Responsibilities of agricultural education agencies for adult farmer education in Iowa

by

Weldon Seymour Sleight

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CHAPTER I. INTRODUCTION[1]

To fully understand the agencies providing agricultural education to the adult farmer of Iowa, a careful look at their past history and purposes is important. Agricultural education officially started in 1862 with the establishment of the United States Department of Agriculture. The wording of the department task is most interesting because it had an educational rather than a regulatory mission. The following is a passage from the bill approved by congress which is cited by Sanders (1966, p. 25):

> That there is hereby established at the seat of Government of the United States a Department of Agriculture, the general design and duties of which shall be to acquire and to diffuse among the people of the United States useful information on subjects connected with agriculture in the most general and comprehensive sense of that word, and to procure, propagate, and distribute among the people new and valuable seeds and plants.

The first legislation to bring agricultural education funding to Iowa and other states was the Morrill Act of 1862. This act provided for the establishment of the land grant colleges. Four years earlier (1858) the Iowa Legislature passed an act that established the Iowa State College. Following the Morrill Act, Iowa State College became the land-grant college in Iowa and received federal funds to aid in its operation.

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[1]The procedures used in this research were approved by the Iowa State University Human Subjects Review Committee.

The founders of the land grant college legislation felt this was the answer to the education of the sons and daughters of farmers as well as the farmers themselves. They thought farmers would travel to the campus for educational short courses in agriculture. This did not happen to a large extent, however, and pressure was exerted on the federal and state government to have agricultural education brought out to the people.

The Hatch Act of 1887 established experiment stations at the land-grant colleges to formulate agriculture knowledge through research and to disseminate it to the people. This move created more interest on behalf of the people in having agricultural information readily available at the local level. In 1903 the first county agriculture agent was hired to serve in Sioux City, Iowa. This action came about as a result of the request of a farm organization, financial support from county, state and federal governments and help from Iowa State College. In 1914, the Smith-Lever Act formally brought the cooperative extension into the land-grant colleges. Although the extension service had been functioning in counties since 1903, the funding was very important to create more interest and positions at the county level. This step did complete the agriculturist's dream of having a local connection to the research of the college. The act's purpose is very specific as indicated by Donhowe (1976, p. 1): ". . .to aid in diffusing among the people of the United States useful and practical information on subjects relating to agriculture and home economics, and to encourage the application of the same. . . ."

During this same time period there was also a push to bring vocational education in agriculture to every high school in the nation. This pressure is depicted by the following passage:

> There is a great and crying need to providing vocational education of this character for every part of the United States--to conserve and develop our resources; to promote a more productive and prosperous agriculture; to prevent the waste of human labor; to supplement apprenticeship; to increase the wage earning power of our productive workers; to meet the increasing demand for trained workers; to offset the increased cost of living. Vocational education is, therefore, needed as a wise business investment for this nation, because our national prosperity and happiness are at stake, and our position in the markets of the world cannot otherwise be maintained (Sears, 1931, p. 199).

In 1917, three years after the establishment of the Cooperative Extension Service, the Smith-Hughes Act was passed. This act created the vocational agriculture departments at the secondary education level. The purposes of the act are outlined below:

> To provide for the promotion of vocational education; to provide for cooperation with the states in the promotion of such education in agriculture and trades and industries; to provide for cooperation with the states in the preparation of teachers of vocational subjects; and to appropriate money and regulate its expenditure (Soretire, 1968, p. 20).

The act further stated in Section 10 the following:

> . . .that the controlling purpose of such education shall be to fit for useful employment; that such education shall be of less than college grade and be designated to meet the needs of persons over fourteen years of age who have entered upon or who are preparing to enter upon the work of the farm or of the farm home . . .(Phipps, 1972, pp. 577-578).

Phipps (1972) suggested this language indicated agricultural education for adult farmers as well as youth. He further explained

that there was a demonstrated need for the adult farmer program which contributed to their development. Soretire (1968) reports this development started in 1920. In this year the first young farmer program started, followed by the adult farmer evening program in 1923. This meant that the vocational agriculture instructors and the cooperative extension service were both offering agriculture education to the adult farmers of Iowa as early as 1923.

In 1963, the Federal Vocational Education Act was passed into law. This act provides for the establishment of the Area Vocational Schools. Section 8 of the act sets forth the school's purposes as cited by Soretire:

> . . .a program designed to fit individuals for gainful employment as semiskilled or skilled workers or technicians in recognized occupations (including any program designed to fit individuals for gainful employment in business and office occupations, and any program designed to fit individuals for gainful employment which may be assisted by Federal funds under the Vocational Education Act of 1964 and supplementary vocational education Acts, but exclusing any program to fit individuals for employment in occupations which the Commissioner determines, and specifies in regulations, to be generally considered professional or as requiring a baccalaureate or higher degree) (United States Statutes-at-Large 77: Vocational Education Act 1963).

This legislation gave Iowa a renewed interest in area schools. Up to this time it had been a problem to keep area schools functioning because of unavailable funding. In 1965, the Iowa Area Vocational Education Act was passed to take advantage of the federal funds available for the establishment of the area schools. This establishment brought one more agency into the agricultural education service for the adult farmer.

Iowa now had three agencies serving the adult farmer--the extension service with a direct legislated agriculture role, the vocational agriculture program with a natural developed role and the area schools with a very general legislated role. During the period from 1965-1970 it became apparent that some guidelines should be formulated to give direction to these agencies.

In June of 1970 an Agriculture Task Force[1] was appointed to establish guidelines for those institutions in Iowa providing educational programs in agriculture to citizens not enrolled as resident students in a degree or diploma program. Its report (Agricultural Task Force, 1970) identified the three agencies as Vocational Agriculture, Area Vocational-Technical School and Iowa State University. Iowa State University is further identified as the cooperative extension service. The University of Northern Iowa and University of Iowa were mentioned as to their roles to agricultural education. These institutions will not be dealt with at this time because currently they have no role in agricultural education of the adult farmer.

The 1970 Agriculture Task Force findings are summarized below only to the extent that they apply to the responsibility of the agencies in providing agricultural education to the Iowa adult farmer:

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[1]Guidelines for Program Emphasis for Agricultural Education. Unpublished report developed by Agricultural Task Force, State Coordinating Committee. Copy on file, Dr. Lee Kolmer, Dean of Agriculture, Iowa State University, Ames, Iowa, June 1, 1970.

Vocational agriculture

1. Training is provided for young men who plan to enter farming and adult farmers practicing farming.

2. Agriculture education is provided to business and professional men whose occupations require that knowledge.

3. Classroom and on-farm instruction to young farmer classes are composed of young men of the community engaged in farming and not enrolled in high school.

4. Instruction of adult farmers and agri-businessmen of the community is provided in crop and livestock production, agricultural mechanics, and farm management. Advisory committees are to help determine content of program.

5. The adult farmer population generally served are farmers identified as "average" or "late adopters".

6. Vocational agriculture instructors should also give special emphasis to low income adult farmers.

7. Vocational agriculture departments should continue to develop a comprehensive and aggressive career counseling service for rural clientele.

8. Most vocational agriculture instructors will continue to rely on others for highly specialized inputs.

Area vocational-technical schools

1. Area schools are to supplement the typical college programs with strong vocational-technical curriculums and expanded programs of agricultural education.

2. The adult education program offers courses such as carburetor adjustment, motor tune-ups, electrical wiring, welding, farm operation, foreign agricultural trade and farm machinery maintenance.

3. Area vocational-technical schools are responsible for on-the-job training programs in production agriculture/agri-business and vocational rehabilitation and manpower training supported by state and federal agencies.

4. Area vocational-technical schools should develop a comprehensive and aggressive career counseling service for rural clientele served.

5. Area vocational-technical schools should develop curricula in agriculture and nonagriculture subject matter offered at a time when rural people can gain competence without leaving their present employment.

6. When appropriate the cooperative extension service and vocational agriculture departments should refer and recruit audiences for programs of vocational or technical nature to area schools.

Iowa State University (Cooperative Extension Service)

1. The extension service interprets research and disseminates that research as well as encourages practical use of the knowledge.

2. Iowa State University has the primary responsibility for educational programs in production agriculture--farm management, crop production, livestock production, and agricultural marketing.

3. Extension programs involve more of the innovators and early adopters because they will readily travel beyond their local school district for information.

4. Iowa State University is further responsible for inservice training of professionals in agricultural subject matter and assimilation of relevant research data prior to a teaching function. I. S. U. can also assist in methods of teaching.

5. Cooperative extension should refer clientele to area schools and/or vocational agriculture departments for vocational testing and counseling.

Coordination recommendations were also made. They are summarized below.

1. To insure communication between agencies, a schedule of joint sessions between area vocational-technical schools, vocational agriculture departments and extension should be developed. Also, periodic meetings supplemented by telephone and face-to-face contacts to coordinate current programs should be maintained.

2. Inservice education programs should be conducted to acquaint extension administrators from Iowa State University, area school superintendents, directors of vocational-technical programs in area schools, representatives from the State Department of Public Instruction, and adult education directors in better understanding of responsibilities and the programs that are involved in agricultural education in Iowa.

3. Each person and organization involved in agricultural education in Iowa must initiate a positive action to develop a cooperative relationship.

It appears the agencies are providing agricultural education to the adult farmer by and through their own individual guidelines with little coordination or understanding of each other's roles and responsibilities.

Statement of the Problem

The purpose of this study is to identify the perceived responsibilities of secondary school vocational agriculture programs, area community colleges and/or vocational schools, and Iowa State University Cooperative Extension Service in providing agricultural education to the adult farmers of Iowa. The study will further identify possible areas of coordination and cooperation.

Significance of the Problem

The Agriculture Task Force efforts of 1970 were certainly a big step toward cooperation and coordination as well as role identification. The general theme of this report was that the three agencies should be coordinating programs and identifying what the roles and responsibilities of each agency were to any given program.

However, the Task Force report and its recommendations were not tested among the practitioners in the field nor was coordination ever

achieved to any high degree. Because of this situation there may be some duplication of educational effort and a lack of role understanding among the agencies. If agencies understand each others' responsibilities, better coordination and cooperation between agencies could occur.

Purpose of the Study

The overall objective of this study was to identify responsibilities for providing agricultural education to the adult farmers of Iowa as perceived by personnel representing secondary vocational agriculture, Iowa State University Cooperative Extension Service and area schools. The specific objectives are as follows:

1. Determine if there are significant differences in perceived responsibilities among vocational agriculture, area schools and Iowa State University Cooperative Extension Service personnel as they relate to:
   a. formulation and delivery of adult farmer education.
   b. methods of instruction.
   c. adult farmer populations served.
   d. inter-agency cooperation.
2. Determine if there are significant differences in programming procedures among vocational agriculture, area schools and Iowa State University Cooperative Extension Service personnel as they relate to:
   a. determining program needs.

b. sources of instructional materials.

c. scheduling of programs.

d. evaluation of programs.

e. counting participants.

f. financing programs.

g. type of inter-agency cooperation.

3. Determine if there are significant differences in the responsibilities of vocational agriculture, area schools and Iowa State University Cooperative Extension Service as perceived by adult farmer educators with different agency experience.

4. Determine the effect years with current agency and years of experience in adult farmer education have on attitudes of adult farmer educators toward responsibilities for and programming procedures used by agricultural education agencies.

Independent Variables

The independent variables for this study are as follows:

1. Current professional position,

2. Years of experience with current agency,

3. Years of experience in adult farmer education, and

4. Inter-agency experience.

Dependent Variables

The dependent variables for the study include the following:

1. Agencies' responsibility to adult farmer education for:
    a. Agricultural research,
    b. Formulation of research reports,
    c. Development of instructional materials,
    d. Agricultural instruction,
    e. Dissemination of educational materials,
    f. Methods of instruction,
    g. Adult farmer populations served, and
    h. Degree of inter-agency cooperation.
2. Agencies use of the following program procedures in providing adult farmer education:
    a. Determining program needs.
    b. Sources of instructional information.
    c. Scheduling of instructional information.
    d. Evaluation procedures.
    e. Counting participants.
    f. Financing programs.
    g. Type of inter-agency cooperation.

CHAPTER II. REVIEW OF LITERATURE

Introduction

The review indicated some writing in the area responsibilities of the agencies serving the educational needs of the adult farmer. However, very little formal research has been done on this subject. This review of the literature will be presented in the following four areas:

1. Responsibilities of vocational agriculture to adult farmer education,
2. Responsibilities of area community colleges and/or vocational schools to adult farmer education,
3. Responsibilities of Iowa State University Cooperative Extension Service to adult farmer education, and
4. Necessity for cooperation and coordination between agencies.

Responsibilities of Vocational Agriculture to Adult Farmer Education

The adult farmer program in high school vocational agriculture departments is divided into two populations. The first is the young farmer program for farmers between ages 16 and 28 who are out of school. The second population is the adult farmer over 28 years of age. Raymond (1971) suggests that the young farmer program was originally set up for out-of-school young men to continue education

from their high school vocational agriculture teacher. This program is usually part-time with no credit attached.

The adult farmer program on the other hand was designed for farmers already engaged in farming. Instruction to this population could keep the farmers up-to-date on new practices, varieties, management procedures, and other matters important to agriculture.

There are many factors to consider when a vocational agriculture department elects to offer an adult farmer program. Hummel (1968, p. 34) suggested the following:

1. Number and type of programs to be offered.
2. Special interest of the teachers.
3. Major enterprises in the community.
4. Type of instruction needed by the members.
5. Formal organization (Young Farmer Chapter).
6. Facilities available.
7. Type of county-wide programs offered.
8. Resources available.
9. Funds available.
10. School policies.

Todd (1975) maintained that the vocational agriculture teacher should assume important roles in the following adult farmer education areas:

1. Determine educational needs and priorities of educational programs.
2. Receive administration approval and support for an adult program.
3. Keep up-to-date with reporting to local and state supervisors.
4. Identify and work with committees in planning and implementing each program.

5. Schedule classes by arranging meeting time, date and place.
6. Arrange for resource personnel when needed for special instruction.
7. Publicize programs to enlist participation in the programs.
8. Prepare and review teaching plans.
9. Make orientation and supervisory visits to all participants.
10. Plan supplementary classroom experiences such as field trips.
11. Evaluate all programs.

Wolfe (1970) believed that vocational agriculture has a responsibility to deliver adult education through systematic instruction. He further suggested that if this is vocational agriculture's role, there must be specific enrollees, units to be taught, and a definite and regular sequence of courses.

The following guidelines to aid in the systematic approach to adult farmer education were given by Mayer (1972):

1. Effective use of advisory councils in identifying needs.
2. All day-meetings should be Saturdays and during Christmas holidays.
3. Most meetings should be held in early fall and late spring to avoid heavy work times.
4. Field demonstrations should be scheduled in the summer evenings when new practices can be observed.

Along with the type of delivery system comes subject matter. The group of farmers in Matteson's and Thompson's (1972) study indicated

that feeds and feeding, crop production, soils and fertilizers, and farm records should be emphasized most by the vocational agriculture programs. The study further indicated that farm visits were more important to learning than the classroom instruction.

In writing about resources available to teachers, Albracht (1968) indicated that regardless of the resources available to the teacher he must still plan, make farm visits and analyze programs.

Vocational agriculture's role to the adult farmer was summarized by Frank (1966) through the following statement:

> The adult phase of vocational agriculture can continue to serve an important function in providing education for those engaged in all areas of agriculture, traditional and new. Effective learning can be accomplished by utilizing the inherent advantages provided through the local departments; namely--teacher competency, resource persons, and the extensive involvement of participants in adult educational activities (Frank, 1966, p. 77).

Responsibilities of Area Community Colleges and/or Vocational Schools to Adult Farmer Education

Adult farmer education at the area or vocational school level is relatively new, which in part, accounts for the lack of relevant literature on this subject. The Iowa area schools were developed as a result of the 1965 Iowa Legislature.

In the State of Iowa Department of Public Instruction (1976) publication for 1976-1977, adult farmer education comes under the title of career supplementary which offers programs for adults who

want to retrain or receive training to aid in current work. The general subject matters for adult farmers are: animal science, farm accounts, agricultural power and machinery, and nursery operation and management.

Even with the few programs being offered to adult farmers, Warmbrod (1970) indicated that postsecondary institutions are the fastest growing schools today. Because of this rapid growth, more and more agricultural programs will be made available to adult farmers. Leamer (1970) also suggested that this growth will increase agricultural education to the adult farmer. He indicated agricultural courses could be offered to people to prepare them for retirement or just to give them opportunities to understand agriculture.

Responsibilities of the Cooperative Extension Service to Adult Farmer Education

The responsibilities of the cooperative extension service are more easily identified because its responsibilities are tied directly to legislation whereas the roles for vocational agriculture and area schools are assumed or developed through the schools. An example of this point is an extract from the original extension act:

> The Iowa State College of Agriculture and Mechanic Arts is hereby authorized to undertake and maintain a system of Agricultural Extension Work. Under this system the said college shall be authorized to conduct experiments in the various portions of the state and in giving instruction where ever in the judgment of the college authorities it shall be advisable in reference to the various lines of agricultural work maintained upon the college grounds at Ames, Iowa.

> The college authorities are authorized to give instruction in corn and stock judging at agricultural fairs, institutes and clubs, and to aid in conducting short courses of instruction at suitable places throughout the state. To give lectures and demonstrations on the growing of crops and fruits, on stock raising, dairying, land drainage and kindred subjects including domestic science, etc., etc. (Bliss, 1960, p. 45).

Even today the cooperative extension service has its responsibilities defined through legislation. The County Agricultural Extension Law (Donhowe, Cooperative Extension Service, Iowa State University, 1976) indicated what the roles of the extension service are.

> Sec. 2. Declaration of policy. It is hereby declared to be the policy of the legislature to provide for aid in disseminating among the people of Iowa useful and practical information on subjects relating to agriculture, home economics and rural and community life, and to encourage the application of the same in the several counties of the state through extension work to be carried on in cooperation with Iowa State University of Science and Technology and the United States Department of Agriculture as provided in the Act of Congress May 8, 1914, as amended by Public Law 83 of the Eighty third Congress (County Agricultural Extension Law, Donhowe, 1976, p. 5).

In an attempt to help extension workers more fully understand their responsibilities, Gallaher and Santopolo (1967) had this to say:

> The Extension agent works in a social system that has two parts: a knowledge center and a client group. The agent functions in this work environment to link the resources of the knowledge center to the needs of the client system. In so doing, he is expected to play, either singly or in combination, the roles of analyst, advisor, advocator, and/or innovator (Gallaher and Santopolo, 1967, p. 223).

They further identified the extension worker's role as that of a change agent. In other words, an individual to aid in beneficial change in the clientele. Gallaher and Santopolo further described a change agent as an:

1. Analyst--the change agent's main commitment is to interpret a situation for the client.

2. Advisor--the agent's main commitment is to present to the client alternatives applicable to a given situation.

3. Advocator--the change agent's main commitment is to recommend to the client one from among a number of alternatives.

4. Innovator--the agent's main commitment is to create an innovation to satisfy a special need of the client. (We do not restrict the concept "innovator" to the social relationship between an initial and later adopter, both members of the client group. Rather, our focus is on the relationship between a professional change agent and a client.) (p. 225).

Necessity for Cooperation and Coordination Between Agencies

Bishop (1972) indicated that all agricultural educators have always known their individual roles to the adult farmer population. However, today with technology changing as rapidly as it is, a coordinated effort between agencies must come about. Bishop cited the five agencies that provide agricultural education to adults. They are: (1) high schools, (2) area community colleges and/or vocational schools, (3) cooperative extension service, (4) public universities, and (5) agribusiness.

Vocational agriculture teachers can utilize the area extension staff to improve the quality of programs in the opinion of Bundy (1968). He further stated that it is important that cooperative working agreements be developed between the two agencies.

Florell (1972) gave the following suggestions for cooperation between agricultural teachers and county extension agents: (a) The agricultural teacher should offer his expertise to the county agent in program offerings. (b) The agricultural teacher should also utilize the expertise of the county agent in his classes. (c) The agricultural teacher and county agent should offer joint educational programs. These programs could be held in the high school facilities.

The suggestion that vocational agriculture teachers should be utilizing the extension personnel as a resource in their adult farmer instruction was also made by Draper (1970). He further stated that the county agriculture agent should also be involved in planning of local programs.

Lawrence et al. (1970) takes the cooperation one step further with the concept of a community task force. The members of the community task force are the vocational agriculture teacher, extension staff, and other agriculturalists in the local community. Each of the courses planned in a committee has at least three different resource specialists and four different sponsors from public and private concerns.

The importance of cooperation between agencies was also brought out by Bjergo (1964). His study indicated that the 1970's will bring the following:

1. County-wide programs for young and adult farmers.
2. Greater cooperation between agencies in providing adult farmer education.
3. Each agricultural agency will become more specialized and contribute to the overall comprehensive adult farmer program.

Bjergo (1964) also lists the advantages and limitations of the county adult education program as follows:

Advantages

1. Conflict and overlap in the functions of various agencies are reduced.
2. Money, time and effort are saved through coordination of programs.
3. Resources and resource people are better utilized because:
   a. Special and limited commodity groups may be large enough on a county basis to function.
   b. County-wide efforts usually mobilize more and better quality resources than one community.
4. Highly qualified or well-known people are more attracted to county-wide functions than to similar undertakings on a local scale.
5. Each agency involved can more nearly follow its specialized role because the collective effort is embracing the entire county population.
6. A sense of purpose and unity may be developed within the county.
7. Long-term programs of value may be developed.

Limitations

1. Distances may be excessive for clientele.

2. Communities may be of an isolated nature and be unwilling to cooperate.

3. The prestige of individuals and agencies may have to be subordinated to the county organization.

4. Each participating organization must be willing to limit and define its role, and to submit to the planning and sanction of the county-wide organization (Bjergo, 1964, p. 60).

Hill (1970) suggests that cooperative extension and community colleges can also work together. Hill cited Knowles work indicating there are factors that favor coordination and factors that weaken it. Those that favor coordination are:

1. Pressure from consumers forcing agencies to coordinate for efficiency of educational resources,
2. Adult educators many times have to seek mutual financial support for programs.
3. Advances in the field cause educators to seek knowledge other than that readily available to them.

Those factors that weaken coordination are:

1. Lack of agreement on the goals of adult education.
2. Feelings of competition between agencies.
3. Difficulty to coordinate activities because the agencies involved have no direction or pattern to follow.

The following was emphasized by Hiltebrand and Dowding (1966):

> If colleges, area schools, and high schools do not coordinate their efforts in providing agricultural education programs, frustration and waste may result (Hiltebrand and Dowding, 1966, p. 94).

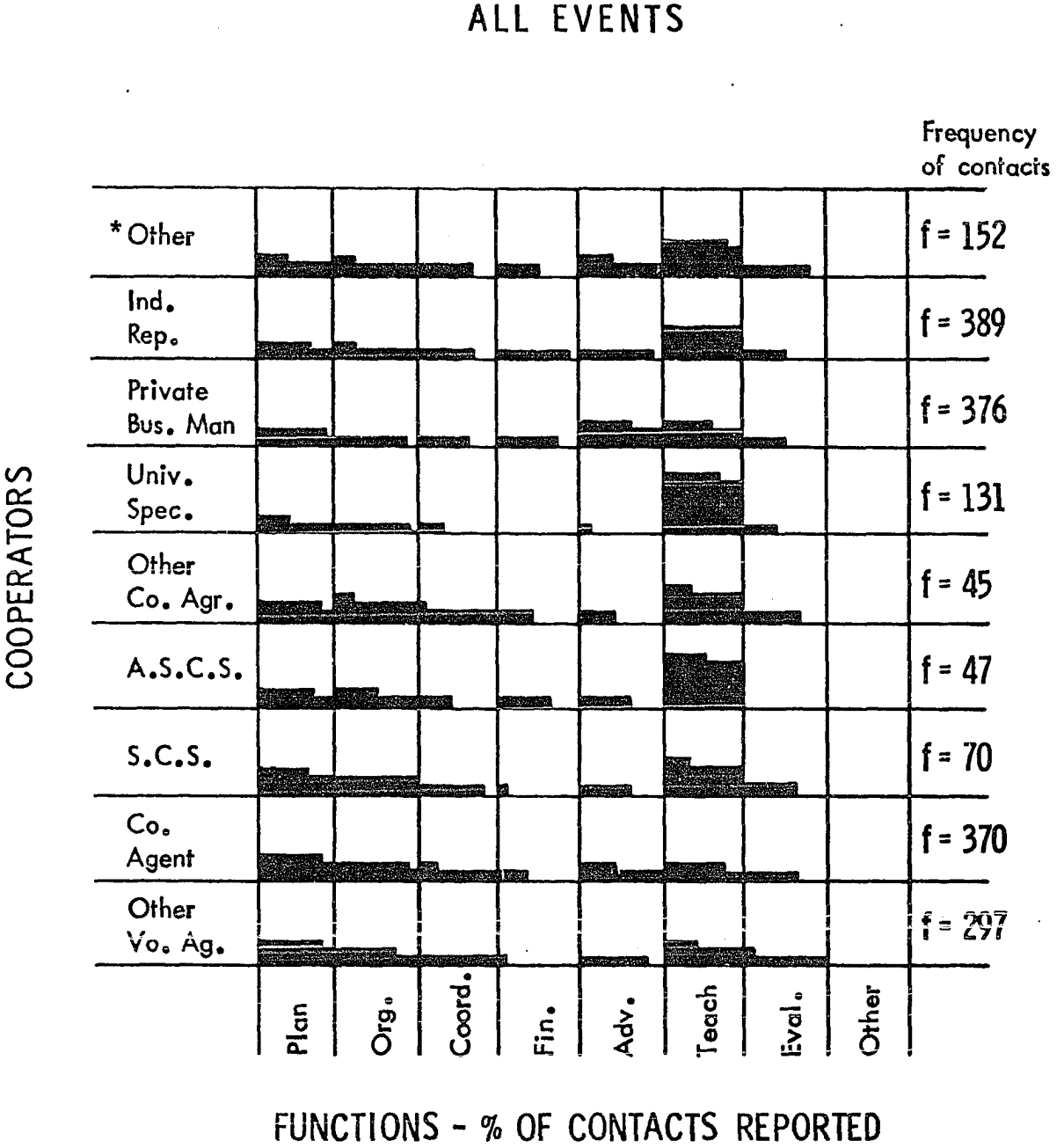
The study by Persons and Leske (1973) indicated a high degree of cooperation between the vocational agriculture teacher and the cooperative extension service. This is depicted in Figure 1. The table also describes the areas of cooperation.

