming programs and other programs	114	2.03
6. Assist students in self-evaluation of their work	92	1.64
I. Physical Facilities		
1. Inventory department facilities	127	2.30
2. Index and file reference materials	108	1.92
3. Requisition and secure materials	95	1.69
4. Operate and use visual aids materials	80	1.42
5. Plan adequate facilities to meet vocational agriculture needs of a community	121	2.16
6. Maintain good housekeeping standards including proper use and care of equipment	136	2.42
J. Professional Improvement		
1. Conduct research studies within the department	75	1.33
2. Participate in state professional organizations	126	2.25
3. Develop and maintain a good credit rating in a community	134	2.39
4. Keep up-to-date on mechanical and technical skills, procedures, and equipment	118	2.10
5. Practice an acceptable code of professional ethics	125	2.28

APPENDIX "D"

PROFESSIONAL EDUCATION FOR EXTENSION WORKERS

	Total Score	Mean Score
A. General Responsibilities		
1. Assist farm organization groups in developing a county program	31	1.93
2. Meet and work with key agricultural men in community	38	2.37
3. Cooperate with agricultural agencies in the county	35	2.18
4. Disseminate agricultural information to farm groups through available media	32	2.00
5. Use of available data to determine county needs	28	1.75
6. Lead group discussions	37	2.31
7. Develop rural leadership through youth and adult organizational programs	37	2.31
8. Adequately and submit required reports	35	2.18
9. Publicize county programs by means of newspaper, radio, etc.	27	1.68
10. Evaluate the effectiveness of a program of work	27	1.68
I. Physical Facilities		
1. Inventory department facilities	28	1.75
2. Index and file reference materials	20	1.25
3. Requisition and secure materials	23	1.43
4. Operate and use visual aids materials	17	1.06
5. Plan adequate facilities to meet agriculture needs of a county	24	1.50
6. Maintain good housekeeping standards including proper use and care of equipment	36	2.25

	Total Score	Mean Score
J. Professional Improvement		
1. Conduct research studies within the county	17	1.06
2. Participate in state professional organizations	28	1.75
3. Develop and maintain a good credit rating in a community	29	1.81
4. Keep up-to-date on mechanical and technical skills, procedures, and equipment	24	1.50
5. Practice an acceptable code of professional ethics	35	2.18

APPENDIX "E"

TECHNICAL AGRICULTURE FOR ALL GRADUATES

	Total Score	Mean Score
A. Livestock: Beef - Swine - Dairy (General - applicable to all livestock enterprises)		
1. Select breeding stock using production records and type as criteria	136	1.88
2. Select breed of animals best suited to the community, feed supplies, and market situation	150	2.08
3. House breeding stock according to approved practices	139	1.93
4. Feed breeding stock balanced rations adjusted to season and management factors such as feed supplies and production program	159	2.20
5. Manage breeding herds to secure satisfactory production	151	2.09
6. Maintain health of herd by proper prevention methods and by application of approved treatment practices in cooperation with local veternarian	154	2.13
7. Manage young stock to produce healthy breeding animals for herd replacement and for desirable feeders	140	1.94
8. Plan and develop adequate labor saving devices in relation to each livestock enterprise	133	1.84
9. Determine the place of each livestock enterprise to the total farm organization plan for individual farms of a community	125	1.73
10. Assist animals at parturition	100	1.38

