1970

An analysis of the one and two year vocational and technical programs in agriculture

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AN ANALYSIS OF THE ONE AND TWO YEAR VOCATIONAL AND TECHNICAL PROGRAMS IN AGRICULTURE

by

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A Dissertation Submitted to the
Graduate Faculty in Partial Fulfillment of
The Requirements for the Degree of
DOCTOR OF PHILOSOPHY

Major Subject: Education

Approved:

Signature was redacted for privacy.

In Charge of Major Work

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1970

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INTRODUCTION

The agriculture of the United States is based on the continuing application of highly sophisticated scientific and technological skills and knowledge. Agricultural production is one of the largest and most vital industries of the nation. To implement this highly sophisticated agricultural industry, skilled well-trained leaders and supporting personnel are necessary.

The changes in agricultural education that occurred during the decade of the sixties were the educational responses to the needs of modern agriculture. Both quantitative and qualitative needs had to be satisfied. The enrollment in post-secondary terminal vocational agriculture was 499,906 persons in 1967. The projections are that by 1975 there will be 1,250,000 persons enrolled in terminal courses in vocational agriculture (22).

Agriculture is a broad area of the applied sciences. It is not possible to meet the needs for highly trained people with a few general curriculums in agriculture. This is reflected in the number of emerging curriculums in vocational and technical agriculture designed to train for specific agricultural occupations.

The education of technicians in agriculture was started at Joliet, Illinois. It was followed by similar programs at the University of New Hampshire and the Stockbridge School of Agriculture, Massachusetts. The northeastern area of the United States was the first area to develop large numbers of programs of technical agriculture. The two institutions mentioned earlier were followed by the six Agricultural and Technical

Colleges in New York State (18).

In the school year 1966-67, 142 institutions were offering two-year technical programs in agriculture. One year later the number of institutions offering these programs increased to 197. This represented a 39 percent increase in one year. In the school year 1968-69, 243 institutions offered technical curriculums in agriculture, representing a 23 percent increase over the previous year. A similar picture is revealed by the figures concerning curriculums offered. A 30 percent increase in the number of offerings occurred between 1966-67 and 1967-68, and a 21 percent increase occurred during the period 1967-68 to 1968-69. The student enrollment in the two-year technical programs in agriculture was 10,290 for the school year 1966-67. In 1967-68, 13,786 students were enrolled in the technical programs in agriculture. In percentage, these figures represented a 34 percent increase in the number of students enrolled in two-year technical programs in agriculture between 1967-68 and 1968-69 (14).

New programs are being developed in those institutions currently offering vocational and technical programs in agriculture; and other institutions are announcing vocational and technical programs in agriculture for the first time.

Education and Agricultural Occupations

During the past years, the concept of what programs should concern agricultural education has changed. In 1968, Drawbaugh (8, p. 276) commented:

> "An important innovation in agricultural education during the past seven years was the acceptance and promotion of the idea to expand programs to include training for off-farm agricultural occupations. For the first time curriculum researchers attempted to identify on a large scale competencies and skills needed by workers in agricultural occupations common to the nonfarm sector of our society. The major instructional areas have been refined to include agricultural production (farming and ranching), agricultural supplies, agricultural mechanics, agricultural products (processing and marketing), ornamental horticulture, forestry, agricultural resources, and other agriculture."

Modern agricultural production requires sophisticated systems to handle its inputs and outputs. This has caused the rapid growth of the number of persons involved in nonfarm agricultural occupations that balance the decrease of the farm segment, according to Tenney (27). The programs of instruction developed in the area of agricultural supplies provide the necessary trained people to supply agriculture production with an increased variety of inputs required to produce efficiently and with economic success.

The area of agricultural products (processing and marketing) is concerned with the skills necessary to handle the agricultural outputs and to give them utility of form, time and place. The increasing concentration of the population in urban areas makes an efficient system of agricultural products, conservation, storage and distribution extremely important. A second factor related to agricultural products technology is the public demand for public quality. New processes are being constantly developed to enhance the natural quality of the agricultural products and to maintain it until the product reaches the consumer.

Agricultural mechanics comprises areas related to farm equipment repair and maintenance, agricultural structures, handling systems, soil and water management, constructions and electrification and other related areas. A large proportion of the total investment in the farm enterprise is in machinery and constructions. Skilled, well-trained technicians are necessary in this area.

Ornamental horticulture is concerned with the fields of arboriculture, floriculture, greenhouse operation and management, landscaping, nursery operation and management, turf management and general ornamental horticulture.

The area of agricultural resources is concerned with the conservation and improvement of the natural resources. Recent developments in the area of ecology are likely to produce a substantial impact and to exercise pressure on the educational institutions to provide specific programs as soon as programs to improve the environment are started.

Forestry is concerned with production, processing, management, marketing and services of forest lands and resources.

Vocational and Technical Education in Agriculture

In the early sixties, education in agriculture was essentially vocational in nature. Today vocational agriculture, as it was taught then, is being replaced by the post-secondary or technical agriculture and pre-vocational occupational agriculture in the high school.

The terms vocational education and technical education are used without a clear definition of what each means. It is not always easy to

draw a line between both. Both vocational education and technical education are occupationally oriented.

The Dictionary of Education (9) gives the following definitions for vocational education and technical education:

Vocational education: a program of education below college grade organized to prepare the learner for entrance into a particular chosen vocation or to upgrade employed workers.

Technical education: a type of education that emphasizes the learning of a technique or technical procedures and skills and aims at preparing technicians, usually above the high school level but not leading to a degree.

The Committee on Research and Publication of the American Vocational Association (1) stated that vocational education is:

> "education designed to develop skills, abilities, understandings, attitudes, work habits and appreciations encompassing knowledge and information needed by workers to enter and make progress in employment on a useful and productive basis. It is an integral part of the total educational program and contributes toward the development of good citizens by developing their physical, social, civic, cultural and economic competencies."

The definitions of vocational education agree that it should prepare for successful performance of a useful job. These are also characteristics of technical education. However, technical education requires a considerable amount of knowledge in the basic sciences in addition to the ability and skills to apply this knowledge.

Warmbrod (28) points out four distinct features that characterize technical education in agriculture.

First, it is essential that technical education be concerned with the theoretical knowledge and scientific principles.

The second distinguishing characteristic of technical education is, for all practical purposes, part and parcel of the first. Not only does technical education involve an understanding of scientific principles, but of equal importance, it emphasizes the practical application of scientific knowledge in solving problems and performing specific tasks.

Third, technical education is characterized as specialized education.

The fourth distinguishing feature is the general agreement that programs of technical education should be provided at the post-secondary level.

Harris (11, p. 21) states that technical education is not well defined yet and points out five characteristics of technical education:

1. Is organized into two-year curriculums at the college level.
2. Emphasizes work in the field of science and mathematics, and frequently, but not always, is related to industry and engineering.
3. Gives much attention to technical knowledge and general education, but also stresses practice and skills in the use of tools and instruments.
4. Leads to competence in one of the technical occupations, and usually to the granting of an associate degree.
5. Includes a core of general education courses (English, humanities-social studies, liberal arts) up to perhaps one-fourth of the total credit hours.

It is common to find technical education defined in terms of the tasks performed by the technician. Donker (7, p. 30) comments:

> "In visualizing the nature of a technician's work, it should be realized that in many instances his knowledge may cover a range of subjects (information) almost as broad as that of the professional. The important difference between the two lies in the depth of knowledge required by each making judgments required in the performance of his job. For example, the professional agronomist needs a thorough understanding of plant classification, physiology and ecology in order to develop and

> recommend herbicides for general use. The agronomy technician would probably be expected to identify weeds, determine which recommendations apply, calculate application rates and identify expected results."

There is general agreement, Halterman (10), Harris (11), Henninger (12), and Roberts (17), that in technical education the emphasis is placed on the practical application of theoretical knowledge in performing specific tasks.

The main difference between vocational education and technical education appears to be that vocational education prepares the student to perform a job, or group of closely related jobs, while technical education adds to it basic information about the process involved and general education.

Although at this point it may appear quite clear what vocational education is and what technical education is, there is no clear cut point to classify curriculums with varying emphasis in basic scientific and general education subjects, or with varying degrees of scope in the technical subjects.

Other authors use the length of the program as a supporting criteria to classify a curriculum as technical. Manley (14), considers as technical, a program that requires at least sixty-four semester hours of credit, or ninety-six quarter hours of credit, or equivalent time.

For the purpose of this study the time criteria was adopted in the assumption that in order to provide a balanced program in basic sciences, communications, social sciences, humanities, and in the technical fields, not less than four semesters, or six quarters of full-time course work are

required. A semester must comprise an average of sixteen weeks of classes and a quarter must comprise an average of eleven weeks of classes.

Objectives for Vocational and Technical Education in Agriculture

Originally, the major objectives of vocational education in agriculture were concerned with the development of abilities required for those engaged in farming or those intending to farm. The growth of the off-farm related activities and their acceptance as a part of the responsibilities of agricultural education determined an expansion of the concept of what the objectives of vocational and technical education in agriculture should be.

In 1962, Jabro (13, p. 3) listed eight objectives of vocational agriculture as determined by teacher trainers and state supervisors. These objectives were:

1. Make a beginning and advance in farming or in an agricultural occupation which requires competence in farming.
2. Apply the principles of science, management, economics and mechanics to the efficient production and marketing of farm products.
3. Make decisions concerning the choice of an agricultural career.
4. Plan and prepare for post high school education in agriculture.
5. Maintain a favorable home environment.
6. Appreciate the importance of agriculture for our national welfare.
7. Manage and use wisely soil, water and other natural resources.
8. Participate effectively in school and community affairs.

In 1966, the United States Office of Education and the American Vocational Association (22) stated the following major program objectives for vocational and technical education in agriculture:

1. To develop agricultural competencies needed by individuals engaged in or preparing to engage in production agriculture.
2. To develop agricultural competencies needed by individuals engaged in or preparing to engage in agricultural occupations other than production agriculture.

3. To develop an understanding of and appreciation for career opportunities in agriculture and the preparation needed to enter on programs in agricultural occupations.
4. To develop the ability to secure satisfactory placement and to advance in an agricultural occupation through a program of continuing education.
5. To develop those abilities in human relations which are essential in agriculture occupations.
6. To develop the abilities needed to exercise and follow effective leadership in fulfilling occupational, social and civic responsibilities.

The proper implementation of the preceding objectives should determine offerings of vocational and technical programs in agriculture, covering the span of agriculture and agricultural related specialties as needed in the different regions of the country.

Need for the Study

The objectives stated for vocational and technical agriculture education define it as a well differentiated instructional function. During the last years, the number of institutions offering one and two-year vocational and technical programs of instruction in agriculture has been increasing at a fast rate.

A study of the one and two-year vocational and technical programs in agriculture that will look into selected aspects of the organization and curriculums of the different institutions offering these curriculums may reveal if trends are developing for future programming in the field. A previous study conducted by Snepp (21) suggested that the size of the enrollment in agricultural programs in the junior colleges was related to the comprehensiveness of the curricular offerings of these institutions.

The type of institution may reflect the philosophy and objectives inherent to it in the structure of the curriculums and the sensitivity

towards community needs.

The background and experience of the students enrolling in vocational and technical agriculture may determine specific needs to consider in the development of the programs.

The staffing of the agricultural programs presents special problems derived from their singular characteristics. The study of the sources of staff will reveal the patterns followed by these institutions to solve their demand for qualified staff.

A well-balanced distribution of the staff members' time between lecture, laboratory, grading and class preparation, advising students and other activities is important to the success of the programs.

Occupational programs should reflect needs of the industry and the students, and a constant revision of the programs by qualified persons is necessary to incorporate new technological developments to the curricula.

The importance acquired in the past few years by agricultural education at the post-secondary level, and the fast development of a new type of institution - the Area Vocational Technical School - is heavily involved in agricultural education. This factor appears to support the need for a study of the one and two-year vocational and technical programs in agriculture along the lines of the objectives stated in the next section of this chapter.

Purpose of the Study

The occupational nature of vocational and technical education in agriculture requires the adoption of different approaches to the organization of the training programs. The curriculums in vocational and technical education have to be determined, with primary attention given to the occupational needs of the community. The procedures followed in determining the need and content of the programs are the primary determinants of the success of the program and the educational institution.

Since the vocational and technical programs are oriented towards serving needs of the community, the students, and the agricultural industry, distribution of the types of programs should follow certain patterns in accordance to the characteristics of different regions of the nation.

The purpose of this study was to ascertain certain specific objectives related to the one and two-year vocational and technical programs in agriculture.

The study was concerned with the following objectives concerning the one and two-year programs in vocational and technical agriculture:

1. To determine the status of the enrollment.
2. To determine the background of students in attendance.
3. To determine the sources of the faculty.
4. To determine the distribution of the work load of the faculty.
5. To determine the satisfaction with the work load of the faculty.
6. To determine the desired changes to the present work load by the faculty.
7. To determine the organizational division controlling the programs.

8. To determine the satisfaction with the present organizational structure.

9. To determine the desired changes in the organizational structure.

10. To determine the usual procedures followed to develop new programs.

11. To determine the frequency of revision of the programs.

12. To determine who is involved in the revision of programs.

13. To determine the entrance requirements.

14. To determine the tests given and/or required for entrance.

15. To determine the one and two-year programs offered in vocational and technical agriculture and their distribution.

16. To determine the time distribution among communications, social and behavioral sciences and humanities, basic sciences, technical subjects, electives, supervised work experience, and physical education and health, among the one and two-year vocational and technical programs in agriculture.

Delimitations of the Study

The study was limited to those institutions identified as offering one and two-year vocational and technical programs in agriculture in the publication of the United States Office of Education, "1968-69 Directory. One Year and Two Year Post High School Institutions Which Offer Programs of Instruction in Agriculture."

The programs of instruction were analyzed with information provided by the general catalog of the institutions.

Definitions

For the purpose of this study the following definitions were adopted (24):

Agricultural education refers to a group of related subject matter which is organized for providing learning experiences concerned with the preparation and upgrading in occupations requiring knowledge and skills in agricultural subjects. The areas of agriculture included are: agricultural production, agricultural supplies, agricultural mechanization, agricultural products, ornamental horticulture, forestry, agricultural resources, and related services.

Agricultural production refers to subject matter and learning activities concerned with the principles and processes involved in the planning and economic use of facilities, land, water, machinery, chemicals, finance and labor in the production of plant and animal products.

Agricultural supplies and services refers to subject matter and learning experiences concerned with preparing students for occupations involved in providing consumable supplies used in the production phase of agriculture, including processing, marketing, consulting, and other services.

Agricultural mechanics refers to subject matter and learning experiences designed to develop abilities necessary for preparing students for occupations concerned with the selection, operation, maintenance and use of agricultural power, agricultural machinery and equipment, structures and utilities, soil and water management and agricultural mechanics shop including kindred sales and services.

Agricultural products refers to subject matter and learning experiences designed to provide information about processes, scientific principles, and management decisions concerned with agricultural competencies in processing, inspecting and marketing food and nonfood agricultural products.

Ornamental horticulture refers to subject matter and learning experiences concerned with the culture of plants used principally for ornamental or esthetic purposes.

Agricultural resources refers to subject matter and learning experiences designed to provide information about principles and processes involved in the conservation and/or improvement of natural resources. These are: air, forests, soil, water, fish, plants and wildlife for economic or recreational purposes.

Forestry refers to subject matter and learning experiences designed to provide information about the multiple use of forest lands and resources, their production, processing, management, marketing and protection.

Technical program in agriculture refers to the programs in agriculture which require approximately sixty semester hours or four semesters of sixteen weeks each, or ninety quarter hours or six quarters of approximately eleven weeks each for completion. The primary purpose of these programs is to prepare for occupational entry into technical or semiprofessional fields and not to transfer into a four-year program. It prepares for a cluster of closely related occupations designed to perform functions located between the professional and trade levels.

Vocational program in agriculture refers to the programs in agriculture of less duration than the technical programs and are mainly involved with subject matter and learning experiences designed to develop abilities and understandings necessary to develop manipulative skills in a single job, or a group of closely related jobs, without including a minimum core of basic scientific and other general education subjects.

Hypotheses

The following hypotheses stated in null form were tested for independence with the chi-square technique:

1. No relationship existed among institutions when compared by size of student enrollment in vocational and technical agriculture and proportion of one and two-year vocational and technical agriculture enrollments to total full-time enrollment.

2. No relationship existed among institutions when compared by type of institution and proportion of students enrolled in vocational and technical programs in agriculture to total enrollment.

3. No relationship existed among institutions when compared by location of institutions and proportion of students enrolled in vocational and technical programs in agriculture to total enrollment.

4. No relationship existed among institutions when compared by size of student enrollment in vocational and technical agriculture and the background of students enrolled in one and two-year vocational and technical programs in agriculture.

5. No relationship existed among institutions when compared by type of institution and the background of students enrolled in one and two-year

vocational and technical programs in agriculture.

6. No relationship existed among institutions when compared by location of institutions and background of students enrolled in the one and two-year vocational and technical programs in agriculture.

7. No relationship existed among institutions when compared by size of the enrollment in one and two-year vocational and technical programs in agriculture and sources of faculty teaching one and two-year vocational and technical programs in agriculture.

8. No relationship existed among institutions when compared by type of institutions and sources of faculty teaching one and two-year vocational and technical programs in agriculture.

9. No relationship existed among institutions when compared by location of institutions and sources of faculty teaching one and two-year vocational and technical programs in agriculture.

10. No relationship existed among institutions when compared by size of student enrollment in one and two-year vocational and technical programs in agriculture, and the distribution of the work load of the full-time faculty teaching the one and two-year programs in vocational and technical agriculture.

11. No relationship existed among institutions when compared by type of institution and the distribution of the work load of the full-time faculty teaching one and two-year vocational and technical programs in agriculture.

12. No relationship existed among institutions when compared by location of institutions and distribution of the work load of the full-time faculty teaching one and two-year vocational and technical programs

in agriculture.

13. No relationship existed among institutions when compared by size of student enrollment in one and two-year programs in vocational and technical agriculture and the respondent's satisfaction with the distribution of the work load of the full-time faculty teaching one and two-year vocational and technical programs in agriculture.

14. No relationship existed among institutions when compared by type of institutions and the respondent's satisfaction with the distribution of the work load of the full-time faculty teaching one and two-year vocational and technical programs in agriculture.

15. No relationship existed among institutions when compared by location of institutions and the respondent's satisfaction with the distribution of the work load of the full-time faculty teaching one and two-year vocational and technical programs in agriculture.

16. No relationship existed among institutions when compared by size of student enrollment in one and two-year vocational and technical programs in agriculture and the respondent's satisfaction with the organizational structure controlling the one and two-year vocational and technical programs in agriculture.

17. No relationship existed among institutions when compared by type of institution and the respondent's satisfaction with the organizational structure controlling the one and two-year vocational and technical programs in agriculture.

18. No relationship existed among institutions when compared by location of institution and the respondent's satisfaction with the organizational structure controlling the one and two-year vocational and

technical programs in agriculture.

19. No relationship existed among institutions when compared by size of student enrollment in one and two-year vocational and technical programs in agriculture and frequency of revision of the one and two-year vocational and technical programs in agriculture.

20. No relationship existed among institutions when compared by type of institution and frequency of revision of the one and two-year vocational and technical programs in agriculture.

21. No relationship existed among institutions when compared by location of institutions and the frequency of revision of the one and two-year vocational and technical programs in agriculture.

22. No relationship existed among institutions when compared by size of enrollment in one and two-year vocational and technical programs in vocational and technical agriculture and entrance requirements to the one and two-year programs in vocational and technical agriculture.

23. No relationship existed among institutions when compared by type of institution and entrance requirements to the one and two-year vocational and technical programs in agriculture.

24. No relationship existed among institutions when compared by location of institution and entrance requirements to the one and two-year vocational and technical programs in agriculture.

25. No relationship existed among institutions when compared by size of institutions and the distribution of the programs among areas of agricultural education.

26. No relationship existed among institutions when compared by type of institutions and the distribution of the programs among areas of agricultural education.

27. No relationship existed among institutions when compared by location of institutions and the distribution of the programs among areas of agricultural education.

28. No relationship existed among institutions when compared by size of student enrollment in the one and two-year vocational and technical programs in agriculture and the presence of subject matter areas in the one and two-year vocational and technical programs in agriculture.

29. No relationship existed among institutions when compared by type of institution and the presence of subject matter areas in the one and two-year vocational and technical programs in agriculture.

30. No relationship existed among institutions when compared by location of institution and the presence of subject matter areas in the one and two-year vocational and technical programs in agriculture.

The level of significance chosen was $P \leq 0.05$.

Outline of the Study

In the first section, the need for the study has been identified and the definitions of terms were given. The second section will be concerned with the review of literature. The third section presents the procedures followed in the study. The fourth section will present the findings obtained from the collection, tabulation and analysis of the data. The fifth section will contain the investigator's discussion of the findings. A summary will be presented in the sixth section.

REVIEW OF RELATED LITERATURE

A review of the literature related to the purposes of this study was done with the aid of standard reference publications.

A comprehensive study of the technical institutes preparing engineering technicians was conducted by Henninger (12) in 1957-58.

Commenting on the philosophy and objectives of the technical institutes, Henninger (12, p. 20) stated that the program which best serves the development of the engineering technician significantly differs from the educational program required for the engineer and the program required for the craftsman. Henninger continued saying, (12, p. 21):

> "However, the engineering technician does need to have a practical working understanding of essentially the same subject matter, together with appropriate communications skills and mathematical competence. To achieve the necessary results, an educational approach is required that is comparable to quality and general level to the university-collegiate engineering program but that differs significantly in emphasis, which is that of practical application of established scientific principles rather than the development of new design concepts or the extension of existing knowledge. Further, in contrast to the craftsman and his appropriate educational program of vocational-trade skills and related subject matter, the engineering technician does not benefit significantly from the development of proficiency in manual or manipulative skills nor from technological subject matter taught from that angle. However, the engineering technician does need to have a general working knowledge and appreciation of the manufacturing or operational skills related to his area of occupational and subject matter interest. For uncompromised results, this requires an educational approach distinctly different from and much more academically rigorous and technical than the skill-proficiency program effective for the training of the craftsman and commonly represented in the vocational trade or vocational technical programs which have evolved in tax supported secondary schools and colleges under the Smith-Hughes Vocational Education Act."

In the analysis of the curriculum of the technical institute, Henninger (12, p. 31-38) defined the principles upon which technical institute curriculums should be based. He concluded that the technical curriculum should be directed toward the results sought with these curriculums. The program should attract sufficient students, be designed to embrace a cluster of occupations related to the same basic technology and be occupationally oriented.

The technical curriculum should be offered only in accordance to established needs, and be developed in scope of content and in a level of technical rigor to suit the capacity of the type of students whose enrollment is sought.

Henninger (12, p. 37-49) also studied the curriculum content. The areas considered were: mathematics, physical sciences, general education and communications courses, major and related technical specialties. He also studied the place of the shop and laboratory and the curriculum length.

He mentions an interesting conclusion (12, p. 49) whose realization will help in upgrading the concept held about technical programs. He said:

> "It should be emphasized that these (technical institute students) are for the most part capable individuals, many of whom simply are not interested in formal academic study toward the baccalaureate degree. For them the technical institute is not an alternative educational program. In reality, it represents the best course of study, serving a need not met by any other instructional program."

Henninger (12, p. 50-51) found that the two main groups of students in the technical institute were those coming directly from high school graduation and veterans of the armed forces. The third source in order of frequency was the industry. Related to this last source, Henninger

commented:

> "The source "industry" and "other" should not be considered unimportant. Instead they exemplify the kind of departure from the average by which an alert technical institute may respond to local conditions and needs."

In his analysis of the technical institute faculty, Henninger (12, p. 68-85) identified attributes that the technical institute faculty should possess and maintain up to date. These attributes were:

1. A thorough knowledge of the principles and laws of science, applied science, and engineering science directly involved in, and indirectly related to, the occupational areas for which the technical institute aims to prepare.
2. A thorough knowledge of the topics of mathematics by which the principles and laws of science are applied in these same occupational areas.
3. Proficiency in the manual skills and use of the tools and equipment by which products, structures, and processes are produced in industry within the technologies to which the program is related: this means personal experience through professional employment.
4. The linguistic skills essential to effective communication in the relevant occupational areas; this includes use of language as a tool in human relations as well as instruction.
5. Relationships with industry by which to anticipate changes in the relevant technologies which have significance for the technical institute program; these to be developed and maintained, for example, by continuous follow-up on graduates, participation in community technical projects, membership in technical societies, summer employment in technical pursuits, subscriptions to (and reading of) professional and technical periodicals, etc.
6. Proficiency in appropriate areas of the social sciences as they pertain to practical human relations.

In the study of the sources of faculty, Henninger found that the technical institute recruited faculty from high schools, junior colleges, four-year institutions, industry, trade and professions, and other sources. No definite pattern was found.

In the study of the technical institute faculty teaching load, Henninger (12, p. 80) found that a large proportion of the instructors

give nearly all their time to instruction and directly related activities. This raises the question about the opportunities these instructors have for their professional development.

In the analysis of the administrative pattern of the technical institute, two of Henninger's findings were: first, that there was a tendency of public educators to classify the technical institute as secondary education instead of higher education and second, the companion fallacy of making the administration and hence the objectives and policies subservient of the department of vocational education.

A third finding related to junior and community colleges was that there is a serious weakness inherent in their attempts to embrace technical education and it is the tendency to include the transfer engineering, engineering technician, and vocational trade programs all in one division, which leads to confusion of the distinctly different patterns and objectives of technical institute education and trade-vocational education.

Studies Concerned with Institutions Offering Vocational and Technical Agriculture

The most comprehensive study found in the review of the literature of the past ten years was conducted by Snepp (21) in 1963. He studied the agricultural offerings in the public junior colleges in the United States. His study sought information from the community colleges offering non-transfer programs in agriculture and from the state directors of vocational education. He drew conclusions based on the situation as it was reported and conclusions based on the respondent's opinion of what constituted the most desirable agriculture programs in junior colleges.

His conclusions based on the existing situation were:

1. Agriculture was listed as a curricular offering by approximately 30 percent of the public junior colleges.
2. The majority of the junior colleges listing agriculture offered pre-agriculture courses consisting of the basic general education courses.
3. Transfer and terminal technical programs were the most common type of agricultural programs, enrolling over 80 percent of the agricultural students. Adult education programs in agriculture in the junior college were practically nonexistent.
4. Agricultural enrollments in the majority of the public junior colleges with agricultural programs included less than fifty students. However, 25 percent of the junior colleges had agricultural enrollments of over one hundred students and the most comprehensive agricultural programs were found in these colleges.
5. The majority of the agricultural students commuted, were high school graduates, and had a farm background.
6. Attention was given to recruitment of agricultural students in nearly all of the junior colleges and a variety of methods were used.
7. The junior colleges with agricultural programs generally provided the same student services as might be expected on the campus of a four-year college.
8. The agricultural faculty and staff generally held advanced degrees, were certified by the local institution or a state agency, and in most cases, had heavy teaching loads.
9. State funds were used to meet capital costs by 90 percent of the junior colleges with 60 percent of capital costs from the state. Operating costs were usually met by a combination of state and local funds and student tuition.
10. The majority of the junior colleges had adequate facilities for teaching agriculture, including classrooms, laboratories, shops and institutional farms.
11. The officials of the State Department of Vocational Education were available for advice and consultation upon request.
12. The major problems in establishing and operating agricultural programs were those of attaining public understanding and adequate financial support.

Conclusions based on opinions reported.

1. Agricultural programs in junior colleges should be comprehensive in that they provide for transfer, terminal-technical, vocational and adult students.
2. Separate classrooms, laboratories, and farm mechanics shops are essential and land, livestock, greenhouses, and forests are desirable for the operation of agricultural programs in junior colleges.
3. Agriculture faculty and staff in junior colleges should hold at least a Master's degree along with a teaching certificate.

4. The maximum teaching load should be sixteen class hours per week with a student-teacher ratio of twenty to one or less.
5. Agricultural students in junior colleges should be high school graduates or the equivalent.
6. State funds should provide for at least 50 percent of the capital costs and 33 percent of the operating costs for all aspects of the junior college.

Snepp also developed a set of guidelines for establishing agricultural programs in Ohio Community colleges. Some of the guidelines were:

1. Agricultural curricula should be developed on the basis of the needs of agricultural industry and business, the community and the students.
2. Advisory committees consisting of leaders in agricultural business should be used to assist in program development, especially in the area of terminal-technical programs.
3. Agricultural programs in community colleges should be organized as a separate department with a department head or chairman.
4. The major responsibility for program development should be delegated to the department chairman.
5. The agricultural staff should consist of at least six full-time instructors.
6. The maximum teaching load should be sixteen class hours per week with a student-teacher ratio of twenty to one.
7. The minimum number of full-time equivalent agricultural students enrolled should be one hundred and twenty.
8. Prospective full-time students should be high school graduates or be able to pass an equivalency test. Special students should be able to meet course requirements. In addition, entrance forms, physical examinations, placement tests, and a personal interview should be required.

In 1964, Vorhies (25) and (26) conducted a study of the status and role of nontransfer agricultural education in California junior colleges. Less than twenty junior colleges were offering training in agriculture. Of those, only ten were offering courses not intended for transfer. The number of agricultural teachers ranged from a maximum of twelve to a minimum of one with an average of four and four-tenths teachers. The largest enrollment was two hundred majors and the smallest less than forty. It was found that the smaller institutions had difficulty in

offering programs other than transfer. This type of program did not meet the general needs of the students because the number of junior college agricultural students who continued with a four-year program rarely exceeded 50 percent of the agricultural enrollment.

Upon leaving the junior college, the agricultural students entered different work areas. As many as 35 percent went into nonagricultural related areas. A survey of the former students revealed that their junior college training helped them in their employment advance. Of the employers surveyed, 69 percent thought that the junior college training was of value.

The following four conclusions were drawn from the study:

1. Agricultural education in California junior colleges has been quite successful in the area of transfer education for students going on to four-year colleges, but in general the nontransfer students have been neglected.

2. Courses in technical agriculture have been of value to former nontransfer students and were recognized as valuable by students and employers alike. This is indicated by the employer's willingness to hire students from the program and to advance them.

3. The placement and follow-up of transfer students in agriculture has been given minimal attention. A need also exists for some curricular changes to better fit these students for agricultural jobs where their rural background and training would be fully utilized.

4. Agricultural technician training programs similar to those recently started at Modesto Junior College and Mount San Antonio College have much value. They are based on and meet local agricultural needs of

the community. These programs also fulfill important needs for junior college agricultural students not planning to transfer to a four-year college.

In 1965, McInnis (15) conducted a study of agricultural occupation programs in Florida designed to review the development and evaluate the status of several aspects of vocational agricultural education in the State of Florida.

Some of his findings were:

1. The programs were confined to public secondary schools.
2. The agricultural education programs in Florida have been successful, in varying degrees, in each aspect of the program.
3. The programs have been strongly influenced by federal vocational acts emphasizing uniform, practical and terminal programs.
4. There is a need in the state for continued adaptation of the program to meet the needs of a changed and constantly changing society.
5. Needs would be more fully met by extending vocational agriculture education to the junior college system, including an adequate guidance program in all schools, creating a vocational agricultural research program, developing a formal teacher recruitment program and organizing an effective in-service program for new and noncertified teachers.

Literature Dealing with the Structure of Curricula Offered in Vocational and Technical Agriculture

The development of new areas of instruction in related agricultural fields determined a modification of the concept of what the curricula make-up of an agricultural program should be. On the other hand, the fast rate of change in the field of technological development requires a constant search for new fields of instruction and revision of the present offerings.

Concerning the development of curriculums for off-farm agricultural occupations, Baker (2, p. 6) commented:

> "Adjusting old, and designing new curricula is inevitable if the program is to be effective and is to deal efficiently with the dual functions of providing vocational education for both on-farm and off-farm agricultural occupations. Some educators in vocational agriculture believe that the best basic education for off-farm agricultural occupations is to do the best job possible in preparing students for production agriculture.
> There is nothing wrong in admitting that many off-farm agricultural occupations require some of the same skills and abilities needed in production agriculture. In fact research conducted respective to competencies needed by persons engaged in off-farm agricultural occupations have pointed out these similarities. These same studies, however, have also provided evidence that persons engaged in occupations in off-farm agricultural business and industries need several kinds of vocational education. Some needed, in addition to the competencies in technical agriculture, competencies in the distribution of supplies and services, while others need competencies in the trades and office practice."

Clary and Woodin (6) reported a study of twenty-five institutions offering programs for agricultural technicians, including technical institutes, junior colleges, comprehensive community colleges and area vocational technical schools whose objectives were, among others, to develop a set of guidelines for the development of training programs for agricultural technicians.

The guidelines developed were the following:

1. Agricultural technician training program objectives should reflect the unique characteristics of technical education of less than baccaulaureate degree but above the high school level.
2. The types of agricultural technicians training program to be offered should be determined with primary but not exclusive attention to occupational (job opportunity) educational and interest survey of people and industry to be served.
3. Curriculum content for agricultural technician training programs should be closely related to present and future occupational needs.
4. A planned recruitment program should be developed to acquaint prospective students with the opportunities for becoming trained as agricultural technicians and for employment upon successful completion of the program.

5. Selection of students for agricultural technician programs should be based on interests, aptitudes, previous education, intellectual capacity and background experience - the criteria varying with the occupation for which the training is given.

6. Institutions providing agricultural technician training programs should develop an adequate counseling and guidance program, coordinating it with counseling programs of local schools and the Employment Security Commission.