The main areas of cooperation were planning, organizing, coordinating, advertising, teaching and evaluating. The table indicates very little cooperation in financing, which was expected, because neither vocational agriculture or the extension service have monies for programs other than education.

A study by Rogers and Glick (1973) sampled 16 organizations with county-wide responsibilities in programming. These organizations include U.S.D.A. agencies, state and county agencies, and private associations. Table 1a indicates the perceived benefits derived from interagency cooperation.

The top three perceived benefits were: (1) improves exchanges of information between organizations, (2) increases awareness of objectives of other organizations, and (3) enables members to take a united stand.

Rogers' and Molnar's study on interorganizational relations among development organizations sampled administrators representing 16 public and private development related organizations in 16 counties. Their conclusion was that interagency cooperation will meet the needs of the people more efficiently than each agency working independently. They stated:



*The total of the percents charted for each row equals 100% ± 1%. Other vo-ag teachers, for example, were reported as cooperators in 297 events. 28% plan, 17% org., 10% coord., 1% fin., 8% adv., 24% teach, 11% eval.

Figure 1. Functions performed by cooperators in the conduct of all adult education events[1]

[1]Persons and Leske, 1973.

Table 1a. Percentage of rural development committee members reporting selected benefits from participation and rating their importance[a]

Committee benefits	Percent reporting benefit (n = 67)	Percent reporting "very important"
Enables members to take a united stand.	97.0	46.8
Improves exchange of information between organization.	95.5	65.0
Increases awareness of objectives of other organizations.	94.0	52.5
A sounding board for ideas.	94.0	40.0
Helps involve influential members of the community.	84.8	43.6
Reduces the possibility of one organization being played off against another.	80.6	21.6
Provides better services for (clients/members).	80.3	33.3
Increases organization's effectiveness.	75.8	34.7
Reduces competition among member organizations.	43.8	34.7
Reduces threats from interest groups in the county.	17.2	20.0
Reduces pressure from superiors.	12.1	0.0

[a]Rogers and Glick (1973, p. 110).

> Hopefully, in the future, additional research will systematically examine other important determinants of interorganizational relations and map out the total set of factors relevant for understanding levels of interorganizational relations (p. 73).

In summary, the review of literature revealed very little research on the responsibility of vocational agriculture, area schools and cooperative extension service for adult farmer education. The literature did, however, provide background information in the following areas for this research:

1. Adult farmer populations served.
2. Programming procedures.
3. Necessity for cooperation among agencies.
4. Methods of cooperation and coordination of programs and benefits derived from such.
5. Legislative responsibilities of the agencies involved in the study.
6. History and future projections of adult farmer education.

CHAPTER III. METHODS AND PROCEDURES

Population of the Study

The population for this study was limited to personnel within vocational agriculture, area schools and extension service serving the adult farmer population of Iowa at the local level. The personnel involved were identified as the following:

1. Vocational agriculture teachers,
2. Area school agriculture instructors,
3. County extension directors, and
4. Area extension specialists.

Samples for the Study

Four sets of random numbers were generated using the computer to select samples from the four populations. The procedure used to select the sample for the four populations is as follows:

Vocational agriculture instructors

A 1977 Vocational Agriculture Directory and a random numbers list were used to select 73 (25 percent sample) teachers as a random sample from a possible 286 teachers.

Area school agriculture instructors

A 1977 Area School Teachers' Directory and a random numbers list were used to select 63 (50 percent sample) as a random sample from a possible 125 instructors.

County extension directors

A 1977 Iowa Cooperative Extension Personnel Directory and a random numbers list were used to select 49 (50 percent sample) directors as a sample from a possible 97 county extension directors.

Area extension specialists

A 1977 Iowa Cooperative Extension Service Personnel Directory and a random numbers list were used to select 30 (50 percent sample) specialists as a random sample from a possible 60 specialists with agriculture assignments.

Development of the Questionnaire

The purpose of the questionnaire was two-fold. First, to gather descriptive information about adult farmer educators in Iowa and second, to determine the educators' attitudes toward responsibilities for adult farmer education, interagency cooperation, and programming procedures used by agricultural education agencies.

The investigator's former experience as a vocational agriculture teacher, county agriculture agent and coordinator of inservice education for postsecondary agriculture instructors gave him the understanding of vocational agriculture, extension service, and area schools necessary to formulate the first draft of the questionnaire. The questionnaire was pilot tested by Iowa State University Extension and Agricultural Education staff members for clarity and length of time necessary to complete.

The questionnaire in final form consisted of three parts.

Part I. Demographical information

This section was designed such that the respondent could easily indicate the number of years with the current agency as well as years of experience in adult farmer education. He could further indicate with a check the agencies he had had experience with and his major area or areas of expertise.

Part II. Responsibilities of the three agencies serving adult farmers of Iowa

A nine-point scale was used in this section in such a way that each respondent could circle a number 1 through 9 as to the responsibility he felt his agency had and the responsibility he felt the other two agencies had in serving adult farmers.

Part III. Programming procedures

Part III was designed to gather information about program procedures used by agencies providing adult farmer education. A nine-point scale was also utilized for this section. The respondent circled a number 1 through 9 to show the degree his agency used the various programming techniques.

Collection of Data

The method used to collect data for this study was through a mail questionnaire using the following procedure.

1. Names and addresses of participants were put on a master list in four categories representing the four different populations.

A numbering tool was then used to number each participant on the master list with the same number on the questionnaire going to each participant. This procedure was used so non-residents could be contacted again.

2. Three different cover letters were formulated and signed by the investigator and a state official representing the organizations being surveyed. The cover letter and the questionnaire were then sent to vocational agriculture teachers and area school agriculture instructors on November 11, 1977, and to county extension directors and area extension specialists on November 15, 1977. The questionnaires were designed so they could be folded, stapled and returned using permit mailing procedures.
3. Follow-up letters were sent to nonresponding vocational agriculture teachers and area school agriculture instructors on November 28, 1977.
4. Follow-up postcards were sent to nonresponding county extension directors and area extension specialists on December December 2, 1977.
5. A second follow-up letter was sent to nonresponding vocational agriculture teachers and area school instructors on December 12, 1977.

Of the 208 questionnaires sent out, 179 were returned, a return rate of 86 percent. There were, however, nine questionnaires that were

not useable, thus dropping the percentage of questionnaires to 81.7 percent. A summary of participation by agencies is presented in Table 1b.

Table 1b. Number and percent of research participants by group

Group	Number mailed	Number returned	Percent returned	Number useable	Percent useable
Vocational agriculture teachers	73	60	82.0	56	76.7
Area school agriculture instructors	56	43	76.7	40	71.4
County extension directors	49	48	97.9	47	95.9
Area extension specialists	30	28	93.3	27	90.0
Total	208	179	86.0	170	81.7

Analysis of Data

The following procedures were used in analyzing the data in this study:

1. The questionnaire was designed in a way that the data could be keypunched directly into IBM cards.
2. All missing data were recorded as such and not averaged into the findings.
3. SPSS (Statistical Package for the Social Sciences) subprogram (Nie et al., 1975, pp. 159-202) frequencies were used to describe the respondents.

4. SPSS (Statistical Package for the Social Sciences) one way analysis subprogram, ONEWAY Ranges - Scheffe, as described by Nie et al. (1975, pp. 427-428) was used to determine differences in attitudes among groups.
5. SPSS (Statistical Package for the Social Sciences) Multiple Regression Analysis Subprogram, regression as described by Nie et al. (1975, pp. 343-365) was used to determine the effect of two independent variables on all dependent variables.

CHAPTER IV. FINDINGS AND DISCUSSION

This chapter reports the findings gathered by a 153 variable questionnaire sent to a random sample of vocational agriculture teachers, area school instructors, county extension directors and area extension specialists. The primary purpose of this study was to identify responsibilities for adult farmer education by vocational agriculture, area vocational-technical schools and Iowa State University Cooperative Extension Service.

The findings are presented in the following four sections:

1. Agricultural education experiences of respondents. Frequencies and means were used to describe the respondents.

2. Responsibilities of and programming procedures used by agricultural education agencies serving adult farmers. Analysis of variance was used to test for differences among the four sample groups. A post hoc procedure (Scheffe test) was used to identify differences ($P<.05$, $P<.01$) between group means when a significant F ratio was observed.

3. Responsibilities of agricultural education agencies as perceived by adult farmer educators with various agency experience. Analysis of variance was used to test for differences among five groups (two of the original seven groups were dropped from the analysis of variance because of insufficient numbers). A post hoc procedure (Scheffe test) was used to test significant differences ($P<.05$, $P<.01$) between group means when a significant F ratio was observed.

4. The effect of years with the current agency and years of experience in adult farmer education on attitudes of adult farmer educators toward responsibilities and programming procedures of agricultural education agencies. Multiple regression was used to determine the extent two independent variables (years with current agency and years of experience in adult farmer education) had on the dependent variables (attitudes toward responsibilities of and programming procedures used by agricultural education agencies serving adult farmers).

Agricultural Education Experiences of Respondents

The demographical data gathered for this study were limited to the amount and type of agricultural education agency experience of the respondents. These data are summarized in Table 2.

Area extension specialists and county extension directors had long tenure with current employing agency, both had a mean of over 15 years, compared to vocational agriculture teachers with 8.14 years, and area school agriculture instructors with 5.3 years of tenure with current agency.

Extension service personnel had over 15 years of experience in adult farmer education compared to 10.52 for area school agriculture instructors and 8.53 for vocational agriculture instructors.

The interagency experience data show that 36 of the respondents other than vocational agriculture teachers had experience in teaching vocational agriculture during their careers. Almost half of the area

Table 2. Summary of agricultural education experiences of respondents.

Agriculture Experience	Group 1[a]	Group 2[a]	Group 3[a]	Group 4[a]
Number of years with current agency				
Mean	8.14	5.3	15.23	15.85
Range	1-33	1-11	1-28	1-31
Number of years of adult farmer education				
Mean	10.52	8.53	15.26	16.26
Range	0-35	0-38	0-30	0-31
Number of respondents with interagency experience in:				
Vocational agriculture	56	19	12	5
Area school	2	40	3	0
Extension service	3	5	47	27
Number of respondents with major time devoted to:				
Animal science	7	13	8	6
Plant science	10	6	13	3
Agricultural mechanics	10	5	1	0
Agribusiness	3	13	3	4
General agriculture	33	5	31	1
Other	0	7	6	14

[a]Group 1 = vocational agriculture teachers (n=56); group 2 = area school agriculture instructors (n=40); group 3 = county extension directors; group 4 = area extension specialists (n=27).

school instructors had taught vocational agriculture at the high school level. On the other hand, only five respondents other than area school agriculture instructors had experience in an area school, and only eight respondents other than extension service personnel had extension service experience. These findings suggest that vocational agriculture teaching experience may be desirable training for agricultural educators in area schools and extension and that area school teaching and extension work may be steps on a career ladder for vocational agriculture teachers.

A majority of the vocational agriculture teachers and county extension directors indicated that the major part of their time was devoted to general agriculture compared to area school agriculture instructors who devoted major time to animal science and plant science. Area extension specialists indicated that "other" required most of their time. "Other" in this case could be backup support to county extension staff and administrative duties.

Responsibilities of and Programming Procedures Used by Agricultural Education Agencies Serving Adult Farmers

Responses were gathered using a nine-point scale with one being "no responsibility" or "no use" and nine being "high responsibility" or "high use". Individuals responded not only to their own agency's responsibilities but the other two agencies' responsibilities as well.

This section will report findings pertaining to:

1. Responsibilities of agricultural education agencies for:
   a. Formulation and delivery of adult farmer education.
   b. Methods of instructors used in adult farmer education.
   c. Adult farmer populations served.
2. Responsibilities of interagency cooperation in providing adult farmer education.
3. Programming procedures used by agricultural education agencies to:
   a. Determine program needs.
   b. Obtain instructional materials.
   c. Schedule programs.
   d. Evaluate programs.
   e. Count participants.
   f. Finance programs.
   g. Provide cooperation needed among agricultural education agencies.

Responsibilities of vocational agriculture for formulation and delivery of adult farmer education

Vocational agriculture's responsibilities to adult farmer education as perceived by personnel in four agricultural education agencies are reported in Table 3. Significant F ratios were observed for three of the five responsibilities.

All groups indicated that vocational agriculture had an above average responsibility for agricultural instruction; however, there was

Table 3. Means, standard deviations and F ratios for attitudes of adult farmer education groups toward vocational agriculture's responsibility for adult farmer education.

Responsibility	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Agricultural research	2.44 / 2.30	1.70 / 1.30
2. Formulation of research reports	2.02 / 1.90	1.55 / 1.18
3. Development of instructional materials	5.48 / 2.54	4.49 / 2.10
4. Agricultural instruction	7.60 / 2.01	7.58 / 2.12
5. Dissemination of educational materials	5.50 / 2.54	4.15 / 2.32

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors; group 4 = area extension specialists.

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Total Mean S.D.	F ratio
2.22 / 1.68	1.42 / .86	2.04 / 1.78	2.68*
1.56 / 1.01	1.50 / .95	1.70 / 1.40	1.44
5.02 / 2.22	5.00 / 1.96	5.05 / 2.28	1.48
6.07 / 2.19	6.19 / 2.04	6.95 / 2.20	6.85** (1>3**)
4.62 / 2.20	5.23 / 1.75	4.90 / 2.33	3.12* (1>2*)

a significant difference (P<.01) observed among group means. The Scheffe test revealed that vocational agriculture teachers rated this responsibility significantly higher (P<.01) than county extension directors.

An average to slightly below average responsibility was assigned for the dissemination of educational materials by vocational agriculture. There was a significant difference (P<.05) among group means. The Scheffe test revealed that vocational agriculture teachers rated this responsibility significantly higher (P<.05) than area school agriculture instructors.

The four groups rated agriculture research and formulation of research reports as a very low priority (all means below 2.5) for vocational agriculture. The four groups were also in agreement on the responsibility of vocational agriculture for developing instructional materials with mean ratings ranging from 4.49 to 5.48.

Responsibilities of area schools for formulation and delivery of adult farmer education.

There was a significant difference (P<.01) among the group means for all five responsibilities related to formulation and delivery of adult farmer education by area schools as indicated in Table 4. The Scheffe test revealed that the means of vocational agriculture and area schools were significantly higher (P<.01) than area extension specialists regarding area schools' responsibility for agricultural research. However, all four groups rated area schools' responsibility to agricultural research relatively low.

Table 4. Means, standard deviations and F ratios for attitudes of adult farmer education groups toward area school's responsibility for adult farmer education

Responsibility	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Agricultural research	4.00 / 1.97	3.88 / 1.95
2. Formulation of research reports	3.96 / 2.18	3.28 / 1.93
3. Development of instructional materials	6.13 / 1.93	6.54 / 1.90
4. Agricultural instruction	6.83 / 2.26	8.45 / .88
5. Dissemination of educational materials	5.37 / 2.25	5.98 / 2.34

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors; group 4 = area extension specialists.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Total Mean S.D.	F ratio
2.87 / 1.95	1.92 / 1.44	3.33 / 1.02	9.07** (1,2>4**)
2.44 / 1.74	1.96 / 1.43	3.06 / 2.03	8.57** (1>3,4**)
5.02 / 2.20	4.30 / 2.16	5.63 / 2.18	8.79** (2,1>4**)
4.29 / 2.29	4.85 / 2.70	6.21 / 2.65	32.75** (2>1,4,3**)(1>4,3**)
3.78 / 1.95	4.50 / 2.04	4.95 / 2.31	8.45** (2,1>3**)

All groups rated area schools' responsibility for formulation of research reports below 4.0 on a nine-point scale. The Scheffe test showed that the mean for area extension specialists was significantly lower ($P<.01$) than for area school agriculture instructors and vocational agriculture instructors.

For three responsibilities, (1) the development of instructional materials, (2) agricultural instruction and (3) dissemination of materials, area school agriculture instructors rated the responsibilities of area schools higher than the other three groups. The Scheffe test indicated that area school agriculture instructors' and vocational agriculture teachers' mean ratings were significantly higher ($P<.01$) than area extension specialists for the development of instructional materials. The Scheffe test also revealed that area school agriculture instructors rated area schools' responsibility to agricultural instruction significantly higher ($P<.01$) than vocational agriculture teachers, area extension specialists and county extension directors.

The means for area school agriculture instructors and vocational agriculture teachers were significantly higher ($P<.01$) than the mean for county extension directors.

The means for area school agriculture instructors and vocational agriculture teachers were significantly higher ($P<.01$) than the mean for county extension directors for area schools' responsibility to disseminate educational materials.

Responsibilities of cooperative extension service for formulation and delivery of adult farmer education

Cooperative extension service's responsibility to formulate and deliver adult farmer education was rated very high by all groups as is indicated by the means in Table 5.

A significant difference ($P<.05$) was detected among groups for the formulation of research reports. The group means would indicate that area school agriculture instructors and vocational agriculture teachers rate extension service's responsibility higher in the formulation of reserach reports than county extension directors and area extension specialists. This finding might indicate that area school agriculture instructors and vocational agriculture teachers recognize extension as a major source of the research reports they use.

There was also a significant difference in mean ratings ($P<.05$) for cooperative extension service's responsibility to develop instructional materials. Area extension specialists rated this responsibility higher than the other three groups. This finding may be attributed to area extension specialists function in the cooperative extension service, which is to support county extension staffs.

Area school agriculture instructors and vocational agriculture teachers viewed extension's responsibility for agricultural instruction significantly lower ($P<.01$) than county extension directors and area extension specialists as revealed by the Scheffe test.

Agricultural research and dissemination of materials have traditionally been important responsibilities of the cooperative extension service. The high mean ratings (all 7.0 or above on a nine-point

Table 5. Means, standard deviations and F ratios for attitudes of adult farmer education groups toward cooperative extension service's responsibility for adult farmer education

Responsibility	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Agricultural research	7.98 / 1.89	8.21 / 1.92
2. Formulation of research reports	8.33 / 1.72	8.40 / 1.32
3. Development of instructional materials	7.29 / 2.26	7.46 / 1.80
4. Agricultural instruction	7.26 / 2.13	7.10 / 2.28
5. Dissemination of educational materials	8.11 / 1.88	8.35 / 1.31

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors; group 4 = area extension specialists.

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Total Mean S.D.	F ratio
7.85 1.85	7.04 2.53	7.84 2.02	1.97
7.78 2.14	7.11 2.55	7.99 1.96	3.21*
8.04 1.33	8.37 1.08	7.72 1.79	3.08*
8.48 .91	8.70 .87	7.80 1.86	8.46** (4,3>1,2**)
8.72 .62	8.63 .74	8.42 1.34	2.01

scale) and the agreement (F ratios not significant) for these responsibilities by all groups revealed that vocational agriculture teachers, area school agriculture instructors and extension personnel concurred that these are still important responsibilities of the cooperative extension service.

Responsibilities of vocational agriculture for methods of instruction used in adult farmer education

Significant differences were observed among group means for vocational agriculture's responsibility for methods of instructing adult farmers as reported in Table 6. These responsibilities were (1) on the farm advising ($P<.01$), (2) short courses ($P<.05$), (3) special programs ($P<.01$), and (4) systematic instruction on a variety of subjects ($P<.05$). Further analysis using the Scheffe test revealed that the means of vocational agriculture teachers were significantly greater ($P<.05$) for special programs and systematic instruction on a variety of subjects than the means of area school agriculture instructors. These findings may suggest that area school agriculture instructors see these methods of instruction as their responsibility. For this same variable, area extension specialists also rated vocational agriculture's responsibility for special programs significantly lower ($P<.05$) than vocational agriculture teachers. The area extension specialists may also feel that they are responsible for this method of instruction.

Table 6. Means, standard deviations and F ratios for attitudes of adult farmer education groups toward vocational agriculture's responsibility for adult farmer methods of instruction

Method of instruction	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. On the farm advising	6.05 / 2.50	6.38 / 2.36
2. Short courses (max. of 3 days)	3.31 / 2.43	2.79 / 1.85
3. Special programs (max. of 1 day)	4.89 / 2.69	3.49 / 2.26
4. Field demonstration	4.73 / 2.27	4.80 / 2.34
5. Field trips	6.18 / 2.47	6.56 / 2.70
6. Systemic instruction on one subject (formal classes)	5.64 / 2.66	5.49 / 2.92
7. Systematic instruction on a variety of subjects (one night a week or month)	7.15 / 2.54	5.68 / 2.63
8. Laboratory instruction	5.40 / 2.58	5.18 / 2.85

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors group 4 = area extension specialists.

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Total Mean S.D.	F ratio
4.54 / 2.09	4.96 / 2.03	5.54 / 2.39	6.19** (2>3**)
2.28 / 1.59	2.15 / 1.03	2.72 / 1.94	3.40*
3.96 / 2.11	3.31 / 1.76	4.04 / 2.36	4.04** (1>2,4*)
4.87 / 1.97	5.37 / 1.80	4.89 / 2.14	.58
5.58 / 2.22	5.19 / 2.04	5.95 / 2.43	2.30
5.58 / 2.88	6.17 / 1.88	5.66 / 2.68	.35
6.41 / 1.93	6.83 / 1.55	6.54 / 2.34	3.35* (1>2*)
4.65 / 2.63	4.81 / 2.30	5.84 / 2.61	.78

Responsibilities of area schools for methods of instruction used in adult farmer education

Significant differences ($P<.01$) existed among group means for area schools' responsibility for all methods of instruction studied as indicated by the F ratios in Table 7. The Scheffe test revealed that area school agriculture instructors rated the area schools' responsibility significantly higher ($P<.01$) than one or more other groups for all eight instructional methods. It may be concluded that area school agriculture instructors perceived area schools as having a high responsibility for all eight methods of instruction for adult farmers compared to educators in vocational agriculture and cooperative extension service.

Responsibilities of cooperative extension service for methods of instruction used in adult farmer education

The group means for extension's responsibility for on the farm advising were significantly different ($P<.05$) as indicated in Table 8. The group means for extension's responsibility to special programs were also significantly different ($P<.01$). The Scheffe test revealed that county extension directors rated extension's responsibility for on the farm advising and to special programs significantly higher ($P<.01$) than vocational agriculture teachers. This may indicate a lack of importance placed on these instructional methods by vocational agriculture teachers who still rated the methods fairly high.

Data in Table 8 show group means of 6.96 and above for cooperative extension service's responsibility to special programs one day in length, short courses maximum of three days in length, field demonstrations, and

Table 7. Means, standard deviations and F ratios for attitudes of adult farmer education groups toward area school's responsibility for adult farmer methods of instruction

Method of instruction	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. On the farm advising	3.49 / 2.08	5.86 / 1.98
2. Short courses (max. of 3 days)	5.69 / 2.43	7.23 / 1.48
3. Special programs (max. of 1 day)	6.04 / 2.38	7.51 / 1.59
4. Field demonstration	5.80 / 2.02	6.23 / 2.48
5. Field trips	5.04 / 2.40	6.90 / 2.35
6. Systematic instruction on one subject (formal classes)	6.24 / 2.61	7.85 / 1.44
7. Systematic instruction on a variety of subjects (one night a week or month)	4.67 / 2.82	7.03 / 2.13
8. Laboratory instruction	5.63 / 2.64	7.28 / 2.32

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors; group 4 = area extension specialists.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Total Mean S.D.	F ratio
2.24 1.51	2.60 2.17	3.57 2.36	28.64** (2>1,4,3**)
3.20 2.16	2.85 1.77	4.93 2.67	38.92** (2>1,3,4**)(1>3,4**)
3.53 2.14	3.27 1.71	5.28 2.64	36.74** (2>1,3,4**)(1>3,4**)
3.59 2.08	4.41 2.31	5.08 2.43	13.05** (2,1>3**)
3.79 2.36	4.00 2.62	4.98 2.67	13.17** (2>1,4,3**)
5.91 2.99	6.38 2.55q	6.55 2.58	4.82** (2>3**)
4.21 2.57	3.79 2.25	4.99 2.76	12.02** (2>1.3.4**)
5.04 2.79	4.89 2.69	5.73 2.75	6.57** (2>3,4**)

Table 8. Means, standard deviations and F ratios for attitudes of adult farmer education groups toward cooperative extension service's responsibility for adult farmer methods of instruction

Method of Instruction	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. On the farm advising	6.96 / 2.51	7.48 / 2.31
2. Short courses (max. of 3 days)	8.13 / 1.83	7.85 / 1.63
3. Special programs (max. of 1 day)	8.02 / 1.81	8.58 / .78
4. Field demonstration	7.61 / 1.99	7.43 / 2.10
5. Field trips	6.09 / 2.56	6.28 / 2.55
6. Systematic instruction on one subject (formal classes)	6.00 / 2.87	5.29 / 2.63
7. Systematic instruction on a variety of subjects (one night a week or month)	6.13 / 2.89	6.21 / 2.31
8. Laboratory instruction	5.21 / 2.71	4.90 / 2.88

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors; group 4 = area extension specialists.

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Total Mean S.D.	F ratio
8.17 1.23	8.11 .97	7.60 2.03	3.85* (3>1*)
8.34 1.05	8.70 .72	8.21 1.46	2.05
8.74 .44	8.74 .71	8.47 1.19	4.24** (3>1*)
8.19 1.12	7.81 1.27	7.76 1.72	1.65
6.70 1.90	6.41 2.48	6.36 2.37	.54
5.02 2.41	4.63 2.52	5.35 2.66	1.95
5.87 2.22	5.28 3.01	5.95 2.60	.78
4.20 2.40	3.74 2.01	4.61 2.60	2.56

on the farm advising as methods of instruction. Field trips and systematic instruction received average ratings by all groups while laboratory instruction was rated below average responsibility.