	Total Score	Mean Score
B. Beef Enterprise		
1. Dehorn at the proper time and by approved methods	108	1.50
2. Provide care and assistance at calving	103	1.13
3. Disinfect the navel of calves	94	1.30
4. Fit and show beef animals	111	1.54
5. Castrate beef animals at proper time and by desirable methods	120	1.66
6. Tattoo and eartag calves	94	1.30
7. Evaluate and cut up beef carcass	128	1.77
8. Select appropriate bull, grade or purebred cows according to program	136	1.88
9. Feed adequate and economical ration	154	2.13
10. Breed cows for calving at most advantageous time	143	1.98
11. Select feeders for feed lot, available feed and market situations	118	1.63
12. Purchase, feeding, and marketing of feeders for greatest profit	118	1.63
13. Keep records of production	188	1.88
C. Swine Enterprise		
1. Breed sows for litters at most desirable seasons	158	2.19
2. Care for sow and litter at farrowing time	162	2.25
3. Methods of feeding and management of sow and litter	152	2.11
4. Practical use of new developments in animal feeding	132	1.83
5. Prepare swine for show and sales	123	1.70
6. Produce leaner, higher quality pork	111	1.54
7. Keep production records of each sow and litter	146	2.02

	Total Score	Mean Score
D. Dairy Enterprise		
1. Keep records of production of the dairy herd	142	1.97
2. Test milk for butterfat and/or sediment	110	1.52
3. Fit dairy animals for show or sale	99	1.37
4. Use recommended sanitation practices for milk production	142	1.97
5. Plan a disease control program including vaccination, isolation, and sanitation practices	129	1.79
6. Dehorn calves and mature animals by approved methods	106	1.47
7. Use D. H. I. A. records in teaching program	72	1.00
8. Use A. B. A. records in teaching	76	1.05
E. Poultry Husbandry		
1. Select baby chicks using desirable records of production	143	1.98
2. Purchase baby chicks for the laying flock at most appropriate time	160	2.22
3. Clean and disinfect brooder and laying houses	176	2.44
4. Select feed, minerals, and vitamins for balanced rations	173	2.40
5. Provide suitable housing for baby chicks, broilers or laying flock	167	2.31
6. Construct poultry equipment such as brooder houses, brooders, and feeders	157	2.18
7. Treat poultry flocks for parasites and diseases	159	2.20
8. Keep adequate records of production of laying flock	140	1.94
9. Care for the laying flock	154	2.13
10. Care for eggs for best quality and marketing requirements	152	2.11
11. Dress poultry for freezing or market	121	1.68
12. Select pullets for the laying flock	157	2.18
13. Market eggs and poultry	136	1.88

	Total Score	Mean Score
F. Horticulture - 1.70		
1. Prune and spray all tree fruits and small fruits	126	1.75
2. Select nursery stock of desirable varieties and sizes	105	1.45
3. Identify desirable sites for raising various kinds of fruits	123	1.70
4. Plant nursery stock using recommended practices	96	1.33
5. Harvest fruits at proper time, using recommended methods	113	1.56
6. Graft and bud fruit trees and shrubs	69	.95
7. Identify common varieties of apples, cherries, peaches, pears and other small fruits	74	1.02
8. Fertilize fruit trees and small fruits according to recommended practices	113	1.56
9. Use chemical sprays for control of set of fruit	102	1.41
10. Prepare soil for planting fruits	122	1.69
11. Prepare soil for vegetables	172	2.38
12. Select proper varieties of vegetables	169	2.34
13. Build and operate a hot-bed and cold-frame	149	2.06
14. Harvest and package vegetables at proper stage of maturity	134	1.86
15. Market vegetables according to best practices	116	1.61
16. Prepare vegetables for home freezers	112	1.55
17. Plan home garden to provide adequate supply of vegetables	173	2.40
18. Plan basic landscape design with recommended varieties of plants	116	1.61
19. Identify and combat insects and disease	151	2.09
G. Farm Crops - 1.90		
1. Select proper varieties of each of the common farm crops for farms of the community	153	2.12
2. Apply recommended practices for fitting soil for each kind of crop	147	2.04