7. The agricultural staff in agricultural technician programs should have technical occupations competence in the area for which training is offered and should understand and be proficient in teaching skills and competence essential to successful performance as an agricultural technician.

8. Continuous and planned programs of evaluation should be characteristic of agricultural technician programs.

9. Agricultural technician training programs should become accredited and/or licensed as early as possible by a recognized accrediting or licensing agency in order to assure the public that some kinds of recognized standards are being met and to protect graduates from pseudo-technician graduates.

10. Agricultural technician training programs should be located in institutions in area of population and agricultural industry and business concentration so as to be readily accessible to those whom they are designed to serve.

11. Placement and follow-up services in agricultural technician training programs should result in graduates being placed in the jobs for which they were prepared and also provide information for proper analysis of program effectiveness.

12. Residence facilities should be made available for students enrolled in agricultural technician training programs when sufficient need is demonstrated based on the opportunity of students to obtain programs of their choice which are not available to them otherwise, and when the addition of these facilities serves as a means to enable the institution to more fully meet its objectives.

Matthews (16) commented that junior college programs for agricultural education should not be limited to agricultural production programs. One-year certificate programs were also important because half of the students were found to leave junior colleges after one year of study. Referring to the success of the programs in agricultural technical education, Matthews mentions a characteristic already cited from other authors, that is, that the successful institutions are those that first identify the required

skills and abilities and then build the curriculum. He listed four factors of success in agricultural education. These are: work experience, reflection of industry's and student's needs, improved teaching techniques and articulation between high school and the junior college.

Donker (7) conducted a study of the agricultural technician on the job. The technicians interviewed as a group, mentioned as essential in connection with their job, in order of importance, the following areas of agricultural training: agronomy and field crops, basic shop skills, supervision of agricultural personnel, soils, vegetable crops, agricultural processing, horticulture, agricultural business administration, irrigation, agricultural sales. Concerning basic training, other than agricultural areas, the listing was: basic arithmetic, basic composition, bacteriology-parasitology, entomology, general psychology, public speaking, bookkeeping, general biology and chemistry.

Concerning the emphasis of areas of subject matter in the curriculums in technical agriculture, Smith (20) found that in seventy-five curricula reported by junior colleges in agricultural related occupations, 13.7 percent of the curricula was devoted to basic sciences, 56.6 percent was devoted to specialty courses, 22.5 percent to nontechnical courses and 7.3 percent was devoted to mathematical courses.

There are some common characteristics of different programs in technical agriculture. Baker (2) mentioned basic biological, physical, and social sciences as the subjects most common to different programs in agriculture. In addition to common basic courses, there are technical

courses common to different families of programs. White (29) studied ornamental horticulture technician programs and identified common courses and courses characteristic to six different types of ornamental horticulture programs. He found that the more technical programs are present in only one or two curriculums within a family of curriculums.

A feature of the vocational and technical programs in agriculture is occupational experience. Bundy (5) listed six objectives that are aimed through the occupational experience program. These were:

1. Prepare the trainee for employment in agriculture.
2. Equip the trainee with specific competencies (understandings, abilities, skills) necessary for employment success.
3. Develop in trainee desirable attitude toward work and work habits.
4. Help trainee to get along and work efficiently with others.
5. Develop in trainee desirable personal and leadership qualities.
6. Help trainee develop long time educational and occupational goals.

Summary

The review of literature revealed some interesting features relevant to the objectives of this study.

Henninger (12), Snepp (21), Clary and Woodin (6), and Matthews (16), agreed that vocational and technical curriculums should be directed towards specific results.

Concerning the patterns of organization and administration of these programs, Henninger found a tendency in public educators to regard the engineering technical programs as secondary education, and an administrative pattern that combines the technical and vocational programs with the transfer engineering programs in one division, all which leads to confusion about the specific purposes of such type of education. Snepp (21) con-

cluded that agricultural programs in the community and junior colleges should be organized as separate departments.

He also recommended that the institutions offering vocational and technical programs in agriculture should have at least one hundred and twenty full-time students or the equivalent engaged in these programs. Vorhies (26) found that smaller institutions had difficulties in offering programs other than transfer.

Henninger studied the sources of faculty teaching the technical programs in engineering. He found that engineering technical institutes were obtaining faculty from high schools, junior colleges, four-year institutions, industry, trade and professions and other sources. No definite pattern was found. Snepp (21) found that a desired teaching load for the faculty teaching occupational agriculture was a maximum of sixteen hours with a student-teacher ratio of twenty to one.

McInnis (15) studied the agricultural occupations programs in Florida and found that most programs were confined to public schools. He also recommended the extension of the agricultural occupations programs to the junior colleges system to better meet the needs for agriculture occupational training.

Concerning the students sources for the engineering technical curriculum, Henninger (12) found that high school graduates and veterans of the armed forces comprised the two main sources with industry in the third place.

There was a general agreement, Henninger (12), Snepp (21), Clary and Woodin (6), Matthews (16), that the vocational and technical programs

should be based on the needs of business, industry, the community and the students. Every program must be preceded by a study of the needs before it is designed. The use of advisory committees was regarded as an important contributor to the development of successful programs in vocational and technical programs in agriculture.

Concerning the content of the curriculum, Hemninger (12), Baker (2); Smith (20), found that communications and basic science courses were common components of the technical curriculums. Donker (7) found in his study of agricultural technicians on the job that agricultural technicians regarded basic sciences and communications skills as essential parts of their training. The largest proportion of the effort in the technical curriculum was found to be devoted to the applied subjects. Bundy (5) considered occupational experience as an important part of the vocational and technical programs in agriculture.

Concerning the length of the programs, Matthews (16) found that one-year programs were necessary because half of the students in agricultural two-year programs in junior colleges were found to leave college after the first year of study.

The following findings of the review of related literature were of special interest to the study:

1. Vocational and technical programs in agriculture should be designed to meet the needs of business, farming, the community and labor.

2. Vocational and technical programs in agriculture should be organized as separate departments.

3. Enrollments in agricultural programs should be at least one hundred and twenty full-time students.

4. The faculty in technical engineering programs is recruited from several sources.

5. The weekly teaching load of the faculty teaching vocational and technical programs in agriculture should not exceed sixteen hours.

6. Advisory committees were considered necessary in designing and evaluating the vocational and technical programs in agriculture.

7. High school graduates and armed forces veterans were the most important sources of students of the engineering technician programs, followed by industry.

8. Communications, and basic sciences are components of the technical curriculum in addition to the applied subjects.

9. Supervised work experience should be an important component of the vocational and technical curriculum in agriculture.

10. One-year programs in agriculture should be offered to meet the needs of students unwilling to complete a two-year program.

11. Vocational and technical programs in agriculture were found in different types of institutions.

METHOD OF PROCEDURE

Determination of the Scope of the Study

An extensive review of literature dealing with institutions offering one and two-year vocational and technical programs in agriculture was conducted. A search of the previous ten years investigations in the topic was done with the aid of standard reference works.

It was decided that the study should be done on a nation-wide basis and should include all types and sizes of institutions offering one and two-year post high school vocational and technical programs in agriculture.

It was decided to use the institutions' catalogs and a mail questionnaire as the means of data collection. The catalogs of the institutions were used to gather the data related to the one and two-year vocational and technical programs in agriculture offered by each institution. The mail questionnaire was used to obtain information not generally found in the catalogs.

The Instrument

A series of objectives were written as a result of the review of literature. The questionnaire evolved from these objectives. The first two drafts of the questionnaire were submitted to university faculty members and graduate students for reactions and criticisms.

A third draft of the questionnaire was done with the improvements suggested (see Appendix A).

The Population

The 1968-69 Directory of One and Two-Year Post High School Institutions which Offer Programs of Instruction in Agriculture (22), published by the United States Office of Education lists three hundred and five institutions offering one and two-year vocational and technical programs in agriculture within the continental United States. The three hundred and five institutions were used as the population for the study. It was decided to survey the whole population.

The Collection of Data

A copy of the general catalog was requested from the Registrar of each institution listed in (22), on February 27, 1970. Two hundred and nine catalogs and eighteen brochures were received from two hundred and twenty-four different institutions. The general catalogs of thirty-three institutions were available from the collection of catalogs of the Admissions Office at Iowa State University.

Announcements of one and two-year vocational and technical programs in agriculture were found in the catalogs and brochures of two hundred and fifty-two institutions. The catalogs of four institutions did not announce one and two-year vocational and technical programs in agriculture. Seven institutions were identified as offering high school level programs and no information was obtained or received from twenty-three institutions.

On April 15, 1970, the questionnaire was mailed to the person listed as being in charge of the one and two-year vocational and technical programs in agriculture in each of the two hundred and forty-nine institutions known as offering one and two-year vocational and technical programs in

agriculture. Exceptions were made with those institutions whose catalogs did not list specific names (22). In these institutions the questionnaire was mailed either to the chairman of the department or head of the division announcing the one and two-year vocational and technical programs in agriculture.

On May 7, 1970, a follow-up letter and a second copy of the questionnaire was sent to the nonrespondent institutions, with a request to return the completed questionnaire promptly. May 25, 1970 was mentioned as the date in which the reception of replies was to be closed (see Appendix A).

By May 25, 1970, replies had been received from one hundred and ninety-six institutions.

Processing the Data

The questionnaire consisted of twelve questions. Questions 1, 2, 3, 4, 6, 9, 10, 11, and 12 were designed to provide factual data related to some of the objectives of the study. Questions 5, 7, and 8 were designed to provide information about respondents' attitude towards the teaching load and the organizational structure as it related to the one and two-year vocational and technical programs in agriculture. Each question will be thoroughly explained in the next chapter as it relates to the findings.

From the original population of three hundred and five institutions, seven reported high school level. Three of these institutions were in South Carolina. Nineteen other high schools were listed in the reference list under the subheading "One Year Courses". Since only three institutions in this group answered to the request for the general catalog of the institution and all three did not announce post high school level programs, the

assumption was made that the nineteen schools listed in South Carolina under the subheading "One Year Courses" did not offer the type of program under study.

In the computation of the findings, the nineteen high schools were not considered. The twenty-nine institutions whose catalogs were not available were computed together with the institutions not responding to the questionnaire, therefore N = 286.

Three different factors were considered in analyzing the data. They were: (1) location of the institution by Regional Accrediting Agency; (2) size of the institutions; and (3) type of institutions. Since size of institutions and type of institutions were defined from the question number one of the questionnaire and the general catalog of the institution, the nonrespondent institutions were not computed in any of the three classification factors, except in Table 1.

The assumption was made that the nonresponding institutions failed to significantly differ from the respondent group.

The data collected were coded and processed by computer at the Iowa State University Computer Center.

The data were displayed in tabular form and a descriptive presentation of the findings was made. The data presented were nonparametric in nature, therefore in the statistical analysis that followed the tabulation, the chi-square technique was used. Expected frequencies were based on quantities known of certain characteristics examined. The results of the chi-square analysis were presented in tabular form and in descriptive form.

Table 1. The population and respondent group by Regional Accrediting Agency

Regional Accrediting Agency	Population		Respondents reporting programs		Percent of population reporting programs
	N	%	N	%	
SA[a]	74	25.6	41	23.6	55.4
NCA[b]	115	39.8	75	43.1	65.2
WA[c]	35	12.1	21	12.1	60.0
NEA[d]	9	3.1	3	11.1	33.3
MSA[e]	17	5.9	16	9.2	94.1
NA[f]	36	12.5	18	10.3	50.0
Total	286	100.0	174	100.0	60.2

[a]Southern Association.
[b]North Central Association.
[c]Western Association.
[d]New England Association.
[e]Middle States Association.
[f]Northwest Association.

Table 2. The respondent group by size of institution

Size of institution	Respondents	
	N	%
1-50	91	52.3
51-100	40	23.0
Over 100	43	24.7
Total	174	100.0

Table 3. The respondent group by type of institution

Type of institution	Respondents	
	N	%
A[a]	95	54.6
B[b]	49	28.2
C[c]	30	17.2
Total	174	100.0

[a]Two-year institutions with technical and transfer programs administratively not related to a four-year institution.

[b]Two-year institution offering technical programs only, administratively not related to a four-year institution.

[c]Four-year institutions or branches of four-year institutions.

Analysis of the Curriculums

The program outlines announced in the institutions' catalogs were used for the analysis of the curriculums of the one and two-year vocational and technical programs in agriculture. A request was sent with the questionnaire for programs outlines to those institutions whose catalogs or brochures did not offer an outline of required or suggested courses for their announced programs of vocational and technical agriculture.

The curriculums were classified into eight categories of instruction: (1) agricultural production; (2) agricultural supplies; (3) agricultural mechanics; (4) agricultural products; (5) ornamental horticulture; (6) agricultural resources; (7) forestry; and (8) others. See pages 13-15

of the introduction for definitions.

Appendix B contains a list of programs titles found. The titles are classified into the eight categories of instruction.

In the analysis of the curriculums it was assumed that the course descriptors in the college catalogs were an accurate description of the courses.

For the purposes of this study the following categories of curricular content were developed:

1. Health and physical education. In this category were included the physical activities, health and first aid required courses.

2. Communications. In this category were included courses in English, Speech, and courses in communications designed to provide instruction for specific areas, such as business communications. Communications electives were also included in this category.

3. Social and Behavioral Sciences and Humanities. In this category were included courses in American History, American Government, social science survey, geography, arts, music, psychology, human relations and freshman orientation, and electives in social sciences, humanities and behavioral sciences.

4. Mathematics. Included courses in technical mathematics, algebra, trigonometry, calculus, and courses designed to provide instruction for specific areas, as business mathematics.

5. Biology. Included courses in general biology.

6. Botany. In this category were included courses in botany and plant physiology. Courses in botany designed for specific areas were

not included if their descriptor qualified them as production oriented courses.

7. Genetics. Included general genetics. No plant or animal breeding courses were included.

8. Microbiology. Courses in general microbiology were included.

9. Chemistry. Courses in basic chemistry were included. Also courses in inorganic and organic chemistry were included. Courses designed to provide training in specific techniques for an area of specialization were not included.

10. Biochemistry. Courses in basic biochemistry were included.

11. Zoology. Animal physiology, animal pathology, and zoology were included.

12. Ecology. Courses in basic ecology were included. No courses dealing with specific crops were included.

13. Economics. Courses dealing with basic economic principles were included in this category. No courses oriented toward administration and/or marketing techniques were included in this category.

14. Geology. Courses in geology were included.

15. Physics. Courses in general physics were included.

16. Other Sciences. Other sciencies were included here.

17. Sciences and Mathematics. This is an inclusive category in which basic sciences courses not listed and requirements in "Science" and/or "Science/Mathematics" were included.

18. Applied subjects. In this category were included all the subjects required or suggested in the different technical fields. When a

selection was left to the student among two or three technical subjects, the credits were also classified in this category.

19. General education electives. In this category were included hours to be chosen by the student restricted to "General Education". A study of the eligible subjects under this category showed that it generally includes subjects classified in categories two to fifteen.

20. Applied electives. This category included the elective credits that the student had to choose from applied subjects areas. Typically, it includes subjects related to agricultural production, agricultural business, agricultural mechanics, ornamental horticulture, agricultural products, agricultural resources and forestry.

21. Electives. This category included elective hours not restricted to any specific subject area.

22. Supervised work experience. In this category were included credits given for supervised work experience and on-the-job training. Programs were found that required job training, mainly summer employment, but no credit was given. These requirements were not included.

Vocational and technical curriculums were analyzed separately.

The data were arranged according to three factors: (1) location of the institution by Regional Accrediting Agency; (2) size of vocational and technical agriculture enrollments; and (3) type of institution.

Quantitative data about the curriculum were given in the catalogs in semester credit units, quarter credit units, contact hours, and percent of total program. The number of contact hours per class or laboratory credit and the division of credits among class and laboratory is not

always given. The length of the semester or quarter varies among and within institutions. It was decided to perform the quantitative analysis of the curriculums in terms of the percentages in which each of the above twenty categories participated in the total program.

The frequency of occurrence of each category was independently analyzed. Different categories were combined for the quantitative analysis of the curriculums. The new categories resulting from the combination were: (1) Mathematics and basic sciences that included categories four through seventeen; and (2) Electives, that included categories nineteen through twenty-one. Categories one, two, three, eighteen and twenty-two remained uncombined.

The data were displayed in tabular form and a descriptive presentation of the findings was made. The data presented were statistically analyzed with the chi-square technique. Expected frequencies were based in quantities known of certain characteristics. The results of the chi-square analysis were presented in tabular form and in descriptive form.

FINDINGS

Student Enrollment in One and Two-Year Vocational and Technical Programs in Agriculture

Objective 1: To determine the status of the enrollment.

Question number one of the questionnaire was designed to gather the data dealing with this objective. Part B of question one asked what was the full-time enrollment of the institution and Part C asked the enrollment figures for the vocational and technical programs in agriculture.

In Table 4 the student enrollment in vocational and technical agriculture expressed in terms of percent of the total full-time enrollment is presented. The data are divided into ten percent intervals[1] and the strata based on Regional Accrediting Agencies.

Of the total number of institutions reporting, 115 (72.9%) reported that their enrollment in one and two-year vocational and technical programs in agriculture was ten percent or less of their total full-time enrollment. The Western Association reported 17 (94.4%) institutions in the ten percent interval for the high in the interval and the New England Association reported no institutions in the ten percent interval.

In Table 5 the data are organized into strata based on type of institution. In the ten percent interval the two-year institutions

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[1] In the description of this and following tables the percent intervals were identified by the upper limit of the interval. All the percent intervals were ten percent intervals. The zero category comprises the responses indicating no presence of the item.

offering technical and transfer education reported 72 (82.8%) institutions for a high in the interval and the four-year institutions reported 16 (59.3%) institutions for a low.

In Table 6 the data are organized into strata based on size of institution. In the ten percent interval the 1-50 strata reported 72 (90%) institutions for a high and the over 100 strata reported 23 (54.8%) institutions for a low.

Table 4. Distribution of the enrollment in the one and two-year vocational and technical programs in agriculture in terms of percent of the total full-time enrollment; by Regional Accrediting Agency

Regional Accrediting Agency		Percentage of total full-time enrollment										Totals
		10	20	30	40	50	60	70	80	90	100	
SA	N	30	7	1	-	-	-	-	-	-	1	39
	%	76.9	17.9	2.6	-	-	-	-	-	-	2.6	100
NCA	N	47	12	6	-	-	1	-	-	1	1	68
	%	69.1	17.6	8.8	-	-	1.5	-	-	1.5	1.5	100
WA	N	17	1	-	-	-	-	-	-	-	-	19
	%	94.4	5.6	-	-	-	-	-	-	-	-	100
NEA	N	-	1	1	-	-	-	-	-	-	-	2
	%	-	50.0	50.0	-	-	-	-	-	-	-	100
MSA	N	7	2	4	1	-	-	-	-	-	2	16
	%	43.8	12.5	25.0	6.3	-	-	-	-	-	12.5	100
NA	N	14	1	-	-	-	-	-	-	-	-	15
	%	93.3	6.7	-	-	-	-	-	-	-	-	100
Totals	N	115	24	12	1	-	1	-	-	1	4	158
	%	72.9	15.3	7.6	0.6	-	0.6	-	-	0.6	2.6	100

Table 5. Distribution of the enrollment in the one and two-year vocational and technical programs in agriculture in terms of percent of the full-time enrollment; by type of institution

Type of institution		Percentage of total full-time enrollment										
		10	20	30	40	50	60	70	80	90	100	Totals
A	N	72	11	3	-	-	1	-	-	-	-	87
	%	82.8	12.6	3.4	-	-	1.1	-	-	-	-	100
B	N	27	11	6	-	-	-	-	-	-	-	44
	%	61.4	25.0	13.6	-	-	-	-	-	-	-	100
C	N	16	2	3	1	-	-	-	-	1	4	27
	%	59.3	7.4	11.1	3.7	-	-	-	-	3.7	14.8	100
Totals	N	115	24	12	1	-	1	-	-	1	4	158
	%	72.9	15.3	7.6	0.6	-	0.6	-	-	0.6	2.6	100

Table 6. Distribution of the enrollment in the one and two-year vocational and technical programs in agriculture in terms of percent of the total full-time enrollment; by size of institution

Size of institution		Percentage of total full-time enrollment										
		10	20	30	40	50	60	70	80	90	100	Totals
0-50	N	72	5	2	-	-	-	-	-	-	1	80
	%	90.0	6.3	2.5	-	-	-	-	-	-	1.2	100
51-100	N	20	9	5	-	-	-	-	-	-	2	36
	%	55.6	25.0	13.9	-	-	-	-	-	-	5.6	100
Over 100	N	23	10	5	1	-	1	-	-	1	1	42
	%	54.8	23.8	11.9	2.4	-	2.4	-	-	2.4	2.4	100
Totals	N	115	24	12	1	-	1	-	-	1	4	158
	%	72.9	15.3	7.6	0.6	-	0.6	-	-	0.6	2.6	100

Background of the Students

Objective 2: To determine the background of the students in attendance.

Question two of the questionnaire was designed to obtain the data for objective number two. The vocational and technical agriculture student enrollment figures for four categories were requested: (a) Students enrolling immediately after graduating from high school; (b) Students engaged in agriculture or agricultural related activities immediately prior to enrolling; (c) Armed Forces veterans returning from service; and (d) Others.

In Table 7 the data are presented in terms of institutions reporting students in each category, classified by Regional Accrediting Agency. Students recruited from the high school graduates source was reported by 157 (98.75%) institutions. Four Regional Accrediting Agencies reported high school graduates in the enrollment of all their institutions. These were the North Central Association with 70 (100%) institutions, the Western Association with 16 (100%) institutions, the New England Association with 3 (100%) institutions and the Middle States Association with 13 (100%) institutions. The Northwestern Association reported the lowest proportion of institutions with students from the high school graduates category, with 16 (94.1%) institutions.

A total of 96 (60.4%) of the institutions reported students recruited from the category Agriculture and agricultural related occupations among their enrollment in the one and two-year vocational and

technical programs in agriculture student body. The Western Association was the most likely to report students drawn from the mentioned source with 15 (93.7%) institutions reporting the category. The New England Association was the least likely to report students recruited from Agriculture and agricultural related occupations, with 1 (33.3%) institutions reporting the category.

The category Armed Forces veterans was reported as source of students by 119 (74.8%) institutions. The Northwestern Association was the most likely to report institutions with Armed Forces veterans among their one and two-year vocational and technical students in agriculture. The association least likely to report this category was the Southern Association with 23 (57.5%) institutions reporting it.

Less than one-half of the institutions reported students from sources grouped in Others. A total of 55 (34.6%) institutions reported the category Others. When discriminated by Regional Association, the Western Association was the most likely to report institutions recruiting students from Others for the one and two-year programs in agriculture. The New England Association did not report institutions in this category.

In Table 8 the data are presented classified by type of institution. In the category High school graduates the two-year institutions offering technical education reported 47 (100%) institutions for the high and the four-year institutions reported 25 (96.2%) institutions for the low.

In the category Agriculture and agricultural related activities the two-year institutions offering technical and transfer education reported 60 (69.8%) institutions for the high and the two-year institutions

offering technical education reported 22 (46.8%) institutions for the low.

In the category Armed Forces veterans the two-year institutions offering technical and transfer education reported 68 (79.1%) institutions for the high and the four-year institutions reported 17 (65.4%) institutions for the low.

In the category Others the two-year institutions offering technical and transfer education reported 33 (38.4%) institutions for the high and the four-year institutions reported 7 (26.9%) institutions for the low.

In Table 9 the data are presented classified by size of institution. In the category High school graduates the 51-100 strata and the Over 100 strata reported 39 (100%) and 33 (100%) institutions for the high respectively, and the 1-50 strata reported 85 (97.7%) institutions for the low.

In the category Agriculture and agricultural related occupations the over 100 strata reported 27 (81.8%) institutions for the high and the 1-50 strata reported 40 (46%) institutions for the low.

In the category Armed Forces veterans the 51-100 strata reported 34 (81.2%) institutions for the high and the 1-50 strata reported 59 (67.8%) institutions for the low.

In the category Others the 51-100 strata reported 17 (43.6%) institutions for the high and the 1-50 strata reported 25 (28.7%) institutions for the low.

In Tables 10 to 21 the sources of students for the one and two-year programs in agriculture are analyzed in terms of the proportion in which each one participates in these programs. The institutions are arranged

in ten percent intervals for each source of enrollment in terms of their percentage of enrollment in one and two-year programs in agriculture recruited from each source.

In Table 10 the distribution into ten percent intervals of the proportion of high school graduates enrolled in one and two-year vocational and technical programs in agriculture arranged by Regional Accrediting Agency is presented. A total of 110 (69.2%) institutions reported that over 90% of their vocational and technical agriculture enrollment was recuirted from the High school graduates category. The Southern Association was the most likely to report in the 100% interval 34 (85%) institutions and the Western Association was the least likely to report in the 100% interval with only 4 (25%) institutions.

In Table 11 the distribution of the proportion of the High school student enrollment classified by type of institution is presented. The institutions offering technical education reported 42 (89.4%) institutions in the 100% interval for the high and the four-year institutions reported 12 (46.2%) institutions for the low in the 100% interval.

In Table 12 the distribution of the High school student enrollment classified by size of institution is presented. In the 100% interval the 1-50 strata reported 81 (93.1%) institutions for the high and the Over 100 strata reported 1 (3%) for the low.

In Table 13 the distribution of the proportion of the agriculture enrollment classified by Regional Accrediting Agency is presented. The majority of the institutions reporting enrollment engaged in Agriculture or agricultural related occupations before enrolling were in the ten

percent interval with 34 (21.4%) institutions. The Middle States Association reported 6 (46.2%) institutions in this interval for the high and the Southern Association reported 4 (10%) institutions for the low in the ten percent interval.

In Table 14 the Agriculture or agricultural occupation enrollment classified by type of institution is presented. In the ten percent interval the four-year institutions reported 9 (34.6%) institutions for the high and the institutions offering technical education reported 4 (8.5%) institutions for the low.

In Table 15 the data are presented arranged by size of institution. The Over 100 strata reported 19 (57.6%) institutions for the high in the ten percent interval and the 1-50 strata reported 3 (3.4%) institutions for the low.

In Tables 16, 17 and 18 the data are presented about the Armed Forces veterans enrollment. The majority of the institutions reporting enrollment in this category were in the ten percent interval with 47 (29.6%) institutions.

In Table 16 the data are presented classified by Regional Accrediting Agency. The Middle States Association reported 8 (61.5%) institutions for the high and the Southern Association reported 4 (10%) for the low in the ten percent interval.

In Table 17 the data are presented by type of institution. The four-year institutions reported 10 (38.5%) institutions for the high and the two-year institutions offering technical education reported 10 (21.3%) for the low in the ten percent interval.

In Table 18 the data are presented classified by size of institution. The Over 100 strata reported 23 (69.7%) institutions for the high and the 1-50 strata reported 3 (3.4%) institutions for the low in the ten percent interval.

In Tables 19, 20 and 21 the distribution of the Others student source distributed into ten percent intervals is presented. The ten percent interval presents the highest proportion of institutions reporting students in this category, with 20 (12.6%) institutions.

In Table 19 the data are presented classified by Regional Accrediting Agency with the Western Association reporting 7 (43.8%) institutions for the high and the New England Association reporting 0 (0%) institutions for the low in the ten percent interval.

In Table 20 the data are presented classified by type of institution with the two-year institutions offering technical and transfer education reporting 14 (16.3%) institutions for the high and the four-year institutions reporting 2 (7.7%) institutions for the low in the ten percent interval.

In Table 21 the data are presented classified by size of institution with the Over 100 strata reporting 12 (36.4%) institutions for the high and the 1-50 strata with 0 (0%) institutions for the low in the ten percent interval.

Table 7. Background of the students enrolled in one and two-year vocational and technical programs in agriculture in terms of the number of institutions reporting students in each category; by Regional Accrediting Agency

Regional Accrediting Agency		Background of the students: High school graduates		Agriculture or agricultural related occupations		Armed Forces veterans		Others	
		Yes	No	Yes	No	Yes	No	Yes	No
SA	N	39	1	19	21	23	17	7	33
	%	97.5	2.5	47.5	52.5	57.5	42.5	17.5	82.5
NCA	N	70	-	41	29	56	14	29	41
	%	100.0	-	58.6	41.4	80.0	20.0	41.4	58.6
WA	N	16	-	15	1	12	4	10	6
	%	100.0	-	93.7	6.3	75.0	25.0	62.5	37.5
NEA	N	3	-	1	2	2	1	-	3
	%	100.0	-	33.3	66.6	66.6	33.3	-	100.0
MSA	N	13	-	8	5	10	3	2	11
	%	100.0	-	61.5	38.5	76.9	23.1	15.4	84.6
NA	N	16	1	12	5	16	1	7	10
	%	94.1	5.9	70.6	29.4	94.1	5.9	41.2	58.8
Totals	N	157	2	96	63	119	40	55	104
		98.75	1.25	60.4	39.6	74.8	25.2	34.6	65.4

Table 8. Background of the students enrolled in one and two-year vocational and technical programs in agriculture in terms of the number of institutions reporting students in each category; by type of institution

Type of institution		Background of the students: High school graduates		Agriculture or agricultural related occupations		Armed Forces veterans		Others	
		Yes	No	Yes	No	Yes	No	Yes	No
A	N	85	1	60	26	68	18	33	53
	%	98.82	1.2	69.8	30.2	79.1	20.9	38.4	61.6
B	N	47	-	22	25	34	13	15	32
	%	100.0	-	46.8	53.2	72.3	27.7	31.9	68.1
O	N	25	1	14	12	17	9	7	19
	%	96.2	3.8	53.8	46.2	65.4	34.6	26.9	73.1
Totals	N	157	2	96	63	119	40	55	104
	%	98.75	1.25	60.4	39.6	74.8	25.2	34.6	65.4

Table 9. Background of the students enrolled in one and two-year vocational and technical programs in agriculture in terms of the number of institutions reporting students in each category; by size of institution

Type of institution		Background of the students: High school graduates		Agriculture or agricultural related occupations		Armed Forces veterans		Others	
		Yes	No	Yes	No	Yes	No	Yes	No
1-50	N	85	2	40	47	59	28	25	62
	%	97.7	2.3	46.0	54.0	67.8	32.2	28.7	71.3
51-100	N	39	-	29	10	34	5	17	22
	%	100.0	-	74.4	25.6	81.2	12.8	43.6	56.4
Over 100	N	33	-	27	6	26	7	13	20
	%	100.0	-	81.8	18.2	78.8	21.2	39.4	60.6
Totals	N	157	2	96	63	119	40	55	104
	%	98.75	1.25	60.4	39.6	74.8	25.2	34.6	65.4

Table 10. Distribution of the high school enrollment source in the one and two-year vocational and technical programs in agriculture in terms of percent of enrollment in these programs; by Regional Accrediting Agency.