Responsibilities of vocational agriculture farmer populations for adult farmer education

Five significant differences were observed among means for adult farmer populations to be served by vocational agriculture as indicated in Table 9. They were (1) adult farmers ($P<.01$), (2) low income farmers ($P<.05$), (3) average farmers ($P<.01$), (4) early adopter farmers ($P<.01$), and (5) innovative farmers ($P<.01$).

The Scheffe test revealed that vocational agriculture teachers saw vocational agriculture's responsibility to:

1. Adult farmers significantly higher ($P<.01$) than county extension directors and area extension specialists.

2. Low income farmers, early adopter farmers and innovative farmers significantly higher ($P<.05$) than area extension specialists.

3. Average farmers significantly higher ($P<.05$) than county extension directors.

The data further suggested that vocational agriculture teachers saw vocational agriculture's highest responsibility as being to young farmers ages 16-28 as was also indicated by the other groups.

The 1970 Iowa Agriculture Task Force Report indicated that vocational agriculture should assume the major responsibility for the "average" or "late adopter" farmers. Vocational agriculture teachers

Table 9. Means, standard deviations and F ratios for attitudes of adult farmer education groups toward vocational agriculture's responsibility for providing education to farmer populations

Farmer Populations	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Young farmers (16-28 years of age)	6.98 / 2.14	6.55 / 2.17
2. Adult farmers (over 28 years of age)	6.68 / 2.35	5.15 / 2.71
3. Farm veterans (no age limitation)	3.30 / 2.40	2.48 / 2.17
4. Low income farmers	6.13 / 2.62	4.90 / 2.80
5. Late adopter farmers	5.93 / 2.61	4.92 / 2.84
6. Average farmers	6.29 / 2.34	5.03 / 2.59
7. Early adopter farmers	5.60 / 2.50	4.43 / 2.56
8. Innovative farmers	5.32 / 2.45	4.08 / 2.78

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors; group 4 = area extension specialists.

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Total Mean S.D.	F ratio
6.50 1.81	6.19 1.82	6.62 2.01	1.10
4.57 1.68	4.56 2.03	5.41 2.41	9.54** (1>3,4**)
3.76 2.35	3.42 1.96	3.25 2.30	2.39
4.89 2.33	4.44 2.03	5.23 2.57	3.76* (1>4*)
5.02 2.28	5.11 1.97	5.31 2.50	1.70
4.84 2.02	4.89 1.80	5.38 2.32	4.65** (1>3*)
4.36 1.91	4.00 1.88	4.73 2.34	4.21** (1>4*)
4.31 1.94	3.54 1.63	4.47 2.37	4.44** (1>4*)

rated vocational agriculture's responsibility to these two populations just above average. The only population which received below average ratings was the farm veterans. This was probably due to the fact that in Iowa agricultural education to this group is administered by the area vocational schools.

Responsibilities of area schools to farmer populations for adult farmer education

Significant differences ($P<.01$) among group means were noted in Table 10 for area schools' responsibility to all adult farmer populations. The Scheffe test revealed that area school agriculture instructors saw the area school's responsibility to all categories of adult farmers significantly higher ($P<.01$) than all other groups with the exception of innovative farmers and early adopter farmers where area school agriculture instructors and vocational agriculture teachers were significantly higher than extension personnel. These findings may be due to the fact that area schools are expanding agricultural offerings to involve more farmers.

A review of the group means showed the groups felt area schools' highest responsibility was to the farm veterans. This was expected because Iowa area schools were assigned responsibility for this particular population by the Iowa Department of Public Instruction. The group means further showed that young farmers were the next highest responsibility which was above average, with low income farmers, average farmers, early adopter farmers, late adopter farmers, innovative

Table 10. Means, standard deviations and F ratios for attitudes of adult farmer education groups toward area school's responsibility for providing education to farmer populations

Farmer Populations	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Young farmers (16-28 years of age)	6.02 / 2.41	8.15 / 1.29
2. Adult farmers (over 28 years of age)	4.65 / 2.42	7.25 / 2.13
3. Farm veterans (no age limitation)	6.91 / 2.53	8.58 / .90
4. Low income farmers	5.11 / 2.38	6.96 / 2.17
5. Late adopter farmers	4.73 / 2.32	6.97 / 2.18
6. Average farmers	5.04 / 2.28	7.00 / 2.03
7. Early adopter farmers	5.52 / 2.32	6.50 / 2.16
8. Innovative farmers	5.31 / 2.38	6.70 / 2.22

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors; group 4 = area extension specialists.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Total Mean S.D.	F ratio
5.07 / 2.59	5.22 / 2.59	6.15 / 2.56	15.10** (2>1,4,3**)
3.00 / 1.73	2.78 / 1.37	4.53 / 2.64	39.07** (2>1,3,4**)(1>3,4**)
6.41 / 2.66	6.58 / 2.16	7.12 / 2.37	7.88** (2>4,1,3**)
3.86 / 2.57	3.89 / 1.80	5.03 / 2.59	15.56** (2>1,4,3**)
3.77 / 2.34	3.74 / 2.01	4.85 / 2.56	17.27** (2>1,3,4**)
3.50 / 2.28	3.93 / 2.07	4.92 / 2.54	20.11** (2>1,4,3**)(1>3**)
3.42 / 2.00	3.65 / 1.81	4.91 / 2.45	19.03** (2,1>4,3**)
3.47 / 2.20	3.15 / 1.64	4.82 / 2.57	21.22** (2,1>3,4**)

farmers, and adult farmers all being average or slightly below average as perceived by all groups except area school agriculture instructors.

Responsibilities of cooperative extension service to farmer populations for adult farmer education

Data pertaining to attitudes about extension's responsibility to adult farmer populations are reported in Table 11. Significant differences were observed among group means for responsibility to (1) young farmers ($P<.05$), (2) adult farmers ($P<.05$), and (3) early adopter farmers ($P<.01$). The Scheffe test revealed that county extension directors rated extension's responsibility to early adopter farmers significantly higher ($P<.05$) than area school agriculture instructors.

The adult farmer education groups saw extension's greatest responsibility to adult farmers first, early adopter farmers second, innovative farmers third, and average farmers fourth. These data substantiate the views of the 1970 Iowa Agriculture Task Force Report which indicated that extension should assume a major responsibility for providing education to innovators and early adopters.

Also, county extension directors and area extension specialists rated extension's responsibilities to adult farmer populations within one point of each other. This would indicate they saw the responsibility of their agency about the same.

Responsibility of vocational agriculture to cooperate with area schools in providing adult farmer education

Table 12 summarizes the data pertaining to vocational agriculture's responsibility to cooperate with area schools on adult farmer programs.

Table 11. Means, standard deviations and F ratios for attitudes of adult farmer education groups toward cooperative extension service's responsibility for providing education to farmer populations

Farmer Populations	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Young farmers (16-28 years of age)	6.64 / 2.25	6.60 / 2.20
2. Adult farmers (over 28 years of age)	7.75 / 1.78	7.73 / 1.68
3. Farm veterans (no age limitation)	4.93 / 2.85	4.98 / 2.93
4. Low income farmers	7.44 / 1.99	7.05 / 1.20
5. Late adopter farmers	7.43 / 2.10	7.08 / 2.38
6. Average farmers	7.46 / 1,89	7.13 / 1.95
7. Early adopter farmers	7.72 / 1.84	7.30 / 1.95
8. Innovative farmers	7.71 / 1.96	7.55 / 1.93

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors; group 4 = area extension specialists.

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Total Mean S.D.	F ratio
7.62 1.31	7.59 1.31	7.06 1.93	3.78*
8.40 .77	8.44 .75	8.04 1.43	3.31*
5.52 2.55	4.85 2.33	5.09 2.70	.55
7.68 1.46	7.74 1.23	7.46 1.81	1.14
7.32 1.63	7.37 1.47	7.31 1.95	.26
8.00 1.29	7.85 1.23	7.60 1.68	2.32
8.40 .97	8.11 1.19	7.88 1.62	3.91** (3>2*)
8.15 1.18	8.00 1.47	7.84 1.70	1.10

Table 12. Means, standard deviations and F ratios for attitudes of adult farmer education groups toward vocational agriculture's responsibility to cooperate with area schools on adult farmer programs

Programs	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Young farmer classes	5.07 / 2.45	6.08 / 2.28
2. Adult farmer classes	5.02 / 2.55	5.95 / 2.37
3. Farm veterans classes	4.05 / 2.76	6.13 / 2.81
4. Short courses (max. of 3 days)	4.33 / 2.59	5.95 / 2.53
5. Special programs (max. of 1 day)	5.16 / 2.59	6.18 / 2.72
6. Field demonstrations	5.29 / 2.46	5.45 / 2.54
7. Field trips	4.53 / 2.37	5.45 / 2.44
8. Laboratory instruction	4.60 / 2.35	5.45 / 2.71

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors; group 4 = area extension specialists.

**Significant at the .01 level of probability.

Group 3[a] Mean / S.D.	Group 4[a] Mean / S.D.	Total Mean / S.D.	F ratio
3.09 / 2.28	2.77 / 2.50	4.56 / 2.62	13.17** (2>4,3**)(1>3**)
2.87 / 2.03	3.19 / 2.19	4.37 / 2.62	16.30** (2>4,3**)(1>3**)
4.02 / 2.50	4.77 / 2.82	4.65 / 2.82	5.67** (2>1,3**)
2.68 / 2.00	3.15 / 2.15	4.10 / 2.65	15.02** (2>4,3**)(1>3**)
3.13 / 1.96	3.15 / 2.07	4.54 / 2.69	15.56** (2,1>4,3**)
3.26 / 2.08	3.54 / 2.56	4.50 / 2.58	9.56** (2,1>3**)
3.54 / 2.17	3.27 / 2.31	4.28 / 2.44	6.77** (2>3,4**)
3.18 / 2.07	3.77 / 2.45	4.29 / 2.52	7.13** (2>3**)

There were significant differences (P<.01) in the means among the four groups for each of the eight programs. The Scheffe test revealed that the area school agriculture instructors saw vocational agriculture's responsibility to cooperate with area schools in all programs significantly higher (P<.01) than one or more other groups. For programs regarding special programs and field demonstrations, area school agriculture instructors and vocational agriculture teachers saw vocational agriculture's responsibility to cooperate with area schools significantly greater (P<.01) than one or both extension groups.

Another important observation was that in every instance area school agriculture instructors rated vocational agriculture's responsibility to cooperate with area schools higher than did vocational agriculture teachers. This may mean that area school instructors saw a cooperative relationship between vocational agriculture and area schools as a greater asset than did vocational agriculture teachers.

Responsibility of vocational agriculture to cooperate with cooperative extension service in providing adult farmer education

Data pertaining to vocational agriculture's responsibility to cooperate with extension on adult farmer programs are shown in Table 13. Significant differences were observed among group means for adult farmer classes (P<.05), short courses (P<.05) and laboratory instruction (P<.01). A post hoc analysis revealed that area school agriculture instructors viewed vocational agriculture's responsibility to cooperate with extension on short courses significantly higher (P<.05) than county extension directors.

Table 13. Means, standard deviations and F ratios for attitudes of adult farmer education groups toward vocational agriculture's responsibility to cooperate with cooperative extension service on adult farmer programs

Programs	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Young farmer classes	6.62 / 2.18	6.35 / 2.17
2. Adult farmer classes	6.85 / 2.26	6.78 / 2.12
3. Farm veterans classes	3.93 / 2.77	4.80 / 2.85
4. Short courses (max. of 3 days)	5.78 / 2.65	6.90 / 2.46
5. Special programs (max of 1 day)	6.24 / 2.55	7.05 / 2.53
6. Field demonstrations	6.43 / 2.31	6.75 / 2.38
7. Field trips	5.19 / 2.50	5.63 / 2.28
8. Laboratory instruction	5.26 / 2.60	4.98 / 2.92

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors; group 4 = area extension specialists.

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Total Mean S.D.	F ratio
5.66 / 2.29	5.58 / 2.60	6.12 / 2.28	2.13
5.74 / 2.12	5.62 / 2.56	6.33 / 2.29	3.48*
3.89 / 2.33	3.65 / 2.43	4.08 / 2.63	1.38
5.20 / 2.67	5.50 / 2.73	5.85 / 2.67	3.23* (2>3*)
5.89 / 2.21	5.85 / 2.81	6.28 / 2.52	1.90
5.64 / 2.15	5.54 / 2.76	6.14 / 2.39	2.43
5.19 / 2.04	4.31 / 2.53	5.16 / 2.34	1.70
3.84 / 2.26	3.65 / 2.23	4.55 / 2.61	4.01**

Vocational agriculture teachers, county extension directors and area extension specialists viewed the vocational agriculture's responsibility to cooperate with extension service as above average in all programs except field trips, laboratory instruction and farm veterans classes. The finding regarding laboratory instruction was expected since the extension service does little in this type of instruction. Since extension and vocational agriculture have no funds specified for farm veterans programs, cooperation in this area is also expected to be low.

Responsibility of area schools to cooperate with vocational agriculture in providing adult farmer education

Table 14 shows that the group means for adult farmer classes, short courses, special programs, field demonstrations and field trips were significantly different ($P<.01$) with regard to attitudes toward area schools' responsibility to cooperate with vocational agriculture in adult farmer programs. The group mean ratings on young farmer classes were also significantly different ($P<.05$).

The post hoc analysis on the data for area schools' responsibility to cooperate with vocational agriculture on adult farmer programs revealed that:

1. Area school agriculture instructors rated resopnsibility to cooperate in providing young farmer classes significantly higher ($P<.05$) than county extension directors.

Table 14. Means, standard deviations and F ratios for attitudes of adult farmer education groups toward area schools' responsibility to cooperate with vocational agriculture on adult farmer programs

Programs	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Young farmer classes	5.41 / 2.61	6.13 / 2.50
2. Adult farmer classes	5.49 / 2.73	5.90 / 2.57
3. Farm veterans classes	4.34 / 3.11	5.18 / 2.71
4. Short courses (max. of 3 days)	4.84 / 2.67	5.10 / 2.50
5. Special programs (max of 1 day)	5.29 / 2.75	5.28 / 2.71
6. Field demonstrations	5.36 / 2.50	5.10 / 2.61
7. Field trips	5.02 / 2.53	5.15 / 2.73
8. Laboratory instruction	4.86 / 2.71	4.88 / 2.78

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors; group 4 = area extension specialists.

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Total Mean S.D.	F ratio
4.45 2.82	4.67 2.75	5.21 2.72	3.23* (2>3*)
4.48 2.67	3.93 2.29	5.07 2.69	4.31** (2>4*)
4.86 2.73	4.15 2.44	4.65 2.82	1.06
3.65 2.53	3.15 2.03	4.32 2.59	5.11** (2,1>4*)
3.84 2.31	3.52 2.23	4.62 2.65	5.20** (1>4*)
4.09 2.39	3.52 2.08	4.66 2.52	4.73** (1>4*)
3.86 2.36	3.30 2.15	4.47 2.56	4.80** (2,1>4*)
3.93 2.71	3.81 2.51	4.45 2.71	1.80

2. Area school agriculture instructors rated the responsibility to cooperate in providing adult farmer classes significantly higher ($P<.05$) than area extension specialists.

3. Area school agriculture instructors and vocational agriculture teachers rated the responsibility to cooperate in providing short courses and field trips significantly higher ($P<.05$) than area extension specialists.

4. Vocational agriculture instructors rated vocational agriculture's responsibility to cooperate in providing special programs and field demonstrations significantly higher ($P<.05$) than area extension specialists.

Responsibility of area schools to cooperate with cooperative extension service in providing adult farmer education

Seven of the eight program areas listed in Table 15 had group means that were significantly different. These program areas are (1) young farmer classes ($P<.01$), (2) adult farmer classes ($P<.05$), (3) farm veterans ($P<.05$), (4) short courses ($P<.05$), (5) field demonstrations ($P<.01$), (6) field trips ($P<.01$), and (7) laboratory instruction ($P<.01$). The Scheffe test revealed that area school agriculture instructors rated area schools' responsibility to cooperate with cooperative extension service significantly higher ($P<.01$) than area extension specialists on young farmer classes, field demonstration, and field trips and significantly higher ($P<.05$) than area extension specialists on adult farmer classes and farm veterans classes. The area

Table 15. Means, standard deviations and F ratios for attitudes of adult farmer education groups toward area schools' responsibility to cooperate with cooperative extension service on adult farmer programs

Programs	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Young farmer classes	5.98 / 2.48	6.30 / 2.55
2. Adult farmer classes	5.96 / 2.53	6.58 / 2.51
3. Farm veterans classes	4.75 / 2.68	5.78 / 2.77
4. Short courses (max. of 3 days)	6.00 / 2.67	6.63 / 2.38
5. Special programs (max of 1 day)	6.23 / 2.59	6.63 / 2.44
6. Field demonstrations	5.77 / 2.48	6.53 / 2.57
7. Field trips	5.29 / 2.60	6.03 / 2.70
8. Laboratory instruction	5.29 / 2.64	5.40 / 3.00

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors; group 4 = area extension specialists.

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Total Mean S.D.	F ratio
4.93 / 2.55	4.15 / 2.46	5.47 / 2.61	5.35** (2>4**)
5.33 / 2.58	4.63 / 2.56	5.72 / 2.61	3.67* (2>4*)
4.69 / 2.43	3.67 / 2.18	4.81 / 2.62	3.73* (2>4*)
5.25 / 2.75	4.89 / 2.94	5.77 / 2.72	3.03*
5.53 / 2.58	5.00 / 2.03	5.93 / 2.67	2.63
4.78 / 2.47	4.04 / 2.31	5.40 / 2.60	6.83** (2>4**)
4.31 / 2.41	3.37 / 2.77	4.88 / 2.66	7.18** (2>4**)
3.87 / 2.48	3.15 / 1.97	4.57 / 2.73	6.48** (2,1>4**)

school agriculture instructors and vocational agriculture teachers rated area schools' responsibility to cooperate with extension on laboratory instruction significantly higher ($P<.01$) than area extension specialists. These findings suggest that area school agriculture instructors perceived a greater need for area schools to cooperate with cooperative extension service on several adult farmer education programs than area extension specialists.

Responsibility of cooperative extension service to cooperate with vocational agriculture in providing adult farmer education

Data pertaining to cooperative extension service's responsibility to cooperate with vocational agriculture on adult farmer programs are reported in Table 16. In the four programs where differences were detected among groups, area extension specialists always had the lowest means. The post hoc analysis revealed that:

1. County extension directors, vocational agriculture teachers and area school agriculture instructors saw cooperative extension service's responsibility to cooperate with vocational agriculture significantly higher ($P<.05$) than area extension specialists.

2. Area extension specialists saw cooperative extension service's responsibility to cooperate with vocational agriculture on field trips significantly less ($P<.01$) than county extension directors and vocational agriculture.

3. The responsibility for cooperation was also indicated through laboratory instruction which indicated that vocational agriculture

Table 16. Means, standard deviations and F ratios for attitudes of adult farmer education groups toward cooperative extension service's responsibility to cooperate with vocational agriculture on adult farmer programs

Programs	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Young farmer classes	6.61 / 2.45	6.60 / 2.34
2. Adult farmer classes	6.84 / 2.37	6.80 / 2.22
3. Farm veterans classes	4.53 / 2.77	4.73 / 3.00
4. Short courses (max. of 3 days)	6.07 / 2.68	5.53 / 2.77
5. Special programs (max. of 1 day)	6.30 / 2.52	5.98 / 2.79
6. Field demonstrations	6.24 / 2.33	6.10 / 2.80
7. Field trips	5.89 / 2.45	5.40 / 2.97
8. Laboratory instruction	5.25 / 2.61	5.23 / 3.00

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors; group 4 = area extension specialists.

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Total Mean S.D.	F ratio
6.47 / 1.79	5.37 / 2.20	6.37 / 2.25	2.20
6.89 / 1.70	5.15 / 2.17	6.58 / 2.21	4.58** (3,1,2>4*)
4.02 / 2.53	3.31 / 2.05	4.25 / 2.69	1.81
5.31 / 2.41	4.35 / 2.30	5.46 / 2.62	2.72*
6.27 / 1.91	4.81 / 2.43	5.78 / 2.46	2.54
6.07 / 1.91	4.38 / 2.32	5.87 / 2.41	4.15** (1,2,3>4*)
5.60 / 1.91	3.38 / 1.83	5.30 / 2.50	7.03** (1,3>4**)
4.09 / 2.26	3.04 / 2.14	4.59 / 2.66	5.83** (1>4**)

teachers were significantly higher ($P<.01$) than area extension specialists.

A possible reason for the area extension specialist's low rating of cooperation between extension and vocational agriculture is the fact that area extension specialists work primarily with county extension directors and in turn the directors work more closely with the vocational agriculture teachers.

Responsibility of cooperative extension service to cooperate with area schools in providing adult farmer education

The means for responsibility of cooperative extension service to cooperate with area schools on adult farmer programs were significantly different ($P<.01$) on all programs among groups as indicated by Table 17. Further analysis with the Scheffe test showed that area school agriculture instructors saw extension service's responsibility significantly higher ($P<.01$) than county extension directors and area extension specialists in cooperating with area schools on young farmer classes, adult farmer classes, farm veterans classes, and short courses.

The Scheffe test also revealed that area school agriculture instructors and vocational agriculture teachers saw cooperative extension service's responsibility to cooperate with area schools on special programs, field demonstrations, field trips, and laboratory instruction significantly higher ($P<.01$) than county extension directors and area extension specialists.

The difference in attitudes between area school personnel and extension personnel may be due to perceived duplication of effort and

Table 17. Means, standard deviations and F ratios for attitudes of adult farmer education groups toward cooperative extension service's responsibility to cooperate with area schools on adult farmer programs

Programs	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Young farmer classes	5.67 / 2.51	7.35 / 2.11
2. Adult farmer classes	5.50 / 2.58	7.05 / 2.42
3. Farm veterans classes	5.19 / 2.83	6.95 / 2.34
4. Short courses (max of 3 days)	6.06 / 2.40	7.60 / 1.84
5. Special programs (max. of 1 day)	6.43 / 2.33	7.88 / 1.45
6. Field demonstrations	6.25 / 2.25	7.08 / 2.46
7. Field trips	5.83 / 2.49	6.25 / 2.71
8. Laboratory instruction	5.58 / 2.35	6.31 / 2.77

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors; group 4 = area extension specialists.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Total Mean S.D.	F ratio
4.35 / 2.54	3.81 / 2.42	5.41 / 2.72	15.74** (2>3,4**)
4.22 / 2.58	3.65 / 2.46	5.23 / 2.79	12.93** (2>3,4**)
4.80 / 2.58	4.27 / 2.52	5.37 / 2.75	7.28** (2>3,4**)
4.43 / 2.64	4.12 / 2.64	5.67 / 2.72	16.94** (2>3,4**)
4.76 / 2.66	4.15 / 2.82	5.95 / 2.70	18.81** (2.1>3,4**)
4.57 / 2.48	3.58 / 2.35	5.55 / 2.68	15.50** (2,1>4,3**)
3.96 / 2.18	2.85 / 1.83	4.94 / 2.68	15.83** (2.1>3,4**)
3.67 / 2.26	2.85 / 2.41	4.80 / 2.76	15.21** (2.1>3,4**)

lack of identification of the clientele each agency should be serving. The data in this table may suggest that area school personnel would like more cooperation on adult farmer programs from extension service and that extension service personnel may not see such cooperation as their responsibility.

Methods of determining adult farmer program needs used by agricultural education agencies

Advisory councils and adult farmer requests were the two most used methods to assess adult farmer education needs as indicated by means in Table 18. There was no significant difference among the group means for these two methods of determining need. There was a significant difference ($P<.01$) among groups on using other organizations, staff and administration, and specialists in determining program needs. The Scheffe test indicated area extension specialists and county extension directors use other organizations significantly more ($P<.01$) than vocational agriculture teachers. This finding may be due to the fact that a majority of extension service's function is to serve people through other organizations where vocational agriculture generally does not.

County extension directors, area extension specialists, and area school agriculture instructors used staff and administration significantly more ($P<.01$) than vocational agriculture teachers as revealed by the Scheffe test. Vocational agriculture teachers are generally in charge of the program at the local school with no tie to an agriculturally oriented administration. This is not the case for area

Table 18. Means, standard deviations and F ratios for methods of determining adult farmer education program needs used by adult farmer education groups

Methods of determining program needs	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Survey	4.93 / 2.52	5.62 / 2.05
2. Advisory council	7.49 / 2.28	7.10 / 2.59
3. Other organizations	4.24 / 2.26	5.10 / 2.22
4. Adult farmer requests	7.47 / 2.03	6.50 / 2.18
5. Staff and administration	3.80 / 2.40	6.28 / 2.42
6. Specialists	4.60 / 2.47	6.00 / 2.55

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors; group 4 = area extension specialists.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Total Mean S.D.	F ratio
5.45 / 2.33	5.00 / 1.73	5.24 / 2.25	.95
7.98 / 1.19	7.11 / 2.03	7.48 / 2.09	1.61
6.17 / 1.87	6.19 / 1.78	5.29 / 2.22	9.33** (4,3>1**)
7.15 / 1.64	6.89 / 1.42	7.06 / 1.90	2.17
7.15 / 1.35	6.37 / 1.55	5.73 / 2.45	25.96** (3,4,2>1**)
7.06 / 1.21	6.89 / 1.25	5.98 / 2.28	14.55** (3,4>1**)

schools and extension, thus staff and administration have more input into program offerings.

Vocational agriculture teachers use specialists significantly less ($P<.01$) than county extension directors and area school agriculture instructors as was detected by the post hoc test. This may be due to the fact that area schools and extension have subject matter specialists where vocational agriculture does not.