	Total Score	Mean Score
3. Plant recommended crops at proper depth and spacing for the crop	157	2.18
4. Grow crops in soil best adapted to them	159	2.20
5. Harvest crops at proper stage of maturity and moisture content	146	2.02
6. Make decision to feed or sell crop based on best market information available	136	1.88
7. Install and operate ventilation and drying equipment when needed	80	1.11
8. Store crops in desirable bins, mows, or silos	118	1.63
9. Clean grain bins and treat to prevent infestation of insects	120	1.66
10. Cultivate crops by recommended practices	164	2.27
11. Control weeds in crops by recommended tillage practices or by recommended chemical controls	132	1.83
H. Soils - 1.60		
1. Plan a program for a farm taking into consideration the best use of each kind of soil	121	1.68
2. Make simple soil tests for lime, phosphorus, and potash	120	1.66
3. Make fertilizer recommendations for each kind of crop and each type of soil in an area	126	1.75
4. Demonstrate recommended tillage practices for each type of soil	112	1.55
5. Identify land use capability classes	99	1.37
6. Lay out contours or "strips" to assist in controlling erosion	117	1.62

	Total Score	Mean Score
I. Farm Forestry		
1. Lay out and plant windbreaks	57	.79
2. Line out seedlings	49	.68
3. Plant and establish farm and school forests	44	.61
4. Identify trees in the farm woodlot	76	1.05
5. Locate land by legal description	68	.94
6. Grade and measure standing trees	45	.62
7. Determine rate of tree growth	60	.83
8. Protect forest from fire, graying, insects and animals	70	.97
9. Manage forest for timber production	65	.90
10. Manage Christmas tree plantations	33	.45
11. Scale logs	48	.66
J. Agricultural Engineering		
1. Arc welding	41	1.56
2. Acetylene Welding	55	1.76
3. Common uses of the square	146	2.02
4. Motor maintenance (electric)	78	1.08
5. Soldering	115	1.59
6. Wiring	97	1.34
7. Painting - metal and wood	129	1.79
8. Lay out drainage ditch	94	1.30
9. Lay out and build sod waterways and terraces	104	1.40
10. Plan irrigation set up for a farm	61	.84
11. Sketch small buildings and other projects	122	1.69
12. Compute bill of material for a project	147	2.04
13. Annealing - hardening and tempering	85	1.18
14. Glazing	110	1.52
15. Concrete work	113	1.56
16. Block laying	60	.83
17. Preventative maintenance and minor adjusting of farm machinery and tractors	95	1.31
18. Plan and sketch a home farm shop	105	1.45

	Total Score	Mean Score
K. Agricultural Economics		
1. Set up a farm account book	125	1.73
2. Analyze a farm account book	125	1.73
3. Make a farm analysis and a plan for a farm business	123	1.70
4. Understand and apply accepted farm efficiency factors in the farm organization plan	107	1.48
5. Understand and apply farm operating agreements to individual farm situations	119	1.65
6. Analyze and interpret seasonal price fluctuations	114	1.58
7. Analyze and interpret cyclical fluctuations for common farm crops or livestock products	105	1.45
8. Analyze and interpret market information regarding common cash crops and livestock products	117	1.62
9. Understand and apply principles of cooperative and corporate business organization to the organization of farm or marketing situations	112	1.55

APPENDIX "F"

THE TEN SELECTED INSTITUTIONS

The following institutions were selected for use in the study based on such factors as comparable size, location or uniqueness of program in agricultural education.

1. The Agricultural and Technical College of North Carolina
   Greensboro, North Carolina

2. Alcorn Agricultural and Mechanical College
   Alcorn, Mississippi

3. California State Polytechnic College
   San Luis Obispo, California

4. The Fort Valley State College
   Fort Valley, Georgia

5. North Carolina State College of Agriculture and Engineering of the University of North Carolina
   State College Station, North Carolina

6. The Ohio State University College of Agriculture
   Columbus, Ohio

7. The Pennsylvania State University
   University Park, Pennsylvania

8. Prairie View Agricultural and Mechanical College of Texas
   Prarie View, Texas

9. Southern University Agricultural and Mechanical College
   Baton Rouge, Louisiana

10. Virginia State College
    Petersburg, Virginia

Date Due

Aug 1 53			
OCT 6 [illegible]			
DEC 18 [illegible]			
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