Regional Accrediting Agency		Percentage of enrollment											
		0	10	20	30	40	50	60	70	80	90	100	Totals
SA	N	1	-	-	-	2	1	-	-	2	-	34	40
	%	2.5	-	-	-	5.0	2.5	-	-	5.0	-	85.0	100
NCA	N	-	-	2	1	2	1	2	6	3	2	51	70
	%	-	-	2.9	1.4	2.9	1.4	2.9	8.6	4.3	2.9	72.9	100
WA	N	-	1	4	1	1	1	1	1	1	1	4	16
	%	-	6.3	25.0	6.3	6.3	6.3	6.3	6.3	6.3	6.3	25.0	100
NEA	N	-	-	-	1	1	-	-	-	-	-	1	3
	%	-	-	-	33.3	33.3	-	-	-	-	-	33.3	100
MSA	N	-	1	1	2	-	-	-	2	1	-	6	13
	%	-	7.7	7.7	15.4	-	-	-	15.4	7.7	-	46.2	100
NA	N	1	-	-	-	-	-	1	-	-	1	14	17
	%	5.9	-	-	-	-	-	5.9	-	-	5.9	82.4	100
Totals	N	2	2	7	5	6	3	4	9	7	4	110	159
		1.25	1.25	4.4	3.1	3.8	1.9	2.5	5.7	4.4	2.5	69.2	100

Table 11. Distribution of the high school enrollment source in the one and two-year vocational and technical programs in agriculture in terms of percent of enrollment in these programs; by type of institution

Type of institution		Percentage of enrollment											
		0	10	20	30	40	50	60	70	80	90	100	Totals
A	N	1	1	4	2	3	3	2	5	6	3	56	86
	%	1.2	1.2	4.7	2.3	3.5	3.5	2.3	5.8	7.0	3.5	65.1	100
B	N	-	-	1	1	-	-	-	2	-	1	42	47
	%	-	-	2.1	2.1	-	-	-	4.3	-	2.1	89.4	100
C	N	1	1	2	2	3	-	2	2	1	-	12	26
	%	3.8	3.8	7.7	7.7	11.5	-	7.7	7.7	3.8	-	46.2	100
Totals	N	2	2	7	5	6	3	4	9	7	4	110	159
	%	1.25	1.25	4.4	3.1	3.8	1.9	2.5	5.7	4.4	2.5	69.2	100

Table 12. Distribution of the high school enrollment source in the one and two-year vocational and technical programs in agriculture in terms of percent of enrollment in these programs; by size of institution

Size of institution		Percentage of enrollment											
		0	10	20	30	40	50	60	70	80	90	100	Totals
1-50	N	2	-	-	-	-	-	2	1	1	-	81	87
	%	2.3	-	-	-	-	-	2.3	1.1	1.1	-	93.1	100
51-100	N	-	1	-	1	-	-	1	3	3	2	28	39
	%	-	2.6	-	2.6	-	-	2.1	7.7	7.7	5.1	71.8	100
Over 100	N	-	1	7	4	6	3	1	5	3	2	1	33
	%	-	3.0	21.2	12.1	18.2	9.1	3.0	15.2	9.1	6.1	3.0	100
Totals	N	2	2	7	5	6	3	4	9	7	4	110	159
	%	1.25	1.25	4.4	3.1	3.8	1.9	2.5	5.7	4.4	2.5	69.2	100

Table 13. Distribution of the agricultural student source in terms of percent of the enrollment in the one and two-year vocational and technical programs in agriculture; by Regional Accrediting Agency

Regional Accrediting Agency		Percentage of enrollment											
		0	10	20	30	40	50	60	70	80	90	100	Totals
SA	N	21	4	6	3	2	1	-	-	1	-	2	40
	%	52.5	10.0	15.0	7.5	5.0	2.5	-	-	2.5	-	5.0	100
NCA	N	29	14	7	6	6	1	1	-	2	1	3	70
	%	41.4	20.0	10.0	8.6	8.6	1.4	1.4	-	2.9	1.4	4.3	100
WA	N	1	7	5	-	1	-	2	-	-	-	-	16
	%	6.3	43.8	31.3	-	6.3	-	12.5	-	-	-	-	100
NEA	N	2	-	-	-	-	-	-	-	-	1	-	3
	%	66.7	-	-	-	-	-	-	-	-	33.3	-	100
MSA	N	5	6	2	-	-	-	-	-	-	-	-	13
	%	38.5	46.2	15.4	-	-	-	-	-	-	-	-	100
NA	N	5	3	-	4	-	1	-	1	-	-	3	17
	%	29.4	17.6	-	23.5	-	5.9	-	5.9	-	-	17.6	100
Totals	N	63	34	20	13	9	3	3	1	3	2	8	159
	%	39.6	21.4	12.6	8.2	5.7	1.9	1.9	0.6	1.9	1.2	5.0	100

Table 14. Distribution of the agricultural student source in terms of percent of the enrollment in the one and two-year vocational and technical programs in agriculture; by type of institution

Type of institution		Percentage of enrollment											
		0	10	20	30	40	50	60	70	80	90	100	Totals
A	N	26	21	17	7	4	2	2	-	2	-	5	86
	%	30.2	24.4	19.8	8.1	4.7	2.3	2.3	-	2.3	-	5.8	100
B	N	25	4	1	5	5	1	1	-	1	2	2	47
	%	53.2	8.5	2.1	10.6	10.6	2.1	2.1	-	2.1	4.3	4.3	100
0	N	12	9	2	1	-	-	-	1	-	-	1	26
	%	46.2	34.6	7.7	3.8	-	-	-	3.8	-	-	3.8	100
Totals	N	63	34	20	13	9	3	3	1	3	2	8	159
	%	39.6	21.4	12.6	8.2	5.7	1.9	1.9	0.6	1.9	1.2	5.0	100

Table 15. Distribution of the agricultural student source in terms of percent of the enrollment in the one and two-year vocational and technical programs in agriculture; by size of institution

Size of institution		Percentage of enrollment											
		0	10	20	30	40	50	60	70	80	90	100	Totals
1-50	N	47	3	8	9	5	2	1	1	3	1	7	87
	%	54.0	3.4	9.2	10.3	5.7	2.3	1.1	1.1	3.4	1.1	8.0	100
51-100	N	10	12	7	4	2	1	1	-	-	1	1	39
	%	25.6	30.6	17.9	10.3	5.1	2.6	2.6	-	-	2.6	2.6	100
Over 100	N	6	19	5	-	2	-	1	-	-	-	-	33
	%	18.2	57.6	15.2	-	6.1	-	3.0	-	-	-	-	100
Totals	N	63	34	20	13	9	3	3	1	3	2	8	159
	%	39.6	21.4	12.6	8.2	5.7	1.9	1.9	0.6	1.9	1.2	5.0	100

Table 16. Distribution of the veterans student source in terms of percent of the enrollment in the one and two-year vocational and technical programs in agriculture; by Regional Accrediting Agency

Regional Accrediting Agency		Percentage of enrollment											Totals
		0	10	20	30	40	50	60	70	80	90	100	
SA	N	17	4	4	4	1	2	-	3	1	-	4	40
	%	42.5	10.0	10.0	10.0	2.5	5.0	-	7.5	2.5	-	10.0	100
NCA	N	14	23	13	4	5	2	1	2	-	-	6	70
	%	20.0	32.9	18.6	5.7	7.1	2.9	1.4	2.9	-	-	8.6	100
WA	N	4	9	2	-	1	-	-	-	-	-	-	16
	%	25.0	56.3	12.5	-	6.3	-	-	-	-	-	-	100
NEA	N	1	1	1	-	-	-	-	-	-	-	-	3
	%	33.3	33.3	33.3	-	-	-	-	-	-	-	-	100
MSA	N	3	8	1	1	-	-	-	-	-	-	-	13
	%	23.1	61.5	7.7	7.7	-	-	-	-	-	-	-	100
NA	N	1	2	4	3	2	1	-	1	1	1	1	17
	%	5.9	11.8	23.5	17.6	11.8	5.9	-	5.9	5.9	5.9	5.9	100
Totals	N	40	47	25	12	9	5	1	6	2	1	11	159
	%	25.2	29.6	15.7	7.5	5.7	3.1	0.6	3.8	1.3	0.6	6.9	100

Table 17. Distribution of the veterans student source in terms of percent of the enrollment of the one and two-year vocational and technical programs in agriculture; by type of institution

Type of institution		Percentage of enrollment											
		0	10	20	30	40	50	60	70	80	90	100	Totals
A	N	18	27	16	9	6	2	-	2	2	1	3	86
	%	20.9	31.4	18.6	10.5	7.0	2.3	-	2.3	2.3	1.2	3.5	100
B	N	13	10	7	-	3	3	1	2	-	-	8	47
	%	27.7	21.3	14.9	-	6.4	6.4	2.1	4.3	-	-	17.0	100
C	N	9	10	2	3	-	-	-	2	-	-	-	26
	%	34.6	38.5	7.7	11.5	-	-	-	7.7	-	-	-	100
Totals	N	40	47	25	12	9	5	1	6	2	1	11	159
	%	25.2	29.6	15.7	7.5	5.7	3.1	0.6	3.8	1.3	0.6	6.9	100

Table 18. Distribution of the veterans students source in terms of percent of the enrollment in the one and two-year vocational and technical programs in agriculture; by size of institution

Size of institution		Percentage of enrollment											
		0	10	20	30	40	50	60	70	80	90	100	Totals
1-50	N	28	3	11	12	7	5	1	6	2	1	11	87
	%	32.2	3.4	12.6	13.8	8.0	5.7	1.1	6.9	2.3	1.1	12.6	100
51-100	N	5	21	11	-	2	-	-	-	-	-	-	39
	%	12.8	53.8	28.2	-	5.1	-	-	-	-	-	-	100
Over 100	N	7	23	3	-	-	-	-	-	-	-	-	33
	%	21.2	69.7	9.1	-	-	-	-	-	-	-	-	100
Totals	N	40	47	25	12	9	5	1	6	2	1	11	159
	%	25.2	29.6	15.7	7.5	5.7	3.1	0.6	3.8	1.3	0.6	6.9	100

Table 19. Distribution of the others student source in terms of percent of the enrollment in the one and two-year vocational and technical programs in agriculture; by Regional Accrediting Agency

Regional Accrediting Agency		Percentage of students 0	10	20	30	40	50	60	70	80	90	100	Totals
SA	N	33	1	1	1	-	1	-	-	-	-	3	40
	%	82.5	2.5	2.5	2.5	-	2.5	-	-	-	-	7.5	100
NCA	N	41	10	8	3	1	1	-	2	1	-	3	70
	%	58.6	14.3	11.4	4.3	1.4	1.4	-	2.9	1.4	-	4.3	100
WA	N	6	7	1	1	1	-	-	-	-	-	-	16
	%	37.5	43.8	6.3	6.3	6.3	-	-	-	-	-	-	100
NEA	N	3	-	-	-	-	-	-	-	-	-	-	3
	%	100.0	-	-	-	-	-	-	-	-	-	-	100
MSA	N	11	1	1	-	-	-	-	-	-	-	-	13
	%	84.6	7.7	7.7	-	-	-	-	-	-	-	-	100
NA	N	10	1	2	1	-	1	1	-	-	-	1	17
	%	58.8	5.9	11.8	5.9	-	5.9	5.9	-	-	-	5.9	100
Totals	N	104	20	13	6	2	3	1	2	1	-	7	159
	%	65.4	12.6	8.2	3.7	1.3	1.9	0.6	1.3	0.6	-	4.4	100

Table 20. Distribution of the others student source in terms of percent of the enrollment in the one and two-year vocational and technical programs in agriculture; by type of institution

Type of institution		Percentage of enrollment											
		0	10	20	30	40	50	60	70	80	90	100	Totals
A	N	53	14	5	5	1	1	1	2	1	-	3	86
	%	61.6	16.3	5.8	5.8	1.2	1.2	1.2	2.3	1.2	-	3.5	100
B	N	32	4	6	1	1	1	-	-	-	-	2	47
	%	68.1	8.5	12.8	2.1	2.1	2.1	-	-	-	-	4.3	100
C	N	19	2	2	-	-	1	-	-	-	-	2	26
	%	73.1	7.7	7.7	-	-	3.8	-	-	-	-	7.7	100
Totals	N	104	20	13	6	2	3	1	2	1	-	7	159
	%	65.4	12.6	8.2	3.7	1.3	1.9	0.6	1.3	0.6	-	4.4	100

Table 21. Distribution of the others student source in terms of percent of the enrollment in the one and two-year vocational and technical programs in agriculture; by size of institution

Size of institution		Percentage of enrollment											
		0	10	20	30	40	50	60	70	80	90	100	Totals
1-50	N	62	-	6	4	1	3	1	2	1	-	7	87
	%	71.3	-	6.9	4.6	1.1	3.4	1.1	2.3	1.1	-	8.0	100
51-100	N	22	8	6	2	1	-	-	-	-	-	-	39
	%	56.4	20.5	15.4	5.1	2.6	-	-	-	-	-	-	100
Over 100	N	20	12	1	-	-	-	-	-	-	-	-	33
	%	60.6	36.4	3.0	-	-	-	-	-	-	-	-	100
Totals	N	104	20	13	6	2	3	1	2	1	-	7	159
	%	65.4	12.6	8.2	3.7	1.3	1.9	0.6	1.3	0.6	-	4.4	100

Sources of Faculty for the One and Two-Year Vocational and Technical Programs in Agriculture

Objective 3: To determine the sources of the faculty.

Question number three of the questionnaire was concerned with this objective. The sources of faculty teaching the one and two-year programs in agriculture were classified into four groups: (1) Faculty recruited from high school or trade school faculties; (2) Faculty recruited from junior colleges faculty; (3) Faculty recruited among graduating teachers; and (4) Faculty recruited from the professions, trades, and industry.

The respondent was asked to give the number of faculty members recruited from each category.

The data gathered were arranged in two different ways. First, the presence or absence of staff recruited from each category in each institution was tabulated in Tables 22, 23, and 24. Second, the data were transformed to percent of faculty teaching one and two-year vocational and technical programs in agriculture recruited from each source for each institution. These data in percent of the total were tabulated in ten percent intervals. In Tables 25 to 36, these data are presented.

The category Professions, trades and industry was the most mentioned source of staff for the one and two-year vocational and technical programs in agriculture with 126 (76.4%) institutions reporting it. The least reported source of faculty was the Junior college faculty category with 22 (13.3%) institutions reporting it.

In Table 22 the data were classified by Regional Accrediting Agency. The category Professions, trade and industry was chose most frequently by the Southern Association with 30 (78.9%) institutions, the North Central Association with 54 (74%) institutions, the New England Association with 2 (100%) institutions, the Middle States Association with 12 (85.7%) institutions and the Northwestern Association with 12 (85.7%) institutions reporting the category Professions, trades and industry. The Western Association was more likely to report staff recruited from the High school and trade school source with 16 (80%) institutions.

The category Junior college was the least reported category for all the Regional Accrediting Agencies with 5 (13.2%) institutions reporting it, the North Central Association with 10 (13.7%) institutions, the Western Association with 3 (15%) institutions, the New England Association with no institutions reporting the category and the Northwestern Association reporting 3 (16.7%) institutions with faculty recruited from the Junior colleges category.

In Table 23 the data are classified by type of institution. The category Professions, trades and industry is the source of faculty most frequently reported by the two-year institutions with technical and transfer education with 68 (73.1%) institutions, and by the four-year institutions with 18 (78.3%) institutions. The two-year institutions offering technical education most likely reported the High school and trade school source of faculty with 26 (53.1%) institutions.

The Junior college category was the least reported source of faculty for the three strata. The two-year institutions with technical and

transfer programs reported 20 (21.5%) institutions, the two-year institutions offering technical programs reported 1 (2%) institutions and the four-year institutions reported 1 (4.3%) institutions with faculty recruited from the Junior college source.

In Table 24 the data are presented arranged by size of institution. The category Professions, trades and industry was most likely reported as source of faculty by the 1-50 strata with 64 (73.6%) institutions and by the Over 100 strata with 32 (84.2%) institutions reporting faculty from the Professions, trades and industry source. The High school and trade school source was most likely reported by the 51-100 strata with 31 (77.5%) institutions reporting the strata.

The Junior college category was the least reported source of faculty by the three strata. The 1-50 strata reported 12 (13.8%) institutions, the 51-100 strata reported 3 (7.5%) institutions and the Over 100 strata reported 7 (18.4%) institutions with faculty recruited in the Junior college category.

In Tables 25, 26, and 27 is presented the distribution of the proportion of the faculty teaching in the one and two-year vocational and technical programs in agriculture recruited from the High school faculty source. The data indicate that 31 (18.8%) of these institutions recruit 50% of their staff from High school or trade school faculty.

In Table 25 the data are analyzed by Regional Accrediting Agency. The Northwestern Association reported 5 (27.8%) institutions recruiting over 40 to 50 percent of their staff from high school and trade school faculty for the high in the fifty percent interval while the low of the

interval was reported by the New England Association with no institutions reporting.

In Table 26 the data are arranged by type of institution. The two-year institutions offering technical education reported 10 (20.4%) institutions for the high and the four-year institutions reported 4 (17.4%) institutions for the low in the fifty percent interval.

In Table 27 the data are arranged by size of institution. The 51-100 strata reported 12 (30%) institutions for the high and the Over 100 strata reported 2 (5.3%) institutions for the low in the fifty percent interval.

In Tables 28, 29 and 30 the distribution of the proportion of the faculty teaching in the one and two-year programs in agriculture recruited from the junior college source is presented. The data indicate that little recruitment is done at the junior college level. The institutions with faculty recruited from the junior college more likely reported in the twenty percent interval with 8 (4.9%) institutions.

In Table 28 the data are classified by Regional Accrediting Agency. The Middle States Association reported 1 (7.1%) institutions for the high and the New England Association and the Northwestern Association reported 0 (0%) institutions for the low in the twenty percent interval.

In Table 29 the data are classified by type of institution. The two-year institutions offering technical and transfer education reported 6 (6.5%) institutions for the high and the two-year institutions offering technical education reported 0 (0%) institutions for the low in the twenty percent interval.

In Table 30 the data are classified by size of institution. The Over 100 strata reported 5 (13.2%) institutions for the high and the 1-50 strata reported 1 (1.1%) institutions for the low in the twenty percent interval.

In Tables 31, 32 and 33 the distribution of the proportion of the faculty teaching in the one and two-year programs in agriculture recruited from the graduating teaching source is presented. The fifty percent interval presented the highest frequency of institutions.

In Table 31 the data are classified by Regional Accrediting Agency. The North Central Association reported 5 (6.8%) institutions for the high and the New England Association and the Middle States Association reported 0 (0%) institutions for the low in the fifty percent interval.

In Table 32 the data are classified by type of institution. The two-year institutions offering technical and vocational education reported 10 (10.8%) institutions for the high and the two-year institutions offering technical education and the four-year institutions reported 0 (0%) institutions for the low in the fifty percent interval.

In Table 33 the data are classified by size of enrollment. The 1-50 strata reported 6 (6.9%) institutions for the high and the 51-100 strata reported 2 (5%) institutions for the low in the fifty percent interval.

In Tables 34, 35 and 36 the distribution of the proportion of the faculty teaching in the one and two-year programs in agriculture recruited from the Professions, trades and industry source is presented.

The highest frequency of institutions reported in the 100% interval.

In Table 34 the data are classified by Regional Accrediting Agency. The Southern Association reported 14 (36.8%) institutions for the high and the New England Association reported 0 (0%) institutions for the low in the 100% interval.

In Table 35 the data are classified by type of institution. The two-year institutions offering technical education reported 8 (36.7%) institutions for the high and the two-year institutions offering technical and transfer education reported 14 (15.1%) institutions for the low in the 100% interval.

In Table 36 the data are classified by size of institution. The 1-50 strata reported 31 (35.6%) institutions for the high and the Over 100 strata reported 3 (7.9%) institutions for the low in the 100% interval.

Table 22. Source of faculty teaching the one and two-year vocational and technical programs in agriculture in terms of institutions reporting faculty in each category; by Regional Accrediting Agency

Regional Accrediting Agency		Sources of Faculty: High school and trade school		Junior college		Graduating teachers		Professions, trades and industry	
		Yes	No	Yes	No	Yes	No	Yes	No
SA	N	14	24	5	33	8	30	30	8
	%	36.8	63.2	13.2	86.8	21.1	78.9	78.9	21.1
NCA	N	50	23	10	63	13	60	54	19
	%	68.5	31.5	13.7	86.3	17.8	82.2	74.0	26.0
WA	N	16	4	3	17	5	15	13	7
	%	80.0	20.0	15.0	85.0	25.0	75.0	65.0	35.0
NEA	N	1	1	-	2	2	-	2	-
	%	50.0	50.0	-	100.0	100.0	-	100.0	-
MSA	N	6	8	1	13	9	5	12	2
	%	42.9	57.1	7.1	92.9	64.3	35.7	85.7	14.3
NA	N	9	9	3	15	5	13	15	3
	%	50.0	50.0	16.7	83.3	27.8	72.2	83.3	16.7
Totals	N	96	69	22	143	42	123	126	39
	%	58.2	41.8	13.3	86.7	25.4	74.6	76.4	23.6

Table 23. Sources of faculty teaching the one and two-year vocational and technical programs in agriculture in terms of institutions reporting faculty in each category; by type of institution

Type of institution		Sources of faculty: High school and trade school		Junior college		Graduating teachers		Professions, trades and industry	
		Yes	No	Yes	No	Yes	No	Yes	No
A	N	58	35	20	73	25	68	68	25
	%	72.4	37.6	21.5	78.5	26.9	73.1	73.1	26.9
B	N	26	23	1	48	7	42	40	9
	%	53.1	49.9	2.0	98.0	14.3	85.7	81.63	18.37
C	N	12	11	1	22	10	13	18	5
	%	52.2	47.8	4.3	95.7	43.5	56.5	78.3	21.7
Totals	N	96	69	22	143	42	123	126	39
	%	58.2	41.8	13.3	86.7	25.4	74.6	76.4	23.6

Table 24. Sources of faculty teaching the one and two-year vocational and technical programs in agriculture in terms of institutions reporting faculty in each category; by size of institution

Size of institution		Sources of faculty: High school and trade school		Junior college		Graduating teachers		Professions, trades and industry	
		Yes	No	Yes	No	Yes	No	Yes	No
1-50	N	39	48	12	75	14	73	64	23
	%	44.8	55.2	13.8	86.2	16.1	83.9	73.6	26.4
51-100	N	31	9	3	37	10	30	30	10
	%	77.5	22.5	7.5	92.5	25.0	75.0	75.0	25.0
Over 100	N	26	12	7	31	18	20	32	6
	%	68.4	31.6	18.4	81.6	47.4	52.6	84.2	15.8
Totals	N	96	69	22	143	42	123	126	39
	%	58.2	41.8	13.3	86.7	25.4	74.6	76.4	23.6

Table 25. Percent distribution of the faculty teaching one and two-year vocational and technical programs in agriculture recruited from the High school and trade school faculties source; by Regional Accrediting Agency

Regional Accrediting Agency		Percentage of faculty											
		0	10	20	30	40	50	60	70	80	90	100	Totals
SA	N	24	-	-	3	1	7	-	-	1	-	2	38
	%	63.2	-	-	7.9	2.6	18.4	-	-	2.6	-	5.3	100
NCA	N	23	1	6	3	6	17	3	3	1	-	10	73
	%	31.5	1.4	8.2	4.1	8.2	23.3	4.1	4.1	1.4	-	13.7	100
WA	N	4	-	1	1	1	1	-	2	4	1	5	20
	%	20.0	-	5.0	5.0	5.0	5.0	-	10.0	20.0	5.0	25.0	100
NEA	N	1	-	-	1	-	-	-	-	-	-	-	2
	%	50.0	-	-	50.0	-	-	-	-	-	-	-	100
MSA	N	8	1	1	1	1	1	-	-	-	1	-	14
	%	57.1	7.1	7.1	7.1	7.1	7.1	-	-	-	7.1	-	100
NA	N	9	-	-	-	2	5	-	1	-	-	1	18
	%	50.0	-	-	-	11.1	27.8	-	5.6	-	-	5.6	100
Totals	N	69	2	8	9	11	31	3	6	6	2	18	165
	%	41.8	1.2	4.9	5.5	6.7	18.8	1.8	3.6	3.6	1.2	10.9	100

Table 26. Percent distribution of the faculty teaching one and two-year vocational and technical programs in agriculture recruited from the High school and trade school faculties source; by type of institution

Type of institution		Percentage of faculty											
		0	10	20	30	40	50	60	70	80	90	100	Totals
A	N	35	1	4	6	9	17	2	4	4	1	10	93
	%	37.6	1.1	4.3	6.5	9.7	18.3	2.2	4.3	4.3	1.1	10.8	100
B	N	23	-	2	1	1	10	1	2	2	-	7	49
	%	46.9	-	4.1	2.0	2.0	20.4	2.0	4.1	4.1	-	14.3	100
C	N	11	1	2	2	1	4	-	-	-	1	1	23
	%	47.8	4.3	8.7	8.7	4.3	17.4	-	-	-	4.3	4.3	100
Totals	N	69	2	8	9	11	31	3	6	6	2	18	165
	%	41.8	1.2	4.9	5.5	6.7	18.8	1.8	3.6	3.6	1.2	10.9	100

Table 27. Percent distribution of the faculty teaching one and two-year vocational and technical programs in agriculture recruited from the High school and trade school faculties source; by size of institution

Size of institution		Percentage of faculty											
		0	10	20	30	40	50	60	70	80	90	100	Totals
1-50	N	48	-	1	2	7	17	1	2	-	-	9	87
	%	55.2	-	1.1	2.3	8.0	19.5	1.1	2.3	-	-	10.3	100
51-100	N	9	1	3	2	2	12	2	1	2	-	6	40
	%	22.5	2.5	7.5	5.0	5.0	30.0	5.0	2.5	5.0	-	15.0	100
Over 100	N	12	1	4	5	2	2	-	3	4	2	3	38
	%	31.6	2.6	10.5	13.2	5.3	5.3	-	7.9	10.5	5.3	7.9	100
Totals	N	69	2	8	9	11	31	3	6	6	2	18	165
	%	41.8	1.2	4.9	5.5	6.7	18.8	1.8	3.6	3.6	1.2	10.9	100

Table 28. Percent distribution of the faculty teaching one and two-year vocational and technical programs in agriculture recruited from the Junior college faculty sources; by Regional Accrediting Agency

Regional Accrediting Agency		Percentage of faculty											
		0	10	20	30	40	50	60	70	80	90	100	Totals
SA	N	33	-	1	1	1	1	-	-	-	-	1	38
	%	86.8	-	2.6	2.6	2.6	2.6	-	-	-	-	2.6	100
NCA	N	63	1	4	-	-	2	-	-	-	-	3	73
	%	86.3	1.4	5.5	-	-	2.7	4.1	-	-	-	4.1	100
WA	N	17	-	1	1	1	-	-	-	-	-	-	20
	%	85.0	-	5.0	5.0	5.0	-	-	-	-	-	-	100
NEA	N	2	-	-	-	-	-	-	-	-	-	-	2
	%	100.0	-	-	-	-	-	-	-	-	-	-	100
MSA	N	13	-	1	-	-	-	-	-	-	-	-	14
	%	92.9	-	7.1	-	-	-	-	-	-	-	-	100
NA	N	15	-	-	1	2	-	-	-	-	-	-	18
	%	83.3	-	-	5.6	11.1	-	-	-	-	-	-	100
Totals	N	143	1	7	3	4	3	-	-	-	-	4	165
	%	86.7	0.6	4.3	1.8	2.4	1.8	-	-	-	-	2.4	100

Table 29. Percent distribution of the faculty teaching one and two-year vocational and technical programs in agriculture recruited from the Junior college faculty source; by type of institution

Type of institution		Percentage of faculty											
		0	10	20	30	40	50	60	70	80	90	100	Totals
A	N	73	1	6	3	4	2	-	-	-	-	4	93
	%	78.5	1.1	6.5	3.2	4.3	2.2	-	-	-	-	4.3	100
B	N	48	-	-	-	-	1	-	-	-	-	-	49
	%	98.0	-	-	-	-	2.0	-	-	-	-	-	100
C	N	22	-	1	-	-	-	-	-	-	-	-	23
	%	95.7	-	4.3	-	-	-	-	-	-	-	-	100
Totals	N	143	1	7	3	4	3	-	-	-	-	4	165
	%	86.7	0.6	4.3	1.8	2.4	1.8	-	-	-	-	2.4	100

Table 30. Percent distribution of the faculty teaching one and two-year vocational and technical programs in agriculture recruited from the Junior college faculty source; by size of institution

Size of institution		Percentage of faculty											
		0	10	20	30	40	50	60	70	80	90	100	Totals
1-50	N	75	-	1	2	3	2	-	-	-	-	4	87
	%	86.2	-	1.1	2.3	3.4	2.3	-	-	-	-	4.6	100
51-100	N	37	1	1	1	-	-	-	-	-	-	-	40
	%	92.5	2.5	2.5	2.5	-	-	-	-	-	-	-	100
Over 100	N	31	-	5	-	1	1	-	-	-	-	-	38
	%	81.6	-	13.2	-	2.6	2.6	-	-	-	-	-	100
Totals	N	143	1	7	3	4	3	-	-	-	-	4	165
	%	86.7	0.6	4.3	1.8	2.6	1.8	-	-	-	-	2.4	100

Table 31. Percent distribution of the faculty teaching one and two-year vocational and technical programs in agriculture recruited from the Graduating teachers source; by Regional Accrediting Agency

Regional Accrediting Agency		Percentage of faculty											
		0	10	20	30	40	50	60	70	80	90	100	Totals
SA	N	30	-	-	1	-	3	-	1	-	-	3	38
	%	78.9	-	-	2.6	-	7.9	-	2.6	-	-	7.9	100
NCA	N	60	-	3	2	2	5	-	-	-	1	-	73
	%	82.2	-	4.1	2.7	2.7	6.8	-	-	-	1.4	-	100
WA	N	15	-	2	2	-	1	-	-	-	-	-	20
	%	75.0	-	10.0	10.0	-	5.0	-	-	-	-	-	100
NEA	N	-	-	1	1	-	-	-	-	-	-	-	2
	%	-	-	50.0	50.0	-	-	-	-	-	-	-	100
MSA	N	5	1	1	3	2	-	-	-	-	-	2	14
	%	35.7	7.1	7.1	21.4	14.3	-	-	-	-	-	14.3	100
NA	N	13	-	-	-	3	1	-	-	-	-	1	18
	%	72.2	-	-	-	16.7	5.6	-	-	-	-	5.6	100
Totals	N	123	1	7	9	7	10	-	1	-	1	6	165
	%	74.6	0.6	4.2	5.5	4.2	6.1	-	0.6	-	0.6	3.6	100

Table 32. Percent distribution of the faculty teaching one and two-year vocational and technical programs in agriculture recruited from the Graduating teachers source; by type of institution

Type of institution		Percentage of faculty											Totals
		0	10	20	30	40	50	60	70	80	90	100	
A	N	68	-	5	3	5	10	-	1	-	-	1	93
	%	73.1	-	5.4	3.2	5.4	10.8	-	1.1	-	-	1.1	100
B	N	42	-	1	2	2	-	-	-	-	1	1	49
	%	85.7	-	2.0	4.1	4.1	-	-	-	-	2.0	2.0	100
C	N	13	1	1	4	-	-	-	-	-	-	4	23
	%	56.5	4.3	4.3	17.4	-	-	-	-	-	-	17.4	100
Totals	N	123	1	7	9	7	10	-	1	-	1	6	165
	%	74.6	0.6	4.2	5.5	4.2	6.1	-	0.6	-	0.6	3.6	100

Table 33. Percent of distribution of the faculty teaching one and two-year vocational and technical programs in agriculture recruited from the Graduating teachers source; by size of institution

Size of institution		Upper limits of percent categories											Totals
		0	10	20	30	40	50	60	70	80	90	100	
1-50	N	73	-	-	1	3	6	-	-	-	-	4	87
	%	83.9	-	-	1.1	3.4	6.9	-	-	-	-	4.6	100
51-100	N	30	-	3	3	1	2	-	-	-	-	1	40
	%	75.0	-	7.5	7.5	2.5	5.0	-	-	-	-	2.5	100
Over 100	N	20	1	4	5	3	2	-	1	-	1	1	38
	%	52.6	2.6	10.5	13.2	7.9	5.3	-	2.6	-	2.6	2.6	100
Totals	N	123	1	7	9	7	10	-	1	-	1	6	165
	%	74.6	0.6	4.2	5.5	4.2	6.1	-	0.6	-	0.6	3.6	100

Table 34. Percent of distribution of the faculty teaching one and two-year vocational and technical programs in agriculture recruited from the Professions, trades, and industry source; by Regional Accrediting Agency

Regional Accrediting Agency		Percentage of faculty											
		0	10	20	30	40	50	60	70	80	90	100	Totals
SA	N	8	-	-	2	-	8	-	2	3	1	14	38
	%	21.1	-	-	5.3	-	21.1	-	5.3	7.9	2.6	36.8	100
NCA	N	19	1	5	3	2	11	4	6	6	1	15	73
	%	26.0	1.4	6.8	4.1	2.7	15.1	5.5	8.2	8.2	1.4	20.5	100
WA	N	7	1	4	1	2	2	-	1	-	-	2	20
	%	35.0	5.0	20.0	5.0	10.0	10.0	-	5.0	-	-	10.0	100
NEA	N	-	-	-	-	-	-	1	-	1	-	-	2
	%	-	-	-	-	-	-	50.0	-	50.0	-	-	100
MSA	N	2	1	-	1	-	1	1	3	1	1	3	14
	%	14.3	7.1	-	7.1	-	7.1	7.1	21.4	7.1	7.1	21.4	100
NA	N	3	-	-	1	2	5	-	2	-	-	5	18
	%	16.7	-	-	5.6	11.1	27.8	-	11.1	-	-	27.8	100
Totals	N	39	3	9	8	6	27	6	14	11	3	39	165
	%	23.6	1.8	5.5	4.9	3.6	16.4	3.6	8.5	6.7	1.8	23.6	100

Table 35. Percent distribution of the faculty teaching one and two-year vocational and technical programs in agriculture recruited from the Professions, trades, and industry source; by type of institution

Type of institution		Percentage of faculty											
		0	10	20	30	40	50	60	70	80	90	100	Totals
A	N	25	1	7	4	5	13	5	11	6	2	14	93
	%	26.9	1.1	7.5	4.3	5.4	14.0	5.4	11.8	6.5	2.2	15.1	100
B	N	9	-	2	3	1	-	-	2	4	-	18	49
	%	18.4	-	4.1	6.1	2.0	20.4	-	4.1	8.2	-	36.7	100
C	N	5	2	-	1	-	4	1	1	1	1	7	23
	%	21.7	8.7	-	4.3	-	17.4	4.3	4.3	4.3	4.3	30.4	100
Totals	N	39	3	9	8	6	27	6	14	11	3	39	165
	%	23.6	1.8	5.5	4.9	3.6	16.4	3.6	8.5	6.7	1.8	23.6	100

Table 36. Percent distribution of the faculty teaching one and two-year vocational and technical programs in agriculture recruited from the Professions, trades, and industry source; by size of institution

Size of institution		Percentage of faculty											Totals
		0	10	20	30	40	50	60	70	80	90	100	
1-50	N	23	-	1	1	3	17	1	7	3	-	31	87
	%	26.4	-	1.1	1.1	3.4	19.5	1.1	8.0	3.4	-	35.6	100
51-100	N	10	-	1	4	1	8	2	2	5	2	5	40
	%	25.0	-	2.5	10.0	2.5	20.0	5.0	5.0	12.5	5.0	12.5	100
Over 100	N	6	3	7	3	2	2	3	5	3	1	3	38
	%	15.8	7.9	18.4	7.9	5.3	5.3	7.9	13.2	7.9	2.6	7.9	100
Totals	N	39	3	9	8	6	27	6	14	11	3	39	165
	%	23.6	1.8	5.5	4.9	3.6	16.4	3.6	8.5	6.7	1.8	23.6	100

Work Load of the Faculty Teaching in the One and Two-Year Vocational and Technical Programs in Agriculture

Objective 4: To determine the distribution of the work load of the faculty.

Question four of the questionnaire was designed to obtain the information for this objective. The time devoted to each of five categories was asked. These categories were: (1) Lecture or recitation; (2) Laboratory and/or shop; (3) Grading and class preparation; (4) Advising students; and (5) Others.