Sources of adult farmer instructional information used by agricultural education agencies

Large significant differences ($P<.01$) were detected among group means on all sources of instructional materials listed in Table 19. The group means revealed the amount each of the sources of instructional information is used. Extension service is rated the highest with self-developed following second and industry third. The large significant differences between groups is due primarily to the amount respondents used the instructional information from their own agency. This was not the case, however, with industry and publishing company sources. Area school agriculture instructors and vocational agriculture teachers used industry significantly more ($P<.01$) than county extension directors and area extension specialists as was revealed by the Scheffe test. This may be due to the extension service's direct relationship to the university experiment station. Most of extension's instructional material comes from the experiment station where area schools and vocational agriculture must rely more heavily on industry. Publishing companies are used significantly more ($P<.01$) by area school

Table 19. Means, standard deviations and F ratios of sources for instructional information for adult farmer education used by adult farmer education groups

Sources of instructional information	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Self-developed	5.17 / 2.18	7.03 / 2.08
2. Vocational agriculture	5.40 / 2.23	3.46 / 2.27
3. Area schools	3.75 / 2.33	6.28 / 2.41
4. Extension service	6.36 / 2.03	7.16 / 2.02
5. Industry	6.92 / 2.14	8.03 / 1.58
6. Publishing companies	4.32 / 2.37	5.82 / 2.44

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors; group 4 = area extension specialists.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Total Mean S.D.	F ratio
5.63 1.84	6.96 1.48	6.03 2.11	9.38** (2,4>1**)
2.11 1.42	1.52 .89	3.39 2.41	36.40** (1>2,3,4**) (2>4**)
1.61 1.11	1.52 .80	3.39 2.64	53.70** (2>1,3,4**) (1>3,4**)
8.80 .50	8.74 .53	7.62 1.88	26.54** (3,4>2,1**)
4.30 1.72	4.04 1.65	5.98 2.44	44.10** (2,1>3,4**)
3.41 1.64	3.15 1.83	4.23 2.33	11.93** (2>3,4**)

agriculture instructors than county extension directors as also revealed by the Scheffe test. This may also be due to extension's source of information through the experiment station.

Scheduling of programs by agricultural education agencies

The F ratio for methods used in scheduling adult farmer meetings as reported in Table 20 indicated a significant difference ($P<.01$) among groups for advisory council and resource personnel. Area extension specialists use advisory councils the least. This may be due to the fact that area extension specialists are primarily supportive staff to the county extension personnel who tend to use advisory councils more.

Post hoc analysis revealed resource personnel were also used significantly more ($P<.01$) in scheduling meetings by county extension directors than by area school agriculture instructors and vocational agriculture teachers. This may be attributed to extension's use of area and state specialists that must be scheduled well in advance of any particular program.

Evaluation of programs by agricultural education agencies

Data pertaining to methods used in evaluating programs are reported in Table 21. Significant differences were observed among group means for two of the five methods evaluated. Practices adopted were used more significantly ($P<.01$) by county extension directors than by vocational agriculture teachers as was indicated by the Scheffe test.

Table 20. Means, standard deviations and F ratios for methods of scheduling adult farmer meetings as used by adult farmer education groups

Methods of scheduling adult farmer meetings	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Instructors	6.52 / 2.13	6.24 / 2.68
2. Advisory council	6.62 / 2.40	5.71 / 2.85
3. Resource personnel	5.08 / 2.28	5.55 / 2.50
4. Participants	5.50 / 2.34	6.39 / 2.46
5. Season of the year	7.31 / 1.94	7.58 / 2.30

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors; group 4 = area extension specialists.

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Total Mean S.D.	F ratio
6.42 / 2.01	6.12 / 1.58	6.36 / 2.15	.26
5.87 / 2.18	5.04 / 2.07	5.94 / 2.44	2.82*
7.17 / 1.70	6.22 / 1.69	5.96 / 2.25	8.87** (3>2,1**)
6.41 / 1.82	5.74 / 1.56	6.00 / 2.14	2.15
7.87 / 1.39	7.93 / .92	7.63 / 1.77	1.12

Table 21. Means, standard deviations and F ratios for methods of evaluating adult farmer programs as used by adult farmer education groups

Methods of evaluating adult farmer programs	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Number in attendance	6.50 / 1.88	6.92 / 1.84
2. Observation by instructor	6.72 / 1.87	6.24 / 1.79
3. Evaluation form filled out by participants	4.47 / 2.68	5.89 / 2.50
4. Advisory council	6.47 / 2.30	5.66 / 2.78
5. Practices adopted	5.11 / 2.37	5.71 / 2.64

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors; group 4 = area extension specialists.

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Total Mean S.D.	F ratio
7.02 / 1.42	6.41 / 1.39	6.73 / 1.68	1.30
6.89 / 1.66	6.93 / 1.21	6.69 / 1.71	1.29
5.15 / 2.01	4.59 / 1.74	5.01 / 2.37	3.13* (2>1*)
6.13 / 2.01	5.48 / 2.06	6.02 / 2.32	1.51
6.72 / 1.82	6.11 / 1.53	5.87 / 2.25	4.63** (3>1**)

This may be due to the higher amount of on the farm advising done by county extension directors as compared with vocational agriculture teachers.

The post hoc analysis further indicated area schools were using the evaluation form filled out by participants significantly more ($P<.01$) than vocational agriculture in evaluating adult farmer programs. This may be due to their interest in building quality adult farmer programs as well as for accountability for reimbursement purposes from the State Department of Public Instruction.

Counting participants when more than one agency is sponsoring adult farmer programs

Significant differences ($P<.05$ or higher) were observed among groups for all methods of counting participants as indicated in Table 22. Area extension specialists and county extension directors rated the agency providing the instruction as a method of counting participants significantly higher ($P<.01$) than vocational agriculture teachers and area school agriculture instructors as was indicated by a post hoc analysis. On the other hand, area school agriculture instructors rated the agency coordinating the educational program higher than the other groups.

The Scheffe test showed vocational agriculture teachers and area school agriculture instructors used this method of counting participants significantly more ($P<.01$) than county extension directors and area extension specialists. The above difference could be one of the major problems in interagency cooperation.

Table 22. Means, standard deviations and F ratios for methods of counting participants when more than one agency is sponsoring an adult farmer program as used by adult farmer education groups

Methods of counting participants when more than one agency is sponsoring an adult farmer program	Group 1[a] Mean S.D.	Group 2[a] Mean S.D.
1. Agency providing instruction	5.68 / 2.27	5.63 / 2.79
2. Agency coordinating educational program	6.06 / 2.35	6.86 / 2.41
3. Agency providing the facility	4.87 / 2.60	4.81 / 2.96

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors; group 4 = area extension specialists.

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Total Mean S.D.	F ratio
7.67 1.80	8.19 .83	6.65 2.36	14.78** (4,3>1,2**)
5.42 2.54	5.11 2.62	5.89 2.52	3.32*
2.71 2.32	2.30 2.25	3.81 2.78	10.69** (1,2>3,4**)

Traditionally funding has been tied to number of participants being instructed. Extension service still saw this method as being the most valid way to count participants. Thus, they felt the agency providing instruction should count the participants. On the other hand, area schools and vocational agriculture saw the agency coordinating and providing the facility for the educational programs as being the most important in determining the agency to count the participants. This difference in attitudes may stem back to the educational needs of the adult farmers. The rapid change in agricultural technology coupled with the farmer's desire to learn, make current agricultural research a must in instructing adult farmers.

The cooperative extension service has a link back to a research base from the university experiment station. With this base they can do their own coordinating of educational programs and use very few out-of-agency resource people. On the other hand, vocational agriculture and area schools do not enjoy this relationship. This, many times, forces them to resort to the role of a facilitator rather than teacher. The traditional counting procedure then does not account for their efforts in lining up extension resource personnel as well as the clientele to be taught. This could be the reason vocational agriculture and area schools rate the agency coordinating and providing the facility for the educational programs higher than the agency providing instruction in counting the participants for accountability purposes.

Financing programs by agricultural education agencies

Data pertaining to attitudes toward methods of financing educational programs are reported in Table 23. All groups saw the participants paying for educational materials only as a low priority, whereas there was a significant difference ($P<.01$) among group means regarding the participants paying no fee and the participants paying a tuition fee. The post hoc analysis showed area school agriculture instructors were significantly lower ($P<.01$) than vocational agriculture teachers, county extension directors, and area extension specialists in participants paying no fee; whereas on the other hand, the same analysis showed area school agriculture instructors rated participants paying a tuition fee significantly higher ($P<.01$) than vocational agriculture teachers, county extension directors, and area extension specialists.

The difference between area school agriculture instructors and the other groups may be due to the legislative financing of the agencies. The cooperative extension service is charged with the responsibility of educating the adult farmer by the state and federal legislatures. With this charge comes funds to carry out the responsibility generally free to the participants. Vocational agriculture and area schools receive very little financial assistance for adult farmer programs. The area school policy and overhead costs force the area schools to charge a tuition for most educational programs.

Vocational agriculture teachers may feel a tuition is not necessary since their overhead is generally low and they do receive limited funds for adult farmer programs from the State Department of Public Instruction.

Table 23. Means, standard deviations and F ratios for methods of financing adult farmer educational programs as used by adult farmer education groups

Methods of financing adult farmer education programs	Group 1[a] Mean S.D.	Group 2[a] Mean S.D.
1. Participants pay no fee	5.53 3.61	3.41 2.84
2. Participants pay for educational materials only	3.64 2.82	3.94 2.68
3. Participants pay a tuition fee	2.70 2.74	7.32 2.28

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors; group 4 = area extension specialists.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Total Mean S.D.	F ratio
6.89 2.39	7.69 1.29	5.76 3.19	14.94** (4,3,1>2**)
4.93 2.31	4.35 2.35	4.19 2.61	2.22
2.02 2.05	1.69 1.01	3.43 3.11	51.20** (2>1,3,4**)

Type of cooperation needed among agricultural education agencies

A significant difference ($P<.01$) was observed among groups on need for interagency committees to determine programs, instruction, and coordination as indicated in Table 24. The Scheffe test revealed area school agriculture instructors felt the need for interagency committees to determine programs, instruction and coordination significantly higher ($P<.01$) than area extension specialists.

The above difference may be due to the area schools' dependence on area extension specialists for programs, whereas the extension specialists can offer their educational programs more independently. All groups felt interagency mail communications of program offerings and interagency meetings to discuss programs and program areas were beneficial forms of cooperation.

Responsibilities of Agricultural Education Agencies as Perceived by Adult Farmer Educators with Different Agency Experience

The data used for this section of the findings are the same data used in the previous section. However, in this section the respondents were grouped by types of agricultural education agency experience. All respondents fit into one of the following experience groups:

1. Vocational agriculture experience only.
2. Area school experience only.
3. Extension service experience only.
4. Vocational agriculture and area school experience.
5. Vocational agriculture and extension service experience.

Table 24. Means, standard deviations and F ratios for the degree of cooperation that could be achieved among agencies in providing adult farmer education as perceived by adult farmer education groups

Degree of Cooperation that Could be Used Among Agencies	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Interagency mail communications of program offerings	6.61 / 2.45	7.54 / 2.04
2. Interagency meetings to discuss programs and program areas	6.93 / 2.14	7.31 / 1.79
3. Interagency committees to determine programs, instruction and coordination	6.22 / 2.52	6.56 / 2.79

[a]Group 1 = vocational agriculture teachers; group 2 = area school agriculture instructors; group 3 = county extension directors; group 4 = area extension specialists.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Total Mean S.D.	F ratio
6.93 2.29	6.78 1.83	6.95 2.23	1.39
6.63 2.12	6.52 1.67	6.87 1.99	1.15
5.17 2.65	4.26 2.23	5.69 2.68	5.65** (2>4**)

6. Area school and extension service experience
7. Vocational agriculture, area school and extension service experience.

Group 6, area school and extension service experience, and group 7, vocational agriculture, area school and extension service experience, had very small numbers. For this reason groups six and seven were not entered into the analysis of variance; however, means and standard deviations are reported for these groups in the tables.

This section reports findings related to the responsibilities of agricultural education agencies serving adult farmers in Iowa as perceived by adult farmer educators with different agency experiences. Responses were gathered using a nine-point scale with one being "no responsibility" and nine being "high responsibility".

The results when the data were analyzed according to types of agency experience of respondents will be presented as follows in this section:

1. Responsibilities of agricultural education agencies:
   a. Formulation and delivery of adult farmer education.
   b. Methods of instruction used in adult farmer education.
   c. Adult farmer populations served.
2. Responsibilities of interagency cooperation in providing adult farmer education.

Responsibilities of vocational agriculture formulation and delivery of adult farmer education

Data pertaining to vocational agriculture's responsibility for adult farmer education as perceived by agricultural educators with different agency experiences are reported in Table 25. A significant difference was detected among groups on responsibility for agricultural instruction ($P<.01$) and disseminating of materials ($P<.05$).

The Scheffe test revealed that personnel with vocational agriculture and area school experience and personnel with vocational agriculture experience only rated vocational agriculture's responsibility for agricultural instruction significantly higher ($P<.01$) than personnel with extension experience only.

The Scheffe test also indicated that personnel with vocational agriculture experience saw vocational agriculture's responsibility to disseminate education materials significantly higher ($P<.05$) than personnel with area school experience.

It is interesting to note that personnel with vocational agriculture and area school experiences rated vocational agriculture's responsibility to agricultural instruction higher than personnel with vocational agriculture experience only, particularly since the respondents (personnel) with vocational agriculture and area school experience were generally employed in area schools at the time of the survey (Table 2).

Table 25. Means, standard deviations and F ratios for attitudes of adult farmer education groups with different agency experience toward vocational agriculture's responsibility for adult farmer education

Responsibility	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Agricultural research	2.57 / 2.41	1.35 / 0.88
2. Formulation of research reports	2.13 / 1.99	1.30 / 0.92
3. Development of instructional materials	5.34 / 2.59	3.95 / 1.84
4. Agricultural instruction	7.61 / 2.03	7.20 / 2.59
5. Dissemination of educational materials	5.56 / 2.60	3.55 / 2.33

[a]Group 1 = personnel with vocational agriculture experience only; group 2 = personnel with area school experience only; group 3 = personnel with extension service experience only; group 4 = personnel with vocational agriculture and area school experience; group 5 = personnel with vocational agriculture and extension service experience; group 6 = personnel with area school and extension service experience (was not entered into the analysis of variance because of low numbers); group 7 = personnel with vocational agriculture, area school and extension service experience (was not entered into the analysis of variance because of low numbers).

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean / S.D.	Group 4[a] Mean / S.D.	Group 5[a] Mean / S.D.	Group 6[a] Mean / S.D.	Group 7[a] Mean / S.D.	Total Mean / S.D.	F ratio
1.82 / 1.39	1.94 / 1.52	2.34 / 1.64	3.50 / 2.12	1.50 / 1.22	2.04 / 1.78	2.13
1.40 / 0.75	1.88 / 1.45	1.77 / 1.31	1.50 / 0.71	1.00 / 0.00	1.70 / 1.40	2.31
4.89 / 2.14	5.41 / 2.18	5.26 / 2.07	5.00 / 0.00	5.00 / 2.45	5.02 / 2.27	1.57
6.04 / 2.04	8.18 / 1.42	6.78 / 2.34	8.50 / 0.71	6.50 / 2.17	6.96 / 2.20	5.55** (4,1>3**)
4.72 / 1.95	4.65 / 2.09	5.09 / 2.24	4.50 / 0.71	5.50 / 2.74	4.87 / 2.32	3.03* (1>2*)

Responsibilities of area schools for formulation and delivery of adult farmer education

Significant differences (P<.01) were observed among group means for all categories of area schools' responsibility to adult farmer education as reported in Table 26. The post hoc analysis revealed that group 4 (personnel with vocational agriculture and extension experience) rated area schools' responsibility to agricultural research significantly higher (P<.01) than one or more other groups for all responsibilities studied.

These findings may indicate that the vocational agriculture background had an influence on the area schools' responsibility to agricultural research. This finding is substantiated by a group mean of 3.00 for personnel with area school experience only as compared with a group mean of 5.00 for personnel with vocational agriculture and area school experience.

The Scheffe test indicated that both vocational agriculture personnel and personnel with vocational agriculture and area school experience rated area schools' responsibility to formulate reports significantly higher (P<.05) than did extension personnel.

Personnel with vocational agriculture and area school experience rated area schools' responsibility to develop and disseminate educational materials significantly higher (P<.01) than personnel with extension experience only and those personnel with vocational agriculture and extension experience. The above observation might indicate extension personnel with vocational agriculture experience saw area

Table 26. Means, standard deviations and F ratios for attitudes of adult farmer education groups with different agency experience toward area school's responsibility for adult farmer education

Responsibility	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Agricultural research	3.89 / 1.84	3.00 / 1.52
2. Formulation of research reports	3.72 / 2.10	2.90 / 1.55
3. Development of instructional materials	6.13 / 1.93	6.11 / 2.00
4. Agricultural instruction	6.81 / 2.30	8.50 / 0.89
5. Dissemination of educational materials	5.35 / 2.30	5.20 / 2.48

[a]Group 1 = personnel with vocational agriculture experience only; group 2 = personnel with area school experience only; group 3 = personnel with extension service experience only; group 4 = personnel with vocational agriculture and area school experience; group 5 = personnel with vocational agriculture and extension service experience; group 6 = personnel with area school and extension (was not entered into the analysis of variance because of low numbers); group 7 = personnel with vocational agriculture, area school and extension service experience (was not entered into the analysis of variance because of low numbers).

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Group 5[a] Mean S.D.	Group 6[a] Mean S.D.	Group 7[a] Mean S.D.	Total Mean S.D.	F ratio
2.58 1.84	5.00 2.37	2.91 1.85	5.00 0.00	2.83 2.04	3.31 2.01	7.19** (4>3**)
2.35 1.67	4.24 2.51	2.45 1.68	3.00 2.83	2.00 1.67	3.02 1.98	5.75** (4,1>3*)
5.04 2.16	7.29 1.36	4.26 2.20	6.50 0.71	4.17 2.40	5.60 2.17	7.78** (4>3,5**)
4.65 2.51	8.35 1.00	5.30 2.75	8.50 0.71	5.50 3.27	6.21 2.66	17.90** (2,4>5,3**) (1>3**)
4.18 1.91	6.88 1.87	4.14 2.27	4.50 0.71	4.83 2.71	4.92 2.29	6.56** (4>3,5**)

schools' responsibility to develop and disseminate educational materials less than personnel with area school and vocational agriculture experience.

The post hoc analysis of agricultural instruction by area schools indicated that personnel with area school experience and personnel with both vocational agriculture and area school experience saw area schools' responsibility to agricultural instruction for adult farmers significantly higher ($P<.01$) than personnel with vocational agriculture and extension experience and personnel with extension experience only. This same analysis also showed personnel with only vocational agriculture experience saw the area schools' responsibility to agriculture instruction significantly higher ($P<.01$) than personnel with extension experience only.

The above observations indicate that those personnel with vocational agriculture experience and/or area school experience saw the area schools' responsibility to agricultural instruction higher than personnel with extension and personnel with vocational agriculture and extension experience. This situation may be due to the current employment status of the individuals responding. If this were the case, another way to look at the finding is that the extension service personnel saw the area schools' responsibility to agricultural instruction of adult farmers less than area school personnel.

Responsibilities of cooperative extension service for formulation and delivery of adult farmer education

Table 27 reports a significant difference (P<.05) among groups for the responsibility of cooperative extension service for formulation of research reports and a significant difference (P<.01) among groups for development of instructional materials and agricultural instruction for adult farmer education.

The Scheffe test also showed that the means for personnel with vocational agriculture and extension experience and personnel with extension experience only were significantly higher (P<.05) than personnel with vocational agriculture and area school experience for extension's responsibility in the development of instructional materials (P<.05) and agricultural instruction (P<.01). An examination of the group means revealed that personnel with experience in area schools only gave ratings of 1.5 points higher than the rating given by personnel with experience in vocational agriculture and area schools for both development of educational materials and agricultural instruction. This may indicate that the difference detected by the above test could be due to the influence of vocational agriculture experience rather than the area school experience.

Responsibilities of vocational agriculture for methods of instruction used in adult farmer education

Significant differences (P .01) were observed among group means for vocational agriculture's responsibility for on the farm advising, short courses, special programs, field trips and systematic instruction

Table 27. Means, standard deviations and F ratios for attitudes of adult farmer education groups with different agency experience toward cooperative extension service's responsibility for adult farmer education.

Responsibility	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Agricultural research	8.06 / 1.90	7.63 / 2.73
2. Formulation of research reports	8.40 / 1.73	8.10 / 1.74
3. Development of instructional materials	7.46 / 2.16	7.89 / 1.49
4. Agricultural instruction	7.19 / 2.17	7.68 / 1.92
5. Dissemination of educational materials	8.10 / 1.97	8.35 / 1.31

[a]Group 1 = personnel with vocational agriculture experience only; group 2 = personnel with area school experience only; group 3 = personnel with extension service experience only; group 4 = personnel with vocational agriculture and area school experience; group 5 = personnel with vocational agriculture and extension service experience; group 6 = personnel with area school and extension service experience (was not entered into the analysis of variance because of low numbers); group 7 = personnel with vocational agriculture, area school and extension service experience (was not entered into the analysis of variance because of low numbers).

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Group 5[a] Mean S.D.	Group 6[a] Mean S.D.	Group 7[a] Mean S.D.	Total Mean S.D.	F ratio
7.48	8.41	8.00	9.00	8.50	7.84	1.02
2.30	0.87	1.35	0.00	0.55	2.03	
7.32	8.44	8.48	9.00	8.83	8.00	2.92*
2.44	1.09	1.24	0.00	0.41	1.96	
8.12	6.18	8.17	8.00	8.17	7.71	4.97**
1.33	2.40	0.98	1.41	0.98	1.79	(5,3>4*)
8.50	6.12	8.57	8.50	8.33	7.79	9.32**
0.96	2.55	0.95	0.71	1.21	1.87	(5,3>4**)
8.62	8.18	8.78	9.00	8.67	8.42	1.59
0.72	1.42	0.60	0.00	0.82	1.34	

on a variety of subjects as methods of instruction as is reported in Table 28. A significant difference ($P<.05$) was also revealed among the means for vocational agriculture's responsibility to field demonstrations as a method of instruction.

The post hoc analysis of on the farm advising as a responsibility of vocational agriculture indicated that personnel with vocational agriculture and area school experience and personnel with vocational agriculture experience only saw vocational agriculture's responsibility significantly higher ($P<.01$) than personnel with extension experience only. Vocational agriculture has traditionally handled on the farm advising of vocational agriculture students. These findings may indicate that personnel with vocational agriculture experience saw this type of on the farm advising growing into adult farmer on the farm advising as well.

A significant difference was detected between groups (groups four and one higher than three) for short courses as a method; however, all means were very low, indicating little responsibility by vocational agriculture for this method of instruction.

Personnel with vocational agriculture experience only rated vocational agriculture's responsibility to special programs as a method significantly higher ($P<.05$) than personnel with area school and extension experience as was detected by the post hoc analysis. The reasoning behind this finding may be due to the use of special one-day programs in the vocational agriculture young and adult farmer programs.

Table 28. Means, standard deviations and F ratios for attitudes of adult farmer education groups with different agency experience toward vocational agriculture's responsibility for methods of instruction used in adult farmer education

Methods of instruction	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. On the farm advising	6.08 / 2.63	6.00 / 2.64
2. Short courses (max. of 3 days)	3.31 / 2.43	2.15 / 1.23
3. Special programs (max. of 1 day)	5.00 / 2.67	2.90 / 1.83
4. Field demonstrations	4.86 / 2.24	3.90 / 2.10
5. Field trips	6.36 / 2.36	5.37 / 3.00
6. Systematic instruction -- one subject (formal classes)	5.65 / 2.67	4.58 / 2.99
7. Systematic instruction--variety of subjects (one night a week or month)	7.27 / 2.47	4.75 / 2.90
8. Laboratory instruction	5.57 / 2.55	5.21 / 2.99

[a]Group 1 = personnel with vocational agriculture experience only; group 2 = personnel with area school experience only; group 3 = personnel with extension service experience only; group 4 = personnel with vocational agriculture and area school experience; group 5 = personnel with vocational agriculture and extension service experience; group 6 = Personnel with area school and extension service experience (was not entered into the analysis of variance because of low numbers); group 7 = personnel with vocational agriculture, area school and extension service experience (was not entered into the analysis of variance because of low numbers).

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Group 5[a] Mean S.D.	Group 6[a] Mean S.D.	Group 7[a] Mean S.D.	Total Mean S.D.	F ratio
4.40 1.94	7.35 1.50	5.57 2.04	3.50 0.71	5.00 1.26	5.55 2.40	7.56** (4,1>3**)
2.09 1.29	3.76 2.14	2.86 1.93	3.00 0.00	3.00 2.12	2.73 1.95	4.72** (4,1>3*)
3.33 1.68	4.50 2.56	4.71 2.57	2.50 0.71	3.80 3.11	4.06 2.36	5.63** (1>3,2*)
4.86 1.89	6.12 2.00	5.13 2.20	2.00 1.41	4.50 2.17	4.91 2.12	2.70* (4>2*)
5.09 2.14	7.94 1.43	6.45 2.09	3.00 2.83	7.33 1.63	5.98 2.40	6.42** (4>3**)
5.53 2.52	6.47 2.92	6.36 2.52	4.50 0.71	5.83 2.32	5.67 2.68	1.59
6.33 1.69	6.76 2.14	6.90 2.36	3.50 0.71	5.83 1.94	6.53 2.35	4.76** (1>2**)
4.29 2.49	5.76 2.61	5.39 2.37	2.00 1.41	4.00 2.19	5.07 2.60	2.18

Personnel without vocational agriculture experience may not be aware of this function.

Personnel with vocational agriculture and area school experience rated field demonstrations significantly higher ($P<.05$) than did personnel with area school experience as was indicated by the Scheffe test. This finding might indicate that personnel with vocational agriculture experience gained an understanding of field demonstrations at the high school level not experienced by personnel with area school experience only.

The Scheffe test further revealed that personnel with extension experience only rated vocational agriculture's responsibility to field trips significantly lower ($P<.01$) than personnel with vocational agriculture and area school experience.

The post hoc analysis indicated that personnel with vocational agriculture experience only saw vocational agriculture's responsibility to systematic instruction on a variety of subjects significantly higher ($P<.01$) than personnel with area school experience only. This might indicate that area schools feel this is more their responsibility than vocational agriculture's.

Responsibilities of area schools for methods of instruction used in adult farmer education

Table 29 reveals significant differences ($P<.01$) among means for all groups regarding area schools' responsibility to all methods of instruction except systematic instruction on one subject.