The information obtained is presented in the Tables 37 to 51. The data are arranged in terms of the distribution of the time devoted to each of the five areas as a percent of the total work load and in ten percent intervals. The 0 category lists the institutions not reporting time devoted to the item.

In Tables 37, 38 and 39 the percent distribution of the time devoted to lecture and recitation is presented. The thirty percent interval reported the highest frequency with 55 (35%) institutions.

In Table 37 the data are classified by Regional Accrediting Agency. The New England Association reported 1 (50.0%) institutions for the high and the Northwestern Association reported 5 (35.7%) institutions for the low in the thirty percent interval.

In Table 38 the data are classified by type of institutions. Two-year institutions offering technical education reported 17 (38.6%) institutions for the high and the four-year institutions reported 4

(16.7%) institutions for the low in the thirty percent interval.

In Table 39 the data are classified by size of institution. The 51-100 strata reported 15 (38.5%) institutions for the high and the 1-50 strata reported 26 (33.3%) institutions for the low in the thirty percent interval.

In Tables 40, 41 and 42 the percent distribution of the time devoted to Laboratory and shop is presented. The institutions were more likely to report in the thirty percent interval with 48 (30.5%) institutions.

In Table 40 the data are classified by Regional Accrediting Agency. The Western Association reported 10 (50.0%) institutions for the high and the New England Association reported 0 (0%) institutions for the low in the thirty percent interval.

In Table 41 the data are classified by type of institution. The two-year institutions offering technical and transfer programs reported 29 (32.6%) institutions for the high and the four-year institutions reported 6 (25.0%) institutions for the low in the thirty percent interval.

In Table 42 the data are classified by size of institution. The Over 100 strata reported 17 (42.5%) institutions for the high and the 1-50 strata reported 19 (24.4%) institutions for the low in the thirty percent interval.

In Tables 43, 44 and 45 the percent distribution of the time devoted to Grading and class preparation is presented. The institutions were more likely to report in the thirty percent interval with 52 (33.0%) of the institutions.

In Table 43 the data are classified by Regional Accrediting Agency. The Western Association reported 10 (50.0%) institutions for the high and the New England Association reported the low with no institutions in the thirty percent interval.

In Table 44 the data are classified by type of institution. The two-year institutions offering technical and transfer education reported 32 (36.0%) institutions for the high and the two-year institutions offering technical education reported 12 (27.3%) institutions for the low in the thirty percent interval.

In Table 45 the data are classified by size of institution. The Over 100 strata reported 19 (47.5%) institutions for the high and the 51-100 strata reported 8 (20.5%) institutions for the low in the thirty percent interval.

In Tables 46, 47 and 48 the percent distribution of the time devoted to Advise students is presented. The institutions were more likely to report in the ten percent interval, with 80 (50.9%) of the institutions.

In Table 46 the data are classified by Regional Accrediting Agency. The North Central Association reported 41 (60.3%) institutions for the high and the New England Association reported no institutions in the ten percent interval for the low.

In Table 47 the data are classified by type of institution. The two-year institutions offering technical education reported 26 (59.1%) for the high and the four-year institutions reported 12 (50.0%) institutions for the low in the ten percent interval.

In Table 48 the data are classified by size of institution. The 51-100 strata reported 23 (59.0%) institutions for the high and the Over 100 strata reported 14 (35.0%) institutions for the low in the ten percent interval.

In Tables 49, 50 and 51 the percent distribution of the time devoted to Others is presented. The institutions reporting time devoted to others were most likely to report a maximum of ten percent of the total faculty time devoted to the category. The ten percent interval grouped 36 (23.0%) of the institutions.

In Table 49 the data are classified by Regional Accrediting Agency. The Middle States Association reported 5 (35.7%) institutions for the high and the New England Association reported no institutions in the ten percent interval.

In Table 50 the data are classified by type of institution. The four-year institutions reported 9 (37.5%) institutions for the high and the two-year institutions offering technical and transfer education reported 16 (18.0%) institutions for the low in the ten percent interval.

In Table 51 the data are classified by size of institution. The 1-50 strata reported 19 (24.4%) institutions for the high and the Over 100 strata reported 8 (20%) institutions for the low in the ten percent interval.

Table 37. Percent distribution of the time devoted to lecture and recitation in terms of the total work load of the full-time faculty teaching one and two-year vocational and technical programs; by Regional Accrediting Agency

Regional Accrediting Agency		Percentage of the total load											
		0	10	20	30	40	50	60	70	80	90	100	Totals
SA	N	-	-	10	14	12	1	-	1	1	-	-	39
	%	-	-	25.6	35.9	30.8	2.6	-	2.6	2.6	-	-	100
NCA	N	-	3	19	25	15	5	1	-	-	-	-	68
	%	-	4.4	27.9	36.8	22.1	7.4	1.5	-	-	-	-	100
WA	N	-	1	8	8	2	1	-	-	-	-	-	20
	%	-	5.0	40.0	40.0	10.0	5.0	-	-	-	-	-	100
NEA	N	-	-	-	1	-	-	1	-	-	-	-	2
	%	-	-	-	50.0	-	-	50.0	-	-	-	-	100
MSA	N	-	2	6	2	2	2	-	-	-	-	-	14
	%	-	14.3	41.9	14.3	14.3	14.3	-	-	-	-	-	100
NA	N	-	1	3	5	3	2	-	-	-	-	-	14
	%	-	7.1	21.4	35.7	21.4	14.3	-	-	-	-	-	100
Totals	N	-	7	46	55	34	11	2	1	1	-	-	157
	%	-	4.5	29.3	35.0	21.7	7.0	1.3	0.6	0.6	-	-	100

Table 38. Percent distribution of the time devoted to lecture and recitation in terms of the total work load of the full-time faculty teaching one and two-year vocational and technical programs; by type of institution

Type of institutions		Percentage of total time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
A	N	-	2	29	34	16	7	1	-	-	-	-	89
	%	-	2.2	32.6	38.2	18.0	7.9	1.1	-	-	-	-	100
B	N	-	2	7	17	15	1	1	1	-	-	-	44
	%	-	4.5	15.9	38.6	34.1	2.3	2.3	2.3	-	-	-	100
C	N	-	3	10	4	3	3	-	-	1	-	-	24
	%	-	12.5	41.7	16.7	12.5	12.5	-	-	4.2	-	-	100
Totals	N	-	7	46	55	34	11	2	1	1	-	-	157
	%	-	4.5	29.3	35.0	21.7	7.0	1.3	0.6	0.6	-	-	100

Table 39. Percent distribution of the time devoted to lecture and recitation in terms of the total work load of the full-time faculty teaching one and two-year vocational and technical programs; by size of institution

Size of institution		Percentage of the total time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
1-50	N	-	2	19	26	21	7	1	1	1	-	-	78
	%	-	2.6	24.4	33.3	26.9	9.0	1.3	1.3	1.3	-	-	100
51-100	N	-	3	11	15	6	3	1	-	-	-	-	39
	%	-	7.7	28.2	38.5	15.4	7.7	2.6	-	-	-	-	100
Over 100	N	-	2	16	14	7	1	-	-	-	-	-	40
	%	-	5.0	40.0	35.0	17.5	2.5	-	-	-	-	-	100
Totals	N	-	7	46	55	34	11	2	1	1	-	-	157
	%	-	4.5	29.3	35.0	21.7	7.0	1.3	0.6	0.6	-	-	100

Table 40. Distribution of the percent of the full-time faculty work load devoted to laboratory and shop in the one and two-year vocational and technical programs in agriculture; by Regional Accrediting Agency

Regional Accrediting Agency		Percentage of the total time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
SA	N	1	4	12	9	7	3	1	1	1	-	-	39
	%	2.6	10.3	30.8	23.1	17.9	7.7	2.6	2.6	2.6	-	-	100
NCA	N	1	3	19	18	12	7	6	-	1	1	-	68
	%	1.5	4.4	27.9	26.5	17.6	10.3	8.8	-	1.5	1.5	-	100
WA	N	-	-	5	10	2	-	3	-	-	-	-	20
	%	-	-	25.0	50.0	10.0	-	15.0	-	-	-	-	100
NEA	N	-	-	1	-	1	-	-	-	-	-	-	2
	%	-	-	50.0	-	50.0	-	-	-	-	-	-	100
MSA	N	-	1	-	5	5	2	-	1	-	-	-	14
	%	-	7.1	-	35.7	35.7	14.3	-	7.1	-	-	-	100
NA	N	-	-	1	6	2	3	1	-	1	-	-	14
	%	-	-	7.1	42.9	14.3	-	7.1	-	7.1	-	-	
Totals	N	2	8	38	48	29	15	11	2	3	1	-	157
	%	1.3	5.0	24.2	30.5	18.5	9.6	7.0	1.3	2.0	0.6	-	100

Table 41. Distribution of the percent of the full-time faculty work load devoted to laboratory and shop in the one and two-year vocational and technical programs in agriculture; by type of institution

Type of institution		Percentage of the total time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
A	N	1	5	26	29	13	8	5	1	1	-	-	89
	%	1.1	5.6	29.2	32.6	14.6	9.0	5.6	1.1	1.1	-	-	100
B	N	1	1	7	13	9	5	5	-	2	1	-	44
	%	2.3	2.3	15.9	29.5	20.5	11.4	11.4	-	4.5	2.3	-	100
C	N	-	2	5	6	7	2	1	1	-	-	-	24
	%	-	8.3	20.8	25.0	29.2	8.3	4.2	4.2	-	-	-	100
Totals	N	2	8	38	48	29	15	11	2	3	1	-	157
	%	1.3	5.0	24.2	30.5	18.5	9.6	7.0	1.3	2.0	0.6	-	100

Table 42. Distribution of the percent of the full-time faculty work load devoted to laboratory and shop in the one and two-year vocational and technical programs in agriculture; by size of institution

Size of institution		Percentage of the total time											Totals
		0	10	20	30	40	50	60	70	80	90	100	
1-50	N	2	5	21	19	12	9	5	1	3	1	-	78
	%	2.6	6.4	26.9	24.4	15.4	11.5	6.4	1.3	3.8	1.3	-	100
51-100	N	-	2	9	12	9	4	3	-	-	-	-	39
	%	-	5.1	23.1	30.8	23.1	10.3	7.7	-	-	-	-	100
Over 100	N	-	1	8	17	8	2	3	1	-	-	-	40
	%	-	2.5	20.0	42.5	20.0	5.0	7.5	2.5	-	-	-	100
Totals	N	2	8	38	48	29	15	11	2	3	1	-	157
	%	1.3	5.0	24.2	30.5	18.5	9.6	7.0	1.3	2.0	0.6	-	100

Table 43. Distribution of the percent of the full-time faculty work load devoted to grading and class preparation in the one and two-year programs in agriculture; by Regional Accrediting Agency

Regional Accrediting Agency		Percentage of the total time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
SA	N	-	3	13	14	8	1	-	-	-	-	-	39
	%	-	7.7	33.3	35.9	20.5	2.6	-	-	-	-	-	100
NCA	N	1	11	22	22	9	1	2	-	-	-	-	68
	%	1.5	16.2	32.4	32.4	13.2	1.5	2.9	-	-	-	-	100
WA	N	3	1	3	10	2	-	1	-	-	-	-	20
	%	15.0	5.0	15.0	50.0	10.0	-	5.0	-	-	-	-	100
NEA	N	1	-	-	-	1	-	-	-	-	-	-	2
	%	50.0	-	-	-	50.0	-	-	-	-	-	-	100
MSA	N	2	3	3	3	3	-	-	-	-	-	-	14
	%	14.3	21.4	21.4	21.4	21.4	-	-	-	-	-	-	100
NA	N	3	2	4	3	1	1	-	-	-	-	-	14
	%	21.4	14.3	28.6	21.4	7.1	7.1	-	-	-	-	-	100
Totals	N	10	20	45	52	24	3	3	-	-	-	-	157
	%	6.3	12.7	28.7	33.0	15.3	2.0	2.0	-	-	-	-	100

Table 44. Distribution of the percent of the full-time faculty work load devoted to grading and class preparation in the one and two-year programs in agriculture; by type of institution

Type of institution		Percentage of total time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
A	N	6	9	24	32	14	2	2	-	-	-	-	89
	%	6.7	10.1	27.0	36.0	15.7	2.2	2.2	-	-	-	-	100
B	N	1	7	17	12	5	1	1	-	-	-	-	44
	%	2.3	15.9	38.6	27.3	11.4	2.3	2.3	-	-	-	-	100
C	N	3	4	5	8	5	-	-	-	-	-	-	24
	%	12.5	16.7	16.7	33.3	20.8	-	-	-	-	-	-	100
Totals	N	10	20	45	52	24	3	3	-	-	-	-	157
	%	6.3	12.7	28.7	33.0	15.3	2.0	2.0	-	-	-	-	100

Table 45. Distribution of the percent of the full-time faculty work load devoted to grading and class preparation in the one and two-year programs in agriculture; by size of institution

Size of institution		Percentage of the total time											Totals
		0	10	20	30	40	50	60	70	80	90	100	
1-50	N	4	11	20	25	13	3	2	-	-	-	-	78
	%	5.1	14.1	25.6	32.1	16.7	3.8	2.6	-	-	-	-	100
51-100	N	2	5	17	8	6	-	1	-	-	-	-	39
	%	5.1	12.8	43.6	20.5	15.4	-	2.6	-	-	-	-	100
Over 100	N	4	4	8	19	5	-	-	-	-	-	-	40
	%	10.0	10.0	20.0	47.5	12.5	-	-	-	-	-	-	100
Totals	N	10	20	45	52	24	3	3	-	-	-	-	157
	%	6.3	12.7	28.7	33.0	15.3	2.0	2.0	-	-	-	-	100

Table 46. Distribution of the percent of the full-time faculty work load devoted to advise students in the one and two-year vocational and technical programs in agriculture; by Regional Accrediting Agency

Regional Accrediting Agency		Percentage of the total time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
SA	N	5	18	12	4	-	-	-	-	-	-	-	39
	%	12.8	46.2	30.8	10.3	-	-	-	-	-	-	-	100
NCA	N	2	41	20	5	-	-	-	-	-	-	-	68
	%	2.9	60.3	29.4	7.4	-	-	-	-	-	-	-	100
WA	N	2	8	8	2	-	-	-	-	-	-	-	20
	%	10.0	40.0	40.0	10.0	-	-	-	-	-	-	-	100
NEA	N	1	-	1	-	-	-	-	-	-	-	-	2
	%	50.0	-	50.0	-	-	-	-	-	-	-	-	100
MSA	N	1	8	5	-	-	-	-	-	-	-	-	14
	%	7.1	57.1	35.7	-	-	-	-	-	-	-	-	100
NA	N	2	5	6	1	-	-	-	-	-	-	-	14
	%	14.3	35.7	42.9	7.1	-	-	-	-	-	-	-	100
Totals	N	13	80	52	12	-	-	-	-	-	-	-	157
	%	8.3	50.9	33.1	7.7	-	-	-	-	-	-	-	100

Table 47. Distribution of the percent of the full-time faculty work load devoted to advise students in the one and two-year vocational and technical programs in agriculture; by type of institution

Type of institutions		Percentage of the total time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
A	N	4	42	34	9	-	-	-	-	-	-	-	89
	%	4.5	47.2	38.2	10.1	-	-	-	-	-	-	-	100
B	N	6	26	11	1	-	-	-	-	-	-	-	44
	%	13.6	59.1	25.0	2.3	-	-	-	-	-	-	-	100
C	N	3	12	7	2	-	-	-	-	-	-	-	24
	%	12.5	50.0	29.2	8.3	-	-	-	-	-	-	-	100
Totals	N	13	80	52	12	-	-	-	-	-	-	-	157
	%	8.3	50.9	33.1	7.7	-	-	-	-	-	-	-	100

Table 48. Distribution of the percent of the full-time faculty work load devoted to advise students in the one and two-year vocational and technical programs in agriculture; by size of institutions

Size of institution		Percentage of the total time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
1-50	N	8	43	23	4	-	-	-	-	-	-	-	78
	%	10.3	55.1	29.5	5.1	-	-	-	-	-	-	-	100
51-100	N	3	23	10	3	-	-	-	-	-	-	-	39
	%	7.7	59.0	25.6	7.7	-	-	-	-	-	-	-	100
Over 100	N	2	14	19	5	-	-	-	-	-	-	-	40
	%	5.0	35.0	47.5	12.5	-	-	-	-	-	-	-	100
Totals	N	13	80	52	12	-	-	-	-	-	-	-	157
	%	8.3	50.9	33.1	7.7	-	-	-	-	-	-	-	100

Table 49. Distribution of the percent of the full-time faculty work load devoted to others in the one and two-year vocational and technical programs in agriculture; by Regional Accrediting Agency

Regional Accrediting Agency		Percentage of the total time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
SA	N	18	10	8	1	2	-	-	-	-	-	-	39
	%	46.2	25.6	20.5	2.6	5.1	-	-	-	-	-	-	100
NCA	N	27	17	11	10	2	-	1	-	-	-	-	68
	%	39.7	25.0	16.2	14.7	2.9	-	1.5	-	-	-	-	100
WA	N	5	2	8	4	1	-	-	-	-	-	-	20
	%	25.0	10.0	40.0	20.0	5.0	-	-	-	-	-	-	100
NEA	N	1	-	1	-	-	-	-	-	-	-	-	2
	%	50.0	-	50.0	-	-	-	-	-	-	-	-	100
MSA	N	4	5	3	1	-	-	-	-	1	-	-	14
	%	28.6	35.7	21.4	7.1	-	-	-	-	7.1	-	-	100
NA	N	9	2	2	-	1	-	-	-	-	-	-	14
	%	64.3	14.3	14.3	-	7.1	-	-	-	-	-	-	100
Totals	N	64	36	33	16	6	-	1	-	1	-	-	157
	%	40.8	23.0	21.0	10.2	3.8	-	0.6	-	0.6	-	-	100

Table 50. Distribution of the percent of the full-time faculty work load devoted to others in the one and two-year vocational and technical programs in agriculture; by type of institution

Type of institution		Percentage of the total time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
A	N	32	16	20	12	6	-	1	-	-	-	-	89
	%	38.2	18.0	22.5	13.5	6.7	-	1.1	-	-	-	-	100
B	N	23	11	8	2	-	-	-	-	-	-	-	44
	%	52.3	25.0	18.2	4.5	-	-	-	-	-	-	-	100
C	N	7	9	5	2	-	-	-	-	1	-	-	24
	%	29.2	37.5	20.8	8.3	-	-	-	-	4.2	-	-	100
Totals	N	64	36	33	16	6	-	1	-	1	-	-	157
	%	40.8	23.0	21.0	10.2	3.8	-	0.6	-	0.6	-	-	100

Table 51. Distribution of the percent of the full-time faculty work load devoted to others in the one and two-year vocational and technical programs in agriculture; by size of institution

Size of institution		Percentage of the total time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
1-50	N	39	19	13	4	3	-	-	-	-	-	-	78
	%	50.0	24.4	16.7	5.1	3.8	-	-	-	-	-	-	100
51-100	N	17	9	4	5	2	-	1	-	1	-	-	39
	%	43.6	23.1	10.3	12.8	5.1	-	2.6	-	2.6	-	-	100
Over 100	N	8	8	16	7	1	-	-	-	-	-	-	43
	%	20.0	20.0	40.0	17.5	2.5	-	-	-	-	-	-	100
Totals	N	64	36	33	16	6	-	1	-	1	-	-	157
	%	40.8	23.0	21.0	10.2	3.8	-	0.6	-	0.6	-	-	100

Satisfaction with the Work Load

Objective 5: To determine the satisfaction with the work load of the faculty.

Question five asked the respondent if he feels that the present load and division of time now engaged by faculty members teaching in the technical fields of the one and two-year vocational and technical programs in agriculture is satisfactory. Of the 166 institutions answering the question, 118 (71.1%) answered that they were satisfied with the work load.

In Table 52 the responses to question five with the institutions arranged by Regional Accrediting Agency are presented. The three institutions in the New England Association chose Yes as their answer. The Western Association reported 11 (55%) institutions answering Yes for the lowest level of satisfaction.

In Table 53 the data are arranged by type of institution. The four year institutions reported the highest degree of satisfaction with 20 (76.7%) Yes responses and the two-year institutions offering technical education reported the lowest satisfaction with 32 (66.7%) Yes responses.

In Table 54 the data are arranged by size of institution. The 1-50 strata reported 63 (74.1%) institutions answering Yes for the high and the 51-100 strata reported 26 (66.7%) institutions answering Yes for the low.

Table 52. Satisfaction with the work load of the staff teaching one and two-year vocational and technical programs in agriculture; by Regional Accrediting Agency

Regional Accrediting Agency	Respondent satisfaction Yes		No		Totals	
	N	%	N	%	N	%
SA	27	69.2	12	30.8	39	100
NCA	53	72.6	20	27.4	73	100
WA	11	55.0	9	45.0	20	100
NEA	3	100.0	-	-	3	100
MSA	12	85.7	2	14.3	14	100
NA	12	70.6	5	29.4	17	100
Totals	118	71.1	48	28.9	166	100

Table 53. Satisfaction with the work load of the staff teaching one and two-year vocational and technical programs in agriculture; by type of institution

Type of institution	Respondent satisfaction Yes		No		Totals	
	N	%	N	%	N	%
A	66	71.7	26	28.3	92	100
B	32	66.7	16	33.3	48	100
C	20	76.7	6	23.1	26	100
Totals	118	71.1	48	28.9	166	100

Table 54. Satisfaction with the work load of the staff teaching one and two-year vocational and technical programs in agriculture; by size of institution

Size of institution	Respondent satisfaction					
	Yes		No		Totals	
	N	%	N	%	N	%
1-50	63	74.1	22	25.9	95	100
51-100	26	66.7	13	33.3	29	100
Over 100	29	69.0	13	31.0	42	100
Totals	118	71.1	48	28.9	166	100

Desired Changes to the Present Work Load

Objective 6: To determine desired changes to the present work load.

The second part of question five asked the respondent: What changes would you recommend in this load, if any?

This question received a low percentage of responses suggesting improvements to the present work load of the full-time faculty teaching one and two-year vocational and technical programs in agriculture. A possible explanation is the high proportion of institutions that reported satisfaction with the present load.

Classifiable responses were received from 58 institutions. Three responses accounted for 50% of the answers. The most frequent response was that the work load was excessive and it should be reduced. A total of 12 (20.6%) institutions chose this answer. The second most chosen response with 9 (15.6%) institutions was that more time is needed for

student advising. The third most frequently cited selection with 8 (13.8%) responses was the desire for a reduction in the teaching load. The remaining 29 (50%) responses were divided among thirteen different categories. The low frequencies for each category made unadvisable the calculation of the data related to this objective. However it may be of interest to the enumeration of some of the remaining responses. These were: (1) more time is needed for lecture and laboratory; (2) reduce the time in lecture and increase the time devoted to laboratory and class preparation and student advising; (3) help is necessary to release time for advising; (4) reduce laboratory time; and (5) give equal time for laboratory and lecture and increase the time devoted to student advise.

The Organizational Division Controlling the Programs

Objective 7: To determine the organizational division controlling the programs.

Question six asked under what organizational division the one and two-year programs in agriculture were administered. The question was answered by 146 institutions. Only three categories accounted for more than the 10% each of the total number of institutions responding. These categories were: (1) Vocational technical division with 31 (21.2%) institutions; (2) Agricultural division, including College of Agriculture with 19 (13%) institutions; and (3) Technical division with 15 (10.3%) institutions. Eighty-one other institutions (55.5%) reported in 42 different categories.

The responses were tabulated into four categories: (1) Vocational technical division; (2) Agricultural division or College of Agriculture; (3) Technical division; and (4) Others.

In Table 55 the data are classified by Regional Accrediting Agency. The institutions in the North Central Association were most likely to report the Vocational and technical division category with 16 (26.7%) institutions. The Middle States Association was the most likely to report the category Agricultural division or College of Agriculture with 7 (53.8%) institutions. The Southern Association was most likely to report the category Technical division with 8 (22.9%) of the institutions in the strata. The Western Association was most likely to report the Others category with 12 (63%) institutions.

In Table 56 the data are arranged by type of institution. The two-year institutions offering technical and transfer education were the most likely to report the Vocational and technical division category with 28 (32.2%) of the institutions. The four-year institutions were the most likely to report the Agricultural division or college of agriculture category with 10 (43.5%) institutions. The two-year institutions offering technical education were the most likely to report the Technical division and the Others categories with 7 (19.4%) and 23 (63.9%) institutions, respectively.

In Table 57 the data are arranged by size of institution. The 51-100 strata was most likely to report the Vocational technical division with 10 (30.3%) institutions. The Over 100 strata was the most likely to report the Agricultural division or College of

Agriculture with 5 (13.9%) institutions. The 0-50 strata was most likely to report the Technical division category with 10 (13%) institutions. The Over 100 strata was the most likely to report the Others category with 21 (68.3%) institutions.

Satisfaction with the Organizational Structure

Objective 8: To determine the degree of satisfaction with the organizational structure.

The following question was asked to the respondents in the questionnaire: Do you believe that this organizational structure is appropriate for your present programs?

A total of 168 institutions responded to this question. The majority of the respondents were satisfied with their present organizational structure. As many as 148 (88.1%) answered Yes.

In Table 58 the data are arranged by Regional Accrediting Agency. All the strata chose the Yes response more frequently than No. The Yes response was chosen by 3 (100%) institutions in the New England Association for the high and by 15 (71.4%) institutions in the Western Association for the low.

In Table 59 the data are arranged by type of institution. All the strata chose the Yes response more frequently than No. The two-year institutions offering technical and transfer education reported a high of 83 (89.2%) institutions answering Yes, and the four-year institutions reported a low of 24 (82.8%) institutions answering Yes.

Table 55. Organizational division controlling the programs; by Regional Accrediting Agency

Regional Accrediting Agency		Organizational division				
		Vocational and technical division	Agricultural division or college of agriculture	Technical division	Others	Totals
SA	N	7	1	8	19	35
	%	20.0	2.9	22.9	54.2	100
NCA	N	16	8	2	34	60
	%	26.7	13.3	3.3	56.7	100
WA	N	4	-	3	12	19
	%	21.1	-	15.8	63.1	100
NEA	N	-	1	-	2	3
	%	-	33.3	-	66.6	100
MSA	N	-	7	2	4	13
	%	-	53.8	15.4	30.8	100
NA	N	4	2	-	10	16
	%	25.0	12.5	-	62.5	100
Totals	N	31	19	15	81	146
	%	21.2	13.0	10.3	55.5	100

Table 56. Organizational division controlling the programs; by type of institution

Type of institution		Organizational division				
		Vocational and technical division	Agricultural division or college of agriculture	Technical division	Others	Totals
A	N	28	5	7	47	87
	%	32.2	5.7	8.0	54.1	100
B	N	2	4	7	23	36
	%	5.6	11.1	19.4	63.9	100
C	N	1	10	1	11	23
	%	4.3	43.5	4.3	47.9	100
Totals	N	31	19	15	81	146
	%	21.2	13.0	10.3	55.5	100

Table 57. Organizational division controlling the programs; by size of institution

Size of institution		Organizational division				
		Vocational and technical division	Agricultural division or college of agriculture	Technical division	Others	Totals
1-50	N	15	10	10	42	77
	%	19.5	13.0	13.0	54.5	100
51-100	N	10	4	1	18	33
	%	30.3	12.1	3.0	54.6	100
Over 100	N	6	5	4	21	36
	%	16.7	13.9	11.1	68.3	100
Totals	N	31	19	15	81	146
	%	21.2	13.0	10.3	55.5	100

Table 60 presents the data arranged by type of institutions. All the strata chose the Yes response over the No. The 51-100 strata chose the Yes 36 (92.3%) times for the high and the Over 100 strata chose the Yes 35 (83.3%) times for the low.

A space for comments was provided in the questionnaire related to the objective number 8. Comments were intimately connected with objective number 9, therefore no discussion will be presented.

Table 58. Satisfaction with the present organizational structure; by Regional Accrediting Agency

Regional Accrediting Agency	Respondent satisfaction Yes		No		Totals	
	N	%	N	%	N	%
SA	34	91.9	3	8.1	37	100
NCA	66	90.4	7	9.6	73	100
WA	15	71.4	6	28.6	21	100
NEA	3	100.0	-	-	3	100
MSA	14	87.5	2	12.5	16	100
NA	16	88.9	2	11.1	18	100
Totals	148	88.1	20	11.9	168	100

Table 59. Satisfaction with the present organizational structure; by type of institution

Type of institution	Respondent satisfaction: Yes		No		Totals	
	N	%	N	%	N	%
A	83	89.2	10	10.8	93	100
B	41	89.1	5	10.9	46	100
C	24	82.8	5	17.2	29	100
Totals	148	88.1	20	11.9	168	100

Table 60. Satisfaction with the present organizational structure; by size of institution

Size of institution	Respondent satisfaction: Yes		No		Totals	
	N	%	N	%	N	%
1-50	77	88.5	10	11.5	87	100
51-100	36	92.3	3	7.7	39	100
Over 100	35	83.3	7	16.7	42	100
Totals	148	88.1	20	11.9	168	100

Desired Changes in the Organizational Structure

Objective 9: To determine the desired changes in the organizational structure.

Question eight asked the respondents what organizational changes in their judgement could improve the administration of the programs.

Only twenty-nine respondents suggested structural changes. The high frequency of respondents satisfied with the organizational structure may account for the low response to this question. The desired changes were classified in thirteen categories as shown in Table 61. The most mentioned change desired in the organizational structure was the creation of a department or division for the vocational and technical programs in agriculture with 7 (24.1%) of the respondents choosing this category. The second most chosen answer was the need for a vocational or technical division with 4 (13.7%) of the respondents choosing this category.

Due to the small number of answers to this question suggesting improvements of the organizational structure, the categories were not arranged into the three factors of classification used in this study.

Development of New One and Two-Year Vocational and Technical Programs in Agriculture

Objective 10: To determine the usual procedures followed to develop new programs.

Question number nine of the questionnaire asked the respondents to describe the steps taken by the institutions to develop new programs in agriculture and to indicate the groups and individuals involved in the evaluation of the programs.

Table 61. Suggested improvements in the organizational structure

Suggested improvement	N	%
Need own department or division	7	24.1
Need a vocational and/or technical division	4	13.7
Consolidate the related majors	3	10.3
These programs should be under the control of the agricultural education people or under people who know about agriculture	3	10.3
The division head should report to the president	2	6.9
More decisions should be made at lower level	2	6.9
More state assistance is necessary	2	6.9
Reorganize into community college	2	6.9
Change to quarter system	1	3.4
Schedule enrollments only once a year	1	3.4
Departmentalize with core curriculum	1	3.4
Better communications with the administration are needed	1	3.4
Totals	29	100.0

A first reading of the responses received showed that few respondents enumerated the steps taken in developing these programs. In view of this fact, the investigator decided to divide the information received into two questions: (1) Who is involved in the development of new programs?; and (2) What steps are taken in developing new programs?

Four groups were identified for the first question: (1) Faculty involved with the programs in vocational and technical agriculture; (2) Administration, including supervisors and general curriculum committees; (3) Advisory committees from industry, farmers, business and the community at large; and (4) State and federal level organizations and personnel.

Five steps were identified for question number two: (1) Determination of the need for the program through surveys of industry, business, farmers; (2) Availability of students; (3) Job analysis to determine the content of the program; (4) Analysis of the institutional ability to provide the program; and (5) Approval by state and federal agencies.

It is important to keep in mind in interpreting the data that the question asked was open ended, and the figures obtained may not represent a thorough description of the procedure followed in setting the programs.

Of the 174 institutions reporting, 143 (82.1%) institutions answered question nine with data suitable of classification.

The most frequently mentioned groups involved in the development of the programs were the Advisory committees, reported by 110 (76.9%) of the institutions answering question nine. The Administration of the institution was mentioned by 47 (32.9%) respondents, and the Faculty was mentioned by 41 (28.7%) respondents. State and federal level organizations and personnel were the least mentioned with 27 (18.9%) institutions reporting it.

The most mentioned step taken in the development of the programs was the Determination of the need for the program by surveys with 120 (83.9%) respondents mentioning it. A total of 65 (45.5%) institutions reported that Studies of availability of students were done. Only 16 (11.2%) institutions reported that the Analysis of the ability of the institution to provide the program was done.

Of the 143 institutions reporting, only 5 (3.5%) indicated that a job analysis to determine the program content was done. A total of 15 (10.5%) institutions indicated that Approval of the programs by State and federal agencies was required.

A tabulation of the data with the information regarding objective ten was not presented.

Revision of the One and Two-Year Vocational and Technical Programs in Agriculture

Objective 11: To determine the frequency of revision of the programs.

In question eleven the respondent was asked how frequently are the one and two-year vocational and technical programs in agriculture revised.

The data established that the majority of the institutions revise the programs every year, as reported by 88 (56.8%) of the institutions. A total of 15 (9.7%) of the institutions reported continuous revision, 23 (14.8%) institutions reported revision of the programs every two years or more and 29 (18.7%) institutions reported that they revise the

programs when needed.

In Table 62 the data are arranged by Regional Accrediting Agency. Three Regional Accrediting Agencies, the Southern Association with 23 (62.2%) institutions, the North Central Association with 38 (58.5%) institutions, and the Northwestern Association with 12 (75%) institutions, most likely reported that they revise the programs every year. The New England Association reported 1 (33.3%) institutions that revise the programs every year, 1 (33.3%) institutions that revise the programs every two years or more and 1 (33.3%) institutions that revise the programs when needed. The Middle States Association reported the same number of institutions that revise the programs every year and every two years or more with 5 (35.7%) institutions in each category.

When the institutions are arranged by type of institution as in Table 63, the majority of the two-year institutions offering technical and transfer education with 47 (55.3%) institutions and the majority of the two-year institutions offering technical education with 29 (64.4%) institutions reported that they revise the programs once every year. The four-year institutions were most likely to report that they revise the programs once every year with (48.0%) institutions.

In Table 64 the institutions are arranged by size. In all the strata the majority of the institutions reported that the programs are revised once every year, with 44 (58.7%) institutions in the 1-50 strata, 19 (50.0%) in the 51-100 strata and 25 (59.5%) institutions in the Over 100 strata.

Table 62. Reported frequency of revision of the one and two-year vocational and technical programs in agriculture; by Regional Accrediting Agency

Regional Accrediting Agency	Frequency of revision: Continuous revision		Once a year		Each two years or more		When needed		Totals	
	N	%	N	%	N	%	N	%	N	%
SA	4	10.8	23	62.2	5	13.5	5	13.5	37	100
NCA	7	10.8	38	58.5	9	13.8	11	16.9	65	100
WA	2	10.0	9	45.0	2	10.0	7	35.0	20	100
NEA	-	-	1	33.3	1	33.3	1	33.3	3	100
MSA	1	7.1	5	35.7	5	35.7	3	21.4	15	100
NA	1	6.3	12	75.0	1	6.3	2	12.5	16	100
Totals	15	9.7	88	56.8	23	14.8	29	18.7	155	100

Table 63. Reported frequency of revision of the one and two-year vocational and technical programs in agriculture; by type of institution

Type of institution	Frequency of revision: Continuous revision		Once a year		Each two years or more		When needed		Totals	
	N	%	N	%	N	%	N	%	N	%
A	7	8.2	47	55.3	11	12.9	20	23.5	85	100
B	6	13.4	29	64.4	5	11.1	5	11.1	45	100
C	2	8.0	12	48.0	7	28.0	4	16.0	25	100
Totals	15	9.7	88	56.8	23	14.8	29	18.7	155	100

Table 64. Reported frequency of revision of the one and two-year vocational and technical programs in agriculture; by size of institution

Size of institution	Frequency of revision: Continuous revision		Once a year		Each two years or more		When needed		Totals	
	N	%	N	%	N	%	N	%	N	%
1-50	8	10.6	44	58.7	12	16.0	11	14.7	75	100
51-100	3	7.9	19	50.0	6	15.8	10	26.3	38	100
Over 100	4	9.5	25	59.5	5	11.9	8	19.1	42	100
Totals	15	9.7	88	56.8	23	14.8	29	18.7	155	100

Who is Involved in the Revision of the One and Two-Year Vocational and Technical Programs in Agriculture

Objective 12: To determine who is involved in the revision of the programs.

The second part of question ten asked the respondents to the questionnaire to indicate who was involved in the revision of the one and two-year vocational and technical programs in agriculture. The data were grouped into four categories: (1) Administration, that comprised personnel of the institution beyond the faculty teaching the programs; (2) the instructor and faculty teaching the programs; (3) Advisory committees from business, industry, farmers and the community at large; and (4) State department.

A total of 161 institutions reported information concerning this objective. The data were displayed in tables and the percentages reported in terms of the number of responses. It is important to notice that no specific questions of Yes or No were done for each category, but these were open end questions.

The category most likely reported was Instructor or faculty with 138 (85.7%) institutions. The category Advisory committees with 97 (60.2%) institutions and the category Administration with 118 (73.3%) institutions were also reported by the majority of the institutions. The category State department was reported by 18 (11.2%) institutions, being the least reported category showing little participation in the revision of the programs.

When the data were arranged by Regional Accrediting Agency as in Table 65, the category most likely reported was Instructor or faculty in three Regional Accrediting Agencies. These were the North Central Association with 62 (88.6%) institutions, the Western Association with 13 (81.3%) institutions and the Northwestern Association with 13 (81.3%) institutions. The institutions in the New England Association reported the categories Administration, and Instructor or faculty as involved in the revision of the programs in all the institutions. The Southern Association represented the category Administration as the most likely to be involved in the revision of the programs with 30 (78.9%) institutions.

In Table 66 the data are arranged by type of institution. The three strata most likely reported the category Instructor or faculty,

with 79 (86.8%) institutions reporting for the two-year institutions offering technical and transfer education, 38 (84.4%) institutions for the two-year institutions offering technical education and 21 (84.0%) institutions for the four-year institutions.

In Table 67 the data are arranged by size of institution. As in the other two arrangements, the category most likely reported was Instructor or faculty, with 64 (79.0%) institutions for the 1-50 strata, 35 (89.7%) institutions for the 51-100 strata and 39 (95.1%) institutions for the Over 100 strata.

Table 65. Persons and groups involved in the revision of the programs; by Regional Accrediting Agency

Regional Accrediting Agency		Institutions responding	Persons and groups involved: Administration	Instructor or faculty	Advisory groups	State department
SA	N	38	30	27	17	6
	%		78.9	71.1	44.7	15.8
NCA	N	70	54	62	51	10
	%		77.1	88.6	72.9	14.3
WA	N	21	11	20	15	-
	%		72.4	95.2	71.4	-
NEA	N	3	3	3	1	-
	%		100.0	100.0	33.3	-
MSA	N	13	9	13	4	-
	%		69.2	100.0	30.8	-
NA	N	16	11	13	9	2
	%		68.8	81.3	56.3	12.5
Totals	N	161	118	138	97	18
	%		73.3	85.7	60.2	11.2

Table 66. Persons and groups involved in the revision of the programs; by type of institution

Type of institution		Institutions responding	Persons and groups involved: Administration	Instructor or faculty	Advisory groups	State department
A	N	91	65	79	55	4
	%		71.4	86.8	60.4	4.4
B	N	45	33	38	30	10
	%		73.3	84.4	66.7	22.2
C	N	25	20	21	12	4
	%		80.0	84.0	48.0	16.0
Totals	N	161	118	138	97	18
	%		73.3	85.7	60.2	11.2

Table 67. Persons and groups involved in the revision of the programs; by size of institution

Size of institution		Institutions responding	Administration	Instructor or faculty	Advisory groups	State department
1-50	N	81	61	64	49	14
	%		75.3	79.0	60.5	17.3
51-100	N	39	27	35	24	2
	%		69.2	89.7	61.5	5.1
Over 100	N	41	30	39	24	2
	%		73.2	95.1	58.5	4.9
Totals	N	161	118	138	97	18
	%		73.3	85.7	60.2	11.2

Entrance Requirements to the One and Two-Year Vocational and Technical Programs in Agriculture

Objective 13: To determine the entrance requirements.

Questions eleven and twelve of the questionnaire were concerned with different entrance requirements to the one and two-year vocational and technical programs in agriculture.

In part A of question eleven it was asked if a high school diploma without class rank, GPA and/or subject matter requirements were required for entrance into the vocational and technical programs in agriculture. Part B of question eleven asked if a high school diploma with class rank, GPA and/or subject matter requirements were required for entrance. A No answer to both questions was classified as entrance without high school diploma.

Part C of question eleven was concerned with tests required for entrance to the vocational and technical programs in agriculture. Part E of question eleven asked if a minimum score in tests was required for entrance.

Question twelve was designed to determine if entrance to vocational and technical programs in agriculture was possible for persons without high school diploma under special situations.

Tables 68, 69 and 70 are concerned with the information gathered by parts A and B of question eleven. A total of 140 institutions answered part A and B of question eleven. Eighty-six (61.4%) institutions reported that students were admitted to the vocational and technical programs in agriculture with high school diploma without class rank, GPA and/or subject matter requirements. Thirty-one (22.2%) institutions

reported that students were admitted with high school diploma plus class rank, GPA and/or subject matter requirements. A total of 23 (16.4%) institutions answered No to parts A and B, therefore not requiring high school diploma for entrance to the one and two-year vocational and technical programs in agriculture.

In Table 68 the data are arranged by Regional Accrediting Agency. The institutions in four Regional Accrediting Agencies were most likely to report high school diploma without class rank, GPA and/or subject matter requirements. These were: the Southern Association with 29 (78.4%) institutions, the North Central Association with 33 (55.2%) institutions, the Western Association with 13 (92.9%) institutions and the Northwestern Association with 7 (53.8%) institutions.

All the institutions in the New England Association and 10 (66.7%) in the Middle States Association reported that they have high school diploma with class rank, GPA and/or subject matter requirements for entrance to the programs.

In Table 69 the data are arranged by type of institution. In all the types of institutions were most likely to report that high school without class rank, GPA and/or subject matter requirements were necessary for entrance to the one and two-year programs in agriculture. No high school diploma requirement was the least likely reported category by the two-year institutions offering technical and transfer programs with 11 (14.5%) institutions and for the four-year institutions with 2 (7.4%) institutions reporting. However, the two-year institutions

offering technical education reported only 7 (18.9%) institutions requiring high school diploma with class rank, GPA and/or subject matter requirements. In Table 70 the data are arranged by size of institution. All the strata most likely reported high school diploma without class rank, GPA and/or subject matter requirement, while the least likely category to be reported was no high school diploma required for the Over 100 strata with 1 (3.0%) institutions, and the high school diploma with class rank and GPA and/or subject matter requirements was the least reported category for the 1-50 strata with 14 (17.6%) institutions and for the 51-100 strata with 7 (21.2%) institutions.

Table 68. Entrance requirements to the one and two-year vocational and technical programs in agriculture; by Regional Accrediting Agency

Regional Accrediting Agency	Entrance requirements I[a]		II		III		Totals	
	N	%	N	%	N	%	N	%
SA	29	78.4	5	13.5	3	8.1	37	100
NCA	32	55.2	13	22.4	13	22.4	58	100
WA	13	92.9	-	-	1	7.1	14	100
NEA	-	-	3	100.0	-	-	3	100
MSA	5	33.3	10	66.7	-	-	15	100
NA	7	53.8	-	-	6	46.2	13	100
Totals	86	61.4	31	22.2	23	16.4	140	100

[a]In this table and in Tables 69 and 70, I represents the high school diploma without class rank, GPA and/or subject matter requirements category; II represents the High school diploma with class rank, GPA and/or subject matter requirements category; and III represents the No high school diploma required category.

Table 69. Entrance requirements to the one and two-year vocational and technical programs in agriculture; by type of institution

Type of institution	Entrance requirements							
	I		II		III		Totals	
	N	%	N	%	N	%	N	%
A	53	69.7	12	15.8	11	14.5	76	100
B	20	54.1	7	18.9	10	27.0	37	100
C	13	48.1	12	44.4	2	7.4	27	100
Totals	86	61.4	31	22.2	23	16.4	140	100

Table 70. Entrance requirements to the one and two-year vocational and technical programs in agriculture; by size of institution

Size of institution	Entrance requirements							
	I		II		III		Totals	
	N	%	N	%	N	%	N	%
1-50	47	63.5	13	17.6	14	18.9	74	100
51-100	18	54.5	7	21.2	8	24.3	33	100
Over 100	21	63.6	11	33.3	1	3.0	33	100
Totals	86	61.4	31	22.2	23	16.4	140	100

A majority of the institutions reported that tests were required or given for entrance to the vocational and technical programs in agriculture, with 114 (72.6%) institutions.

In Table 71 the data are arranged by Regional Accrediting Agency. In all the Regional Accrediting Agencies the institutions most likely reported that they required tests for entrance. The Western Association reported 13 (76.5%) institutions requiring tests for the high and the New England Association reported 1 (50.0%) institutions for the low.

In Table 72 the data are arranged by type of institution. All the strata were more likely to report that tests were required for entrance with the high for the two-year institutions offering technical and transfer education with 62 (74.7%) institutions and the low for the four-year institutions with 19 (65.5%) institutions.

In Table 73 the data are classified by size of institution. The Over 100 strata was the most likely to report test requirements with 31 (75.6%) institutions and the 51-100 strata was the least likely to report test requirements with 22 (64.7%) institutions.

The responses to part E of question eleven concerning the test score requirements are presented in Tables 74, 75, and 76. The majority of the institutions reported no minimum score requirement with 81 (70.4%) institutions.

In Table 74 the data are classified by Regional Accrediting Agency. The institutions in the Middle States Association reported score requirement in 7 (63.6%) institutions. The North Central Association reported no minimum score requirement in 39 (78.0%) institutions, the Western Association reported no test requirement in 12 (92.3%) institutions and the Northwestern Association reported

Table 71. Test requirement for entrance to the one and two-year vocational and technical programs in agriculture; by Regional Accrediting Agency

Regional Accrediting Agency	Test requirement: Yes N	Yes %	No N	No %	Totals N	Totals %
SA	28	75.7	9	24.3	37	100
NCA	50	71.4	20	28.6	70	100
WA	13	76.5	4	23.5	17	100
NEA	1	50.0	1	50.0	2	100
MSA	11	73.3	4	26.7	15	100
NA	11	68.7	5	31.3	16	100
Totals	114	72.6	43	27.4	157	100

Table 72. Test requirements for entrance to the one and two-year vocational and technical programs in agriculture; by type of institution

Type of institution	Test requirement: Yes N	Yes %	No N	No %	Totals N	Totals %
A	62	74.7	21	25.3	83	100
B	33	73.3	12	26.7	45	100
C	19	65.5	10	34.5	29	100
Totals	114	72.6	43	27.4	157	100

Table 73. Test requirements for entrance to the one and two-year vocational and technical programs in agriculture; by size of institution

Size of institution	Test requirement Yes N	Yes %	No N	No %	Totals N	Totals %
1-50	61	74.4	21	25.6	82	100
51-100	22	64.7	12	35.3	34	100
Over 100	31	75.6	10	24.4	41	100
Totals	114	72.6	43	27.4	157	100

no minimum score requirement in 8 (72.7%) institutions.

In Table 75 the data are arranged by type of institution. The two-year institutions offering technical and transfer programs were the most likely to report no minimum score requirement with 51 (82.3%) institutions offering technical education were the most likely to report minimum score requirement.

In Table 76 the data are arranged by size of institution. The 1-50 strata was the most likely to report minimum score requirement and the Over 100 was the most likely to report no minimum score requirement.

The information concerning student admission to the one and two-year vocational and technical programs in agriculture who do not have a high school diploma is presented in Tables 77, 78 and 79. Of the 170 institutions responding to question twelve, 139 (81.8%) indicated that

Table 74. Entrance test minimum score requirement; by Regional Accrediting Agency

Regional Accrediting Agency	Minimum score requirement: Yes N	Yes %	No N	No %	Totals N	Totals %
SA	11	37.9	18	62.1	29	100
NCA	11	22.0	39	78.0	50	100
WA	1	7.7	12	92.3	13	100
NEA	1	100.0	-	-	1	100
MSA	7	63.6	4	36.4	11	100
NA	3	27.3	8	72.7	11	100
Totals	34	29.6	81	70.4	115	100

Table 75. Entrance test minimum score requirement; by type of institution

Type of institution	Minimum score requirement: Yes N	Yes %	No N	No %	Totals N	Totals %
A	11	17.7	51	82.3	62	100
B	15	45.5	18	54.5	33	100
C	8	40.0	12	60.0	20	100
Totals	34	29.6	81	70.4	115	100

Table 76. Entrance test minimum score requirement; by size of institution

Size of institution	Minimum score requirement					
	Yes		No		Totals	
	N	%	N	%	N	%
1-50	20	31.7	43	68.3	63	100
51-100	6	28.6	15	71.4	21	100
Over 100	8	25.8	23	74.2	31	100
Totals	34	29.6	81	70.4	115	100

students are admitted to the vocational and technical programs in agriculture without high school diploma under special circumstances.

In Table 77 the data are arranged by Regional Accrediting Agency. The Middle States Association chose the No response 12 (75.0%) times. The other associations most likely chose the Yes response with a high of 21 (100.0%) institutions in the Western Association and a low of 2 (66.7%) institutions choosing Yes in the New England Association.

In Table 78 the data are arranged by type of institution. All the strata chose most likely the Yes response with a high of 81 (88%) institutions for the two-year institutions offering technical and transfer education and a low of 16 (53.3%) institutions for the four-year institutions.

In Table 79 the data are arranged by size of institution. All the strata chose most likely the Yes response. In the 51-100 strata

32 (84.2%) institutions chose the Yes response for the high and in the Over 100 strata 33 (76.7%) institutions chose the Yes response for the low.

Table 77. Admission of students without high school diploma to the vocational and technical programs in agriculture under special circumstances; by Regional Accrediting Agency

Regional Accrediting Agency	Admission of students: Yes N	Yes %	No N	No %	Totals N	Totals %
SA	28	68.3	13	31.7	41	100
NCA	67	93.1	5	6.9	72	100
WA	21	100.0	-	-	21	100
NEA	2	66.7	1	33.3	3	100
MSA	4	25.0	12	75.0	16	100
NA	17	100.0	-	-	17	100
Totals	139	81.8	31	18.2	170	100

Table 78. Admission of students without high school diploma to the vocational and technical programs in agriculture under special circumstances; by types of institution

Type of institution	Admission of students: Yes N	Yes %	No N	No %	Totals N	Totals %
A	81	88.0	11	12.0	92	100
B	42	87.5	6	12.5	48	100
C	16	53.3	14	46.7	30	100
Totals	139	81.8	31	18.2	170	100

Table 79. Admission of students without high school diploma to the vocational and technical programs in agriculture under special circumstances; by size of institution

Size of institution	Admission of students					
	Yes		No		Totals	
	N	%	N	%	N	%
1-50	74	83.1	15	16.9	89	100
51-100	32	84.2	6	15.8	38	100
Over 100	33	76.7	10	23.3	43	100
Totals	139	81.8	31	18.2	170	100

Tests Given or Required for Entrance to the One and Two-Year Vocational and Technical Programs in Agriculture

Objective 14: To determine the tests given and/or required for entrance.

This objective was concerned with the tests given or required for entrance to the vocational and technical programs in agriculture.

Part D of question eleven of the questionnaire asked what tests were given or required. The processing of the data showed that only two tests were reported with certain frequency. These were the American College Test, hereafter ACT, and the General Aptitude Battery Test, hereafter GATB. The ACT was reported by 35 (35%) of the institutions and the GATB was reported by 29 (29%) of the institutions. A total of 36 (36%) institutions reported 22 different tests or combinations of tests. For the purpose of tabulation, these 36 responses were combined

in a single category named Other tests. Among the tests mentioned alone or in combination were: the School and College Ability Test; the College Entrance Examination Board Test; the Bennett Mechanical; the Regents Scholarship Examination; the State University Test, the Washington Grade Prediction Tests; the California Reading Skills Test; the Kuder Vocational Preference Test, the Iowa Test of Educational Development; and others, including tests developed by the individual institutions.

In Table 80 the data are arranged by Regional Accrediting Agency. There is no test category reported as the highest for every Accrediting Agency. The Southern Association reported the ACT in 11 (45.8%) institutions as the most frequently mentioned category. The North Central Association reported 19 (42.2%) institutions requiring the GATB for the high, the Western Association reported 5 (55.6%) institutions requiring other tests for the high and no institutions requiring the GATB. The New England Association did not report any institution requiring the ACT or the GATB. The Middle States Association reported 2 (18.2%) institutions requiring or giving the ACT and 9 (81.8%) requiring Other tests. The Northwestern Association reported 5 (50.0%) institutions requiring or giving the GATB for the high.

In Table 81 the data are classified by type of institution. Only one cell of the table accounted for more than 50% of the responses for one category and this was for the GATB test as reported by the two-year institutions offering technical education. This same strata reported only 1 (3.4%) institutions giving the ACT test. The most chosen

category was the ACT with 26 (49.1%) institutions for the two-year institutions offering technical and transfer education. In the four-year institutions category the highest frequency reported was shared by the ACT category and the Others category with 8 (44.4%) institutions each.

In Table 82 the data are arranged by size of institution. The GATB test was the most likely reported in the 1-50 strata with 20 (37.7%) institutions, the Others category was the high in both the 51-100 strata with 9 (45%) institutions and in the Over 100 strata with 15 (55.6%) institutions.

Table 80. Tests required or given for entrance to the one and two-year vocational and technical programs in agriculture; by Regional Accrediting Agency

Regional Accrediting Agency	Tests ACT N	%	GATB N	%	Others N	%	Totals N	%
SA	11	45.8	5	20.8	8	33.4	24	100
NCA	16	35.6	19	42.2	10	22.2	45	100
WA	4	44.4	-	-	5	55.6	9	100
NEA	-	-	-	-	1	100.0	1	100
MSA	2	18.2	-	-	9	81.1	11	100
NA	2	20.0	5	50.0	3	30.0	10	100
Totals	35	35.0	29	29.0	36	36.0	100	100

Table 81. Tests required or given for entrance to the one and two-year vocational and technical programs in agriculture; by type of institution

Type of institutions	Tests ACT N	ACT %	GATB N	GATB %	Other N	Other %	Totals N	Totals %
A	26	49.1	11	20.8	16	30.1	53	100
B	1	3.4	16	55.2	12	41.4	29	100
C	8	44.4	2	11.2	8	44.4	18	100
Totals	35	35.0	29	29.0	36	36.0	100	100

Table 82. Tests required or given for entrance to the one and two-year vocational and technical programs in agriculture; by size of institution

Size of institution	Tests ACT N	ACT %	GATB N	GATB %	Other N	Other %	Totals N	Totals %
1-50	21	39.6	20	37.7	12	22.6	53	100
51-100	4	20.0	7	35.0	9	45.0	20	100
Over 100	10	37.0	2	7.4	15	55.6	27	100
Totals	35	35.0	29	29.0	36	36.0	100	100

One and Two-Year Vocational and Technical Programs in Agriculture

Objective 15: To determine the one and two-year programs offered in vocational and technical agriculture and their distribution.

The information required to fulfill this objective was obtained from the general catalogs of the institutions participating in this study. The programs announced in the general catalogs were classified according to areas of instruction. Eight areas of instruction were recognized. These were: (1) Agricultural production, (2) Agricultural supplies, (3) Agricultural machinery, (4) Agricultural products, (5) Ornamental horticulture, (6) Agricultural resources, (7) Forestry, and (8) Other agriculture. The information obtained from the descriptions of each program was used as the main criteria for classification. It is important to consider that the listing of programs was not obtained from the institutions through the questionnaire and deletions or additions of programs are not accounted for. However, it is assumed that in terms of the total sample, the information synthesized in this objective is representative.

A total of 541 program descriptions were found in the general catalogs of the 174 institutions participating in this study. Four areas of instruction accounted for more than 10% of the programs. These were: (1) Agricultural production with 140 (26%) programs, (2) Agricultural supplies with 131 (24.3%) programs, (3) Ornamental horticulture with 106 (19.6%) programs, and (4) Agricultural machinery with 75 (13.9%)

programs. Four areas of instruction accounted for less than 10% of the programs each. These were: (1) Forestry with 37 (6.9%) of the programs; (2) Agricultural resources with 26 (4.8%) of the programs; (3) Agricultural products with 16 (3.0%) of the programs; and (4) Other agriculture with 8 (1.5%) of the programs.

In Table 83 the data are arranged by Regional Accrediting Agency. For the Southern Association the most likely reported area of instruction was Agricultural production with 17 (23.3%) programs. In the North Central Association, Agricultural supplies was the area most likely reported with 61 (30%) programs. In the New England Association, Agricultural supplies and Forestry were represented with 2 (22.2%) programs each. In the Middle States Association, Agricultural production was the most likely reported area with 19 (26.8%) programs. Agricultural supplies with 11 (28.9%) programs was the most likely reported area of instruction in the Northwestern Association.

In Table 84 the data are arranged by type of institution. In the two-year institutions offering technical and transfer education, the area Agricultural supplies was represented with 90 (27.6%) programs for the high. Agricultural production was the area most likely reported by the two-year institutions offering technical education and by the four-year institutions with 23 (25.5%) and 39 (31.2%) programs respectively. It is interesting to mention that Agricultural machinery with 22 (22.2%) programs in the two-year institutions offering technical education, almost doubles its percentage of participation in the other two types of institutions.

Table 83. One and two-year programs in vocational and technical agriculture; by Regional Accrediting Agency

Area of instruction		Regional Accrediting Agency						
		SA	NCA	WA	NEA	MSA	NA	Totals
Agricultural production	N	17	57	38	1	19	10	140
	%	23.3	28.1	25.9	11.1	26.8	26.3	26.0
Agricultural supplies	N	15	61	33	2	9	11	131
	%	20.5	30.0	22.4	22.2	12.7	28.9	24.3
Agricultural machinery	N	9	42	10	1	9	4	75
	%	12.3	20.7	6.8	11.1	12.7	10.5	13.9
Agricultural products	N	-	4	4	1	6	1	16
	%	-	2.0	2.7	11.1	8.5	2.6	3.0
Ornamental horticulture	N	16	26	40	1	17	6	106
	%	21.9	12.8	27.2	11.1	23.9	15.8	19.6
Agricultural resources	N	5	5	11	1	3	1	26
	%	6.8	2.5	7.5	11.1	4.2	2.6	4.8
Forestry	N	11	4	10	2	5	5	37
	%	15.1	2.0	6.8	22.2	7.0	13.2	6.9
Other	N	-	4	1	-	3	-	8
	%	-	2.0	0.7	-	4.2	-	1.5
Totals	N	73	203	147	9	71	38	541
	%	100	100	100	100	100	100	100

Table 84. One and two-year programs in vocational and technical agriculture; by type of institution

Area of instruction		Type of institution A	B	C	Totals
Agricultural production	N	80	23	39	142
	%	24.5	25.5	31.2	26.0
Agricultural supplies	N	90	19	22	131
	%	27.6	21.1	17.6	24.3
Agricultural machinery	N	39	20	16	75
	%	12.0	22.2	12.8	13.9
Agricultural products	N	6	2	8	16
	%	1.8	2.2	6.4	3.0
Ornamental horticulture	N	67	13	26	106
	%	20.6	14.4	20.8	19.6
Agricultural resources	N	21	9	6	26
	%	6.4	4.4	0.8	4.8
Forestry	N	22	9	6	37
	%	6.7	10.0	4.8	6.9
Other agriculture	N	1	-	7	8
	%	0.3	-	5.6	1.5
Totals	N	326	90	125	541
	%	100	100	100	100

Table 85. One and two-year programs in vocational and technical agriculture; by size of institution

Area of instruction		Size of institution 1-50	51-100	Over 100	Totals
Agricultural production	N	40	26	76	142
	%	23.6	24.1	28.9	26.0
Agricultural supplies	N	53	25	53	131
	%	31.2	23.1	20.2	24.3
Agricultural machinery	N	29	19	17	75
	%	17.1	17.6	10.3	13.9
Agricultural products	N	4	3	9	16
	%	2.4	2.8	3.4	3.0
Ornamental horticulture	N	24	26	56	106
	%	14.1	24.1	21.3	19.6
Agricultural resources	N	3	4	19	26
	%	1.8	3.7	7.2	4.8
Forestry	N	17	5	15	37
	%	10.0	4.6	5.7	6.9
Other agriculture	N	-	-	8	8
	%	-	-	3.0	1.5
Totals	N	326	90	125	541
	%	100	100	100	100

In Table 85 the data are arranged by size of institution. Agricultural supplies is the most likely represented area of instruction in the 1-50 strata. Agricultural production is the most likely represented area of instruction in both the 51-100 strata with 26 (24.1%) programs and in the Over 100 strata with 76 (28.9%) programs.

Subject Matter Content of the One and Two-Year Vocational and Technical Programs in Agriculture

Objective 16: To determine the time distribution among communications, social and behavioral sciences and humanities, basic sciences and mathematics, technical subjects, electives, supervised work experience and physical education and health among the one and two-year vocational and technical programs in agriculture.

The information for this objective was taken from the program outlines given in the general catalogs of the institutions. Consideration was given to the description of each course to assign it to the proper subject matter area.

These subject matter areas or subject matters were recognized: (1) Physical education and health, (2) Communications, (3) Social and behavioral sciences and humanities, (4) Mathematics, (5) Biology, (6) Botany, (7) Genetics, (8) Microbiology, (9) Chemistry, (10) Biochemistry, (11) Zoology, (12) Ecology, (13) Economy, (14) Geology, (15) Other sciences, (16) Physics, (17) Science/mathematics, (18) Applied subjects, (19) General education electives, (20) Applied electives,

Table 86. Subject matter areas in the technical programs in agriculture; by Regional Accrediting Agency

Regional Accrediting Agency		Subject matter area											
		Physical education and health		Communications		Social and behavioral sciences and humanities		Mathematics		Biology		Botany	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
SA	N	16	31	47	-	39	8	43	4	12	35	12	35
	%	34.0	66.0	100.0	-	82.9	17.1	91.5	8.5	25.5	74.5	25.5	74.5
NCA	N	59	92	146	5	121	30	114	37	25	126	39	112
	%	39.1	60.9	96.7	3.3	80.1	19.9	75.5	24.5	16.6	83.4	25.8	74.2
WA	N	118	-	118	-	118	-	79	39	6	112	12	106
	%	100.0	-	100.0	-	100.0	-	67.0	33.0	5.1	94.9	10.2	89.8
NEA	N	-	9	9	-	7	2	9	-	-	9	3	6
	%	-	100.0	100.0	-	77.8	22.2	100.0	-	-	100.0	33.3	66.7
MSA	N	61	5	65	1	61	5	53	13	12	54	26	40
	%	92.4	7.6	98.5	1.5	92.4	7.6	80.3	19.7	18.2	81.8	39.4	60.6
NA	N	23	5	27	1	23	5	26	2	1	27	6	22
	%	82.1	7.9	96.4	3.6	82.1	7.9	92.9	7.1	3.6	96.4	21.4	78.6
Totals	N	277	142	412	7	369	50	324	95	56	363	98	321
	%	66.1	33.9	98.3	1.7	88.1	11.9	77.3	22.7	13.4	82.6	23.4	76.6

Table 86. (Continued)

Regional Accrediting Agency		Subject matter area: Genetics		Microbiology		Chemistry		Biochemistry		Zoology		Ecology	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
SA	N	-	47	1	46	18	29	-	47	5	42	1	46
	%	-	100.0	2.1	97.9	38.3	61.7	-	100.0	10.6	89.4	2.1	97.9
NCA	N	-	151	3	148	33	118	15	136	9	142	4	147
	%	-	100.0	2.0	98.0	21.6	78.4	10.0	90.0	6.0	9 .0	2.6	97.4
WA	N	-	118	1	117	5	113	-	118	4	114	-	118
	%	-	100.0	0.8	99.2	4.2	95.8	-	100.0	3.38	96.62	-	100.0
NEA	N	-	9	-	9	-	9	-	9	-	9	-	9
	%	-	100.0	-	100.0	-	100.0	-	100.0	-	100.0	-	100.0
MSA	N	11	55	11	55	32	34	4	62	11	55	3	63
	%	16.7	83.3	16.7	83.3	48.5	51.5	6.1	93.9	16.7	83.3	4.5	95.5
NA	N	-	28	1	27	8	20	-	28	-	28	-	28
	%	-	100.0	3.6	96.4	28.6	71.4	-	100.0	-	100.0	-	100.0
Totals	N	11	408	17	402	96	323	19	400	29	390	8	411
	%	2.6	97.4	4.1	95.9	22.9	77.1	4.5	95.5	6.9	93.1	1.9	98.1

Table 86. (Continued)

Regional Accrediting Agency		Subject matter area: Economics		Geology		Other sciences		Physics		Science/ mathematics		Applied subjects	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
SA	N	13	34	-	47	-	47	7	40	4	43	47	-
	%	27.7	72.3	-	100.0	-	100.0	14.9	85.1	8.5	91.5	100.0	-
NCA	N	57	94	3	148	1	150	13	138	13	138	150	1
	%	37.7	62.3	2.0	98.0	0.7	99.3	8.6	91.4	8.6	91.4	99.3	0.7
WA	N	12	106	3	115	1	117	1	117	10	108	114	4
	%	10.2	89.8	2.5	97.5	0.8	99.2	0.8	99.2	8.5	91.5	96.6	3.4
NEA	N	6	3	-	9	-	9	2	7	-	9	9	-
	%	66.7	33.3	-	100.0	-	100.0	22.2	77.8	-	100.0	100.0	-
MSA	N	12	54	-	66	-	66	11	55	4	62	66	-
	%	18.2	81.8	-	100.0	-	100.0	16.7	83.3	6.1	93.9	100.0	-
NA	N	5	23	2	26	-	28	3	25	1	27	28	-
	%	17.9	82.1	7.1	92.9	-	100.0	10.7	89.3	3.6	96.4	100.0	-
Totals	N	105	314	8	411	2	417	37	382	32	387	414	5
	%	25.1	74.9	1.9	98.1	0.5	99.5	8.8	91.2	7.6	92.4	98.8	1.2

Table 86. (Continued)

Regional Accrediting Agency		Subject matter area: General education electives		Applied electives		Electives		Supervised work experience	
		Yes	No	Yes	No	Yes	No	Yes	No
SA	N	1	46	5	42	30	17	10	37
	%	2.1	97.9	10.6	89.4	63.8	36.2	21.3	78.7
NCA	N	3	148	13	138	58	93	86	65
	%	2.0	98.0	8.6	91.4	38.4	61.6	57.0	43.0
WA	N	9	109	45	73	91	27	39	79
	%	7.6	92.4	38.1	61.9	77.1	32.9	33.1	66.9
NEA	N	-	9	2	7	4	5	2	7
	%	-	100.0	22.2	77.8	44.4	55.6	22.2	77.8
MSA	N	10	56	17	49	35	31	2	64
	%	15.2	84.8	25.8	74.2	53.0	47.0	3.0	97.0
NA	N	3	25	8	29	18	10	11	17
	%	10.7	89.3	28.6	31.4	64.3	35.7	39.3	60.7
Totals	N	26	393	86	333	236	183	150	269
	%	6.2	93.8	20.5	79.5	56.3	43.7	35.8	64.2