Table 29. Means, standard deviations and F ratios for attitudes of adult farmer education groups with different agency experience toward area school's responsibility for methods of instruction used in adult farmer education

Methods of instruction	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. On the farm advising	3.47 / 2.15	5.75 / 1.97
2. Short courses (max of 3 days)	5.82 / 2.48	7.10 / 1.59
3. Special programs (max. of 1 day)	6.16 / 2.37	7.35 / 1.79
4. Field demonstrations	5.88 / 2.07	5.75 / 2.73
5. Field trips	5.00 / 2.48	7.00 / 2.19
6. Systematic instruction--one subject (formal classes)	6.44 / 2.66	7.78 / 1.80
7. Systematic instruction--variety of subjects (one night a week or month)	4.83 / 2.88	6.85 / 2.64
8. Laboratory instruction	5.88 / 2.57	7.11 / 2.66

[a]Group 1 = personnel with vocational agriculture experience only; group 2 = personnel with area school experience only; group 3 = personnel with extension service experience only; group 4 = personnel with vocational agriculture and area school experience; group 5 = personnel with vocational agriculture and extension service experience; group 6 = personnel with area school and extension service experience (was not entered into the analysis of variance because of low numbers); group 7 = Personnel with vocational agriculture, area school and extension service experience (was not entered into the analysis of variance because of low numbers).

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Group 5[a] Mean S.D.	Group 6[a] Mean S.D.	Group 7[a] Mean S.D.	Total Mean S.D.	F ratio
2.45 1.67	6.06 1.08	2.83 2.33	3.00 1.41	3.67 2.80	3.56 2.37	18.06** (4,2>1,5,3**)
3.24 2.15	7.24 1.64	3.64 2.26	7.00 1.41	4.33 2.73	4.93 2.68	22.58** (4,2,1>5,3**)
3.55 1.98	7.00 1.97	4.15 2.56	7.50 0.71	4.20 2.77	5.29 2.65	21.18** (4,2>5,3**) (1>3**)
4.05 2.26	6.88 1.96	4.05 2.21	4.00 4.24	4.33 2.34	5.09 2.44	8.94** (4>3,5**)
4.00 2.51	7.06 2.33	4.10 2.45	4.00 4.24	4.33 2.80	4.98 2.68	9.33** (4,2>5,3**)
6.21 2.72	7.65 1.69	6.00 2.93	7.50 0.71	5.33 3.50	6.56 2.59	2.08
4.09 2.33	6.56 2.50	4.70 2.81	5.50 2.12	5.33 3.20	4.99 2.77	5.68** (2>3**)
5.09 2.72	7.24 2.36	4.96 2.84	4.00 4.24	4.83 3.06	5.75 2.75	2.02**

The Scheffe test revealed that personnel with vocational agriculture and area school experience and personnel with area school experience only saw area schools' responsibility for on the farm advising significantly higher ($P<.01$) than personnel with vocational agriculture experience only, personnel with vocational agriculture and extension experience and personnel with extension experience only.

The post hoc analysis also revealed that personnel with vocational agriculture and area school experience, personnel with area school experience only, and personnel with vocational agriculture experience only rated area schools' responsibility to short courses significantly higher ($P<.01$) than personnel with vocational agriculture and extension experience and personnel with extension experience only. The group means indicated that personnel with vocational agriculture and area school experience saw area schools' responsibility higher than personnel with area school responsibility only.

Personnel with vocational agriculture and area school experience and personnel with area school experiences only rated area schools' responsibility for special one-day programs as a method significantly higher ($P<.01$) than personnel with vocational agriculture and extension experience and personnel with extension experience only. The Scheffe test further detected that the mean for personnel with vocational agriculture experience only was significantly higher ($P<.01$) than personnel with extension service experience only for special one-day programs.

The rating for personnel with vocational agriculture and area school experience was significantly higher ($P<.01$) for area schools' responsibility to field demonstrations than personnel with extension service experience only and personnel with vocational agriculture and extension service experience.

Individuals with vocational agriculture and extension service experience rated area schools' responsibilities for field trips as a method significantly lower ($P<.01$) than individuals with vocational agriculture and area school experience and individuals with area school experience only.

Further application of the Scheffe test revealed that personnel with area school experience only rated area schools' responsibility for systematic instruction on a variety of subjects as a method significantly higher than personnel with extension service experience only. This finding indicated personnel with area school experience only had a greater feeling of responsibility to this method than other groups. This is understandable since these people may not have used the other methods of instruction.

Responsibilities of cooperative extension service for methods of instruction used in adult farmer education

Cooperative extension service's responsibility to methods of instruction as perceived by agricultural education personnel with different agency experience are reported in Table 30. A significant difference ($P<.01$) among group means was revealed for on the farm

Table 30. Means, standard deviations and F ratios for attitudes of adult farmer education groups with different agency experience toward cooperative extension service's responsibility for methods of instruction used in adult farmer education

Methods of instruction	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. On the farm advising	6.96 / 2.57	8.35 / 1.14
2. Short courses (max of 3 days)	8.27 / 1.80	7.95 / 1.36
3. Special programs (max of 1 day)	8.06 / 1.84	8.65 / 0.81
4. Field demonstrations	7.65 / 1.98	7.70 / 1.66
5. Field trips	5.96 / 2.64	7.05 / 2.07
6. Systematic instruction--one subject (formal classes)	5.71 / 2.89	6.33 / 1.82
7. Systematic instruction--variety of subjects (one night a week or month)	6.00 / 2.95	6.16 / 2.09
8. Laboratory instruction	5.06 / 2.79	5.55 / 2.54

[a]Group 1 = personnel with vocational agriculture experience only; group 2 = personnel with area school experience only; group 3 = personnel with extension service experience only; group 4 = personnel with vocational agriculture and area school experience; group 5 = personnel with vocational agriculture and extension service experience; group 6 = personnel with area school and extension service experience (was not entered into the analysis of variance because of low numbers); group 7 = personnel with vocational agriculture, area school and extension service experience (was not entered into the analysis of variance because of low numbers).

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean / S.D.	Group 4[a] Mean / S.D.	Group 5[a] Mean / S.D.	Group 6[a] Mean / S.D.	Group 7[a] Mean / S.D.	Total Mean / S.D.	F ratio
8.14 / 1.19	5.94 / 2.79	8.13 / 1.25	8.50 / 0.71	8.50 / 0.84	5.59 / 2.03	7.05** (2,3>4**)
8.42 / 1.10	7.71 / 1.86	8.13 / 1.25	6.50 / 3.54	8.00 / 1.10	8.21 / 1.47	1.01
8.75 / 0.58	8.44 / 0.81	8.48 / 0.90	8.50 / 0.71	8.67 / 0.52	8.47 / 1.19	2.43*
8.03 / 1.23	7.12 / 2.60	7.78 / 1.51	9.00 / 0.00	7.67 / 1.37	7.75 / 1.73	1.02
6.56 / 2.20	5.47 / 2.90	6.64 / 1.79	8.50 / 0.71	6.67 / 2.07	6.34 / 2.37	1.55
4.80 / 2.38	4.88 / 3.24	5.35 / 2.71	4.00 / 2.83	5.83 / 2.64	5.33 / 2.65	1.59
5.64 / 2.38	6.18 / 2.83	6.14 / 2.65	7.00 / 1.41	6.50 / 1.38	5.93 / 2.59	0.30
3.57 / 2.06	4.53 / 3.12	5.39 / 2.29	1.50 / 0.71	5.50 / 2.43	4.59 / 2.59	4.19**

advising and laboratory instruction. A further significant difference ($P<.05$) among means was also noted for special programs.

The post hoc analysis showed that personnel with area school experience only and personnel with extension service experience only rated extension's responsibility to on the farm advising as a method of instruction significantly higher ($P<.01$) than personnel with vocational agriculture and area school experience.

Responsibilities of vocational agriculture to farmer populations for adult farmer education

Data pertaining to vocational agriculture's responsibility to adult farmer populations are regarded in Table 31. A significant difference ($P<.01$) among group means was observed for adult farmers, low income farmers, average farmers, early adopter farmers, and innovative farmers. A significant difference ($P<.05$) was also detected among group means for late adopter farmers.

A closer analysis with the Scheffe test revealed personnel with vocational agriculture experience only rated vocational agriculture's responsibility to adult farmers significantly higher ($P<.01$) than personnel with extension service experience only and personnel with area school experience only. Personnel with vocational agriculture experience only also rated vocational agriculture's responsibility to average farmers significantly higher ($P<.05$) than personnel with extension service experience only and personnel with area school experience only.

Table 31. Means, standard deviations and F ratios for attitudes of adult farmer education groups with different agency experience toward vocational agriculture's responsibility to adult farmer populations for adult farmer education

Farmer populations	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Young farmers (16-28 years of age)	7.06 / 2.17	6.25 / 2.43
2. Adult farmers (over 28 years of age)	6.86 / 2.27	4.20 / 2.82
3. Farm veterans (no age limitation)	3.28 / 2.45	2.45 / 2.24
4. Low income farmers	6.16 / 2.68	3.95 / 2.82
5. Late adopter farmers	5.96 / 2.65	4.28 / 3.18
6. Average farmers	6.36 / 2.34	4.35 / 2.81
7. Early adopter farmers	5.59 / 2.52	4.00 / 2.73
8. Innovative farmers	5.28 / 2.47	3.70 / 2.89

[a]Group 1 = personnel with vocational agriculture experience only; group 2 = personnel with area school experience only, group 3 = personnel with extension service experience only; group 4 = personnel with vocational agriculture and area school experience; group 5 = personnel with vocational agriculture and extension service experience; group 6 = personnel with area school and extension service experience (was not entered into the analysis of variance because of low numbers); group 7 = personnel with vocational agriculture, area school and extension service experience (was not entered into the analysis of variance because of low numbers).

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Group 5[a] Mean S.D.	Group 6[a] Mean S.D.	Group 7[a] Mean S.D.	Total Mean S.D.	F ratio
6.40 1.76	6.88 1.80	6.35 2.06	6.50 2.12	5.67 2.66	6.62 2.02	1.12
4.25 1.74	6.41 2.29	5.39 1.92	3.00 1.41	4.67 1.97	5.41 2.41	12.42** (1>3,2**)
3.25 1.96	2.71 2.28	4.22 2.63	2.00 0.00	2.00 2.45	3.24 2.30	1.90
4.61 2.20	6.41 2.03	5.00 2.53	2.00 0.00	3.83 2.71	5.23 2.58	5.06**
4.81 2.17	6.00 1.90	5.64 2.38	2.00 0.00	4.20 3.03	5.32 2.52	2.80*
4.77 1.82	6.06 1.95	5.13 2.46	3.00 1.41	4.17 2.71	5.38 2.32	5.06** (1>3,2*)
3.95 1.78	5.24 2.17	5.09 2.37	2.00 0.00	4.17 2.79	4.73 2.35	4.36**
3.72 1.74	5.12 2.50	4.77 2.41	1.50 0.71	3.33 2.50	4.47 2.38	4.08**

Since personnel with just vocational agriculture experience are currently teaching vocational agriculture, this observation may suggest that vocational agriculture teachers saw their responsibility to adult farmer and average farmer populations higher than personnel with extension service experience only and personnel with area school experience only.

The Scheffe test further revealed that personnel with vocational agriculture experience only saw vocational agriculture's responsibility to early adopter farmers significantly higher ($P<.01$) than personnel with extension experience only. It is interesting to note through the group means that personnel with vocational agriculture and extension experience tended to rate vocational agriculture's responsibility higher to early adopter farmers than personnel with extension service experience only. This may indicate that personnel with extension service and vocational agriculture experience feel vocational agriculture has a greater responsibility to the early adopter farmers.

Responsibilities of area schools to farmer populations for adult farmer education

Large disagreements were observed on area schools' responsibility to adult farmer populations as indicated by the data in Table 32. Significant differences ($P<.01$) were observed among groups for all farmer populations studied.

Using the post hoc analysis to identify differences between group means for the young farmer population, it was observed that personnel with vocational agriculture and area school experience and personnel

Table 32. Means, standard deviations and F ratios for attitudes of adult farmer education groups with different agency experience toward area school's responsibility to adult farmer populations for adult farmer education.

Farmer populations	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Young farmers (16-28 years of age)	6.02 / 2.49	7.70 / 1.72
2. Adult farmers (over 28 years of age)	4.67 / 2.42	5.30 / 1.98
3. Farm veterans (no age limitation)	6.96 / 2.48	8.40 / 0.88
4. Low income farmers	5.10 / 2.47	7.40 / 1.88
5. Late adopter farmers	4.70 / 2.38	7.35 / 2.06
6. Average farmers	5.08 / 2.36	7.15 / 2.01
7. Early adopter farmers	5.63 / 2.38	6.60 / 2.30
8. Innovative farmers	5.41 / 2.44	6.90 / 2.29

[a]Group 1 = personnel with vocational agriculture experience only; group 2 = personnel with area school experience only; group 3 = personnel with extension service experience only; group 4 = personnel with vocational agriculture and area school experience; group 5 = personnel with vocational agriculture and extension service experience; group 6 = personnel with area school and extension service experience (was not entered into the analysis of variance because of low numbers); group 7 = personnel with vocational agriculture, area school and extension service experience (was not entered into the analysis of variance because of low numbers).

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Group 5[a] Mean S.D.	Group 6[a] Mean S.D.	Group 7[a] Mean S.D.	Total Mean S.D.	F ratio
5.23 2.68	8.35 1.06	5.77 2.41	8.50 0.71	5.17 3.60	6.16 2.56	8.18** (4,2>3**)
3.09 1.84	6.71 2.91	3.74 2.26	6.50 3.54	4.67 2.94	4.52 2.65	18.71** (2>1,5,3**) (4>5,3**)
6.77 2.32	8.41 1.94	6.35 2.77	9.00 0.00	7.00 3.35	7.13 2.37	3.97**
4.02 2.39	6.47 2.43	4.23 2.29	6.50 3.54	4.33 2.80	5.03 2.59	10.00** (2>5,3**) (4>3**)
3.88 2.24	6.47 2.55	4.10 2.21	5.50 0.71	5.00 2.74	4.84 2.57	11.25** (2>1,5,3**) (4>3**)
3.89 2.16	6.65 2.42	3.86 2.49	6.00 2.83	4.00 2.83	4.92 2.55	11.37** (2,4>3,5**)
3.58 1.97	6.24 2.39	4.15 1.98	5.00 1.41	4.50 2.59	4.91 2.46	11.70** (2,4,1>3**)
3.40 2.07	6.41 2.40	4.00 2.08	4.50 0.71	4.17 2.93	4.82 2.57	13.56** (2>5,3**) (4,1>3**)

with area school experience only rated the area schools' responsibility significantly higher ($P<.01$) than personnel with extension service experience only.

Personnel with area school experience only rated area schools' responsibility to adult farmers significantly higher ($P<.01$) than personnel with vocational agriculture experience only. It was also revealed that personnel with vocational agriculture and extension service experience, personnel with extension service experience only and personnel with vocational agriculture and area school experience rated responsibility for adult farmers significantly higher ($P<.01$) than personnel with vocational agriculture and extension service experience and personnel with extension service experience only.

Personnel with area school experience rated area schools' responsibility to low income farmers significantly higher ($P<.01$) than personnel with vocational agriculture and extension service experience and personnel with extension service experience only. Personnel with vocational agriculture and area school experience rated area schools' responsibility to low income farmer significantly higher ($P<.01$) than personnel with extension service experience.

Responsibility of area schools to late adopter farmers was rated significantly higher ($P<.01$) by personnel with area school experience only than by personnel with vocational agriculture experience only, personnel with vocational agriculture and extension service experience, and personnel with extension service experience only. Personnel with vocational agriculture and area school experience rated area schools'

responsibility to late adopter farmers significantly higher (P<.01) than personnel with extension service experience only.

Adult farmer educators with area school experience only and with vocational agriculture and area school experience rated area schools' responsibility to average farmers significantly higher (P<.01) than educators with extension service experience only and educators with vocational agriculture and extension service experience.

Personnel with area school experience only, personnel with vocational agriculture and area school experience, and personnel with vocational agriculture experience only rated area schools' responsibility to early adopter farmers significantly higher (P<.01) than personnel with extension service experience only.

Area schools' responsibility to innovative farmers was rated significantly higher (P<.01) by personnel with area school experience only than by personnel only than by personnel with vocational agriculture and extension service experience and personnel with extension service experience only. Personnel with vocational agriculture and area school experience and personnel with vocational agriculture experience only also rated area schools' responsibility significantly higher (P<.01) than personnel with extension service experience only.

The analysis of area schools' resopnsibility to adult farmer populations (Table 32) generally revealed the same findings as Table 10, which analyzed the data based on respondents' current agency employment.

Responsibilities of cooperative extension service to farmer populations for adult farmer education

Data pertaining to cooperative extension service's responsibility to adult farmer populations as perceived by educators with different agricultural agency experience are presented in Table 33. Significant differences ($P<.01$) were observed among group means for young farmers, early adopter farmers and innovative farmers. There were also significant differences ($P<.05$) among groups for adult farmers and average farmers.

The Scheffe test revealed that personnel with extension service experience only rated extension's responsibility to young farmers significantly higher ($P<.05$) than personnel with vocational agriculture and area school experience.

The Scheffe test revealed that personnel with vocational agriculture and extension service experience and personnel with extension service experience only rated extension's responsibility to early adopter farmers significantly higher ($P<.01$) than personnel with vocational agriculture and area school experience. Personnel with vocational agriculture and extension service experience and personnel with extension service experience only also rated extension's responsibility to innovative farmers significantly higher ($P<.05$) than personnel with vocational agriculture and area school experience.

Table 2 indicates that half of the current area school agriculture instructors have had vocational agriculture experience. This would indicate that most of the individuals with vocational agriculture and area school experience would be currently employed in area schools.

Table 33. Means, standard deviations and F ratios for attitudes of adult farmer education groups with different agency experience toward cooperative extension service's responsibility to adult farmer populations for adult farmer education.

Farmer populations	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Young farmers (16-28 years of age)	6.60 / 2.26	7.00 / 1.92
2. Adult farmers (over 28 years of age)	7.67 / 1.83	7.90 / 1.62
3. Farm veterans (no age limitations)	4.82 / 2.82	5.85 / 3.12
4. Low income farmers	7.35 / 2.03	7.15 / 2.16
5. Late adopter farmers	7.34 / 2.15	7.30 / 2.25
6. Average farmers	7.40 / 1.93	7.20 / 1.94
7. Early adopter farmers	7.69 / 1.88	7.70 / 1.72
8. Innovative farmers	7.67 / 2.01	8.05 / 1.47

[a]Group 1 = personnel with vocational agriculture experience only; group 2 = personnel with area school experience only; group 3 = personnel with extension service experience only; group 4 = personnel with vocational agriculture and area school experience; group 5 = personnel with vocational agriculture and extension service experience; group 6 = personnel with area school and extension service experience (was not entered into the analysis of variance because of low numbers); group 7 = personnel with vocational agriculture, area school and extension service experience (was not entered into the analysis of variance because of low numbers).

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Group 5[a] Mean S.D.	Group 6[a] Mean S.D.	Group 7[a] Mean S.D.	Total Mean S.D.	F ratio
7.64 1.32	5.88 2.60	7.35 1.37	8.50 0.71	6.67 1.51	7.05 1.93	4.04** (3>4*)
8.37 0.79	7.47 1.91	8.43 0.79	9.00 0.00	8.17 0.41	8.03 1.43	2.90*
5.24 2.53	4.12 2.57	5.18 2.48	7.50 2.12	4.00 3.03	5.07 2.70	1.13
7.61 1.45	6.76 2.41	8.04 1.11	9.00 0.00	7.83 1.60	7.45 1.81	1.54
7.34 1.66	6.71 2.57	7.55 1.41	9.00 0.00	7.20 2.17	7.30 1.95	.49
7.92 1.29	6.71 2.14	8.13 1.01	8.50 0.71	8.00 0.89	7.59 1.68	2.87*
8.25 1.11	6.41 2.15	8.48 0.73	8.50 0.71	8.17 1.17	7.87 1.62	5.93** (5,3>4**)
8.07 1.32	6.53 2.27	8.35 0.98	9.00 0.00	8.17 1.60	8.83 1.70	3.74** (5,3>4*)

With this in mind the above findings might be attributed to the area school agriculture instructor's background in vocational agriculture's young and adult farmer programs. The mean for personnel with area school experience only was not significantly different from the mean for personnel with extension experience only.

Responsibility of vocational agriculture to cooperate with area schools in providing adult farmer education

Data pertaining to vocational agriculture's responsibility to cooperate with area schools on adult farmer programs as perceived by educators with different experiences are presented in Table 34. A significant difference ($P<.01$) existed among group means for the young farmer classes, adult farmer classes, short courses, special programs, field demonstrations, field trips and laboratory instruction. There was also a significant difference ($P<.05$) among group means for farm veterans' classes.

The post hoc analysis revealed personnel with vocational agriculture and area school experience rated vocational agriculture's responsibility to cooperate with area schools on young farmer programs significantly higher ($P<.05$) than personnel with extension service experience only and personnel with vocational agriculture and extension service experience.

Personnel with vocational agriculture and area school experience also rated vocational agriculture's responsibility to cooperate with area schools on adult farmer programs significantly higher ($P<.01$) than personnel with extension service experience and personnel with

Table 34. Means, standard deviations and F ratios for attitudes of adult farmer education groups with different agency experience toward vocational agriculture's responsibility to cooperate with area schools on adult farmer programs

Programs	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Young farmer classes	5.04 / 2.55	5.65 / 2.21
2. Adult farmer classes	4.98 / 2.65	5.60 / 2.41
3. Farm veterans classes	4.04 / 2.86	5.85 / 2.80
4. Short courses (max of 3 days)	4.41 / 2.61	5.55 / 2.70
5. Special programs (max. of 1 day)	5.33 / 2.65	5.75 / 2.69
6. Field demonstrations	5.43 / 2.52	5.30 / 2.43
7. Field trips	4.67 / 2.34	5.60 / 2.62
8. Laboratory instruction	4.73 / 2.38	5.20 / 2.76

[a]Group 1 = personnel with vocational agriculture experience only; group 2 = personnel with area school experience only; group 3 = personnel with extension service experience only; group 4 = personnel with vocational agriculture and area school experience; group 5 = personnel with vocational agriculture and extension service experience; group 6 = personnel with area school and extension service experience (was not entered into the analysis of variance because of low numbers); group 7 = personnel with vocational agriculture, area school and extension service experience (was not entered into the analysis of variance because of low numbers).

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Group 5[a] Mean S.D.	Group 6[a] Mean S.D.	Group 7[a] Mean S.D.	Total Mean S.D.	F ratio
3.69	6.29	3.45	7.00	3.33	5.56	6.43**
2.42	2.54	2.58	1.41	2.88	2.63	(4>3,5*)
3.38	6.24	3.00	7.00	3.17	4.37	8.90**
2.19	2.56	2.23	1.41	1.72	2.63	(4>3,5**)
4.60	5.88	4.09	8.50	3.67	4.65	2.58*
2.69	3.02	2.60	0.71	3.08	2.83	
3.16	5.88	3.18	6.50	3.50	4.11	6.86**
2.12	2.78	2.59	2.12	3.08	2.65	(4>3**)
3.61	6.12	2.95	8.00	3.17	4.55	8.35**
2.13	2.96	2.38	0.00	3.49	2.70	(4>5**)
3.69	5.41	3.14	5.00	3.67	4.50	6.24**
2.38	2.58	2.29	4.24	3.08	2.59	(1>3,5*)
3.64	5.29	3.27	3.50	3.67	4.30	4.89**
2.28	2.28	2.16	2.12	2.50	2.44	(2>3,5*)
3.56	5.65	3.45	4.50	3.33	4.31	4.43**
2.32	2.45	2.34	4.95	3.14	2.51	

vocational agriculture and extension service experience. This finding not only indicated personnel with vocational agriculture and area school experience rated this relationship higher than personnel with extension experience only and personnel with vocational agriculture and extension experience, but it also indicated that these personnel with area school and vocational agriculture experience would like the cooperation of the current vocational agriculture teachers more than the personnel with area school experience only. The personnel with vocational agriculture and area school experience might see the benefit of cooperation between vocational agriculture and area schools to be a greater asset than the other groups because they have had teaching experience in both the area school and the high school vocational agriculture programs.

Further analysis with the Scheffe test indicated personnel with vocational agriculture and area school experience rated vocational agriculture's responsibility to cooperate with area schools on short courses significantly higher ($P<.01$) than personnel with extension service experience only. Likewise, personnel with vocational agriculture and area school experience again rated vocational agriculture's responsibility to cooperate with area schools significantly higher ($P<.01$) than personnel with vocational agriculture and extension service experience.

Personnel with vocational agriculture experience had significantly higher ratings ($P<.05$) on vocational agriculture's responsibility to cooperate with area schools on field demonstrations than personnel

with extension service experience only and personnel with vocational agriculture and extension service experience as was indicated by a post hoc analysis.

Further post hoc analysis indicated personnel with area school experience only rated vocational agriculture's responsibility to cooperate with area schools on field trips significantly higher ($P<.05$) than personnel with extension service experience only and personnel with vocational agriculture and extension service experience.

Responsibility of vocational agriculture to cooperate with cooperative extension service in providing adult farmer education

Data pertaining to vocational agriculture's responsibility to cooperate with extension in providing adult former education as perceived by educators with different agency experience are reported in Table 35. Significant differences were observed among group means for adult farmer classes ($P<.05$) and laboratory instruction ($P<.01$). The post hoc analysis indicated that personnel with extension service experience only saw vocational agriculture's responsibility to cooperate with the cooperative extension service significantly less ($P<.05$) than personnel with area school experience only and personnel with vocational agriculture experience on laboratory instruction. The limited use of laboratory instruction in extension programs may explain this difference.

Table 35. Means, standard deviations and F ratios for attitudes of adult farmer education groups with different agency experience toward vocational agriculture's responsibility to cooperate with cooperative extension service on adult farmer programs.