Table 87. Subject matter areas in the technical programs in agriculture; by type of institution

Regional Accrediting Agency		Subject matter area: Physical education and health		Communications		Social and behavioral sciences and humanities		Mathematics		Biology		Botany	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
A	N	197	67	262	2	244	20	201	63	26	238	50	214
	%	74.6	25.4	99.2	0.8	92.4	7.6	76.1	23.9	9.8	90.2	19.9	81.1
B	N	1	43	40	4	33	11	37	7	6	38	11	33
	%	2.3	97.7	91.0	9.0	75.0	25.0	84.1	15.1	13.6	86.4	25.0	75.0
C	N	79	32	110	1	92	19	86	25	24	87	37	74
	%	71.2	28.8	99.1	0.9	82.9	17.1	77.5	22.5	21.6	78.4	33.3	66.7
Totals	N	277	142	412	7	369	50	324	95	56	363	98	321
	%	66.1	33.9	98.3	1.7	88.1	11.9	77.3	22.7	82.6	13.4	23.4	76.6

Table 87. (Continued)

Regional Accrediting Agency		Subject matter areas: Genetics		Microbiology		Chemistry		Biochemistry		Zoology		Ecology	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
A	N	-	264	4	260	36	228	2	262	9	255	3	261
	%	-	100.0	1.5	98.5	13.6	86.4	0.8	99.2	3.4	96.6	1.3	98.7
B	N	-	44	1	43	10	34	-	44	4	40	2	42
	%	-	100.0	2.3	97.7	22.7	77.3	-	100.0	9.0	91.0	4.5	95.5
C	N	11	100	12	99	50	61	17	94	16	95	3	108
	%	9.9	90.1	10.8	89.2	45.0	55.0	15.3	84.7	14.4	85.6	2.7	97.3
Totals	N	11	408	17	402	96	323	19	400	29	390	8	411
	%	2.6	97.4	4.1	95.9	22.9	77.1	4.5	95.5	6.9	93.1	1.9	98.1

Table 87. (Continued)

Regional Accrediting Agency		Subject matter area: Economics		Geology		Other sciences		Physics		Science/ mathematics		Applied subjects	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
A	N	54	210	6	258	1	263	20	244	26	238	259	5
	%	20.5	79.5	2.3	97.7	0.4	99.6	7.6	92.4	9.8	90.2	98.1	1.9
B	N	18	26	2	42	1	43	4	40	-	44	44	-
	%	40.9	59.1	4.5	95.5	2.3	97.7	9.0	91.0	-	100.0	100.0	-
C	N	33	78	-	111	-	111	13	98	6	105	111	-
	%	29.7	70.3	-	100.0	-	100.0	11.7	88.3	5.4	94.6	100.0	-
Totals	N	105	314	8	411	2	417	37	382	32	387	414	5
	%	25.1	74.9	1.9	98.1	0.5	99.5	8.8	91.2	7.6	92.4	98.8	1.2

Table 87. (Continued)

Regional Accrediting Agency		Subject matter area: General education electives		Applied electives		Electives		Supervised work experience	
		Yes	No	Yes	No	Yes	No	Yes	No
A	N	15	249	55	209	157	107	107	157
	%	5.7	94.3	20.8	79.2	59.5	40.5	40.5	59.5
B	N	-	49	3	41	11	33	22	22
	%	-	100.0	6.8	93.2	25.0	75.0	50.0	50.0
C	N	11	100	28	8.3	68	43	21	90
	%	9.9	90.1	25.2	74.8	61.3	38.7	18.9	81.1
Totals	N	26	393	86	333	236	183	150	269
	%	6.2	93.8	20.5	79.5	56.3	43.7	35.8	64.2

Table 88. Subject matter areas in the technical programs in agriculture; by size of institution

Regional Accrediting Agency		Subject matter area											
		Physical education and health		Communications		Social and behavioral sciences and humanities		Mathematics		Biology		Botany	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
1-50	N	53	62	113	2	101	14	95	20	21	94	31	84
	%	46.1	53.9	98.3	1.7	87.8	12.2	82.6	17.4	18.3	81.7	27.0	73.0
51-100	N	46	32	74	4	67	21	65	13	4	74	14	64
	%	59.0	41.0	94.9	5.1	85.9	14.1	83.3	16.7	5.1	94.9	7.9	82.1
Over 100	N	178	48	225	1	211	15	164	62	31	195	53	173
	%	78.8	21.2	99.6	0.4	93.4	6.6	72.6	27.4	13.7	86.3	23.5	76.5
Totals	N	277	142	412	7	369	50	324	95	363	56	98	321
	%	66.1	33.9	98.3	1.7	88.1	11.9	77.3	22.7	82.6	13.4	23.4	76.6

Table 88. (Continued)

Regional Accrediting Agency		Subject matter areas: Genetics		Microbiology		Chemistry		Biochemistry		Zoology		Ecology	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
1-50	N	-	115	2	113	32	83	-	115	5	110	3	112
	%	-	100.0	1.7	98.3	27.8	72.2	-	100.0	4.3	95.7	2.6	97.4
51-100	N	-	78	-	78	6	72	4	74	1	77	1	77
	%	-	100.0	-	100.0	7.7	92.3	5.1	94.9	1.3	98.7	1.3	98.7
Over 100	N	11	215	15	211	58	168	15	211	23	203	4	222
	%	4.9	95.1	6.6	93.4	25.7	74.3	6.6	93.4	10.2	89.8	1.8	98.2
Totals	N	11	408	17	402	96	323	19	400	29	390	8	411
	%	2.6	97.4	4.1	95.9	22.9	77.1	4.5	95.5	6.9	93.1	1.9	98.1

Table 88. (Continued)

Regional Accrediting Agency		Subject matter area: Economics		Geology		Other sciences		Physics		Science/ mathematics		Applied subjects	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
1-50	N	33	82	2	113	-	115	14	101	8	107	114	1
	%	28.7	71.3	1.7	98.3	-	100.0	12.2	87.8	7.0	93.0	99.1	0.9
51-100	N	19	59	1	77	-	78	2	76	3	75	78	-
	%	24.4	75.6	1.3	98.7	-	100.0	2.6	97.4	3.9	96.1	100.0	-
Over 100	N	53	173	5	221	2	224	21	205	21	205	222	4
	%	23.5	76.5	2.2	97.8	0.9	99.1	9.3	90.7	9.3	90.7	98.2	1.8
Totals	N	105	314	8	411	2	417	37	382	32	387	414	5
	%	25.1	74.9	1.9	98.1	0.5	99.5	8.8	91.2	7.6	92.4	98.8	1.2

Table 88. (Continued)

Regional Accrediting Agency		Subject matter area: General education electives		Applied electives		Electives		Supervised work experience	
		Yes	No	Yes	No	Yes	No	Yes	No
1-50	N	5	110	12	103	50	65	41	74
	%	4.3	95.7	10.4	89.6	43.5	56.5	35.7	64.3
51-100	N	1	77	9	69	29	49	36	42
	%	1.3	98.7	11.5	88.5	37.2	62.8	46.2	53.8
Over 100	N	20	206	65	161	157	69	73	153
	%	8.8	91.2	28.8	71.2	69.5	30.5	32.3	67.7
Totals	N	26	393	86	333	236	183	150	269
	%	6.2	93.8	20.5	79.5	56.3	43.7	35.8	64.2

(21) Electives, and (22) Supervised work experience. These areas were studied separately in terms of frequency of presence or absence in the curriculum.

For the study of the distribution of the time devoted to each area of subject matter, the following areas of subject matter were recognized: (1) Physical education and health, (2) Communications, (3) Social and behavioral sciences and humanities, (4) Sciences and mathematics, (5) Applied subjects, (6) Electives, and (7) Supervised work experience.

The analysis in terms of the three classifying factors used through the study was done only for the technical programs.

A total of 419 technical programs were analyzed. In Table 86 the data concerning the frequency of presence in the curriculum of the different subject matters or subject matter areas are arranged by Regional Accrediting Agency. The Association most likely to report the presence of Physical education and health in the curriculum was the Western Association with 118 (100%) programs, and the least likely to report credit given for this subject area was the North Central Association with 59 (39.1%) programs.

Courses in Communications were present in all the programs analyzed in the Southern Association, the Western Association and the New England Association. The Northwestern Association had the lowest proportion of programs with communications, with 27 (96.4%) programs.

Courses in Social and behavioral sciences and humanities were most likely present in the programs of the Western Association with 118 (100%)

programs and the least likely present in the programs offered in the New England Association with 7 (77.8%) programs.

Courses in Mathematics were present in all the programs offered by the New England Association and was present in 79 (67%) programs in the Western Association for the low.

Courses in Biology were most likely present in the programs of the Southern Association with 12 (25.5%) programs and it was absent in all the programs of the New England Association.

Courses in Botany were present in 26 (39.4%) programs in the Middle States Association for the high and in 12 (10.2%) programs in the Western Association for the low.

Courses in Genetics were present in 11 (16.7%) programs in the Middle States Association and was absent in all the programs analyzed in the other Regional Accrediting Agencies.

Courses in Microbiology were present in 11 (16.7%) programs in the Middle States Association for the high and absent from the programs analyzed in the New England Association for the low.

Courses in Chemistry were present in 32 (48.5%) programs in the Middle States Association for the high and no program offered chemistry in the New England Association for the low.

Courses in Biochemistry were present in 15 (10%) programs in the North Central Association for the high and it was not found in the programs of the Southern Association, the Western Association and the Northwestern Association.

Courses in Zoology were present in 11 (16.7%) programs in the Middle States Association and absent in the programs of the New England Association and the Northwestern Association.

Courses in Ecology were present in 3 (4.5%) programs in the Middle States Association and absent in the programs of the Western Association, the New England Association and the Northwestern Association.

All the Associations had programs that included courses in Economics. This subject was most likely to be present in the programs of the New England Association with 6 (66.7%) programs and least likely to be present in the programs of the Western Association with 12 (10.2%) programs.

Courses in Geology were most likely present in the programs of the Northwestern Association with 2 (7.1%) programs and was absent in the programs of the Southern Association, New England Association and the Middle States Association.

Other sciences were found in two programs, one in the North Central Association and the other in the Western Association.

Courses in Physics were found in 11 (16.7%) programs in the Middle States Association for the high and it was found in only 1 (0.8%) programs in the Western Association for the low.

Courses in Science/Mathematics were found most frequently in the North Central Association with 13 (8.6%) programs and was not found in the New England Association.

Applied required or suggested subjects were found in all the programs except in 4 (3.4%) programs in the Western Association and in

1 (0.7%) programs in the North Central Association. In these four programs all the Applied subjects were electives.

The category General education electives was most commonly found in the programs of the Middle States Association with 10 (15.2%) programs. No program in the New England Association had General education electives.

Applied electives were most commonly found in the programs of the Northwestern Association with 8 (28.6%) programs. The lowest proportion of programs with Applied electives was found in the North Central Association with 13 (8.6%) programs.

Electives nondiscriminated into areas were most frequently included in the programs of the Western Association with 91 (77.1%) programs. The programs in the New England Association were the least likely to include Electives. The category was found in only 4 (44.4%) programs in the last mentioned Association.

Supervised work experience was required most frequently in those programs analyzed in the North Central Association, with 86 (57%) programs. The programs in the New England Association were the least likely to include Supervised work experience.

In Table 87 the data are arranged by type of institutions. The two-year institutions offering technical and transfer education were the most likely to offer programs including the following subjects or subject areas: Physical education and health with 197 (74.6%) programs, Communications with 262 (99.2%) programs, Social sciences with 244 (92.4%) programs, and Science/mathematics with 26 (9.8%) programs.

The two-year institutions offering technical education were the most likely to offer programs including the following subjects or subject areas: Mathematics with 37 (84.1%) programs, Ecology with 2 (4.5%) programs, Economics with 18 (40.9%) programs, Geology with 2 (4.5%) programs, Other sciences with 1 (2.3%) programs, and Supervised work experience with 22 (50%) programs.

The four-year institutions were the most likely to offer programs including the following subjects or subject areas: Biology with 24 (21.6%) programs, Botany with 37 (33.3%) programs, Genetics with 11 (9.9%) programs, Microbiology with 12 (10.8%) programs, Chemistry with 50 (45%) programs, Biochemistry with 17 (15.3%) programs, Physics with 13 (11.7%) programs, Applied electives with 28 (25.2%) programs, and Electives with 68 (61.3%) programs.

The category Applied subjects was found in all the programs offered by the two-year institutions offering technical education and in the four-year institutions.

In Table 88 the data are arranged by size of institution. The institutions in the 1-50 strata were the most likely to offer programs including the following subjects: Ecology with 3 (2.6%) programs, Biology with 21 (18.3%) programs, Botany with 31 (27%) programs, Chemistry with 32 (27.8%) programs, Economics with 33 (28.7%) programs, and Physics with 14 (12.2%) programs.

The institutions in the 51-100 strata were the most likely to offer programs including the following subjects or subject areas: Mathematics with 65 (83.3%) programs, Applied subjects with 78 (100%) programs, and

Supervised work experience with 36 (46.2%) programs.

The institutions in the Over 100 strata were the most likely to offer programs including the following subjects or subject matter areas: Physical education and health with 178 (78.8%) programs, Communications with 225 (99.6%) programs, Social sciences with 211 (93.4%) programs, Genetics with 11 (4.9%) programs, Microbiology with 15 (6.6%) programs, Biochemistry with 15 (6.6%) programs, Zoology with 23 (10.2%) programs, Geology with 5 (2.2%) programs, Other sciences with 2 (0.9%) programs, Science/mathematics with 21 (9.3%) programs, General education with 20 (8.8%) programs, Applied electives with 65 (28.8%) programs, and Electives with 157 (69.5%) programs.

In Table 89 the percent distribution of the time devoted to Physical education and health in the technical programs in agriculture is presented, arranged by Regional Accrediting Agency. The majority of the programs devote no more than 10% of the effort to Physical education and health. The Western Association was the most likely to offer programs with 10% or less of the time devoted to this subject area.

In Table 90 the same data are arranged by type of institution. The two-year institutions that offer technical and transfer education were most likely represented in the ten percent interval by 197 (73.9%) programs.

In Table 91 the data are arranged by size of institution. The Over 100 strata was the most likely to offer programs devoting 10% or less of the time to Physical education and health courses with 178 (78.8%) programs in the ten percent interval.

Tables 92, 93, and 94 are concerned with the percent distribution of the time devoted to Communications. A total of 361 (75.3%) of the programs devote 10% or less of the time to Communications.

In Table 92 the data are arranged by Regional Accrediting Agency. The programs offered by the institutions in the Western Association are the most likely to devote 10% or less of the time to Communications with 98 (83%) of the programs in that interval. The programs offered by institutions in the New England Association are the least likely to classify in the ten percent interval, with 2 (22.2%) programs.

In Table 93 the data are arranged by type of institution. The programs offered by the four-year institutions were the most likely to devote 10% or less time to Communications with 90 (81.1%) programs and the programs offered by the two-year institutions offering technical and transfer education were the least likely to devote 10% or less of the time to Communications with 193 (73.1%) programs.

In Table 94 the data are arranged by size of institution. A total of 183 (81%) programs of the Over 100 strata are in the ten percent interval for the high and 78 (67.8%) programs of the 1-50 strata are in the ten percent interval for the low of the interval.

In the Tables 95, 96 and 97 the data related to the percent distribution of the time devoted to Social and behavioral sciences and humanities are presented. The majority of the programs devote 10% or less of the time to Social and behavioral sciences and humanities.

In Table 95 the data are arranged by Regional Accrediting Agency. The programs in the Northwestern Association are the most likely to

devote 10% or less of the time to Social and behavioral sciences and humanities with 21 (75%) programs, while the low for the interval corresponded to the New England Association with 3 (33.3%) of the programs.

In Table 96 the data are arranged by type of institution. The high for the ten percent interval corresponded to the two-year institutions offering technical education with 31 (70.5%) of the institutions and the low to the four-year institutions with 65 (58.6%) institutions.

In Table 97 the data are arranged by size of institution. A total of 80 (69.6%) programs in the 1-50 strata devoted 10% or less of the time to Social and behavioral sciences and humanities for the high in the ten percent interval and 44 (56.4%) programs in the 51-100 strata represented the low in the ten percent interval.

In Tables 98, 99 and 100 the data related to the percent distribution of the time devoted to Mathematics and basic sciences are presented. The technical programs in agriculture devoted from 0 to 70% of the time to this subject matter area. The 30% interval comprised the 36.2% of the programs, closely followed by the 20% interval with 101 (24.1%) programs and the 40% interval with 103 (24.6%) programs. The programs in the Northwestern Association were the most likely to classify in the 30% interval with 11 (39%) programs and the programs in the Middle States Association were the least likely to classify in the 30% interval with 21 (31%) programs, as shown in Table 98.

In Table 99 the data are arranged by type of institution. The programs offered by the two-year institutions offering technical and transfer education were the most likely to devote more than 20% to 30% of the time to Mathematics and basic sciences with 110 (41.7%) programs. The lowest likelihood for the same interval corresponded to the programs offered by the four-year institutions with 27 (24.3%) programs.

In Table 100 the data are arranged by size of institution. The 1-50 strata offered 49 (42.6%) programs with more than 20% to 30% of the time devoted to Mathematics and basic sciences for the high in the 30% interval and the 51-100 strata with 18 (23.1%) programs in the same interval accounted for its low.

In Tables 101, 102, and 103 the data concerning the percent distribution of the time devoted to required or suggested Applied subjects are presented. Programs are included in all the intervals with the highest number in the 60% interval with 114 (27.2%) programs.

In Table 101 the data are arranged by Regional Accrediting Agency. A total of 28 (42.4%) of the programs offered by institutions in the Middle States Association devoted more than 50% to 60% of the time to Applied subjects while 23 (17.8%) programs in the Western Association devoted more than 50% to 60% of the time to required Applied subjects, accounting for the high and the low of the interval respectively.

In Table 102 the data are arranged by type of institution. In the 60% interval the high corresponded to the four-year institutions with 46 (41.5%) programs and the low to the two-year institutions offering technical and transfer education with 47 (17.8%) programs.

In Table 103 the data are arranged by size of institution. The time devoted to Applied subjects in the programs offered by institutions in the 51-100 strata was most likely to classify in the 60% interval with 24 (30.8%) institutions. The low of the interval corresponded to programs offered by institutions in the 1-50 strata with 27 (23.5%) programs.

In Tables 104, 105, and 106 the data concerning the time devoted to the technical programs in agriculture to Electives are presented. A total of 150 (35.8%) programs did not devote any time to Electives. Of those programs devoting time to Electives, the most devoted 10% or less of the total time to this category of subject matter. A total of 113 (26.9%) programs were classified in the ten percent interval. Programs in the Southern Association were the most likely to devote 10% or less of the time to Electives with 19 (40.4%) programs and the programs in the Western Association were the least with 23 (19.4%) programs.

In Table 105 the data are arranged by type of institution. The programs offered by the four-year institutions were more likely to devote 10% or less of the time to Electives with 36 (32.4%) programs and the low for the ten percent interval was shared by the programs offered by the two-year institutions offering technical and transfer education and the two-year institutions offering technical education with 66 (25%) and 11 (25%) programs respectively.

In Table 106 the data are arranged by size of institution. The high in the ten percent interval corresponded to the programs in the 1-50 strata with 34 (29.6%) programs and the low to the programs in the

51-100 strata with 20 (25.6%) programs.

In Tables 107, 108, and 109 the data concerning the percent distribution of the time devoted to Supervised work experience are presented. The majority of the programs did not include Supervised work experience among the credits required for completion of a technical program in agriculture. A total of 69 programs devoted 10% or less of the time to Supervised work experience, representing the 16.5% of the programs. Thirty-nine programs devoted between 10% and 20% and 32 between 20% and 30% of the effort to supervised work experience.

In Table 107 the data are arranged by Regional Accrediting Agency. In the ten percent interval were the most likely to be classified the programs offered by institutions in the Western Association with 38 (32.2%) programs. Only 2 (4.2%) programs offered by institutions in the Southern Association were classified in the same interval for the low.

In Table 108 the data are arranged by type of institution. The programs offered by two-year institutions offering technical and transfer education were the most likely to devote 10% or less of the time to Supervised work experience with 55 (20.8%) programs. The low of the interval was for the programs offered by four-year institutions with 8 (7.2%) programs.

In Table 109 the data are arranged by size of institution. The high for the ten percent interval was for the 51-100 strata with 14 (17.9%) programs and the low was for the 1-50 strata with 15 (13%) institutions.

Only 64 vocational programs were announced in the general catalogs of the 174 institutions participating in the study. The data concerning these programs are presented in Table 110. Physical education was included in 12 (18.7%) of the programs and comprising less than 10% of the time. Communications was offered in 22 (34.4%) programs and typically accounting for no more than the 10% of the time. Social and behavioral sciences and humanities were offered in 4 (6.3%) programs. A total of 41 (64%) programs included Mathematics and sciences with 25 (39.1%) programs devoting 10% or less of the time to this subject matter area. All the programs devoted time to required Applied subjects. The proportion of the time devoted to Applied subjects varied from 20% or less to 100%. Twenty (41.3%) programs devoted time to Electives and 16 (25%) programs devoted time to Supervised work experience.

Table 89. Percent distribution of the time devoted to physical education and health in the technical programs in agriculture; by Regional Accrediting Agency

Regional Accrediting Agency		Percentage of time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
SA	N	31	16	-	-	-	-	-	-	-	-	-	47
	%	66.0	34.0	-	-	-	-	-	-	-	-	-	100
NCA	N	92	58	1	-	-	-	-	-	-	-	-	151
	%	61.0	38.4	0.6	-	-	-	-	-	-	-	-	100
WA	N	-	117	1	-	-	-	-	-	-	-	-	118
	%	-	99.2	0.8	-	-	-	-	-	-	-	-	100
NEA	N	9	-	-	-	-	-	-	-	-	-	-	9
	%	100.0	-	-	-	-	-	-	-	-	-	-	100
MSA	N	5	61	-	-	-	-	-	-	-	-	-	66
	%	7.6	92.4	-	-	-	-	-	-	-	-	-	100
NA	N	5	23	-	-	-	-	-	-	-	-	-	28
	%	8.0	82.0	-	-	-	-	-	-	-	-	-	100
Totals	N	142	275	2	-	-	-	-	-	-	-	-	419
	%	33.9	65.6	0.5	-	-	-	-	-	-	-	-	100

Table 90. Percent distribution of the time devoted to physical education and health in the technical programs in agriculture; by type of institution

Type of institution		Percentage of time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
A	N	67	195	2	-	-	-	-	-	-	-	-	264
	%	25.4	73.9	0.7	-	-	-	-	-	-	-	-	100
B	N	43	1	-	-	-	-	-	-	-	-	-	44
	%	97.7	2.3	-	-	-	-	-	-	-	-	-	100
C	N	32	79	-	-	-	-	-	-	-	-	-	111
	%	28.8	71.2	-	-	-	-	-	-	-	-	-	100
Totals	N	142	175	2	-	-	-	-	-	-	-	-	419
	%	33.9	65.6	0.5	-	-	-	-	-	-	-	-	100

Table 91. Percent distribution of the time devoted to physical education and health in the technical programs in agriculture; by size of institution

Size of institution		Percentage of time											Totals
		0	10	20	30	40	50	60	70	80	90	100	
1-50	N	62	52	1	-	-	-	-	-	-	-	-	115
	%	53.9	45.2	0.9	-	-	-	-	-	-	-	-	100
51-100	N	32	45	1	-	-	-	-	-	-	-	-	78
	%	41.0	57.7	1.3	-	-	-	-	-	-	-	-	100
Over 100	N	48	178	-	-	-	-	-	-	-	-	-	226
	%	21.2	78.8	-	-	-	-	-	-	-	-	-	100
Totals	N	142	275	2	-	-	-	-	-	-	-	-	419
	%	33.9	65.6	0.5	-	-	-	-	-	-	-	-	100

Table 92. Percent distribution of the time devoted to communications in the technical programs in agriculture; by Regional Accrediting Agency

Regional Accrediting Agency		Percentage of time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
SA	N	-	27	20	-	-	-	-	-	-	-	-	47
	%	-	57.4	42.6	-	-	-	-	-	-	-	-	100
NCA	N	5	113	33	-	-	-	-	-	-	-	-	151
	%	0.3	74.8	21.9	-	-	-	-	-	-	-	-	100
WA	N	-	98	20	-	-	-	-	-	-	-	-	118
	%	-	83.0	17.0	-	-	-	-	-	-	-	-	100
NEA	N	-	2	7	-	-	-	-	-	-	-	-	9
	%	-	22.2	77.8	-	-	-	-	-	-	-	-	100
MSA	N	1	54	11	-	-	-	-	-	-	-	-	66
	%	1.5	81.8	16.7	-	-	-	-	-	-	-	-	100
NA	N	1	22	5	-	-	-	-	-	-	-	-	28
	%	3.6	78.6	17.8	-	-	-	-	-	-	-	-	100
Totals	N	7	316	96	-	-	-	-	-	-	-	-	419
	%	1.9	75.3	22.8	-	-	-	-	-	-	-	-	100

Table 93. Percent distribution of the time devoted to communications in the technical programs in agriculture; by type of institution

Type of institution		Percentage of time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
A	N	2	193	69	-	-	-	-	-	-	-	-	264
	%	0.8	73.1	26.1	-	-	-	-	-	-	-	-	100
B	N	4	33	7	-	-	-	-	-	-	-	-	44
	%	9.1	75.0	15.9	-	-	-	-	-	-	-	-	100
C	N	1	90	20	-	-	-	-	-	-	-	-	111
	%	0.9	81.1	18.0	-	-	-	-	-	-	-	-	100
Totals	N	7	316	96	-	-	-	-	-	-	-	-	419
	%	1.9	75.3	22.8	-	-	-	-	-	-	-	-	100

Table 94. Percent distribution of the time devoted to communications in the technical programs in agriculture; by size of institution

Size of institution		Percentage of time											Totals
		0	10	20	30	40	50	60	70	80	90	100	
1-50	N	2	78	35	-	-	-	-	-	-	-	-	115
	%	1.7	67.8	30.5	-	-	-	-	-	-	-	-	100
51-100	N	4	55	19	-	-	-	-	-	-	-	-	78
	%	5.1	70.5	24.4	-	-	-	-	-	-	-	-	100
Over 100	N	1	183	42	-	-	-	-	-	-	-	-	226
	%	0.4	81.0	18.6	-	-	-	-	-	-	-	-	100
Totals	N	7	316	96	-	-	-	-	-	-	-	-	419
	%	1.9	75.3	22.8	-	-	-	-	-	-	-	-	100

Table 95. Percent distribution of the time devoted to social and behavioral science and humanities in technical programs in agriculture; by Regional Accrediting Agency

Regional Accrediting Agency		Percentage of time											Totals
		0	10	20	30	40	50	60	70	80	90	100	
SA	N	8	34	5	-	-	-	-	-	-	-	-	47
	%	17.0	72.3	10.6	-	-	-	-	-	-	-	-	100
NCA	N	30	104	17	-	-	-	-	-	-	-	-	151
	%	19.9	68.9	11.2	-	-	-	-	-	-	-	-	100
WA	N	-	62	55	1	-	-	-	-	-	-	-	118
	%	-	52.5	46.6	0.9	-	-	-	-	-	-	-	100
NEA	N	2	3	4	-	-	-	-	-	-	-	-	9
	%	22.2	33.3	44.5	-	-	-	-	-	-	-	-	100
MSA	N	5	38	23	-	-	-	-	-	-	-	-	66
	%	7.6	57.6	34.8	-	-	-	-	-	-	-	-	100
NA	N	5	21	1	1	-	-	-	-	-	-	-	28
	%	17.8	75.0	3.6	3.6	-	-	-	-	-	-	-	100
Totals	N	50	262	105	2	-	-	-	-	-	-	-	419
	%	11.9	62.5	25.0	0.4	-	-	-	-	-	-	-	100

Table 96. Percent distribution of the time devoted to social and behavioral science and humanities in technical programs in agriculture; by type of institution

Type of institution		Percentage of time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
A	N	20	166	76	2	-	-	-	-	-	-	-	264
	%	7.57	62.9	28.8	0.6	-	-	-	-	-	-	-	100
B	N	11	31	2	-	-	-	-	-	-	-	-	44
	%	25.0	70.5	4.5	-	-	-	-	-	-	-	-	100
C	N	19	65	27	-	-	-	-	-	-	-	-	111
	%	17.1	58.6	24.3	-	-	-	-	-	-	-	-	100
Totals	N	50	262	105	2	-	-	-	-	-	-	-	419
	%	11.9	62.5	25.0	0.4	-	-	-	-	-	-	-	100

Table 97. Percent distribution of the time devoted to social and behavioral sciences and humanities in technical programs in agriculture; by size of institution

Size of institution		Percentage of time											Totals
		0	10	20	30	40	50	60	70	80	90	100	
1-50	N	14	80	21	-	-	-	-	-	-	-	-	115
	%	12.1	69.6	18.3	-	-	-	-	-	-	-	-	100
51-100	N	21	44	12	1	-	-	-	-	-	-	-	78
	%	36.9	56.4	15.4	1.3	-	-	-	-	-	-	-	100
Over 100	N	15	38	72	1	-	-	-	-	-	-	-	226
	%	6.6	61.1	31.9	0.4	-	-	-	-	-	-	-	100
Totals	N	50	262	105	2	-	-	-	-	-	-	-	419
	%	11.9	62.5	25.0	0.4	-	-	-	-	-	-	-	100

Table 98. Percent distribution of the time devoted to mathematics and basic sciences in the technical programs in agriculture; by Regional Accrediting Agency

Regional Accrediting Agency		Percentage of time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
SA	N	-	2	8	23	9	5	-	-	-	-	-	47
	%	-	4.3	17.0	48.9	19.1	10.6	-	-	-	-	-	100
NCA	N	5	22	33	52	32	5	2	-	-	-	-	151
	%	3.3	14.6	21.6	34.4	21.2	3.3	1.3	-	-	-	-	100
WA	N	-	-	46	42	25	4	1	-	-	-	-	118
	%	-	-	39.0	36.6	21.2	3.4	0.8	-	-	-	-	100
NEA	N	-	-	-	3	6	-	-	-	-	-	-	9
	%	-	-	-	33.3	66.7	-	-	-	-	-	-	100
MSA	N	-	-	5	21	27	12	-	1	-	-	-	66
	%	-	-	7.6	31.8	40.9	18.2	-	1.5	-	-	-	100
NA	N	-	2	9	11	4	1	-	1	-	-	-	28
	%	-	7.1	32.1	39.3	14.3	3.1	-	3.6	-	-	-	100
Totals	N	5	26	101	152	103	27	3	2	-	-	-	419
	%	1.2	6.2	24.1	36.2	24.6	6.4	0.7	0.5	-	-	-	100

Table 99. Percent distribution of the time devoted to mathematics and basic sciences in the technical programs in agriculture; by type of institution

Type of institution		Percentage of time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
A	N	1	10	77	110	50	13	2	1	-	-	-	264
	%	0.4	3.8	29.2	41.7	18.9	4.9	7.5	0.4	-	-	-	100
B	N	4	9	7	15	7	1	1	-	-	-	-	44
	%	9.1	20.4	15.9	34.1	15.9	2.3	2.3	-	-	-	-	100
C	N	-	7	17	27	46	13	-	1	-	-	-	111
	%	-	6.3	15.3	24.3	41.5	11.7	-	0.9	-	-	-	100
Totals	N	5	26	101	152	103	27	3	2	-	-	-	419
	%	11.2	6.2	24.1	36.2	24.6	6.4	0.7	0.5	-	-	-	100

Table 100. Percent distribution of the time devoted to mathematics and basic sciences in the technical programs in agriculture; by size of institution

Size of institution		Percentage of time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
1-50	N	2	6	27	49	19	9	3	-	-	-	-	115
	%	1.7	5.2	23.5	42.6	16.5	7.8	2.6	-	-	-	-	100
51-100	N	3	11	28	18	15	2	-	1	-	-	-	78
	%	3.8	14.1	35.9	23.1	19.2	2.6	-	1.3	-	-	-	100
Over 100	N	-	9	46	85	69	16	-	1	-	-	-	226
	%	-	4.0	20.4	37.6	30.5	7.1	-	0.4	-	-	-	100
Totals	N	5	26	101	152	103	27	3	2	-	-	-	419
	%	1.2	6.2	24.1	36.3	24.6	6.4	0.7	0.5	-	-	-	100

Table 101. Percent distribution of the time devoted to required or suggested applied subjects in the technical programs in agriculture; by Regional Accrediting Agency

Regional Accrediting Agency		Percentage of time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
SA	N	-	-	-	2	3	5	10	17	7	3	-	47
	%	-	-	-	4.3	6.4	10.6	21.3	36.2	14.9	6.4	-	100
NCA	N	1	-	-	2	9	31	41	26	25	11	5	151
	%	0.7	-	-	1.3	6.0	20.5	27.2	17.2	16.6	7.3	3.3	100
WA	N	4	6	12	10	17	21	23	20	5	-	-	118
	%	3.4	5.1	10.2	8.5	14.4	17.8	19.5	16.9	4.2	-	-	100
NEA	N	-	-	-	-	1	1	4	1	2	-	-	9
	%	-	-	-	-	11.1	11.1	44.5	11.1	22.2	-	-	100
MSA	N	-	-	1	3	6	13	28	7	6	2	-	66
	%	-	-	1.5	4.5	9.1	19.7	42.4	10.6	9.1	3.0	-	100
NA	N	-	-	-	1	5	4	8	7	3	-	-	28
	%	-	-	-	3.6	17.9	14.3	28.5	25.0	10.7	-	-	100
Totals	N	5	6	13	18	41	75	114	78	48	16	5	419
	%	1.2	1.4	3.1	4.3	9.8	17.9	27.2	18.6	11.5	3.8	1.2	100

Table 102. Percent distribution of the time devoted to required or suggested applied subjects in the technical programs in agriculture; by type of institution

Type of institution		Percentage of time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
A	N	5	6	12	13	32	51	62	47	26	9	1	264
	%	1.9	2.3	4.5	4.9	12.1	19.3	23.5	17.8	9.8	3.4	0.4	100
B	N	-	-	-	-	-	2	6	17	10	5	4	44
	%	-	-	-	-	-	4.6	13.6	38.6	22.7	11.4	9.1	100
C	N	-	-	1	5	9	22	46	14	12	2	-	111
	%	-	-	0.9	4.5	8.1	19.8	41.5	12.6	10.8	1.8	-	100
Totals	N	5	6	13	18	41	75	114	78	48	16	5	419
	%	1.2	1.4	3.1	4.3	9.8	17.9	27.2	18.6	11.5	3.8	1.2	100

Table 103. Percent distribution of the time devoted to required or suggested applied subjects in the technical programs in agriculture; by size of institution

Size of institution		Percentage of time											Totals
		0	10	20	30	40	50	60	70	80	90	100	
1-50	N	1	-	1	1	5	25	27	25	19	10	1	115
	%	0.7	-	0.7	0.7	4.3	21.7	23.5	21.7	16.5	8.7	0.7	100
51-100	N	-	-	-	3	5	5	24	16	15	6	4	78
	%	-	-	-	3.8	6.4	6.4	30.8	20.5	19.3	7.7	5.1	100
Over 100	N	4	6	12	14	31	45	63	37	14	-	-	226
	%	1.8	2.7	5.3	6.2	13.7	19.9	27.9	16.4	6.2	-	-	100
Totals	N	5	6	13	18	41	75	114	78	48	16	5	419
	%	1.2	1.4	3.1	4.3	9.8	17.9	27.2	18.6	11.5	3.8	1.2	100

Table 104. Percent distribution of the time devoted to elective subjects in the technical programs in agriculture; by Regional Accrediting Agency

Regional Accrediting Agency		Percentage of time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
SA	N	16	19	7	3	1	-	-	1	-	-	-	47
	%	34.0	40.4	14.9	6.5	2.1	-	-	2.1	-	-	-	100
NCA	N	87	42	14	5	3	-	-	-	-	-	-	151
	%	57.6	27.8	9.2	3.3	2.1	-	-	-	-	-	-	100
WA	N	17	23	27	17	8	13	6	7	-	-	-	118
	%	14.4	19.4	22.9	14.4	6.8	11.0	5.1	5.9	-	-	-	100
NEA	N	3	3	1	2	-	-	-	-	-	-	-	9
	%	33.3	33.3	11.1	22.2	-	-	-	-	-	-	-	100
MSA	N	20	19	18	6	2	1	-	-	-	-	-	66
	%	30.3	28.8	27.3	9.1	3.0	1.5	-	-	-	-	-	100
NA	N	7	7	7	4	2	1	-	-	-	-	-	28
	%	25.0	25.0	25.0	14.3	7.1	3.6	-	-	-	-	-	100
Totals	N	150	113	74	37	16	15	6	8	-	-	-	419
	%	35.8	26.9	17.7	8.8	3.8	3.6	1.4	1.9	-	-	-	100

Table 105. Percent distribution of the time devoted to elective subjects in the technical programs in agriculture; by type of institution

Type of institution		Percentage of time											Totals
		0	10	20	30	40	50	60	70	80	90	100	
A	N	90	66	42	26	12	14	6	8	-	-	-	264
	%	34.1	25.0	15.9	9.8	4.5	5.3	2.3	3.0	-	-	-	100
B	N	31	11	2	-	-	-	-	-	-	-	-	44
	%	70.5	25.0	4.5	-	-	-	-	-	-	-	-	100
C	N	29	36	30	11	4	1	-	-	-	-	-	111
	%	26.1	32.4	27.0	9.9	3.7	0.9	-	-	-	-	-	100
Totals	N	150	113	74	37	16	15	6	8	-	-	-	419
	%	35.8	26.9	17.7	8.8	3.8	3.6	1.4	1.9	-	-	-	100

Table 106. Percent distribution of the time devoted to elective subjects in the technical programs in agriculture; by size of institution

Size of institution		Percentage of time											Totals
		0	10	20	30	40	50	60	70	80	90	100	
1-50	N	58	34	12	6	3	1	-	1	-	-	-	115
	%	50.4	29.6	10.4	5.2	2.6	0.9	-	0.9	-	-	-	100
51-100	N	43	20	8	5	-	2	-	-	-	-	-	78
	%	55.1	25.6	10.3	6.4	-	2.6	-	-	-	-	-	100
Over 100	N	49	59	54	26	13	12	6	7	-	-	-	226
	%	21.7	26.1	23.9	11.5	5.7	5.3	2.7	3.1	-	-	-	100
Totals	N	150	113	74	37	16	15	6	8	-	-	-	419
	%	35.8	26.9	17.7	8.8	3.8	3.6	1.4	1.9	-	-	-	100

Table 107. Percent distribution of the time devoted to supervised work experience in the technical programs in agriculture; by Regional Accrediting Agency

Regional Accrediting Agency		Percentage of time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
SA	N	37	2	8	-	-	-	-	-	-	-	-	47
	%	78.7	4.2	17.0	-	-	-	-	-	-	-	-	100
NCA	N	65	16	29	32	5	4	-	-	-	-	-	151
	%	43.0	10.6	19.2	21.1	3.3	2.6	-	-	-	-	-	100
WA	N	79	38	1	-	-	-	-	-	-	-	-	118
	%	67.0	32.2	0.8	-	-	-	-	-	-	-	-	100
NEA	N	7	2	-	-	-	-	-	-	-	-	-	9
	%	77.8	22.2	-	-	-	-	-	-	-	-	-	100
MSA	N	64	2	-	-	-	-	-	-	-	-	-	66
	%	97.0	3.0	-	-	-	-	-	-	-	-	-	100
NA	N	17	9	1	-	1	-	-	-	-	-	-	28
	%	60.7	32.1	3.6	-	3.6	-	-	-	-	-	-	100
Totals	N	269	69	39	32	6	4	-	-	-	-	-	419
	%	64.2	16.5	9.3	7.6	1.4	1.0	-	-	-	-	-	100

Table 108. Percent distribution of the time devoted to supervised work experience in the technical programs in agriculture; by type of institution

Type of institution		Percentage of time											Totals
		0	10	20	30	40	50	60	70	80	90	100	
A	N	157	55	19	27	4	2	-	-	-	-	-	264
	%	59.5	20.8	7.2	10.2	1.5	0.8	-	-	-	-	-	100
B	N	22	6	14	1	1	-	-	-	-	-	-	44
	%	50.0	13.6	31.8	2.3	2.3	-	-	-	-	-	-	100
C	N	90	8	6	4	1	2	-	-	-	-	-	111
	%	81.1	7.2	5.4	3.6	0.9	1.8	-	-	-	-	-	100
Totals	N	269	69	39	32	6	4	-	-	-	-	-	419
	%	64.2	16.5	9.3	7.6	1.4	1.0	-	-	-	-	-	100

Table 109. Percent distribution of the time devoted to supervised work experience in the technical programs in agriculture; by size of institution

Size of institution		Percentage of time											Totals
		0	10	20	30	40	50	60	70	80	90	100	
1-50	N	74	15	14	9	1	2	-	-	-	-	-	115
	%	64.4	13.0	12.2	7.8	0.9	1.7	-	-	-	-	-	100
51-100	N	42	14	12	8	2	-	-	-	-	-	-	78
	%	53.8	17.9	15.4	10.3	2.6	-	-	-	-	-	-	100
Over 100	N	153	40	13	15	3	2	-	-	-	-	-	226
	%	67.7	17.7	5.8	6.6	1.3	0.9	-	-	-	-	-	100
Totals	N	269	69	39	32	6	4	-	-	-	-	-	419
	%	64.2	16.5	9.3	7.6	1.4	1.0	-	-	-	-	-	100

Table 110. Percent distribution of the time devoted to the different subject areas in the vocational programs in agriculture

Subject area		Percentage of time											
		0	10	20	30	40	50	60	70	80	90	100	Totals
Physical education	N	52	12	-	-	-	-	-	-	-	-	-	64
	%	81.3	18.7	-	-	-	-	-	-	-	-	-	100
Communications	N	42	17	4	1	-	-	-	-	-	-	-	64
	%	65.6	26.6	6.3	1.5	-	-	-	-	-	-	-	100
Social and behavioral sciences and humanities	N	60	4	-	-	-	-	-	-	-	-	-	64
	%	93.7	6.3	-	-	-	-	-	-	-	-	-	100
Mathematics and sciences	N	23	25	13	2	1	-	-	-	-	-	-	64
	%	36.0	39.1	20.3	3.1	1.5	-	-	-	-	-	-	100
Applied subjects	N	-	-	1	-	5	4	3	7	15	14	15	64
	%	-	-	1.5	-	7.8	6.3	4.7	11.0	23.4	21.9	23.4	100
Electives	N	44	1	4	3	5	7	-	-	-	-	-	64
	%	68.7	1.5	6.3	4.7	7.8	11.0	-	-	-	-	-	100
Supervised work experience	N	48	2	8	2	2	2	-	-	-	-	-	64
	%	75.0	3.1	12.6	3.1	3.1	3.1	-	-	-	-	-	100

Test of Hypotheses

A total of thirty hypotheses were postulated concerning the objective of this study. These hypotheses were tested for independence with the chi-square technique. The level of significance chosen was that of a probability equal or less than 0.05. In addition to the 0.05 level of significance, the 0.01 level of significance was indicated when the value of chi-square was equal to or larger than the corresponding table values of chi-square. Those values significant at the 0.01 level were identified as highly significant. Two symbols were used to identify the significant and high significant values. For the values significant at the 0.05 level an asterisk was used (*). To identify the highly significant values a double asterisk was used (**). Due to the low numbers appearing in some cells of the contingency tables, certain hypotheses were not tested with the chi-square test for independence.

The hypotheses were stated in null form.

To test the relationship of size, type and location of institutions with the proportion of students enrolled in the one and two-year vocational and technical programs in agriculture, three hypotheses were postulated:

1. No relationship existed among institutions when compared by size of student enrollment in vocational and technical agriculture and the proportion of students enrolled in vocational and technical programs to total full-time enrollment.

2. No relationship existed among institutions when compared by type of institution and the proportion of students enrolled in vocational and technical programs to total full-time enrollment.

3. No relationship existed among institutions when compared by location of institution and the proportion of students enrolled in vocational and technical programs in agriculture to total full-time enrollment.

The preceding three hypotheses were not statistically treated because of small cell numbers.

Three hypotheses were postulated to test the relationship among size, type and location of the institutions and the background of the students enrolled in vocational and technical programs in agriculture. These hypotheses were:

4. No relationship existed among institutions when compared by size of student enrollment in vocational and technical programs in agriculture and the background of the students enrolled in the one and two-year vocational and technical programs in agriculture.

5. No relationship existed among institutions when compared by type of institution and the background of students enrolled in the one and two-year vocational and technical programs in agriculture.

6. No relationship existed among institutions when compared by location of institutions and the background of students enrolled in the one and two-year vocational and technical programs in agriculture.

The background of the students was identified in terms of four categories. These were: (1) High school graduates; (2) Agriculture or agriculture related occupations; (3) Armed Forces veterans; and (4) Others.

In Table 111 a summary of the computed chi-square values for the presence of each source of students by each stratification is presented.

Table 111. Summary of computed chi-square values for the presence of each source of students by each stratification category

Source of students	Size (2df)	Type (2df)	Location (5df)
High school graduates	___[a]	___[a]	___[a]
Agriculture or agriculture related occupations	17.07**[b]	7.25*	___[a]
Armed Forces veterans	5.71	2.20	___[a]
Others	3.05	1.36	___[a]

[a]Statistical analysis was not administered because of small number cells.

[b]In this table and subsequent tables, a single asterisk (*) represents a significant chi-square value at the 0.05 level of confidence and a double asterisk (**) represents a highly significant chi-square value at the 0.01 level of confidence.

Hypotheses 4 and 5 were not analyzed for the category High school graduates because of small cell numbers. Hypotheses 6 was not statistically analyzed because of small cell numbers.

Hypotheses 4 and 5 were accepted for the categories Armed Forces veterans and Others.

Hypotheses number 4 was rejected for the category Agriculture or agriculture related occupations. A highly significant relationship was found among institutions when compared by size and presence or absence

of students from the source Agriculture or agriculture related occupations.

Hypotheses number 5 was rejected for the category Agriculture or agriculture related occupations. A significant relationship was found among institutions when compared by type and presence or absence of students from the source Agriculture or agriculture related occupations.

To test the relationship of size, type and location of institution with the sources of faculty teaching one and two-year programs in vocational and technical agriculture, the following hypotheses were postulated:

7. No relationship existed among institutions when compared by size of the enrollment in one and two-year vocational and technical programs in agriculture and sources of faculty teaching one and two-year vocational and technical programs in agriculture.

8. No relationship existed among institutions when compared by type of institution and sources of faculty teaching one and two-year vocational and technical programs in agriculture.

9. No relationship existed among institutions when compared by location of institution and sources of faculty teaching one and two-year programs in agriculture.

In Table 112 a summary of the computed chi-square values for the presence of each source of faculty by each stratification is presented.

Hypothesis 7 was accepted for the category Professions, trades and industry. A highly significant relationship at the 0.01 level of confidence was detected among institutions when compared by size and

presence or absence of the category High school and trade school faculty and the category Graduating teachers as sources of faculty for the one and two-year vocational and technical programs in agriculture. Hypothesis 7 was rejected for these two recently mentioned sources of faculty recruitment. Because of small cell numbers, hypothesis number 7 was not statistically analyzed for the category Junio college.

Table 112. Summary table of computed chi-square values for the presence of each source of faculty by each stratification category

Source of faculty	Size (2df)	Type (2df)	Location (4df)
High school and trade school	14.5**	1.54	____[a]
Junior college	____[a]	____[a]	____[a]
Graduating teachers	13.64**	7.26*	____[a]
Professions, trades and industry	1.7	1.34	____[a]

[a]Statistical analysis was not administered because of small number cells.

Hypothesis number 8 was not tested for the source Junior college because of small cell numbers. The hypothesis was accepted for the categories High school and trade school and Professions, trades and industry. Hypothesis 8 was rejected for the Graduating teachers category. A significant relationship was found, at the 0.05 level of confidence, among institutions when compared by type and the presence or absence of the category Graduating teachers as source of faculty.

Hypothesis number 9 was not statistically analyzed because of small cell numbers.

To test the relationship of size, type, and location of institutions with the distribution of the work load of the full-time faculty teaching the one and two-year programs in vocational and technical education, three hypotheses were postulated:

10. No relationship existed among institutions when compared by size of student enrollment in the one and two-year vocational and technical programs in agriculture, and the distribution of the work load of the full-time faculty teaching the one and two-year programs in vocational and technical agriculture.

11. No relationship existed among institutions when compared by type of institution and the distribution of the work load of the full-time faculty teaching the one and two-year programs in vocational and technical agriculture.

12. No relationship existed among institutions when compared by location of institution and the distribution of the work load of the full-time faculty teaching the one and two-year vocational and technical programs in agriculture.

The preceding three hypotheses were not statistically treated because of small cell numbers.

To test the relationship of size, type, and location of institutions with the respondent's satisfaction with the distribution of the work load of the full-time faculty teaching the one and two-year vocational and technical programs in agriculture, three hypotheses were postulated:

13. No relationship existed among institutions when compared by size of student enrollment in one and two-year vocational and technical agriculture and the respondent's satisfaction with the distribution of the work load of the full-time faculty teaching one and two-year programs in agriculture.

14. No relationship existed among institutions when compared by type of institution and the respondent's satisfaction with the distribution of the work load of the full-time faculty teaching one and two-year vocational and technical programs in agriculture.

15. No relationship existed among institutions when compared by location of the institutions and the respondent's satisfaction with the distribution of the work load of the full-time faculty teaching one and two-year vocational and technical programs in agriculture.

In Table 113 a summary of the computed values of chi-square for the respondent's satisfaction with the distribution of the work load is presented.

Table 113. Summary table of computed chi-square values for the respondent's satisfaction with the present distribution of the work load

Basis for stratification	Chi-square value
Size of institution (2 df)	1.85
Type of institution (2 df)	0.91
Location of institution (5 df)	____[a]

[a]Statistical analysis was not administered because of small number cells.

Hypothesis number 13 and hypothesis number 14 were accepted. Hypothesis number 15 was not statistically treated because of small cell numbers.

To test the relationship of size, type, and location of institution with the respondent's satisfaction with the organizational structure controlling the one and two-year vocational and technical programs in agriculture, the following three hypotheses were postulated:

16. No relationship existed among institutions when compared by size of student enrollment in the one and two-year vocational and technical programs in agriculture and the respondent's satisfaction with the organizational structure controlling the one and two-year vocational and technical programs in agriculture.

17. No relationship existed among institutions when compared by type of institution and the respondent's satisfaction with the organizational structure controlling the one and two-year vocational and technical programs in agriculture.

18. No relationship existed among institutions when compared by location of institutions and the respondent's satisfaction with the organizational structure controlling the one and two-year vocational and technical programs in agriculture.

In Table 114 a summary of computed chi-square values for the respondent's satisfaction with the organizational structure controlling the one and two-year vocational and technical programs in agriculture is presented.

Table 114. Summary table of computed chi-square values for the respondent's satisfaction with the organizational structure, by category

Basis for stratification	Chi-square value
Size of institution (2 df)	____[a]
Type of institution (2 df)	0.95
Location of institution (5 df)	____[a]

[a]Statistical analysis was not administered because of small number cells.

Hypotheses 16 and 18 were not statistically analyzed because of small cell numbers.

Hypothesis 17 was accepted. The statistical analysis of the data failed to show that differences existed among institutions when compared by type of institution and yes-no responses to a question on satisfaction with the organizational structure.

To test the relationship of size, type, and location of institutions with the frequency of revision of the one and two-year vocational and technical programs in agriculture, three hypotheses were postulated:

19. No relationship existed among institutions when compared by size of student enrollment in the one and two-year vocational and technical programs in agriculture and the frequency of revision of the one and two-year vocational and technical programs in agriculture.

20. No relationship existed among institutions when compared by type of institution and the frequency of revision of the one and two-year

vocational and technical programs in agriculture.

21. No relationship existed among institutions when compared by location of institutions and the frequency of revision of the one and two-year vocational and technical programs in agriculture.

The preceding three hypotheses were not statistically analyzed because of small cell numbers.

To test the relationship of size, type, and location of institutions with the entrance requirements to the one and two-year programs in vocational and technical programs in agriculture, three hypotheses were postulated:

22. No relationship existed among institutions when compared by size of enrollment in the one and two-year vocational and technical programs in agriculture and the entrance requirements to the one and two-year vocational and technical programs in agriculture.

23. No relationship existed among institutions when compared by type of institution and the entrance requirements to the one and two-year vocational and technical programs in agriculture.

24. No relationship existed among institutions when compared by location of institution and the entrance requirements to the one and two-year programs in vocational and technical agriculture.

In Table 115 a summary of computed chi-square values for the presence or absence of each entrance requirement is presented.

Table 115. Summary table of computed chi-square values for the presence or absence of each entrance requirement by each stratification category

Entrance requirement	Size	Type	Location
High school requirements	[a] (4 df)	[a] (4 df)	[a] (10 df)
Entrance test requirement	1.38 (2 df)	0.92 (2 df)	[a] (5 df)
Minimum test score requirement	0.36 (2 df)	9.2** (2 df)	[a] (5 df)
Non-high school graduates admission	0.99 (2 df)	19.76** (2 df)	[a] (5 df)

[a]Statistical analysis was not administered because of small number cells.

Hypothesis number 22 was not tested for the category High school requirements because of small cell numbers. The hypothesis was accepted for Entrance test requirements, Minimum test score requirement, and Non-high school graduates admission. Analysis of the data failed to show that relationships existed among institutions when compared by size of institution and Entrance test requirements, Minimum test score requirement, or Non-high school graduates admission.

Hypothesis number 23 was not statistically analyzed for the category High school requirements because of small cell numbers. The hypothesis was accepted for Entrance test requirements, and was rejected for Minimum test score requirement and Non-high school graduates admission. A highly significant relationship at the 0.01 level of confidence was detected

among institutions when compared by size and the presence or absence of the categories Minimum test score requirement, and Non-high school graduates admission.

Hypothesis number 24 was not statistically analyzed because of small cell numbers.

To test the relationship of size, type, and location of institutions with the distribution of the programs among areas of agricultural education three hypotheses were postulated:

25. No relationship existed among institutions when compared by size of institutions and the distribution of the programs among areas of agricultural education.

26. No relationship existed among institutions when compared by type of institutions and the distribution of the programs among areas of agricultural education.

27. No relationship existed among institutions when compared by location of institutions and the distribution of the programs among areas of agricultural education.

The preceding three hypotheses were not statistically analyzed because of small cell numbers.

To test the relationship of size, type, and location of institutions with the presence of subject matter areas in the one and two-year programs in vocational and technical agriculture, three hypotheses were postulated:

28. No relationship existed among institutions when compared by size of student enrollment in the one and two-year vocational and technical programs in agriculture and the presence of subject matter areas in the

one and two-year vocational and technical programs in agriculture.

29. No relationship existed among institutions when compared by type of institution and the presence of subject matter areas in the one and two-year vocational and technical programs in agriculture.

30. No relationship existed among institutions when compared by location of institutions and the presence of subject matter areas in the one and two-year vocational and technical programs in agriculture.

In Table 116 a summary of computed chi-square values for the presence or absence of areas of subject matter in the one and two-year technical programs is presented.

Hypotheses 28, 29, and 30 were not statistically analyzed for the vocational programs in agriculture because of the low number of programs reported.

Hypothesis number 28 was not statistically analyzed for the following subject matter areas, due to small cell numbers: Communications, Biology, Genetics, Microbiology, Biochemistry, Zoology, Ecology, Geology, Other sciences, Physics, Science/Mathematics, Applied subjects, and General education electives.

Significant relationships at the 0.05 level of confidence were found among institutions when compared by size and the presence or absence of courses in the areas of Social and behavioral sciences and humanities, and Mathematics. Highly significant relationship at the 0.01 level of confidence was found among institutions when compared by size of institution and the presence or absence of courses in the areas of Chemistry, Physical education and health, Applied electives, and Electives.

Table 116. Summary table of computed chi-square values for the presence or absence of subject matter areas in the technical programs in agriculture, by each stratification category

Area of subject matter	Size (2 df)	Type (2 df)	Location (5 df)
Physical education and health	38.5**	[a]	[a]
Communications	[a]	[a]	[a]
Social and behavioral sciences and humanities	6.38*	14.76**	[a]
Mathematics	6.36*	1.36	[a]
Biology	[a]	9.36**	[a]
Botany	2.11	9.11*	[a]
Genetics	[a]	[a]	[a]
Microbiology	[a]	[a]	[a]
Chemistry	12.77**	43.65**	[a]
Biochemistry	[a]	[a]	[a]
Zoology	[a]	[a]	[a]
Ecology	[a]	[a]	[a]
Economics	1.14	10.16**	[a]
Geology	[a]	[a]	[a]
Other sciences	[a]	[a]	[a]
Physics	[a]	[a]	[a]
Science/mathematics	[a]	[a]	[a]
Applied subjects	[a]	[a]	[a]
General education electives	[a]	[a]	[a]
Applied electives	20.44**	[a]	[a]
Electives	35.20**	19.70**	[a]
Supervised work experience	4.84	20.19**	[a]

[a]Statistical analysis was not administered because of small number cells.

Hypothesis number 28 was rejected for the areas described above. The analysis of the data failed to show relationship among size of institution and the presence or absence of the subject areas of Botany, Economics and

Supervised work experience. Hypothesis number 28 was accepted for the last three areas described.

Hypothesis number 29 was not statistically analyzed for the following subject matter areas due to small cell numbers: Physical education and health, Communications, Genetics, Microbiology, Biochemistry, Zoology, Ecology, Geology, Other sciences, Physics, Science/mathematics, Applied subjects, and General education electives.

Significant relationship at the 0.05 level of confidence was detected among institutions when compared by type and the presence or absence of Botany in the technical programs in agriculture. Highly significant relationship among institutions was found when compared by type of institution and the presence or absence of courses in the areas of Social and behavioral sciences and humanities, Biology, Chemistry, Economics, Electives, and Supervised work experience. Hypothesis 29 was rejected for the areas described above. The analysis of the data failed to detect relationship among institutions when compared by type and the presence of Mathematics in the technical programs in agriculture, and hypothesis number 29 was accepted for this subject.

Hypothesis number 30 was not statistically analyzed because of small cell numbers.

The small cell numbers obeyed to two main causes. First, there were categories with few institutions or programs and therefore the stratification left strata without enough numbers. Second, in the answer to the questionnaire or the analysis of the curriculum, certain categories, tested in terms of presence or absence, or in terms of yes or no, had all the responses grouped into the Yes or No cell.

DISCUSSION

This study of the one and two-year programs in vocational and technical agriculture was undertaken to obtain information concerning the sixteen objectives listed on pages 11 and 12.

The first objective was concerned with the status of the enrollment in the one and two-year vocational and technical programs in agriculture. The data showed that most of the institutions participating in the study had a very small proportion of their student body attending vocational and technical programs in agriculture. Most of the institutions offered education in several other areas besides vocational and technical agriculture, and this accounts for the low percent of the student body engaged in this type of education.

Snepp (21) found that the majority of the agricultural students were high school graduates. The second objective of this study was concerned with the sources of students for the vocational and technical programs in agriculture. Most of the students enrolled in vocational and technical agriculture immediately after high school graduation. Armed Forces veterans were present in 119 institutions. Most likely, no more than 20% of the enrollment in vocational and technical agriculture was Armed Forces veterans. However, some institutions reported very high numbers of Armed Forces veterans. A relationship was found between type and size of institution and the presence of students engaged in agriculture or agriculture related activities before enrolling in vocational and technical programs in agriculture. The higher percentage of students

from this source was found in the institutions offering two-year programs in technical and transfer education and in institutions with vocational and technical agriculture enrollments of over 100 students. This may relate to the ability of large two-year institutions with comprehensive programs to offer a greater variety of programs and may imply a greater adaptability of these institutions to provide programs based on the needs for upgrading the skills and knowledge of people already engaged in agricultural activities and to leadership provided in the field by these institutions.

Concerning the sources of staff for the vocational and technical programs in agriculture, it was surprising to find that the junior colleges were not an important source of faculty recruitment. The two-year institutions offering technical and transfer education were the most likely to recruit from junior college staffs. The nature of the junior college and its curriculums may be related to the low contribution of these institutions as sources of faculty.

A significant relationship was found between size of institution and the presence of faculty recruited from the high school and trade school category. Institutions with a larger enrollment in vocational and technical agriculture were more likely to recruit high school and trade school staff for the vocational and technical programs in agriculture. A significant relationship was found between institutions and the graduating teachers category of staff recruitment when compared by type. The four-year institutions were more likely to recruit from this category.

A highly significant relationship was found between institutions and the category graduating teachers when compared by size of institution. The larger institutions were more likely to recruit graduating teachers and in larger proportions from the vocational and technical agriculture staff than the smaller institutions.

The professions, trades and industries are an important source of faculty for all the types, sizes and location of institutions. The staffing of occupational oriented programs requires skills and knowledge found in this source. This finding implies, as the investigator sees it, special in-service training needs.

The full-time faculty teaching vocational and technical programs in agriculture devoted most of its time to: (1) lecture and recitation; (2) laboratory or shop; and (3) grading and class preparation. There is a wide variation among institutions in the proportion of the time devoted to each area. However, the institutions were more likely to report that their faculty spent between 20% and 30% of the time in each of these three areas. The majority of the institutions reported that their staff devoted less than 10% of the time to advise students. The larger institutions tended to devote a larger proportion of the time for student advice.

A remarkable level of satisfaction was found among the respondents with the work load of the staff teaching vocational and technical programs in agriculture.

Suggestions were received for changes in the work load. The most common concern was an excessive total load for some and an excessive

teaching load for others. A third suggestion for improvement of the teaching load was that more time was given for student advice. In the review of the work load distribution, it was mentioned that most of the institutions devoted 10% or less of the time of their faculty for student advice.

Henninger (12) considered that the technical programs in engineering should be administered under a technical division. He stated that when technical programs are administered under the same division with the vocational and professional programs, the objectives of each type of education tend to be confused. It was found in this study that the most frequently reported division controlling the one and two-year programs was the Vocational and Technical Division. The second most commonly reported division controlling the programs in agriculture was the Agricultural Division. The Technical division was reported by 10.3% of the institutions as the organizational division controlling the vocational and technical programs in agriculture.

A very high degree of satisfaction with the organizational structure was found among the respondents. This may be the reason for the low number of suggestions received for improvement of the organizational structure controlling the vocational and technical programs in agriculture. However, most of the respondents recommending improvements agreed in the need for an organizational entity at the division or department level that would embrace the vocational and technical programs in agriculture. This finding agrees with the finding of Snepp (21) that a department for the agricultural programs was needed.

No definite patterns of development for new vocational and technical programs in agriculture emerged from the study. However, of the 110 institutions that provided classifiable information in this area, 76.9% reported that Advisory committees were included in the development of the new vocational and technical programs. An equally high proportion of the institutions reported that surveys of need were done before a program was developed. Advisory committees and survey of need are important components for the success of an occupationally oriented program of instruction.

Most of the institutions reported that the vocational and technical programs in agriculture are revised once a year, with the exception of the four-year institutions that more likely revised their programs once every two years. The frequent revision of the occupational programs is consistent with the changing needs in the world of work.

Faculty, Administration and Advisory committees were involved in the revision of the vocational and technical programs in the vast majority of the institutions.

Instructional opportunities should be open to all those willing to upgrade their skills and education. Most of the institutions in this study subscribed to the open door policy. However, open door policy should mean that programs are offered that will anticipate a consistent degree of success to all those desiring education and not that everybody will be admitted into programs in which they will most likely fail. Selection of students should be done for specific programs. This study did not inquire about the procedures followed by the institutions to insure proper placements to the students entering the vocational and

technical programs. However, it was concerned with the entrance requirements of the programs. The majority of the institutions reported that any student with high school diploma was eligible for entrance to the vocational and technical programs in agriculture. When the institutions were classified by type of institutions, the institutions in the four-year institution category were the least likely to require high school diploma alone for entrance to the vocational and technical programs in agriculture. They were the most likely institutions to have class rank, GPA, and subject matter requirements in addition to the high school diploma.

Entrance tests were required by 73% of the institutions. However, although it was not asked, several institutions reported that these tests were given for placement purposes only. No significant differences were found in the requirements of entrance tests for admission to the vocational and technical programs in agriculture.

Minimum test score requirements for entrance to these programs in vocational and technical agriculture were reported by 30% of the institutions. A highly significant relationship was found between institutions and minimum test score requirements when the institutions were arranged by type. Two-year technical institutions and four-year institutions reported minimum test score requirements two and one-half times more frequently than the two-year institutions offering technical and transfer education.

Another element supporting the existence of an open door policy in those institutions offering vocational and technical programs in agricul-

ture is that 82% of the institutions participating in the study reported that provisions were made for the admission of students without high school diploma. When the institutions were arranged by type of institution, a highly significant relationship was found among type of institution and admission of students without high school diploma. Once again the institutions with more stringent entrance requirements were the four-year institutions.

Two tests were reported frequently as required for entrance to the vocational and technical programs in agriculture. These tests were the American College Test, hereafter ACT, and the General Aptitude Test Battery, hereafter called the GATB. As it might be expected, the GATB was most frequently reported by the two-year institutions offering technical education and the ACT was most frequently reported by the two-year institutions offering technical and transfer education and the four-year institutions.

A wide variety of programs of instruction in different areas of vocational and technical agriculture is offered. The largest number of programs was found in the instructional area of Agricultural production. However, this area is no longer the only one extensively offered. The need for training in agricultural related fields is being met with programs of instruction in Agricultural supplies, Agricultural machinery, Ornamental horticulture, Agricultural products, Forestry, and Agricultural resources. The smaller institutions tend to offer a larger proportion of programs in the agricultural related areas.

The analysis of the technical curriculums in terms of presence of subject matter or subject matter areas revealed significant relationships when the programs were arranged by type of institution and by size of institution.

In the statistical analysis by type of institution, significant relationships were found among institutions and the following subject areas in terms of frequency of occurrence: Social sciences, Biology, Botany, Chemistry, Economics, Electives and Supervised work experience.