Programs	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Young farmer classes	6.70 / 2.12	6.05 / 2.09
2. Adult farmer classes	6.96 / 2.21	6.25 / 2.36
3. Farm veterans classes	3.92 / 2.83	5.55 / 2.68
4. Short courses (max. of 3 days)	6.00 / 2.63	5.95 / 2.68
5. Special programs (max of 1 day)	6.52 / 2.50	6.30 / 2.66
6. Field demonstrations	6.69 / 2.28	6.60 / 2.23
7. Field trips	5.46 / 2.45	5.75 / 2.47
8. Laboratory instruction	5.50 / 2.61	5.60 / 2.60

[a]Group 1 = personnel with vocational agriculture experience only; group 2 = personnel with area school experience only; group 3 = personnel with extension service experience only; group 4 = personnel with vocational agriculture and area school experience; group 5 = personnel with vocational agriculture and extension service experience; group 6 = personnel with area school and extension service experience (was not entered into the analysis of variance because of low numbers); group 7 = personnel with vocational agriculture, area school and extension service experience (was not entered into the analysis of variance because of low numbers).

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Group 5[a] Mean S.D.	Group 6[a] Mean S.D.	Group 7[a] Mean S.D.	Total Mean S.D.	F ratio
5.80 / 2.17	6.47 / 2.29	5.41 / 2.81	8.00 / 0.00	5.33 / 2.58	6.10 / 2.27	1.70
5.66 / 2.11	6.82 / 2.24	6.32 / 2.59	8.00 / 0.00	7.00 / 2.00	6.32 / 2.29	2.48*
3.69 / 2.26	3.71 / 2.66	4.41 / 2.82	6.00 / 2.83	4.83 / 3.87	4.08 / 2.64	2.14
5.28 / 2.59	7.24 / 2.54	6.00 / 2.81	8.00 / 0.00	6.83 / 2.86	5.87 / 2.67	1.90
5.91 / 2.27	7.41 / 2.48	5.95 / 2.97	8.00 / 0.00	6.33 / 3.78	6.30 / 2.51	1.38
5.59 / 2.22	6.53 / 2.58	5.82 / 2.86	8.50 / 0.71	6.67 / 3.20	6.16 / 2.39	1.83
4.78 / 2.19	5.12 / 2.03	5.18 / 2.54	6.00 / 4.24	6.00 / 2.68	5.18 / 2.33	0.91
3.58 / 2.09	4.18 / 2.88	4.50 / 2.74	1.50 / 0.71	5.67 / 3.44	4.57 / 2.60	4.91** (2,1>3*)

Responsibility of area schools to cooperate with vocational agriculture in providing adult farmer education

The group means for young farmer classes, short courses, and field trips were significantly different ($P<.05$) for area schools' responsibility to cooperate with vocational agriculture on adult farmer programs as shown in Table 36. Further significant differences ($P<.01$) among group means were observed for special programs, field demonstrations and adult farmer classes.

Personnel with vocational agriculture and area school experience saw area schools' responsibility to cooperate with vocational agriculture on adult farmer classes significantly higher ($P<.05$) than personnel with vocational agriculture and extension service experience as indicated by the post hoc analysis.

Responsibility of area schools to cooperate with cooperative extension service in providing adult farmer education

Table 37 reports data regarding area schools' responsibility to cooperate with extension on adult farmer programs as perceived by educators with different agency experience. The group means were significantly different ($P<.05$) for young farmer classes, farm veterans classes, field demonstrations, field trips, and laboratory instruction. The group means were also significantly different ($P<.05$) for special programs.

The post hoc analysis indicated personnel with area school experience only saw the area schools' responsibility to cooperate with extension:

Table 36. Means, standard deviations and F ratios for attitudes of adult farmer education groups with different agency experience toward area school's responsibility to cooperate with vocational agriculture on adult farmer programs

Programs	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Young farmer classes	5.56 / 2.60	5.20 / 2.75
2. Adult farmer classes	5.61 / 2.73	4.95 / 2.42
3. Farm veterans classes	4.28 / 3.06	4.55 / 2.31
4. Short courses (max. of 3 days)	4.84 / 2.71	4.55 / 2.24
5. Special programs (max. of 1 day)	5.38 / 2.81	4.95½ / 2.52
6. Field demonstrations	5.34 / 2.46	4.85 / 2.30
7. Field trips	5.16 / 2.48	4.50 / 2.19
8. Laboratory instruction	5.00 / 2.70	4.45 / 2.24

[a]Group 1 = personnel with vocational agriculture experience only; group 2 = personnel with area school experience only; group 3 = personnel with extension service experience only; group 4 = personnel with vocational agriculture and area school experience; group 5 = personnel with vocational agriculture and extension service experience; group 6 = personnel with area school and extension service experience (was not entered into the analysis of variance because of low numbers); group 7 = personnel with vocational agriculture, area school and extension service experience (was not entered into the analysis of variance because of low numbers).

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Group 5[a] Mean S.D.	Group 6[a] Mean S.D.	Group 7[a] Mean S.D.	Total Mean S.D.	F ratio
4.93 2.70	6.65 2.62	4.14 2.73	8.00 0.00	3.17 2.14	5.22 2.72	2.48*
4.71 2.56	6.65 2.76	3.73 2.45	8.00 0.00	2.83 1.94	5.08 2.69	3.82** (4>5*)
4.91 2.70	5.24 3.27	4.50 2.74	8.50 0.71	2.67 2.25	4.66 2.82	0.54
3.66 2.46	5.41 2.76	3.73 2.51	7.00 2.83	3.33 2.58	4.32 2.60	2.27*
3.75 2.13	5.88 2.85	3.82 2.70	3.50 2.12	3.33 2.27	4.61 2.65	4.42**
3.82 2.16	5.76 2.75	4.09 2.79	2.00 0.00	3.33 3.27	4.64 2.50	3.90**
3.82 2.31	5.65 3.28	3.73 2.59	7.00 2.83	2.83 2.14	4.48 2.56	3.34*
4.02 2.63	5.47 3.24	3.68 2.63	4.00 4.24	2.00 2.00	4.47 2.71	1.97

Table 37. Means, standard deviations and F ratios for attitudes of adult farmer education groups with different agency experience toward area school's responsibility to cooperate with cooperative extension service on adult farmer programs

Programs	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Young farmer classes	6.17 / 2.41	6.85 / 1.90
2. Adult farmer classes	6.09 / 2.47	6.90 / 2.00
3. Farm veterans classew	4.68 / 2.65	6.65 / 2.08
4. Short courses (max. of 3 days)	6.19 / 2.63	6.80 / 2.17
5. Special programs (max. of 1 day)	6.43 / 2.53	6.95 / 2.21
6. Field demonstrations	5.96 / 2.41	7.00 / 1.89
7. Field trips	5.41 / 2.54	6.85 / 2.18
8. Laboratory instruction	5.41 / 2.61	6.40 / 2.41

[a]Group 1 = personnel with vocational agriculture experience only; group 2 = personnel with area school experience only; group 3 = personnel with extension service experience only; group 4 = personnel with vocational agriculture and area school experience; group 5 = personnel with vocational agriculture and extension service experience; group 6 = personnel with area school and extension service experience (was not entered into the analysis of variance because of low numbers); group 7 = personnel with vocational agriculture, area school and extension service experience (was not entered into the analysis of variance because of low numbers).

*Significant at the .05 level of probability.

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Group 5[a] Mean S.D.	Group 6[a] Mean S.D.	Group 7[a] Mean S.D.	Total Mean S.D.	F ratio
4.88 2.55	5.00 3.37	4.50 2.35	8.00 0.00	4.83 2.40	5.45 2.61	4.19**
5.38 2.53	5.47 3.37	4.82 2.59	8.00 0.00	4.83 2.56	5.70 2.60	2.28
4.41 2.53	4.00 2.85	4.86 2.44	8.50 0.71	5.50 3.51	4.78 2.61	3.44** (2>3,4*)
5.30 2.74	5.82 2.77	4.95 3.02	8.00 0.00	5.17 3.92	5.75 2.72	1.97
5.52 2.60	6.24 2.73	4.68 2.98	6.50 2.12	3.83 3.66	5.91 2.66	2.88*
4.57 2.28	5.65 3.18	4.59 2.94	8.00 0.00	4.00 3.58	5.37 2.59	4.92** (2>3**)
4.09 2.42	4.88 3.16	3.91 2.35	7.00 2.83	3.50 2.35	4.86 2.65	5.89** (2>3,5**)
3.66 2.42	4.29 3.20	3.59 2.26	4.00 4.24	2.83 2.17	4.55 2.17	6.59** (2>3,5*)

1. Significantly higher (P<.05) for farm veterans classes than personnel with extension service experience only and personnel with vocational agriculture and area school experience.

2. Significantly higher (P<.01) for field demonstrations than personnel with extension service experience only.

3. Significantly higher (P<.01) for field trips than personnel with extension service experience only and personnel with vocational agriculture and extension service experience.

4. Significantly higher (P<.05) for laboratory instruction than personnel with extension service experience only and personnel with vocational agriculture and extension service experience.

In the above differences those individuals with vocational agriculture expereince coupled with area school and extension service experience generally rated the area schools' responsibility to cooperate with extension lower than personnel with no interagency experience.

Responsibility of cooperative extension service to cooperate with vocational agriculture in providing adult farmer education

Table 38 reports data pertaining to cooperative extension service's responsibility to cooperate with vocational agriculture on adult farmer programs. There was a significant difference (P<.01) among group means for laboratory instruction. Educators with area school experience only and educators with vocational agriculture experience only rated extension's responsibility to cooperate with vocational agriculture on laboratory instruction higher than the other groups. These groups may

Table 38. Means, standard deviations and F ratios for attitudes of adult farmer education groups with different agency experience toward cooperative extension service's responsibility to cooperate with vocational agriculture on adult farmer programs.

Programs	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Young farmer classes	6.66 / 2.50	6.30 / 2.36
2. Adult farmer classes	6.88 / 2.41	6.05 / 2.42
3. Farm veterans classes	4.37 / 2.80	5.50 / 2.65
4. Short courses (max. of 3 days)	6.04 / 2.74	5.75 / 2.59
5. Special programs (max of 1 day)	6.31 / 2.57	6.30 / 2.60
6. Field demonstrations	6.29 / 2.37	6.10 / 2.71
7. Field trips	5.94 / 2.49	5.55 / 2.70
8. Laboratory instruction	5.27 / 2.68	5.60 / 2.72

[a]Group 1 = personnel with vocational agriculture experience only; group 2 = personnel with area school experience only; group 3 = personnel with extension service experience only; group 4 = personnel with vocational agriculture and area school experience; group 5 = personnel with vocational agriculture and extension service experience; group 6 = personnel with area school and extension service experience (was not entered into the analysis of variance because of low numbers); group 7 = personnel with vocational agriculture, area school and extension service experience (was not entered into the analysis of variance because of low numbers).

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Group 5[a] Mean S.D.	Group 6[a] Mean S.D.	Group 7[a] Mean S.D.	Total Mean S.D.	F ratio
6.22 / 1.97	6.59 / 2.53	5.86 / 2.08	8.50 / 0.71	6.83 / 1.94	6.35 / 2.25	0.59
6.30 / 1.92	7.29 / 2.08	6.45 / 2.66	8.50 / 0.71	7.33 / 1.86	6.57 / 2.21	1.22
3.73 / 2.37	3.88 / 2.14	4.23 / 2.54	7.00 / 1.41	3.67 / 3.01	4.22 / 2.67	1.75
4.81 / 2.36	5.47 / 3.00	5.45 / 2.48	5.00 / 4.24	5.17 / 2.79	5.44 / 2.61	1.58
5.60 / 2.19	5.94 / 2.88	5.82 / 2.44	5.00 / 4.24	5.50 / 3.08	5.96 / 2.46	0.67
5.32 / 2.05	6.00 / 2.94	5.91 / 2.60	8.00 / 0.00	5.33 / 2.88	5.85 / 2.41	1.18
4.65 / 2.11	5.24 / 3.21	5.23 / 2.43	8.00 / 0.00	5.17 / 3.13	5.28 / 2.49	1.87
3.79 / 2.31	4.94 / 3.13	3.73 / 2.31	8.00 / 0.00	3.83 / 3.31	4.56 / 2.65	3.69**

be expressing a need for extension resources in carrying on laboratory instruction.

Responsibility of cooperative extension service to cooperate with area schools in providing adult farmer education

A significant difference was observed among group means for the responsibility of cooperative extension service to cooperate with area schools for each program area as reported in Table 39.

The post hoc analysis for extension's responsibility to cooperate with area schools on adult farmer programs revealed:

1. Adult farmer educators with area school experience only saw this responsibility significantly higher ($P<.01$) than personnel with vocational agriculture and extension service experience and personnel with extension service experience for young farmer classes, adult farmer classes, short courses and laboratory instruction.

2. Personnel with area school experience only saw the responsibility to cooperate on farm veterans classes and field demonstrations significantly higher ($P<.01$) than personnel with extension experience.

3. Responsibility to cooperate on special programs and field trips were rated significantly higher ($P<.01$) by educators with area school experience than personnel with vocational agriculture and extension service experience and personnel with extension experience only. In the same case personnel with vocational agriculture experience only and personnel with vocational agriculture and area school experience rated the responsibility significantly higher ($P<.01$) than personnel with extension experience only.

Table 39. Means, standard deviations and F ratios for attitudes of adult farmer education groups with different agency experience toward cooperative extension service's responsibility to cooperate with area schools on adult farmer programs

Programs	Group 1[a] Mean / S.D.	Group 2[a] Mean / S.D.
1. Young farmer classes	5.72 / 2.56	7.60 / 1.76
2. Adult farmer classes	5.46 / 2.62	7.50 / 1.79
3. Farm veterans classes	5.15 / 2.88	7.50 / 2.09
4. Short courses (max. of 3 days)	6.13 / 2.43	7.95 / 1.70
5. Special programs (max. of 1 day)	6.56 / 2.33	8.00 / 1.69
6. Field demonstrations	6.37 / 2.24	7.30 / 2.03
7. Field trips	5.89 / 2.50	7.05 / 2.09
8. Laboratory instruction	5.59 / 2.39	6.85 / 2.39

[a]Group 1 = personnel with vocational agriculture experience only; group 2 = personnel with area school experience only; group 3 = personnel with extension service experience only; group 4 = personnel with vocational agriculture and area school experience; group 5 = personnel with vocational agriculture and extension service experience; group 6 = personnel with area school and extension service experience (was not entered into the analysis of variance because of low numbers); group 7 = personnel with vocational agriculture, area school and extension service experience (was not entered into the analysis of variance because of low numbers).

**Significant at the .01 level of probability.

Group 3[a] Mean S.D.	Group 4[a] Mean S.D.	Group 5[a] Mean S.D.	Group 6[a] Mean S.D.	Group 7[a] Mean S.D.	Total Mean S.D.	F ratio
4.31 2.67	6.59 2.83	4.64 2.13	8.50 0.71	5.67 2.86	5.38 2.71	8.39** (2>5,3**)
4.40 2.73	5.94 3.17	4.14 2.34	8.50 0.71	5.67 2.66	5.21 2.78	6.61** (2>3,5**)
4.67 2.58	5.88 2.78	5.14 2.47	7.00 1.41	6.17 2.99	5.35 2.74	4.60** (2>3**)
4.50 2.77	6.88 2.34	4.64 2.24	8.50 0.71	5.67 2.66	5.65 2.71	10.05** (2>5,3**)
4.74 2.81	7.41 1.84	4.77 2.39	8.50 0.71	6.00 2.83	5.93 2.70	10.77** (2>5,3**) (1,4>3**)
4.31 2.50	6.47 2.94	4.68 2.68	8.00 0.00	5.17 3.43	5.53 2.68	8.82** (2>3**)
3.71 2.25	5.29 3.06	3.76 2.17	8.00 0.00	4.17 2.86	4.91 2.67	10.97** (2>5,3**) (1,4>3**)
3.60 2.54	5.69 3.05	3.45 2.11	8.00 0.00	3.17 2.64	4.77 2.75	9.91** (2>3,5**)

The effect of years with current agency and years of experience in adult farmer education on attitudes of adult farmer educators toward responsibilities and programming procedures of agriculture education agencies

This section reports the findings related to the effect years with current agency and years of experience in adult education had on attitudes of adult farmer educators regarding responsibilities of and programming procedures used by agricultural education agencies serving adult farmers in Iowa. Respondents were not grouped by agency in this analysis. The 170 adult farmer educators were treated as one group for multiple regression analysis. Responses were gathered using a nine-point scale with one being "no responsibility" or "no use" and nine being "high responsibility" or "high use".

Since stepwise multiple regression was used in this section, the independent variable which explained the most variance was entered first with the second following. The second variable was reported only when the combined F ratio for the two independent variables was significant and when the F ratio for the second variable was one or above. This procedure was used to insure the use of the best predictor(s) in the regression equation. To determine significances the following tabular values were used:

*Significant at .05, (df = 1, 120) = 3.92; (df = 2, 120) = 3.07.

**Significant at .01, (df = 1, 120) = 6.85; (df = 2, 120) = 4.79.

One degree of freedom was used in the numerator when only one of the independent variables was significant and two degrees of freedom

were used in the numerator when both independent variables indicated significances. One hundred and twenty degrees of freedom was in the denominator throughout since this was the closest tabular value listed to the true degrees of freedom used in the study.

The findings will be presented in the following three sections:

1. Responsibilities of agricultural education agencies.
    a. Formulation and delivery of adult farmer education.
    b. Methods of instruction used in adult farmer education.
    c. Adult farmer populations served.
2. Responsibilities for interagency cooperation in providing adult farmer education.
3. Programming procedures used by agricultural education agencies to:
    a. Determine program needs.
    b. Obtain instructional materials.
    c. Schedule programs.
    d. Evaluate programs.
    e. Count participants.
    f. Finance programs.
    g. Type of cooperation need among agricultural education agencies.

Responsibility of vocational agriculture for formulation and delivery of adult farmer education

Table 40 lists no significant F ratios indicating population means will predict attitudinal response of adult farmer educators as well as

Table 40. Results from multiple regression analysis for attitudes of adult farmer educators toward vocational agriculture's responsibility to adult farmer education on number of years with current agency and years of experience in adult farmer education

Responsibility	b_o[a]	b_1[b]	b_2[c]	R^2	F
1. Agricultural research	2.35	-0.02		0.01	1.57
2. Formulation of research reports	1.96	-0.03		0.03	3.74
3. Development of instructional materials	4.60		0.04	0.03	3.44
4. Agricultural instruction	6.89		0.02	0.004	0.51
5. Dissemination of educational materials	4.51	0.03		0.01	1.75

[a] b_o = Constant.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

a regression equation in determining attitude of agricultural educators toward vocational agriculture's responsibility for the formulation and delivery of adult farmer education.

Responsibility of area schools for formulation and delivery of adult farmer education

The F ratios observed for the attitude of adult farmer educators toward the responsibility of area schools for agricultural research is statistically significant at the .01 level as indicated by Table 41. Therefore, years with current agency and years of experience in adult farmer education have an effect on adult farmer educators' attitudes toward area schools' responsibility to adult farmer education for agricultural research. These two independent variables account for 11 percent of the variation in the ratings as revealed by R^2.

Knowing these regression coefficients for years with current agency and years of experience in adult farmer education, a regression equation can be formed to predict the attitudes of adult farmer educators more accurately than using the mean alone. The equation is as follows:

$$Y' = b_o + b_1X_1 + b_2X_2$$

Y' is the predicted attitude of an adult farmer educator toward area schools' responsibility to adult farmer education for agricultural research. b_o is the constant for the equation. b_1 is the regression coefficient for years with current agency and b_2 is the regression coefficient for years of experience in adult farmer education. X_1 is

Table 41. Results from multiple regression analysis for attitudes of adult farmer educators toward area school's responsibility to adult farmer education on number of years with current agency and years of experience in adult farmer education

Responsibility	b_o[a]	b_1[b]	b_2[c]	R^2	F
1. Agricultural research	4.02	-0.11	0.05	0.11	7.30**
2. Formulation of research reports	3.71	-0.12	0.06	0.13	8.85**
3. Development of instructional materials	6.36	0.11	0.52	0.09	6.18**
4. Agricultural instruction	7.48	-0.10		0.10	13.80**
5. Dissemination of educational materials	5.62	-0.10	0.05	0.06	4.26*

[a] b_o = Constant.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

*Significant at .05.

**Significant at .01.

the number of years an educator has been with the current agency of employment and X_2 is the number of years of adult farmer education. The regression equation can now be rewritten using the values for agricultural research presented in Table 41.

The equation is now written:

$$Y' = 4.02 + (-0.11\ X_1) + (0.05\ X_2)$$

To apply the equation, assume that an educator had five years with current agency and 10 years of experience in adult farmer education. These figures can be entered in place of X_1 and X_2 and the Y' calculated as follows:

$$Y' = 4.02 + (-0.11 \times 5) + (0.05 \times 10);\ Y' = 3.97.$$

Therefore, 3.97 would be the predicted attitude of this adult educator toward area schools' responsibility to adult education for agricultural research on a nine-point scale where one is "no responsibility" and nine is "high responsibility".

The negative coefficient for b_1 (years with current agency) indicates the fewer years of experience with current agency, the higher an adult farmer educator would rate the area schools' responsibility to agricultural research.

The positive coefficient for b_2 (years of experience in adult farmer education) indicates the more years experience in adult farmer education, the higher the responsibility of the area schools to adult farmer education for agricultural research.

Significant F ratios were also observed for formulation of research reports and dissemination of educational materials. The coefficients

were negative for years with current agency and positive for years of experience in adult farmer education. Years with current agency and years of experience in adult farmer education accounted for 13 percent of the variation in the attitude of educators toward area schools' responsibility for formulation of research reports and six percent of the variation in attitude toward responsibility for dissemination of materials.

Development of instructional materials had a significant F ratio at the .01 level. Both independent variables had positive coefficients which accounted for nine percent of the variability.

Agricultural instruction had a significant F ratio at the .01 level. Years with current agency accounted for 10 percent of the variance. The negative coefficient indicated as years with the current agency increased, adult farmer educators' attitude toward area schools' responsibility for providing agricultural instruction to adult farmers decreased. Since agricultural instruction had only one independent variable with predictive value, the following equation would apply:

$$Y' = b_o + b_1 X_1$$

or

$$Y' = 7.48 + (-0.10\ X_1)$$

To apply the equation, assume that an adult educator had eight years of experience with current agency. The value of Y' (attitude measured on a nine-point scale) would be as shown below:

$$Y' = 7.48 + (-0.10 \times 8)$$

$$Y' = 6.68$$

Responsibility of cooperative extension service for formulation and delivery of adult education

Table 42 revealed significant F ratios at the .05 level or higher for adult farmer educators' attitudes toward cooperative extension service's responsibility to adult farmer education as regressed on years with current agency and years of experience in adult farmer education. A negative relationship for years with current agency accounted for:

1. Six percent of the variability in attitudes for agricultural research.
2. Six percent of the variability in attitudes for formulation of research reports.

The above relationships indicated as years with current agency increased, adult farmer educators' ratings decreased.

Further examination of the table revealed a positive relationship for years with current agency and accounted for:

1. Five percent of the variability in attitudes toward development of instructional materials.
2. Four percent of the variability in attitudes toward agricultural instruction.
3. Four percent of the variability in attitudes toward dissemination of educational materials.

The above relationships indicated as years with current agency increased, ratings of cooperative extension service's responsibility also increased.

Table 42. Results from multiple regression analysis for attitudes of adult farmer educators toward cooperative extension service's responsibility to adult farmer education on number of years with current agency and years of experience in adult farmer education

Responsibility	b_o[a]	b_1[b]	b_2[c]	R^2	F
1. Agricultural research	8.43	-0.06		0.06	7.23**
2. Formulation of research reports	8.57	-0.06		0.06	8.24**
3. Development of instructional materials	7.16	0.05		0.05	6.48*
4. Agricultural instruction	7.26	0.04		0.04	4.93*
5. Dissemination of educational materials	8.16	0.03		0.04	4.68*

[a] b_o = Constant.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

*Significant at .05.

**Significant at .01.

Responsibility of vocational agriculture for methods of instruction used in adult farmer education

Significant F ratios ($P<.05$) were observed when adult farmer educators' attitudes toward vocational agriculture's responsibility to adult farmer education methods of instruction were regressed on years with current agency and years of experience in adult farmer education as is indicated in Table 43. A positive relationship for years of experience in adult farmer education accounted for:

1. Six percent of the variability in attitudes toward field demonstrations.
2. Five percent of the variability in attitudes toward systematic instruction on one subject.

The above relationships indicated as years of experience in adult farmer education increased, ratings of vocational agriculture's responsibility also increased.

A negative relationship for years with current agency and a positive relationship for years of experience in adult farmer education accounted for five percent of the total variance in attitude toward field trips. This relationship indicated as years with current agency decreased and as years of experience in adult farmer education increased, adult farmer educators' ratings also increased.

Further examination of the table revealed a positive relationship for years with current agency which explained seven percent of the variability in attitudes toward systematic instruction on a variety of subjects. This relationshiop indicated as years with current agency

Table 43. Results from multiple regression analysis for attitudes of adult farmer educators toward vocational agriculture's responsibility to adult farmer education in methods of instruction on number of years with current agency and years of experience in adult farmer education.

Method of Instruction	b_o[a]	b_1[b]	b_2[c]	R^2	F
1. On the farm advising	5.23		0.03	0.02	1.93
2. Short courses (max. of 3 days)	2.91	-0.01		0.004	0.52
3. Special programs (max. of 1 day)	4.09		0.01	0.003	0.32
4. Field demonstrations	4.24		0.06	0.06	7.99**
5. Field trips	5.72	-0.08	0.10	0.05	3.37*
6. Systematic instruction--one subject (formal classes)	4.90		0.07	0.05	6.69*
7. Systematic instruction--variety of subjects (one night a week or month)	4.74	0.07		0.07	9.15**
8. Laboratory instruction	4.62	0.04		0.02	2.33

[a] b_o = Constant.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

*Significant at .05.

**Significant at .01.

increased, ratings of vocational agriculture's responsibility also increased.

Responsibility of area schools for methods of instruction used in adult farmer education

The regression analysis revealed significant F ratios ($P<.01$) for adult farmer educators' attitudes toward area schools' responsibility to adult farmer education methods of instruction when regressed on years with current agency and years of experience in adult farmer education. In Table 44 a negative relationship for years with current agency accounted for:

1. Fifteen percent of the variability in attitudes toward short courses.
2. Fifteen percent of the variability in attitudes toward special programs.
3. Eight percent of the variability in attitudes toward field trips.
4. Seven percent of the variability in attitudes toward systematic instruction on a variety of subjects.

The above relationships indicated as years with current agency increased, ratings of area schools' responsibility decreased.

Further examination of the table revealed a negative relationship for years with current agency and a positive relationship for years of experience in adult farmer education and accounted for:

1. Eleven percent of the variability in attitudes for on the farm advising.

Table 44. Results from multiple regression analysis for attitudes of adult farmer educators toward area school's responsibility to adult farmer education methods of instruction on number of years with current agency and years of experience in adult farmer education

Method of Instruction	b_o[a]	b_1[b]	b_2[c]	R^2	F
1. On the farm advising	4.57	-0.12	0.04	0.11	7.46**
2. Short courses (max of 3 days)	6.26	-0.12		0.15	21.26**
3. Special programs (max. of 1 day)	6.66	-0.12		0.15	21.71**
4. Field demonstrations	5.94	-0.12	0.06	0.09	6.18**
5. Field trips	6.02	-0.09		0.08	11.05**
6. Systematic instruction--one subject (formal classes)	6.73	-0.02		0.003	0.40
7. Systematic instruction--variety of subjects (one night a week or month)	5.82	-0.09		0.07	9.82**
8. Laboratory instruction	6.08	0.03		0.01	1.05

[a] b_o = Constant.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

**Significant at .01.

2. Nine percent of the variability in attitudes for field demonstrations.
3. Five percent of the variability in attitudes for special programs.

The above relationships indicated as years with current years decreased and as years of experience in adult farmer education increased, adult farmer educators' ratings also increased.

Responsibility of cooperative extension service for methods of instruction used in adult farmer education

Only two of the eight dependent variables in Table 45 had significant F ratios ($P < .01$) for adult farmer educators' attitudes toward cooperative extension service's responsibility to adult farmer education methods of instruction as regressed on years with current agency and years of experience in adult farmer education. A negative relationship for years of experience in adult farmer education accounted for five percent of the total vairance in attitudes toward systematic instruction on one subject and six percent of the total variance in attitudes toward laboratory instruction. These relationships suggested as years of experience in adult farmer education increased, adult farmer educators' ratings of cooperative extension service's responsibility to the above methods decreased.

Responsibility of vocational agriculture to farmer populations for adult farmer education

Table 46 revealed a significant F ratio ($P < .05$) for adult farmer educators' attitudes toward vocational agriculture's responsibility to

Table 45. Results from multiple regression analysis for attitudes of adult farmer educators toward cooperative extension Service's responsibility to adult farmer education methods of instruction on number of years with current agency and years of experience in adult farmer education

Method of Instruction	b_o[a]	b_1[b]	b_2[c]	R^2	F
1. On the farm advising	7.29	0.02		0.01	1.13
2. Short courses (max of 3 days)	8.00	0.02		0.01	1.64
3. Special programs (max. of 1 day)	8.27	0.02		0.02	2.77
4. Field demonstrations	7.27		0.03	0.03	3.35
5. Field trips	6.87		-0.03	0.01	1.51
6. Systematic instruction--one subject (formal classes	6.19		-0.07	0.05	6.91**
7. Systematic instruction--variety of subjects (one night a week or month)	6.39	-0.05		0.03	3.32
8. Laboratory instruction	5.42		-0.07	0.06	7.77**

[a] b_o = Constants.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

**Significant at .01.

Table 46. Results from multiple regression analysis for attitudes of adult farmer educators toward vocational agriculture's responsibility to adult farmer education in adult farmer populations on number of years with current agency and years of experience in adult farmer education

Farmer Populations	b_o[a]	b_1[b]	b_2[c]	R^2	F
1. Young farmers (16-28 years of age)	6.58	0.004		0.0003	0.03
2. Adult farmers (over 28 years of age)	5.35		0.02	0.006	0.77
3. Farm veterans (no age limitation)	3.49	-0.02		0.005	0.65
4. Low income farmers	5.01		0.03	0.01	1.48
5. Late adopter farmers	4.84		0.04	0.02	2.92
6. Average farmers	4.82		0.05	0.03	5.00*
7. Early adopter farmers	4.31		0.03	0.02	2.46
8. Innovative farmers	4.15	0.03		0.01	1.86

[a] b_o = Constant.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

*Significant at .05.

average farmers. Only three percent of the total variance in adult farmer educators' attitudes toward responsibility for providing adult education to average farmers was explained by years of experience in adult farmer education. This relationship indicated as years of experience in adult farmer education increased, adult farmer educators' ratings also increased.

Responsibility of area schools to farmer populations for adult farmer education

Results of stepwise regression reported in Table 47 reveals significant F ratios for adult farmer educators' attitudes toward area schools' responsibility to adult farmer populations as regressed on years with current agency and years of experience in adult farmer education. A negative relationship for years with current agency accounted for:

1. Five percent of the variability in attitudes toward young farmers.
2. Twenty-five percent of the variability in attitudes toward adult farmers.
3. Nineteen percent of the variability in attitudes toward low income farmers.
4. Fourteen percent of the variability in attitudes toward average farmers.
5. Thirteen percent of the variability in attitudes toward early adopter farmers.

Table 47. Results from multiple regression analysis for attitudes of adult farmer educators toward area school's responsibility to adult farmer education in adult farmer populations on number of years with current agency and years of experience in adult farmer education

Farmer populations	b_o[a]	b_1[b]	b_2[c]	R^2	F
1. Young farmers (16-28 years of age)	6.90	-0.06		0.05	6.24*
2. Adult farmers (over 28 years of age)	6.47	-0.16		0.25	41.59**
3. Farm veterans (no age limitations)	7.12		0.01	0.002	0.28
4. Low income farmers	6.66	-0.14		0.19	34.80**
5. Late adopter farmers	6.40	-0.10	-0.03	0.16	14.23**
6. Average farmers	6.26	-0.12		0.14	23.31**
7. Early adopter farmers	6.14	-0.11		0.13	22.65**
8. Innovative farmers	6.07	-0.11		0.13	21.87**

[a] b_o = Constant.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

*Significant at .05.

**Significant at .01.

6. Thirteen percent of the variability in attitudes toward innovative farmers.

The above relationships indicated as years with current agency increased, ratings of area schools' responsibility decreased.

Further examination of the table revealed a negative relationship for years with current agency and for years of experience in adult farmer education which accounted for 16 percent of the total variance in ratings for responsibility to late adopter farmers. This relationship indicated as years with current agency decreased and as years of experience in adult farmer education decreased, adult farmer educators' ratings increased.

Responsibility of cooperative extension service to farmer populations for adult farmer education

Four of the eight dependent variables in Table 48 had significant F ratios ($P<.05$ or higher) for adult farmer educators' attitudes toward cooperative extension service's responsibility to adult farmer populations as regressed on years with current agency and years of experience in adult farmer education. A positive relationship for years of experience in adult farmer education accounted for three percent of the variance in attitudes for low income farmers and for six percent of the variance in attitudes for average farmers. These relationships suggested as years of experience in adult farmer education increased, adult farmer educators' ratings also increased.

A positive relationship for years with current agency accounted for four percent of the variability in attitudes toward early

Table 48. Results from multiple regression analysis for attitudes of adult farmer educators toward cooperative extension service's responsibility to adult farmer education in adult farmer populations on number of years with current agency and years of experience in adult farmer education

Farmer populations	b_o[a]	b_1[b]	b_2[c]	R^2	F
1. Young farmers (16-28 years of age)	7.06		-0.01	0.001	0.15
2. Adult farmers (over 28 years of age)	7.80	0.02		0.01	1.13
3. Farm veterans (no age limitation)	5.86		-0.06	0.04	5.49*
4. Low income farmers	7.11		0.03	0.03	4.57*
5. Late adopter farmers	7.17		0.01	0.003	0.52
6. Average farmers	7.06		0.05	0.06	9.54**
7. Early adopter farmers	7.42	0.04		0.04	6.25*
8. Innovative farmers	7.49	0.03		0.02	3.62

[a] b_o = Constant.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

*Significant at .05.

**Significant at .01.

adopter farmers. This relationship indicated as years with current agency increased, ratings of cooperative extension service's responsibility also increased.

Further examination of the table revealed a negative relationship for years of experience in adult farmer education and accounted for four percent of the variability in attitudes toward farm veterans. The above relationship indicated as years of experience in adult farmer education increased, adult farmer educators' ratings decreased.

Responsibility of vocational agriculture to cooperate with area schools in adult farmer education

Table 49 revealed significant F ratios ($P<.05$ or higher) for adult farmer educators' attitudes toward vocational agriculture's responsibility to cooperate with area schools as regressed on years with current agency and years of experience in adult farmer education. A negative relationship for years with current agency and a positive relationship for years of experience in adult farmer education accounted for:

1. Thirteen percent of the variability in attitudes for young farmer classes.
2. Eight percent of the variability in attitudes for special programs.
3. Six percent of the variability in attitudes for laboratory instruction.

The above relationships suggested as years with current agency decreased

Table 49. Results from multiple regression analysis for attitudes of adult farmer educators toward vocational agriculture's responsibility to cooperate with area schools in adult farmer programs on number of years with current agency and years of experience in adult farmer education

Programs	b_o[a]	b_1[b]	b_2[c]	R^2	F
1. Young farmer classes	5.73	-0.15	0.04	0.13	10.99**
2. Adult farmer classes	5.85	-0.13		0.17	29.35**
3. Farm veterans classes	5.08	-0.04		0.01	2.22
4. Short courses (max. of 3 days)	5.15	-0.09		0.07	11.50**
5. Special programs (max. of 1 day)	5.50	-0.12	0.04	0.08	6.76**
6. Field demonstrations	5.50	-0.08		0.06	9.14**
7. Field trips	5.01	-0.05		0.03	4.32*
8. Laboratory instruction	4.94	-0.10	0.05	0.06	4.32*

[a] b_o = Constant.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

*Significant at .05.

**Significant at .01.

and as years of experience in adult farmer education increased, adult farmer educators' ratings also increased.

Further examination of the table revealed a negative relationship for years with current agency and accounted for:

1. Seventeen percent of the variability in attitudes toward adult farmer classes.
2. Seven percent of the variability in attitudes toward short courses.
3. Six percent of the variability in attitudes toward field demonstrations.
4. Three percent of the variability in attitudes toward field trips.

The above relationships indicated as years with current agency increased, ratings of vocational agriculture's responsibility decreased.

Responsibility of vocational agriculture to cooperate with cooperative extension service in adult farmer education

Significant F ratios ($P<.01$) were observed (Table 50) for adult farmer educators' attitudes toward vocational agriculture's responsibility to cooperate with cooperative extension service as regressed on years with current agency and years of experience in adult farmer education. A negative relationship for years with current agency accounted for:

1. Seven percent of the variability in attitudes toward farm veterans classes.

Table 50. Results from multiple regression analysis for attitudes of adult farmer educators toward vocational agriculture's responsibility to cooperate with cooperative extension service in adult farmer programs on number of years with current agency and years of experience in adult farmer education.

Programs	b_o [a]	b_1 [b]	b_2 [c]	R^2	F
1. Young farmer classes	6.58	-0.04		0.02	3.50
2. Adult farmer classes	6.77	-0.04		0.02	3.08
3. Farm veterans classes	5.08	-0.08		0.07	10.31**
4. Short courses (max. of 3 days)	6.30	-0.04		0.02	2.32
5. Special programs (max of 1 day)	6.66	-0.03		0.01	1.56
6. Field demonstrations	6.59	-0.04		0.01	2.22
7. Field trips	5.57	-0.04		0.01	2.18
8. Laboratory instruction	5.29	-0.07		0.04	6.62**

[a] b_o = Constant.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

**Significant at .01.

2. Four percent of the variability in attitudes toward field demonstrations.
3. Four percent of the variability in attitudes toward laboratory instruction.

The above relationships suggested as years with current agency increased, ratings of vocational agriculture's responsibility decreased.

Responsibility of area schools to cooperate with vocational agriculture in adult farmer education

Table 51 revealed significant F ratios ($P<.05$ or higher) for adult farmer educators' attitudes toward area schools' responsibility to cooperate with vocational agriculture as regressed on years with current agency and years of experience in adult farmer education. A negative relationship for years with current agency and a positive relationship for years of experience in adult farmer education accounted for:

1. Seven percent of the variability in attitudes for young farmer classes.
2. Four percent of the variability in attitudes for short courses.
3. Five percent of the variability in attitudes for special programs.

The above relationships indicated as years with current agency decreased and as years of experience in adult farmer education increased, adult farmer educators' ratings also increased.

Table 51. Results from multiple regression analysis for attitudes of adult farmer educators toward area school's responsibility to cooperate with vocational agriculture in adult farmer programs on number of years with current agency and years of experience in adult farmer education

Programs	b_o[a]	b_1[b]	b_2[c]	R^2	F
1. Young farmer classes	5.98	-0.13	0.05	0.07	5.61**
2. Adult farmer classes	5.88	-0.07		0.05	7.81**
3. Farm veterans classes	4.84	-0.01		0.001	0.22
4. Short courses (max. of 3 days)	4.70	-0.10	0.06	0.04	3.21*
5. Special programs (max. of 1 day)	5.06	-0.11	0.06	0.05	4.20*
6. Field demonstrations	5.32	-0.06		0.04	6.14*
7. Field trips	5.18	-0.07		0.04	6.53*
8. Laboratory instruction	5.06	-0.05		0.02	3.70

[a] b_o = Constant.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

*Significant at .05.

**Significant at .01.

Further examination of the table revealed a negative relationship for years with current agency and accounted for:

1. Five percent of the variability in attitudes toward adult farmer classes.
2. Four percent of the variability in attitudes toward field demonstrations.
3. Four percent of the variability in attitudes toward field trips.

The above relationships indicated as years with current agency increased, ratings of area schools' responsibility decreased.

Responsibility of area schools to cooperate with cooperative extension service in adult farmer education

Table 52 revealed significant F ratios ($P<.05$ or higher) for adult farmer educators' attitudes toward area schools' responsibility to cooperate with cooperative extension service as regressed on years with current agency and years of experience in adult farmer education. A negative relationship for years with current agency accounted for:

1. Nine percent of the variability in attitudes toward young farmer classes.
2. Five percent of the variability in attitudes toward adult farmer classes.
3. Seven percent of the variability in attitudes toward farm veterans classes.
4. Four percent of the variability in attitudes toward short courses.

Table 52. Results from multiple regression analysis for attitudes of adult farmer educators toward area school's responsibility to cooperate with cooperative extension service in adult farmer programs on number of years with current agency and years of experience in adult farmer education

Programs	b_o[a]	b_1[b]	b_2[c]	R^2	F
1. Young farmer classes	6.51	-0.10		0.09	14.70**
2. Adult farmer classes	6.48	-0.07		0.05	7.40**
3. Farm veterans classes	5.68	-0.09		0.07	11.03**
4. Short courses (max. of 3 days)	6.54	-0.07		0.04	6.78*
5. Special programs (max. of 1 day)	6.65	-0.07		0.04	6.19*
6. Field demonstrations	6.02	-0.09	0.04	0.04	3.34*
7. Field trips	6.11	-0.09		0.10	16.98**
8. Laboratory instruction	5.59	-0.09		0.07	10.54**

[a] b_o = Constant.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

*Significant at .05.

**Significant at .01.

5. Four percent of the variability in attitudes toward special programs.
6. Ten percent of the variability in attitudes toward field trips.
7. Seven percent of the variability in attitudes toward laboratory instruction.

The above relationships indicated as years with current agency increased, ratings of area schools' responsibility decreased.

Further examination of the table revealed a negative relationship for years with current agency and a positive relationship for years of experience in adult farmer education and accounted for four percent of the variability in attitudes for field demonstrations. This relationship suggested as years with current agency decreased and as years of experience in adult farmer education increased, adult farmer educators' ratings also increased.

Responsibility of cooperative extension service to cooperate with vocational agriculture in providing adult farmer education

Table 53 revealed significant F ratios ($P<.05$) for adult farmer educators' attitudes toward cooperative extension service's responsibility to cooperate with vocational agriculture as regressed on years with current agency and years of experience in adult farmer education. A negative relationship for years with current agency accounted for:

1. Three percent of the variability in attitudes toward young farmer classes.
2. Four percent of the variability in attitudes toward farm veterans classes.

Table 53. Results from multiple regression analysis for attitudes of adult farmer educators toward cooperative extension service's responsibility to cooperate with vocational agriculture in adult farmer programs on number of years with current agency and years of experience in adult farmer education

Programs	b_o [a]	b_1 [b]	b_2 [c]	R^2	F
1. Young farmer classes	6.91	-0.05		0.03	4.75*
2. Adult farmer classes	6.84	-0.03		0.01	1.26
3. Farm veterans classes	4.78	-0.07		0.04	5.83*
4. Short courses (max. of 3 days)	5.90	-0.04		0.02	2.25
5. Special programs (max. of 1 day)	6.44	-0.04		0.02	2.30
6. Field demonstrations	6.04	-0.02		0.01	0.69
7. Field trips	5.70	-0.04		0.02	2.29
8. Laboratory instruction	5.05	-0.11	0.04	0.06	4.10*

[a] b_o = Constant.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

*Significant at .05.

The above relationships suggested as years with current agency increased, ratings of cooperative extension service's responsibility decreased.

Further examination of the table revealed a negative relationship for years with current agency and a positive relationship for years of experience in adult farmer education and accounted for six percent of the variability in attitudes for laboratory instruction. This relationship indicated as years with current agency decreased and as years of experience in adult farmer education increased, adult farmer educators' ratings also increased.

Responsibility of cooperative extension service to cooperate with area schools in providing adult farmer education

Each of the eight program areas listed in Table 54 had significant F ratios ($P<.01$) for adult farmer educators' attitudes toward cooperative extension service's responsibility to cooperate with area schools as regressed on years with current agency and years of experience in adult farmer education. A negative relationship for years with current agency accounted for:

1. Fourteen percent of the variability in attitudes toward young farmer classes.
2. Thirteen percent of the variability in attitudes toward adult farmer classes.
3. Five percent of the variability in attitudes toward farm veterans classes.
4. Seven percent of the variability in attitudes toward field trips.

Table 54. Results from multiple regression analysis for attitudes of adult farmer educators toward cooperative extension service's responsibility to cooperate with area schools in adult farmer programs on number of years with current agency and years of experience in adult farmer education

Programs	b_o[a]	b_1[b]	b_2[c]	R^2	F
1. Young farmer classes	6.87	-0.13		0.14	24.36**
2. Adult farmer classes	6.62	-0.13		0.13	21.86**
3. Farm veterans classes	6.03	-0.07		0.05	7.07**
4. Short courses (max. of 3 days)	6.88	-0.18	0.05	0.16	13.40**
5. Special programs (max. of 1 day)	7.20	-0.18	0.05	0.18	14.96**
6. Field demonstrations	6.38	-0.18	0.07	0.13	9.86**
7. Field trips	5.89	-0.09		0.09	11.95**
8. Laboratory instruction	5.35	-0.12	0.05	0.07	4.95**

[a] b_o = Constant.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

**Significant at .01.

The preceding relationships indicated as years with current agency increased, ratings of cooperative extension service's responsibility decreased.

Further examination of the table revealed a negative relationship for years with current agency and a positive relationship for years of experience in adult farmer education and accounted for:

1. Sixteen percent of the variability in attitudes for short courses.
2. Eighteen percent of the variability in attitudes for special programs.
3. Thirteen percent of the variability in attitudes for field demonstrations.
4. Seven percent of the variability in attitudes for laboratory instruction.

The above relationships suggested as years with current agency decreased and as years of experience in adult farmer education increased, adult farmer educators' ratings also increased.

Methods of determining adult farmer program needs used by agricultural education agencies

Table 55 revealed significant F ratios ($P<.05$) for adult farmer educators' attitudes toward methods used in determining adult farmer education program needs as regressed on years with current agency and years of experience in adult farmer education. A positive relationship for years with current agency and a negative relationship for years of

Table 55. Results from multiple regression analysis for methods used in determining adult farmers education program needs by adult farmer educators on number of years with current agency and years of experience in adult farmer education

Methods of determining program needs	b_o [a]	b_1 [b]	b_2 [c]	R^2	F
1. Survey	4.94		0.03	0.01	1.66
2. Advisory council	7.06	0.03		0.02	2.23
3. Other organizations	4.83	0.10	-0.05	0.06	4.35*
4. Adult farmer requests	6.97	0.01		0.002	0.35
5. Staff and administration	5.13	0.10	-0.04	0.06	4.23*
6. Specialists	5.36	0.06		0.04	6.17*

[a] b_o = Constant.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

*Significant at .05.

experience in adult farmer education accounted for:

1. Six percent of the variability in attitudes for other organizations used.
2. Six percent of the variability in attitudes for staff and administration used.

The above relationships indicated as years with current agency increased and as years of experience in adult farmer education decreased, adult farmer educators' ratings also increased.

Further examination of the table revealed a positive relationship for years with current agency and accounted for four percent of the variability in attitudes toward specialists used. This relationship suggested as years with current agency increased, ratings of the above methods used for determining needs also increased.

Sources of adult farmers instructional information used by agricultural education agencies

Significant F ratios ($P<.01$) were observed for four of the six sources listed in Table 56 for adult farmer educators' attitudes toward sources of instructional information used for adult farmer education as regressed on years with current agency and years of experience in adult farmer education. A negative relationship for years with current agency accounted for:

1. Twenty-three percent of the variability in attitudes toward area schools as a source.
2. Eight percent of the variability in attitudes toward extension service as a source.

Table 56. Results from multiple regression analysis for sources of instructional information used for adult farmer education by adult farmer educators on number of years with current agency and years of experience in adult farmer education

Sources of instructional information	b_o [a]	b_1 [b]	b_2 [c]	R^2	F
1. Self-developed	5.69	0.03		0.01	1.93
2. Vocational agriculture	3.72	-0.03		0.01	1.27
3. Area schools	5.04	-0.15		0.23	40.74**
4. Extension service	6.97	0.06		0.08	12.51**
5. Industry	6.96	-0.14	0.05	0.13	10.30**
6. Publishing companies	5.23	-0.10		0.12	19.40**

[a] b_o = Constant.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

**Significant at .01.

3. Twelve percent of the variability in attitudes toward publishing companies as a source.

The above relationships suggested as years with current agency increased, ratings of the above sources of instructional information decreased.

Further examination of the table revealed a negative relationship for years with current agency and a positive relationships for years of experience in adult farmer education and explained 13 percent of the variability in attitudes for industry as a source of educational materials. This relationship indicated as years with current agency decreased and as years of experience in adult farmer education increased, adult farmer educators' ratings also increased.

Scheduling of programs by agricultural education agencies

Table 57 revealed significant F ratios ($P<.05$) for adult farmer educators' attitudes toward methods used in scheduling adult farmer meetings as regressed on years with current agency and years of experience in adult farmer education. A positive relationship for years with current agency accounted for:

1. Five percent of the variability in attitudes toward resource personnel.
2. Three percent of the variability in attitudes toward season of the year.

The above relationships indicated as years with current agency increased, ratings of the above methods used in scheduling adult farmer meetings decreased.

Table 57. Results from multiple regression analysis for methods used in scheduling adult farmer meetings by adult farmer educators on number of years with current agency and years of experience in adult farmer education

Methods of scheduling adult farmer meetings	b_o [a]	b_1 [b]	b_2 [c]	R^2	F
1. Instructors	6.11		0.01	0.002	0.33
2. Advisory council	5.65	0.02		0.004	0.61
3. Resource personnel	5.24	0.06		0.05	6.73*
4. Participants	5.72	0.03		0.01	1.96
5. Season of the year	7.24	0.04		0.03	3.94*

[a] b_o = Constant.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

*Significant at .05.

Evaluation of programs by agricultural education agencies

Stepwise regression analysis (Table 58) revealed significant F ratios (P<.05 or higher) for adult farmer educators' attitudes toward methods used in evaluating adult farmer programs as regressed on years with current agency and years of experience in adult farmer education. A positive relationship for years with current agency accounted for:

1. Six percent of the variability in attitudes toward observation by instructor as a method to evaluate programs.
2. Three percent of the variability in attitudes toward practices adopted as a method to evaluate programs.

The above relationships indicated as years with current agency increased, ratings of the above methods used to evaluate adult farmer programs also increased.

Further examination of the table revealed a negative relationship for years with current agency and accounted for five percent of the variability in attitudes toward agency providing the facility. This relationship indicated as years with current agency increased, ratings of the above method used in counting participants decreased.

Financing programs by agricultural education agencies

Two of the three dependent variables in Table 60 revealed significant F ratios (P<.01) for adult farmer educators' attitudes toward methods used for financing adult farmer educational programs as regressed on years with current agency and years of experience in adult farmer education. A positive relationship for years with current agency accounted for six percent of the variability in attitudes toward

Table 58. Results from multiple regression analysis for methods used in evaluating adult farmer programs by adult farmer educators on number of years with current agency and years of experience in adult farmer education

Methods of Evaluating Adult Farmer Programs	b_o[a]	b_1[b]	b_2[c]	R^2	F
1. Number of attendance	6.55	0.01		0.003	0.38
2. Observation by instructor	6.09	0.05		0.06	8.55**
3. Evaluation form filled out by participants	4.78		0.02	0.005	0.64
4. Advisory council	6.14		-0.006	0.0005	0.08
5. Practices adopted	5.38	0.05		0.03	4.31*

[a] b_o = Constant.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

*Significant at .05.