The programs offered by the four-year institutions were the most likely to include basic sciences with the exception of Economics, that was most frequently found in the programs offered by two-year institutions offering technical education. This tendency of the four-year institutions to include more frequently basic sciences as well as Social and Behavioral sciences and humanities may be reflecting characteristics of the philosophy and objectives of these institutions that are more identified with the claims of general education. This belief gains support when the same subjects are analyzed in the two-year institutions that offer technical and transfer education. In the programs, the basic sciences except Mathematics and Economics are more likely included than in the two-year technical institutions. In the area of Electives, the four-year institutions were more likely to include them in the programs. The two-year technical institutions reported Electives in only 25% of the programs while the four-year institutions reported electives in 61% of their programs. The data suggested that the technical institutions offer programs more oriented towards the fulfillment of a need as deter-

mined by the process of setting a program, while in the four-year institutions and two-year institutions offering technical and transfer education the student is allowed to make more choices in subject matter content.

The relationship between institution and Supervised work experience was highly significant when compared by type of institution. The two-year technical institutions required Supervised work experience in 50% of their programs while the four-year institutions required Supervised work experience in only 19% of their programs.

When the programs were arranged by size of institution significant relationships were found among institutions and the frequency of presence of Physical education and health, Social and behavioral sciences and humanities, and Applied electives that were more frequently reported by the institutions in the Over 100 strata, while Mathematics favored the institutions in the 51-100 strata and Chemistry was most likely present in the programs of the institutions in the 1-50 strata.

The general pattern found concerning the presence of subject matter in the technical programs in agriculture was that the four-year institutions were more likely to include basic sciences and elective subjects in their programs, while Supervised work experience and Mathematics were more likely included in the programs offered by the two-year technical institutions.

In the study of the percent distribution of the time devoted to each subject area, a wide variation was found. No statistical analysis was applied to the data concerning the percent time distribution due to

the low frequencies registered for several cells. However, the 10% time interval tables show that the time allotted to each subject area varies within subject areas. Physical education and health, Communications and Social and behavioral sciences and humanities tend to vary the least in terms of percent of the time devoted to them. The variation is within two ten-percent intervals.

The area comprising Basic sciences and Mathematics varies between the ten percent interval and the 70% interval in terms of the fraction of the total time devoted to this subject matter area.

The largest variation in the percent of the time devoted to a subject area was for the Applied subjects. The 60% interval was the most typically reported. However, programs were found in all the percent intervals in terms of time devoted to required or suggested Applied subjects.

In the area of electives, an interesting pattern is detected in the table showing the distribution of the time devoted to this subject area among type of institution. While the overall range comprises seven intervals, the two-year technical institutions are spread in the two-lower intervals; 10% and 20%.

In the area of Supervised work experience, the programs are spread across the lower five intervals of percentage. Variations are detected in the spread of percent when the programs were arranged by Regional Accrediting Agency. It is important to interpret with caution, the patterns found in tables arranged by Regional Accrediting Agency because of the low frequency of programs reporting Supervised work experience in

some Regional Accrediting Agencies.

The tabulation of the information concerning the curriculum in vocational agriculture showed that these programs are heavily centered in applied subjects. Nevertheless, Mathematics and sciences was a subject area frequently found in vocational programs.

To close the discussion of the findings, the investigator found interest in commenting further on some of the findings.

The small fraction of the student body enrolled in vocational and technical programs in agriculture reveal that most of the institutions offering agriculture programs embrace other areas of instruction.

It was surprising to some extent that the source of faculty recruitment, Junior college faculty, was not an important category for staff recruitment for the one and two-year programs in agriculture, while the sources, High school and trade school, and Professions, trades and industry contributed the largest proportion. The emphasis on the ability to perform specific skills may be the determinant of the important contribution that the source Professions, trades and industry makes to the faculty teaching the technical subjects in the vocational and technical programs in agriculture.

The large number of faculty hired from the last mentioned source implies a distinctive need for in-service training oriented toward the improvement of the teaching techniques of the staff. Another finding related to this area creates concern about the opportunities for in-service training and personal improvement of the staff, since the staff devotes most of the time to activities directly related to the teaching

process, and generally no time is left for personal improvement.

An unexpected finding was that the larger institutions tend to devote more faculty time for student advising. It is believed that smaller institutions permit a closer relationship between student and instructor. The findings of this study do not challenge the preceding concept, but show that the time devoted to provide personal attention to the student in matters concerning the programs of study is greater in the larger institutions. Small institutions have a smaller staff, and in general, each staff member has a heavier load of class preparations that will not allow him to devote enough time to personal interaction with the student.

Except for the four-year institutions, the admission policies allow all those desiring instruction to enter the vocational and technical programs in agriculture. Through testing, it is assured that the student will be placed in those courses that will allow him to make satisfactory progress. An area not covered by the study was the status of the guidance services as they specifically relate to the one and two-year vocational and technical programs in agriculture. These services are of paramount importance to the success of vocational and technical programs.

The influence of the general philosophy of the institutions is apparent in the entrance testing process, since it was found that the American College Test was given more by institutions offering technical and transfer education, while the General Aptitude Test Battery was given more by institutions offering technical education only. It appears that the institutions first mentioned should revise their requirements and use

tests that are meaningful in what they measure as related to vocational and technical programs. Except for studies in the educational field, it seems totally meaningless to provide tests whose only purpose will finally be the comparison of vocational and technical students with transfer students in terms that are relevant to one area and irrelevant to the other.

The presence of the advisory committees of industry, farming and business, and the use of the survey of needs to develop new programs are clear indicators that the vocational and technical programs in agriculture are designed to serve needs in the area of influence of the school. A question arises concerning the mobility of the population, since highly localized programs are less likely to provide saleable skills at different locations. This seems to be the price to pay in order to prepare technicians who are able to serve at the highest level of efficiency in a given field. On the other hand, evolving technology constantly requires the retraining of the technician due to techniques that evolve, and to give new saleable skills to those whose present training becomes obsolete. As more people obtain technical training, a different type of program, shorter in duration and more job oriented in content, will be necessary to retrain those already having a basic core of knowledge that remains relatively stable, but whose applied knowledge becomes obsolete.

Concerning the subject matter content of the programs, it is clear that subject areas other than Applied subjects are an important part of the technical programs in agriculture. The proportion of the effort devoted to different areas of subject matter varies among institutions and

is significantly related to type and size of institution for some subject areas. Several reasons may account for this relationship. The philosophy and objectives of the institution might be paramount determinants in the distribution of the time among subject areas. On the other hand, when the resources in staff and facilities are limited, certain courses are more easily fit into the educational structure of the institution, and the programs may be somewhat subordinated to this factor.

The high specificity of most of the technical programs in agriculture requires from the institutions an effective placement program. When the institution accepts the responsibility of training a student in occupationally oriented programs, the placement of the finished product becomes the duty of the institution in cooperation with the local, state, and national employment agencies.

Finally, it is interesting to comment that one-year programs were found among the offerings of many of the participating institutions. These programs are more heavily oriented toward the applied subjects, although the basic sciences and mathematics were found in several programs. This short type of program is a suitable response to the needs of those not willing or unable to complete a two-year program. As long as the one-year program and its more limited scope does not compete with the two-year technical program, it has a legitimate place in meeting the needs of a fraction of the student body under a philosophy of universal education.

Recommendations for Further Study

A limitation faced by this study was the lack of enough numbers in some cells to statistically test several of the hypotheses. This study was done under a severe time limitation that did not allow for modifications in the previously arranged schedule. It would be of interest to further explore the objectives of this study to secure a higher rate of response and to rearrange the factors of classification to improve the chances of obtaining information in enough quantities to test a larger proportion of the hypotheses.

A second recommendation is to design a study that will analyze the programs offered in the different areas of instruction in vocational and technical agriculture in terms of the course content in the different areas of the Applied subjects, as the one done by White (29) for the programs in Ornamental horticulture.

A third recommendation is the realization of an in-depth study of Supervised work experience. Patterns of organization of this activity may be found most helpful to those institutions planning to require Supervised work experience in their new programs.

A fourth recommendation is to study the physical facilities available to the vocational and technical programs in agriculture and the influence of the available facilities in the determination of the type of programs offered.

The data concerning the work load distribution of the full-time faculty teaching vocational and technical programs in agriculture showed little time left for upgrading of the staff. The area of faculty in-service training may be fruitful for further investigation.

SUMMARY

The present study was undertaken by identify certain characteristics related to the one and two-year vocational and technical programs in agriculture. The objectives of the study were as follows:

1. To determine the status of the enrollment.
2. To determine the background of the students in attendance.
3. To determine the sources of the faculty.
4. To determine the distribution of the work load of the faculty.
5. To determine the satisfaction with the work load of the faculty.
6. To determine the desired changes in the present work load by the faculty.
7. To determine the organizational division controlling the programs.
8. To determine the satisfaction with the present organizational structure.
9. To determine the desired changes in the organizational structure.
10. To determine the usual procedures followed in developing new programs.
11. To determine the frequency of revision of the programs.
12. To determine who is involved in the revision of the programs.
13. To determine the entrance requirements.
14. To determine the tests given and/or required for entrance.
15. To determine the one and two-year programs offered in vocational and technical agriculture and their distribution.
16. To determine the time distribution among communications, social

and behavioral sciences and humanities, basic sciences, technical subjects, electives, supervised work experience, and physical education and health, among the one and two-year vocational and technical programs in agriculture.

The Population

The population was the 305 institutions listed in the 1968-69 Directory of One and Two-Year Post High School Institutions which Offer Programs of Instruction in Agriculture (22). It was decided to survey the whole population. The population was stratified according to three factors: (1) by Regional Accrediting Agency; (2) by type of institution with three strata; and (3) by size of institution with three strata. The three strata for the type of institution were: (1) Two-year institutions offering technical and transfer programs and not administratively related to four-year institutions; (2) Two-year institutions offering technical programs and not administratively related to four-year institutions; and (3) Four-year institutions or branches of four-year institutions. The three strata for the size of institution were: (1) 1-50 students enrolled in one and two-year vocational and technical programs in agriculture; (2) 51-100 students enrolled in such programs; and (3) Over 100 students enrolled in the same programs.

The Instrument

The data for this study were collected by means of a questionnaire and from information found in the general catalogs of the participating institutions.

The questionnaire was designed to obtain the information related to the first fourteen objectives as listed previously. It had twelve questions with one or more sections. The questionnaire was submitted to faculty and graduate students for reactions and criticisms. A final copy may be found in Appendix A with the accompanying letters.

The data concerning the objectives number 15 and number 16 were obtained from the general catalogs of the participating institutions.

Data Collection and Processing

A copy of the general catalog was requested from the Registrar of each institution listed in (22), on February 27, 1970. Two hundred and nine catalogs were received from two hundred and twenty-four different institutions. The general catalogs of thirty-three institutions were available from the collection of catalogs of the Admissions Office at Iowa State University.

On April 15, 1970, the questionnaire was mailed to the person listed as being in charge of the one and two-year vocational and technical programs in agriculture in each of the two-hundred and forty-nine institutions known as offering one and two-year vocational and technical programs in agriculture. Exceptions were made with those institutions whose catalogs did not list specific names. In these institutions the questionnaire was mailed either to the chairman or head of the division announcing the one and two-year vocational and technical programs in agriculture.

On May 25, 1970, a follow-up letter and a second copy of the questionnaire were sent to the nonrespondent institutions, with a request to return the completed questionnaire promptly. May 25, 1970 was mentioned as the

date when the reception of replies was to be closed (see Appendix A). By May 25, 1970, replies were received from one hundred and ninety-six institutions.

Of the one hundred and ninety-six institutions returning questionnaires, twenty-two reported that they were not offering programs in vocational and technical agriculture. The stratification by type of institution and size of enrollment were determined from the General catalog and from the first question of the questionnaire, respectively. Therefore, the computations of percentages were done on the basis of the one hundred and seventy-four institutions reporting vocational and technical programs in agriculture. The assumption was made that the nonresponding institutions failed to significantly differ from the respondent group.

In order to determine if institutions varied in responses to certain areas of the questionnaire and the information obtained from the general catalogs, tests of independence were done on selected questions by means of the chi-square techniques.

Findings

1. In 72.9% of the institutions participating in the study, the enrollment in one and two-year vocational and technical programs in agriculture was less than ten percent of the total full-time enrollment.

2. The majority of the students in one and two-year vocational and technical programs in agriculture enrolled in these programs immediately after high school graduation. Students engaged in agriculture or agriculture related occupations before attending the vocational and technical

programs in agriculture were present in 60.4% of the institutions. A significant relationship was found between type of institution and the presence of students from the agriculture or agriculture related occupations source.

3. Of the institutions reporting the sources of faculty recruitment, 58.2% reported that the High school and trade school faculty was a source of faculty recruitment for the vocational and technical programs in agriculture. Other sources reported were: Junior college faculty by 13.3% of the institutions; Graduating teachers by 25.4% of the institutions; and Professions, trades and industry by 76.4% of the institutions. A significant relationship was found between size of institution and the presence of faculty recruited from the High school and trade school source. A significant relationship was found between institutions and the presence of faculty recruited from the High school and trade school source when the institutions were compared by size. A significant relationship was found among institutions when compared by size and the presence of faculty recruited from the category Graduating teachers. The relationship among institutions and the graduating teachers category was found highly significant when the institutions were arranged by type.

4. The full-time faculty teaching vocational and technical programs in agriculture devoted most of the time to: (1) lecture and recitation; (2) laboratory and shop; and (3) grading and class preparation. The proportion of time devoted to each of the above areas varied widely. However most of the institutions reported that between 20% and 30% of the time was devoted to each of these areas. Only 10% of the time was devoted to student advising in most of the institutions. The larger institutions

tended to devote a larger proportion of the time to student advising.

5. A high level of satisfaction with the teaching load was reported.

6. Three concerns with the teaching load were reported. These were: (1) the work load was excessive; (2) the teaching load was excessive; and (3) more time was needed for student advising.

7. The most mentioned division controlling the vocational and technical programs in agriculture was the Vocational-Technical Division.

8. A very high degree of satisfaction with the organizational structure was found among the respondents to the questionnaire.

9. Of those respondents suggesting improvements to the organizational structure administering the vocational and technical programs in agriculture, 37.8% expressed their desire to have an organizational entity at the division of department level that would embrace the vocational and technical programs in agriculture.

10. Advisory committees participated in the development of new programs in 76.9% of the institutions. The 83.9% of the institutions reported that a survey of need was done before a new program in vocational and technical agriculture was developed.

11. The programs were revised every year in 56.8% of the institutions. 14.8% of the institutions reported that the programs were revised every two years or more. The four-year institutions were the only strata most likely to report revision of the programs every two years or more.

12. The revision of the programs was done by the faculty teaching the vocational and technical programs in agriculture, the administration and

the advisory committees.

13. The majority of the institutions reported that any student with a high school diploma was admitted to the vocational and technical programs in agriculture. However, when the institutions were arranged by type, the four-year institutions were most likely to report requirements of class rank, GPA and/or subject matter for entrance to these programs.

Entrance tests were required by 73% of the institutions.

Minimum test score requirements for entrance to the one and two-year vocational and technical programs in agriculture were reported by 30% of the institutions. A highly significant relationship was found between institutions and minimum test score requirements when the institutions were arranged by type. Two-year technical institutions and four-year institutions reported minimum score requirements for entrance tests two and one-half times more frequently than the two-year institutions offering technical and transfer programs.

Provisions were made by 82% of the institutions for the admission of students without High school diploma to the vocational and technical programs in agriculture. A highly significant relationship was detected among institutions when compared by type and the admission of students without high school diploma.

14. Two tests were most likely reported as required for entrance to the one and two-year vocational and technical programs in agriculture. These were the American College Test and the General Aptitude Test Battery. The American College Test was most frequently reported by the four-year institutions and the two-year institutions offering technical and transfer

education, while the General Aptitude Test Battery was most likely reported by the two-year technical institutions.

15. A total of 541 vocational and technical programs in agriculture were classified by area of instruction and included 26% in Agricultural production, 24.3% in Agricultural supplies, 19.6% in Ornamental horticulture, 13.9% in Agricultural machinery, 6.9% in Forestry, 4.8% in Agricultural resources, 3.0% in Agricultural products and 1.5% in other areas not classified into the above areas. The smaller institutions tended to offer a larger proportion of programs in the agricultural related areas.

16. When the institutions were arranged by type, highly significant relationships were found among institutions and the presence of the following subject areas in the programs: Social and behavioral sciences and humanities, Biology, Chemistry, Economics, Electives, and Supervised work experience. A significant relationship was found among institutions when compared by type of institution and the presence of Botany.

When the institutions were compared by size, highly significant relationships were detected among institutions and the presence of the following subject areas in the programs: Physical education and health, Chemistry, Applied electives, and Electives. Significant relationships were found among institutions and the presence of the following subject matter areas when compared by type of institutions: Social and behavioral sciences and humanities, and Mathematics.

The four-year institutions were the most likely to include Basic sciences and Elective subjects in the programs, while the two-year institutions were more likely to offer technical education including

Supervised work experience and Mathematics in their programs.

A wide variation was found in the fraction of the total time devoted to each subject area by the different institutions.

The vocational programs devoted most of the time to Applied subjects. However, Mathematics and sciences was a subject area frequently reported for the vocational programs.

A total of 30 hypotheses stated in null form were postulated concerning the objectives of this study. These hypotheses were tested for independence with the chi-square technique. A probability equal to or less than 0.05 was chosen as the level of significance for the rejection of the hypotheses.

The 30 hypotheses were postulated in groups of three, according to the three criteria of stratification used in this study.

Of the 30 hypotheses, 11 were partially or totally tested. Nineteen hypotheses were not tested because of small cell numbers.

The following relationships were found statistically significant, and therefore the corresponding null hypotheses were rejected.

A highly significant relationship was found among institutions when compared by size and the presence or absence of students from the Agriculture or agriculture related student source.

A significant relationship was found among institutions when compared by type and the presence or absence of students from the Agriculture or agriculture related student source.

A highly significant relationship was detected among institutions when compared by size and the presence of faculty recruited from the

sources High school and trade school faculty, and Graduating teachers.

A significant relationship was found among institutions when compared by type and the presence of faculty recruited from the source Graduating teachers.

A highly significant relationship was found among institutions when compared by type and the requirement of a minimum test score for entrance to the programs in vocational and technical agriculture.

A highly significant relationship was found among institutions when compared by type and the admission of non-high school graduates to the programs in vocational and technical agriculture.

A highly significant relationship was found among institutions when compared by size of institution and the presence of courses in the following subject areas in the technical programs in agriculture: Physical education and health; Chemistry; Applied electives; and Electives.

A significant relationship was detected among institutions when compared by size and the presence of courses in Social and behavioral sciences and humanities, and Mathematics in the technical programs in agriculture.

A highly significant relationship was detected among institutions when compared by type and the presence of the following subject matter areas:in the technical programs in agriculture: Social and behavioral sciences and humanities; Biology; Chemistry; Economics; Electives; and Supervised work experience.

A significant relationship was found among institutions when compared by type and the presence of Botany in the technical programs in agriculture.

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ACKNOWLEDGMENTS

The investigator wishes to express his gratitude to the following persons.

Professor Vilas J. Morford, whose friendship, professional advice, and decisive participation in crucial events related to the permanence of the investigator at Iowa State University made the completion of the effort possible.

Dr. Ray Bryan, his major professor, for his excellent assistance in the preparation of this thesis and his advice in developing the graduate program.

His wife for the unlimited support and understanding through long months of intense work.

His parents for their encouragement and active solution of related problems in the home country of the investigator.

The investigator received fellowships during different periods of his permanence at Iowa State University from the Agency for the International Development and from the Organization of the American States.

APPENDIX A

An Analysis of the One and Two-Year Vocational and Technical Programs in Agriculture

In your answer to the following questions please include all the one and two-year programs of instruction in Vocational and Technical Agriculture that your institution offers in the following areas:

1. Agricultural production
2. Agricultural supplies
3. Agricultural mechanics
4. Agricultural products
5. Ornamental horticulture
6. Agricultural resources
7. Forestry
8. Other agriculture

Please be sure of answering all the questions. If the information for a given question is not available, mark it n/a.

1. Please give the following figures of enrollment at the beginning of the 1969-1970 school year.
   A. Total enrollment of the institution..... _____
   B. Total full-time enrollment of the institution..... _____
   C. Enrollment in vocational and technical one and two-year programs in agriculture..... _____
2. Please give the number of students enrolled in one and two-year programs in vocational and technical agriculture who came from the following sources:
   A. High school (attending high school just before enrolling)... _____
   B. Engaged in agriculture or agri-related activities before enrolling..... _____
   C. Veterans (returning from service)..... _____
   D. Others..... _____
3. Please give the number of faculty members teaching in the <u>technical fields</u> of the one and two-year vocational and technical programs in agriculture that were recruited from each of the following sources:
   A. High school or trade school faculty..... _____
   B. Junior college faculty..... _____
   C. Graduating teachers..... _____
   D. From professions, trades, industry, etc..... _____
4. For those full-time employed faculty members participating in the <u>technical courses</u> within the one and two-year vocational and technical programs in agriculture, please indicate the average division of their <u>total employment</u> time into the following categories in terms of hours per week.
   A. Lecture or recitation..... _____
   B. In laboratory and/or shop..... _____
   C. Grading and class preparation..... _____
   D. Advising students..... _____

E. Others..... _____

5. Do you feel that the present load and division of time now engaged by faculty members teaching in the technical fields of your one and two-year vocational and technical programs in agriculture are appropriate to the needs of these programs? Circle your answer.

YES NO

What changes would you recommend in this load, if any?

6. Under what organizational division(s) are the one and two-year vocational and technical programs administered?

7. Do you believe that this organizational structure is appropriate for your present programs? Please circle your answer.

YES NO

Comments to question 7, if any:

8. What changes in the organizational structure may improve the administration of the one and two-year vocational and technical programs in agriculture?

9. What steps does your institution take in developing new one and two-year vocational and technical programs in agriculture? (Determination of need, Availability of potential students, Persons and groups involved in developing and evaluating the programs, etc.)

10. How frequently are the one and two-year vocational and technical programs in agriculture revised?

Who is involved in this revision?

11. What of the following entrance requirements does your institution have for the one and two-year vocational and technical programs in agriculture? Circle your answer.

A. High school diploma <u>without</u> class rank, GPA and/or subject matter requirements..... YES NO
B. High school diploma <u>with</u> class rank, GPA and/or subject matter requirements..... YES NO
C. Are entrance tests given or required?..... YES NO
D. If YES in C, what tests are given or required?....

E. Is a minimum score required in tests for admission purposes?..... YES NO

12. Are students admitted into the one and two-year programs in vocational and technical agriculture without high school diploma under certain special situations? Please circle your answer.

YES NO

If you have some further remarks to make or information to give that you believe of value to this study, they will be most appreciated.

Thank you for your collaboration.

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY
Ames, Iowa 50010

DEPARTMENT OF AGRICULTURAL ENGINEERING

February 27, 1970

Dear Sir:

Certain functions in my office make it desirable to receive a copy of your general catalog.

I will appreciate your sending me a copy of your catalog promptly. A mailing label is enclosed for your convenience.

Sincerely yours,

V. J. Morford
Professor

VJM/eh

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY
Ames, Iowa 50010

DEPARTMENT OF AGRICULTURAL ENGINEERING

April 15, 1970

In our analysis of "The One and Two Year Vocational and Technical Programs in Agriculture" it is necessary for us to have information other than that provided in your catalog or brochure.

Will you kindly provide us with this added information by completing the short questionnaire that is enclosed?

Your prompt response will be appreciated.

Sincerely yours

V. J. Morford
Professor

VJM/eh

Enclosure

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY
Ames, Iowa 50010

DEPARTMENT OF AGRICULTURAL ENGINEERING

May 7, 1970

On April 15 we mailed you a short questionnaire in which we asked for information on your one and two year vocational and technical programs in Agriculture. This information is to supplement that provided in your catalog or brochure.

As of this date we have not received this questionnaire. You will find a second copy enclosed with this letter. Since the response to the original mailing has been highly satisfactory, we will appreciate the early return of this questionnaire. We are planning the processing of the data beginning May 25.

Your cooperation will greatly enhance the value of this study.

Sincerely yours,

V. J. Morford
Professor

VJM/eh

APPENDIX B

Listing of the Titles of the One and Two-Year Vocational and Technical Programs Analyzed Classified by Area of Instruction

Agricultural Production

1. General Agriculture
2. Agriculture
3. Production Agriculture
4. Agricultural Production and Management
5. Agricultural Production
6. Agriculture Production
7. Production and Management Agriculture
8. Agricultural Management Technology
9. Agricultural Management
10. Farm Production
11. Animal and Plant Science
12. Business Farming
13. Agri-Science Technology
14. Field Crop and Animal Science
15. Agricultural Production Technology
16. Agricultural Technology
17. Farm and Ranch Management
18. Ranch and Water Resources Management
19. Terminal Agriculture
20. Farm Management

21. Technical Agriculture
22. Range-Ranch Management
23. Farm Management and Record Analysis
24. Farm Management (Veterans)
25. Farm Management (Special)
26. Farm Operation and Management
27. Farm and Home Analysis
28. Ranch Management
29. Animal Science
30. Animal Science
31. Animal Husbandry
32. Animal Husbandry/Agribusiness
33. Animal Science Technology
34. Livestock Production
35. Livestock Management
36. Animal Science, Production and Technology
37. Animal Husbandry-Beef
38. Animal Husbandry-Horses
39. Livestock Technology
40. Livestock Management and Technology
41. Livestock and Poultry
42. Quality Lamb and Wool Production
43. Animal Production
44. Animal Science-Beef-Swine-Sheep
45. Livestock Farm Management

46. Animal Technology
47. Dairy Farm Management
48. Dairy Cattle
49. Dairy Science
50. Dairy Husbandry
51. Animal Husbandry-Dairy
52. Animal Science Dairy
53. Poultry Husbandry
54. Poultry Science
55. Crop Production
56. Plant Science Technology
57. Crops Management
58. Plant Science, Production and Technology
59. Agricultural Plant Science
60. Crop Science
61. Agronomy Technology
62. Agronomy-Field Crop Management and Soil Management
63. Crop Production-Field-Fruit
64. Horticulture
65. Agronomy
66. Agronomy-Crop and Soil Science
67. Field Crops Technology and Soil Science
68. Horticultural Technology
69. Commercial Fruit Production
70. Commercial Vegetable Production

71. Crop Production and Services

72. Truck Crops

73. Citrus-Avocados

74. Crop and Soil Technology

75. Citrus Fruit Production

76. Field Crop Production

Agricultural Supplies

77. Sales Service Technician

78. Agricultural Supply

79. Agricultural Supply and Service

80. Agricultural Business and Supply

81. Elevator and Farm Supply

82. Agricultural Sales

83. Agricultural Sales Technician

84. Agricultural Feed Industry Technology

85. Feed-Seed-Fertilizer-Chemical Marketing

86. Agricultural Marketing

87. Feed and Fertilizer Marketing Technology

88. Agricultural Business Marketing

89. Grain, Feed, Seed, and Farm Supply

90. Soil and Fertilizer Technology

91. Feeds and Nutrition Technology

92. Fertilizer, Agricultural, Chemical and Feed Sales

93. Agri-business-Materials Handling

94. Agri-business-Sales and Management

95. Agri-banking
96. Agricultural Supplies Technology
97. Agricultural Business Management and Services
98. Agribusiness-Accounting
99. Agribusiness-Crop Production
100. Agricultural Services
101. Feed and Grain Handling Technology
102. Farm Supply-Feed and Seeds. Chemicals and Fertilizers
103. Agribusiness-Agricultural Chemicals
104. Agri-Chemicals Technology
105. Agronomist Technician
106. Soils and Fertilizers
107. Soil Science Technology
108. Chemicals and Fertilizers
109. Feed, Seed and Farm Supply
110. Agricultural Business
111. Agricultural Business-Animal Option
112. Agricultural Business-Horticulture Option
113. Agricultural Business-Farm Mechanics
114. Agricultural Business-Plant Science
115. Agricultural Business-Agronomy
116. Agricultural Business-Animal Husbandry
117. Agricultural Business and Technology-Animal Science
118. Agricultural Business and Technology-Plant Science
119. Agricultural Business and Technology
120. Agriculture Distribution

121. Agribusiness and Distribution

122. Agribusiness and Distribution

123. Agri-business Technology

124. Agriculturally Related Occupations

125. Agri-business Technician

126. Agricultural Business Management

127. Agricultural Business Finance

128. Agricultural Aviation

129. Laboratory Animal Technician

130. Artificial Inseminator

131. Animal Health Technology

132. Laboratory Animal Technology

133. Veterinary Medical Technology

134. Veterinary Technology

Agricultural Mechanics

135. Agricultural Mechanics

136. Agriculture Mechanics

137. Agricultural Mechanics Technology

138. Agricultural Mechanics Technician

139. Agricultural Machinery Technician

140. Agricultural Machinery Mechanics

141. Agricultural Mechanization

142. Agricultural Machinery Mechanics Technology

143. Agricultural Machinery and Equipment

144. Engineering Sales and Management

145. Agricultural Mechanics-Parts and Sales

146. Agricultural Engineering

147. Fluid Power Technician

148. Agricultural Engineering Technician

149. Agricultural Engineering and Mechanics

150. Agricultural Equipment and Diesel Mechanics

151. Farm Equipment and Diesel Mechanics

152. Agricultural Equipment Mechanics

153. Agricultural Equipment Technology

154. Farm Machine Technology

155. Agriculture Power and Equipment

156. Farm Power and Equipment Mechanics

157. Farm Equipment Mechanics

158. Farm Machine Maintenance and Repair

159. Agricultural and Light Industrial Equipment

160. Agriculture Service Technology

161. Farm and Diesel Mechanics

162. Farm Machinery Repair

163. Agricultural and Industrial Equipment Technology

164. Agricultural Engineering-Structures and Electrification

165. Agricultural Engineering-Power and Machinery

166. Agricultural Engineering-Farmstead Mechanization and Automation

167. Agriculture Equipment and Farm Mechanics Technology

168. Farm Equipment Sales and Service

169. Agricultural Implements

170. Irrigation Technology

171. Electrical Technology for Agriculture

172. Soil and Water Conservation Engineering

173. Soil Conservation Technology

174. Farm and Industrial Equipment Repair

175. Farm Machinery-Parts and Sales. Dairy Equipment-Materials Handling and Building

Agricultural Products (Processing, Inspection and Marketing)

176. Quality Control and Inspection Technician

177. Food Processing Technology

178. Food Business

179. Food Distribution

180. Food Processing Industry

181. Agricultural Inspection

182. Food Manufacturing Technology

183. Food Industry Technology

184. Dairy Industry

185. Dairy and Food Science

186. Dairy Processing

Ornamental Horticulture (Production, Processing, Marketing and Services)

187. Ornamental Horticulture

188. Horticulture Service Technician

189. Horticulture

190. Commercial Horticulture Technology

191. Ornamental Horticulture and Landscaping

192. Ornamental Horticulture and Nursery Management

193. Ornamental Horticulture and Soil Testing Technology

194. Ornamental Crops Technology

195. Nursery Management and Landscape Planning

196. Landscape and Nursery Management

197. Landscape and Horticulture Management

198. Ornamental Horticulture (Parks and Grounds)

199. Urban Horticulture

200. Landscape-Nursery-Garden Center

201. Horticulture Service Technology

202. Horticulture-Production

203. Horticulture-Retail

204. Horticultural Management

205. Floral Design and Management

206. Commercial Cut-Flower and Greenhouse Production

207. Retail Floristry

208. Commercial Floriculture

209. Floriculture Merchandising

210. Floriculture Production

211. Floriculture

212. Floriculture Merchandising-Floriculture Production

213. Park and Landscape Management

214. Landscape

215. Landscape Construction

216. Landscape, Forestry and Parks Maintenance Technician

217. Landscape Horticulture

218. Landscape Gardening

219. Landscape Engineering

220. Landscape Technology

221. Landscaping and Public Grounds Management

222. Landscape Development

223. Conservation and Management of Urban Recreational Lands

224. Grounds Maintenance

225. Landscape Design and Sales

226. Landscape Management

227. Landscape Maintenance

228. Landscape Design

229. Landscaping and Horticulture

230. Nursery Production Technician

231. Nursery Management

232. Nursery and Garden Center Operation

233. Greenhouse and Nursery Management

234. Retail Nursery Business

235. Nursery

236. Turfgrass Management

237. Turf

238. Golf Course Operation

239. Parks and Turf Management

240. Turfgrass and Golf Course Management

241. Golf Course Management

Agricultural Resources (Conservation, Utilization and Services)

242. Natural Resources Management

243. Natural Resources Technician

244. Agricultural Resources

245. Natural Resources Conservation

246. Natural Resources Technology

247. Natural Resources

248. Conservation

249. Recreational Land Management

250. Parks and Recreation

251. Park Management

252. Outdoor Recreation-Conservation Technology

253. Forest Recreation

254. Recreational Grounds Management

255. Recreational Landscape Technology

256. Soil Conservation

257. Wildlife Conservation

258. Wildlife Management

259. Fish and Wildlife Management

260. Fish and Game

261. Recreation and Wildlife Technology

262. Wildlife

Forestry (Production, Processing, Management, Marketing, and Services)

263. Vocational Forestry

264. Forestry Technician

265. Forestry Technology

266. Forest Technology

267. Technical Forestry

268. Forestry Technician Technology

269. Forestry

270. Forestry Surveying

271. Forest Management

272. Timber Harvest Technology

273. Timber Harvesting

274. Forest Harvesting Technology

275. Forest Harvesting Technology-Forestry

276. Forest Harvesting Technology-Forest Equipment

277. Forest and Wood Technology

Agriculture, Other

278. Agriculture Lab Technician

279. Agricultural Science

280. Agronomy and Soil Conservation

281. Pest Control

282. Agricultural Research Technology

283. Soil Technician

284. Pesticide Industry

285. Agricultural Conservation and Civil Engineering Technology