**Significant at .01.

Table 59. Results from multiple regression analysis for methods used in counting participants when more than one agency is sponsoring an adult farmer program by adult farmer educators on number of years with current agency and years of experience in adult farmer education

Methods of Counting Participants When More than One Agency is Sponsoring an Adult Farmer Program	b_o[a]	b_1[b]	b_2[c]	R^2	F
1. Agency providing instruction	5.61	0.05	0.04	0.08	5.74**
2. Agency coordinating educational program	6.11	-0.02		0.003	0.47
3. Agency providing the facility	4.61	-0.08		0.05	7.90**

[a] b_o = Constant.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

**Significant at .01.

Table 60. Results from multiple regression analysis for methods used for financing adult farmer educational programs by adult farmer educators on number of years with current agency and years of experience in adult farmer education

Methods of Financing Adult Farmer Educational Programs	b_o [a]	b_1 [b]	b_2 [c]	R^2	F
1. Participants pay no fee	4.62	0.09		0.06	8.85**
2. Participants pay for educational materials only	3.92		0.03	0.01	1.43
3. Participants pay a tuition fee	4.53	-0.16	0.05	0.10	7.46**

[a] b_o = Constant.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

**Significant at .01.

participants pay no fee as a method used in financing adult farmer educational programs. This relationship suggested as years with current agency increased, ratings of the above method used to finance programs also increased.

Further examination of the table revealed a negative relationship for years with current agency and a positive relationship for years of experience in adult farmer education accounted for 10 percent of the variability in attitudes for participants pay a tuition fee as a method used in financing adult farmer educational programs. The above relationship indicated as years with current agency decreased and as years of experience in adult farmer education increased, adult farmer educators' ratings also increased.

Type of cooperation needed among agricultural education agencies

Table 61 revealed a significant F ratio ($P<.01$) for adult farmer educators' attitudes toward degree of cooperation that could be achieved among agencies in providing adult farmer education as regressed on years with current agency and years of experience in adult farmer education. A negative relationship for years with current agency and a positive relationship for years of experience in adult farmer education accounted for seven percent of the variability in attitude for interagency committees to determine programs, instruction and coordination. The above relationship indicated as years with current agency decreased and as years of experience in adult farmer education increased, adult farmer educators' ratings also increased.

Table 61. Results from multiple regression analysis for perceptions of adult farmer educators toward the degree of cooperation that could be achieved among agencies in providing adult farmer education on number of years with current agency and years of experience in adult farmer education.

Degree of Cooperation That Could be Used Among Agencies	b_o [a]	b_1 [b]	b_2 [c]	R^2	F
1. Interagency mail communications of program offerings	0.0	0.0	0.0	0.0	0.0
2. Interagency meetings to discuss programs and program areas	6.73		0.009	0.002	0.22
3. Interagency committees to determine programs, instruction and coordination	6.45	-0.12	0.04	0.07	4.98**

[a] b_o = Constant.

[b] b_1 = Regression coefficient for years with current agency.

[c] b_2 = Regression coefficient for years of experience in adult farmer education.

**Significant at .01.

CHAPTER V.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The overall objective of this study was to identify the differences among vocational agriculture, area schools, and cooperative extension service in responsibilities for, and programming procedures used in, providing adult farmer education in Iowa. It was also the intent of the study to identify the effect years with current agency and years of experience in adult farmer education had on attitudes of adult farmer education.

To accomplish this task, 73 (25 percent sample) vocational agriculture teachers, 63 (50 percent sample) area school agriculture instructors, 49 (50 percent sample) county extension directors, and 30 (50 percent sample) area extension specialists were randomly selected to receive the survey instrument.

The questionnaire was developed to collect data pertaining to work experience of the four groups of adult farmer educators and their attitudes toward responsibilities for adult farmer education, inter-agency cooperation, and programming procedures used by the three agricultural education agencies involved.

Of the 208 questionnaires sent out, 170 or 81.7 percent of useable questionnaires were returned in 50 days. Statistical analysis of the data included frequencies, oneway analysis of variance and stepwise multiple regression.

Findings of the Study

This study investigated the responsibilities of agricultural education agencies serving Iowa adult farmers. This section will report major findings pertaining to:

1. Responsibilities of agricultural education agencies for various aspects of adult farmer education.
2. Responsibilities of interagency cooperation in providing adult farmer education.
3. Programming procedures used by agricultural educaion agencies.
4. Results of multiple correlation analysis.

Responsibilities of vocational agriculture, area schools and cooperative extension service for formulation and delivery of adult farmer education

Findings pertaining to agency responsibility to the formulation and delivery of adult farmer education revealed that six variables had ratings that differed significantly and also received ratings of six or above by personnel within the agency being examined. These included:

1. Agricultural instruction for vocational agriculture.
2. Development of instructional materials and agricultural instruction for area schools.
3. Formulation of research reports, development of instructional materials and agricultural instruction for extension s[illegible].

Responsibilities of vocational agriculture, area schools and cooperative extension service for methods of instruction for adult farmers

Significant differences were observed among group means for 11 variables for agency responsibility to methods of instruction for adult farmers. Variables that had significantly different means and also received ratings of six or above by personnel within the agency being examined included:

1. On the farm advising and systematic instruction on a variety of subjects for vocational agriculture.
2. Short courses, special programs, field demonstrations, field trips, systematic instruction on one subject, systematic instruction on a variety of subjects and laboratory instruction for area schools.
3. On the farm advising and special programs for extension service.

Responsibilities of vocational agriculture, area schools and cooperative extension service for adult farmer populations

Fourteen variables pertaining to agency responsibility for adult farmer populations had means that differed significantly among education groups. Variables with means that differed significantly and also had rating of six or above by personnel within the agency being examined included:

1. Young farmers, adult farmers, low income farmers, and average farmers for vocational agriculture.

2. Young farmers, adult farmers, farm veterans, low income farmers, late adopter farmers, average farmers, early adopter farmers and innovative farmers for area schools.
3. Young farmers, adult farmers and early adopter farmers for extension service.

Responsibility for cooperation among vocational agriculture, area schools and cooperative extension service in providing adult farmer education

Nine variables pertaining to agency responsibility for cooperation in providing adult farmer education had means that differed significantly and received ratings of six or above by personnel within the agency being examined. These included:

1. Vocational agriculture teachers did not rate any of the program areas six or above as vocational agriculture's responsibility to cooperate with area schools on adult farmer programs.
2. Vocational agriculture's responsibility to cooperate with extension service in providing adult farmer classes.
3. Area schools' responsibility to cooperate with vocational agriculture in providing young farmer classes.
4. Area schools' responsibility to cooperate with extension service in providing young farmer classes, adult farmer classes, short courses, field demonstrations and field trips.
5. Extension service's responsibility to cooperate with vocational agriculture in providing adult farmer classes and field demonstrations.

6. County extension directors and area extension specialists did not rate any of the program areas six or above as extension service's responsibility to cooperate with area schools on adult farmer programs.

Methods of determining program needs by agricultural education agencies

Findings pertaining to methods used in determining program needs revealed that:

1. Area extension specialists and county extension directors used other organizations significantly more ($P<.01$) than vocational agriculture teachers in determining program needs.
2. County extension directors, area extension specialists and area school agriculture instructors used staff and administration significantly more ($P<.01$) than vocational agriculture teachers in determining program needs.
3. County extension directors and area extension specialists used specialists significantly more ($P<.01$) than vocational agriculture teachers in determining program needs.

Sources of instructional information used by agricultural education agencies

Significant differences ($P<.01$) were observed among group means for six variables related to sources of instructional information used by agricultural education agencies. These differences indicated that:

1. Area school agriculture instructors and area extension specialists used self-developed materials as a source of instructional

information significantly more (P<.01) than vocational agriculture teachers.

2. Vocational agriculture teachers used vocational agriculture as a source of instructional information significantly more (P<.01) that area school agriculture instructors, county extension directors and area extension specialists. Area school agriculture instructors also used vocational agriculture as a source of instructional information significantly more (P<.01) than area extension specialists.
3. Area school agriculture instructors used area schools as a source of instructional information significantly more (P<.01) than vocational agriculture teachers, county extension directors and area extension specialists. Vocational agriculture teachers also used area schools as a source of instructional information significantly more (P<.01) than county extension directors and area extension specialists.
4. County extension directors and area extension specialists used extension service as a source of instructional information significantly more (P<.01) than area school agriculture instructors and vocational agriculture teachers.
5. Area school agriculture instructors and vocational agriculture teachers used industry significantly more (P<.01) as a source of instructional information than county extension directors and area extension specialists.

6. Area schools used publishing companies significantly more (P<.01) as a source of instructional information than county extension directors and area extension specialists.

Scheduling of programs by agricultural education agencies

One variable pertaining to agency responsibility to scheduling adult farmer programs had means that differed significantly among groups. This difference indicated county extension directors used resource personnel significantly more (P<.01) than area school agriculture instructors and vocational agriculture teachers in scheduling adult farmer programs.

Evaluation of programs by agricultural education agencies

Findings pertaining to methods used in evaluating adult farmer programs revealed that:

1. Area school agriculture instructors used evaluation forms filled out by participants significantly more (P<.05) than vocational agriculture teachers in evaluating programs.
2. County extension directors used practices adopted significantly more (P<.01) than vocational agriculture teachers in evaluating programs.

Counting participants by agricultural education agencies

Significant differences were observed among educator groups for two variables pertaining to agency responsibility for counting participants when more than one agency is involved in the program. These differences indicated that:

1. Area extension specialists and county extension directors used agency providing instruction significantly more ($P<.01$) than vocational agriculture teachers and area school agriculture instructors as a basis for counting participants.
2. Vocational agriculture teachers and area school agriculture instructors used agency providing the facility significantly more ($P<.01$) than county extension directors and area extension specialists as a rational for counting participants.

Financing programs by agricultural education agencies

Findings pertaining to methods used in financing programs revealed these differences among agricultural education groups:

1. Area extension specialists, county extension directors and vocational agriculture teachers had participants pay no fee significantly more ($P<.01$) than area school agriculture instructors in financing programs.
2. Area school agriculture instructors had participants pay a tuition fee significantly more ($P<.01$) than vocational agriculture teachers, county extension directors and area extension specialists in financing programs.

Multiple regression analysis for adult farmer education responsibilities of vocational agriculture, area schools and cooperative extension service for formulations and delivery, methods of instruction and adult farmer populations served

Nine variables pertaining to adult farmer educators' attitudes toward responsibility for formulation and delivery, methods of instruction

and adult farmer populations served with adult farmer education as regressed on years with current agency and years of experience in adult farmer education revealed a significance relationshiop (.05 or higher) and an R^2 value of .10 or higher. These included:

1. None for vocational agriculture and extension service.
2. Agricultural research, formulation of reserach reports and agricultural instruction (formulation and delivery), on the farm advising, short courses and special programs (methods of instruction), and adult farmers, low income farmers, late adopter farmers, average farmers, early adopter farmers and innovative farmers (adult farmer populations) for area schools.

Multiple regression analysis for responsibility for cooperation among vocational agriculture, area schools and cooperative extension service in providing adult farmer education

Eight variables pertaining to adult farmer educators' attitudes toward responsibility for cooperation among agencies as regressed on years with current agency and years of experience in adult farmer education revealed a significance relationship (.05 or higher) and an R^2 value of .10 or higher. These include:

1. Young farmer classes and adult farmer classes as vocational agriculture's responsibility to cooperate with area schools.
2. None for vocational agriculture's responsibility to cooperate with extension service.
3. None for area schools' responsibility to cooperate with vocational agriculture.

4. Field trips as area schools' responsibility to cooperate with extension service.
5. None for extension service's responsibility to cooperate with vocational agriculture.
6. Young farmer classes, adult farmer classes, short courses, special programs and field demonstrations for extension service's responsibility to cooperate with area schools.

Multiple regression analysis for programming procedures used by agricultural education agencies

Regression coefficients for only four variables pertaining to adult farmer educators' attitudes toward programming procedures for adult farmer education as regressed on years with current agency and years of experience in adult farmer education were significant at the .05 or higher level and an R^2 value of .10 or higher. These were area schools, industry and publishing companies as a source of instructional information for adult farmer education and participants pay a tuition fee as a method of financing educational programs.

Type of cooperation needed among agricultural education agencies

Only one variable had means that differed significantly among groups. Area school agriculture instructors saw interagency committees to determine programs, instruction, and coordination as the degree of coordination needed among agencies was more favorable ($P<.01$) than area extension specialists.

Conclusions

The conclusions based on the findings of this study will be reported as follows:

1. Responsibilities of agricultural education agencies for various aspects of adult farmer education.
2. Responsibilities of interagency cooperation in providing adult farmer education.
3. Programming procedures used by agricultural education agencies.
4. Results of multiple correlation analysis.

Responsibilities of vocational agriculture, area schools and cooperative extension service for formulation and delivery of adult farmer education

1. Vocational agriculture had an above average responsibility to agricultural instruction and an average to below average responsibility to the other areas of formulating and delivering adult farmer education as rated by all groups of agricultural education. Vocational agriculture teachers generally rated vocational agriculture's responsibilities to all areas of formulating and delivering adult farmer education higher than the other three groups. However, vocational agriculture teachers viewed their main responsibility to agricultural instruction. Vocational agriculture's responsibility to agricultural instruction for adult farmers was viewed highest by personnel with vocational agriculture and area school experience followed by those personnel with vocational agriculture experience only and personnel with area school experience only.

2. Area schools had an above average responsibility to agricultural instruction and development of instructional materials. The remaining three areas were generally below average in responsibility. Area school agriculture instructors rated area schools' responsibility to develop instructional materials, agricultural instruction and dissemination of educational materials significantly higher than the other three groups. However, area school agriculture instructors indicated their main responsibilities were to agricultural instruction and development of instructional materials. Area schools' responsibility to the development of instructional materials and agricultural instruction of adult farmers was viewed highest by personnel with vocational agriculture and area school experience followed by personnel with area school experience only and personnel with vocational agriculture experience only.
3. Extension service had high responsibility ratings for all areas of formulation and delivery of adult farmer education. Area specialists and county extension directors indicated extension's responsibility to agricultural instruction was higher than area school agriculture instructors and vocational agriculture teachers. Extension service's responsibility to all areas of formulation and delivery of adult farmer education was viewed categorically highest by personnel with vocational

agriculture and extension service experience, followed by personnel with extension service experience only.

Responsibilities of vocational agriculture, area schools and cooperative extension service for methods of instruction for adult farmers

1. Vocational agriculture had an above average responsibility to systematic instruction on a variety of subjects and an average to below average responsibility to the other methods of instruction for adult farmers. Vocational agriculture teachers rated vocational agriculture's responsibilities to systematic instruction on a variety of subjects higher than the other three groups. However, vocational agriculture teachers viewed their main responsibility to systematic instruction on a variety of subjects. Vocational agriculture's responsibility to on the farm advising of adult farmers was viewed highest by personnel with vocational agriculture and area school experience followed by those personnel with vocational agriculture experience only and personnel with area school experience only. Systematic instruction on a variety of subjects received its highest rating from personnel with vocational agriculture and area school experience and personnel with vocational agriculture and extension experience.
2. Area schools had an above average responsibility to systematic instruction on one subject and an average to below average responsibility to the other methods of instruction for adult farmers. Area school agriculture instructors rated area

schools' responsibility to all methods of instruction higher than the other three groups. The area school agriculture instructors' ratings for all areas were above average. They further indicated systematic instruction on one subject, special programs, laboratory instruction, short courses and systematic instruction on a variety of subjects as being high responsibility areas.

Area schools' responsibility to all areas of instructional methods of adult farmers was viewed highest by personnel with vocational agriculture and area school experience and personnel with area school experience only followed by personnel with vocational agriculture experience only.

3. Extension service had high responsibility ratings for on the farm advising, short courses, special programs and field demonstrations, an above average rating for field trips and an average to below average rating for systematic instruction on a variety of subjects, and laboratory instruction. Extension personnel viewed extension's highest responsibilities as being on the farm advising, short courses, special programs, and field demonstration.

   Extension service's responsibility to on the farm advising, short courses, special programs and field demonstrations as methods to deliver adult farmer education was viewed categorically high by personnel with extension experience only, personnel with vocational agriculture and extension experience,

personnel with area school experience only, and personnel with vocational agriculture and area school experience.

Responsibilities of vocational agriculture, area schools and cooperative extension service for adult farmer populations

1. Vocational agriculture had an above average responsibility for young farmers and an average to below average responsibility to the other adult farmer populations. Vocational agriculture teachers rated vocational agriculture's responsibilities to adult farmers higher than the other three groups. However, vocational agriculture teachers viewed their main responsibility as being the young farmer population.
   Vocational agriculture's responsibility to young farmers, adult farmers, low income farmers and average farmers was viewed highest by personnel with vocational agriculture experience only, followed by personnel with vocational agriculture and area school experience and personnel with vocational agriculture and extension experience.
2. Area schools had an above average responsibility for farm veterans and young farmers. The other six areas were below average in responsibility. Area school agriculture instructors rated area schools' responsibility to adult farmer populations higher than the other three groups. They viewed their main responsibility, however, to be with farm veterans, young farmers, adult farmers and average farmers.

Area schools' responsibility to all populations of adult farmers was viewed categorically highest by personnel with area school experience only followed by personnel with vocational agriculture and area school experience and personnel with vocational agriculture experience only.

3. Extension service had high responsibility ratings for all adult farmer populations except farm veterans which was average. Area specialists and county extension directors indicated extension's highest responsibility was to adult farmers, early adopter farmers, innovative farmers and average farmers.

   Extension service's responsibility to all populations of adult farmers except farm veterans was viewed categorically highest by personnel with vocational agriculture and extension service experience followed by personnel with extension service experience only, personnel with vocational agriculture experience only and personnel with area school experience only.

Responsibility for cooperation among vocational agriculture, area schools and cooperative extension service in providing adult farmer education

1. Vocational agriculture had an average to below average responsibility to cooperate with area schools on all program areas listed. Vocational agriculture teachers' highest rating was 5.29 on a nine-point scale for vocational

agriculture's responsibility to cooperate with area schools on field demonstrations.

Vocational agriculture's responsibility to cooperate with area schools on adult farmer programs was viewed highest by personnel with vocational agriculture and area school experience followed by those personnel with area school experience only. Personnel with vocational agriculture experience only were somewhat lower.

2. Vocational agriculture had an average responsibility to cooperate with extension service on adult farmer classes, special programs, field demonstrations, young farmer classes, short courses and field trips and a below average responsibility to cooperate on laboratory instruction and farm veterans classes. Vocational agriculture teachers viewed adult farmer classes, young farmer classes, field demonstrations and special programs as the areas vocational agriculture has the highest responsibility to cooperate with extension service.

   Vocational agriculture's responsibility to cooperate with extension service on adult farmer programs was viewed categorically highest by personnel wtih vocational agriculture experience only followed by those personnel with vocational agriculture and area school experience and personnel with area school experience only. Personnel with vocational agriculture

and extension experience and personnel with extension experience only were somewhat lower.

3. Area schools had an average responsibility to cooperate with vocational agriculture on young farmer programs. The other seven areas were generally below average in responsibility. Area school agriculture instructors rated area schools' responsibility to cooperate with vocational agriculture highest (6.13) on young farmer programs.
   Area schools' responsibility to cooperate with vocational agriculture on adult farmer programs was viewed highest by personnel with vocational agriculture and area school experience followed by those personnel with vocational agriculture experience only. Those personnel with vocational agriculture and extension experience and personnel with extension experience only were somewhat lower.
4. Area schools had an average responsibility to cooperate with extension service on special programs, short courses, adult farmer classes and young farmer classes. The remaining four areas were generally below average in responsibility. Area school agriculture instructors rated area schools' responsibility to cooperate with extension service highest on special programs, short courses, adult farmer classes and field demonstrations. These ratings were all under seven.
   Area schools' responsibility to cooperate with extension service on adult farmer programs was viewed highest by personnel

with area school experience only followed by personnel with vocational agriculture and area school experience and personnel with vocational agriculture experience only. Personnel with vocational agriculture experience and extension experience and personnel with extension experience only were somewhat lower in their ratings.

5. Extension service had an above average responsibility to cooperate with vocational agriculture on adult farmer classes, young farmer classes, special programs and field demonstrations. County extension directors rated extension's responsibility to cooperate with vocational agriculture highest on adult farmer classes, young farmer classes, special programs and field demonstrations. This view was not shared by area extension specialists, however, who rated all areas average to below average.

   Extension service's responsibility to cooperate with vocational agriculture on adult farmer programs was viewed categorically highest by personnel with vocational agriculture experience only followed by personnel with area school experience only and personnel with vocational agriculture and area school experience. Personnel with vocational agriculture and extension experience and personnel with extension service experience only generally rated the responsibility average.

6. Extension service had an average responsibility to cooperate with area schools on farm veterans classes and special programs.

The other six areas were generally below average, particularly for two of the groups. Area extension specialists and county extension directors indicated extension's responsibility to cooperate with area schools on all program areas was below average. The highest rating (4.80 and 4.27) was cooperation on farm veterans classes as perceived by county extension directors and area extension specialists.

Extension service's responsibility to cooperate with area schools on adult farmer programs was viewed categorically highest by personnel with area school experience only followed by personnel with vocational agriculture and area school experience only. Personnel with vocational agriculture and extension service experience and personnel with extension service only experience rated the responsibility much lower than the other groups.

Methods of determining program needs by agricultural education agencies

1. Vocational agriculture teachers used advisory councils first, adult farmer requests second, and survey third in determining program needs.
2. Area school instructors used advisory councils most, followed by adult farmer requests and staff and administration in determining program needs.
3. County extension directors used advisory councils most frequently, followed by adult farmer requests and staff and

administration in determining program needs.

4. Area extension specialists used advisory councils first, adult farmer requests second, and specialists third in determining program needs.

Sources of instructional information used by agricultural education agencies

1. Vocational agriculture teachers used industry first, extension service second and vocational agriculture third as sources of instructional materials.
2. Area school instructors used industry most, followed by extension service and self-developed as sources of instructional materials.
3. County extension directors used extension service most frequently followed by self-developed and industry as sources of instructional materials.
4. Area extension specialists used extension service first, self-developed second and industry third as sources of instructional information.

Scheduling of programs by agricultural education agencies

1. Vocational agriculture teachers used season of the year first, advisory council second and instructors third in scheduling adult farmer programs.
2. Area school instructors used season of the year most, followed by participants and instructors in scheduling adult farmer programs.

3. County extension directors used season of the year most frequently, followed by resource personnel and instructors in scheduling adult farmer programs.
4. Area extension specialists used season of the year first, adult resource personnel second, and instructors third in scheduling adult farmer programs.

Evaluation of programs by agricultural education agencies

1. Vocational agriculture teachers used observation by instructor first, number in attendance second, and advisory council third in evaluating programs.
2. Area school instructors used number in attendance most, followed by observation of instructor and evaluation form filled out by participants in evaluating programs.
3. County extension directors used number in attendance most frequently, followed by observation by instructor and practices adopted in evaluating programs.
4. Area extension specialists used observation by instructor first, number in attendance second, and practices adopted third in evaluating programs.

Counting participants by agricultural education agencies

1. Vocational agriculture teachers used agency coordinating educational program first and agency providing instruction second as a basis for counting participants.

2. Area school instructors used agency coordinating educational programs most, followed by agency providing instruction as a criteria for counting participants.
3. County extension directors used agency providing instruction most frequently, followed by agency coordinating educational program as a rational for counting participants.
4. Area extension specialists used agency providing instruction first and agency coordinating educational program second as a basis for counting participants.

Financing programs by agricultural education agencies

1. Vocational agriculture teachers used participants pay no fee first and participants pay for educational materials only second in financing programs.
2. Area school instructors used participants pay a tuition fee most, followed by participants pay for educational materials only in financing programs.
3. County extension directors used participants pay no fee most frequently, followed by participants pay for educational materials only in financing programs.
4. Area extension specialists used participants pay no fee first and participants pay for educational materials only second in financing programs.

Type of cooperation needed among agricultural education agencies

1. Vocational agriculture teachers rated interagency meetings to discuss programs and program areas first and interagency mail communications of program offerings second as the degree of cooperation needed among agencies.
2. Area school instructors rated interagency mail communications of program offerings as the most acceptable degree of cooperation followed by interagency meetings to discuss programs and program areas.
3. County extension directors rated interagency mail communications of program offerings highest with interagency meetings to discuss programs and program areas second as the degree of cooperation among agencies.
4. Area extension specialists rated interagency mail communications of program offerings first and interagency meetings to discuss programs and program areas second as the most acceptable degree of cooperation.

Multiple regression analysis for adult farmer education responsibilities of vocational agriculture, area schools and cooperative extension service for formulation and delivery, methods of instruction and adult farmer populations served

1. Years with the current agency and years of experience in adult farmer education had little predictive value in predicting adult educators' attitudes about the responsibility of vocational agriculture and cooperative extension service to formulate and deliver adult farmer education.

2. Years with current agency and years of experience in adult farmer education accounted for:

   a. Eleven to 13 percent of the variance in adult farmer educators' attitudes toward area schools' responsibility to agricultural research and formulation of research reports.

   b. Eleven percent of the variance in adult farmer educators' attitudes toward area schools' responsibility to on the farm advising as a method of instruction.

   c. Sixteen percent of the variance in adult farmer educators' attitudes toward area schools' responsibility to late adopter farmers.

   Years with current agency alone explained:

   a. Ten percent of the variance in attitudes toward area schools' responsibility for agricultural instruction.

   b. Fifteen percent of the variance in attitudes toward area schools' responsibility for short courses and special programs.

   c. Thirteen to 25 percent of the variance in attitudes toward area schools' responsibility for adult farmers, low income farmers, average farmers, early adopter farmers and innovative farmers.

Multiple regression analysis for responsibility for cooperation among vocational agriculture, area schools and cooperative extension service in providing adult farmer education

1. Years with current agency and years of experience in adult farmer education accounted for 13 percent of the variance in predicting adult educators' attitudes about vocational agriculture's responsibility to cooperate with area schools on young farmer classes. Years with current agency alone explained 17 percent of the variances in attitudes for adult farmer classes.
2. Years with the current agency and years of experience in adult farmer education had little predictive value in predicting adult educators' attitudes as to vocational agriculture's responsibility to cooperate with extension service on adult farmer programs.
3. Years with current agency and years of experience in adult farmer education had little predictive value in adult farmer educators' attitudes toward area schools' responsibility to cooperate with vocational agriculture on adult farmer programs.
4. Years with current agency accounted for 10 percent of the variance in adult farmer educators' attitudes toward area schools' responsibility to cooperate with extension service on field trips.
5. Years with the current agency and years of experience in adult farmer education had little predictive value in predicting

adult educators' attitudes as to extension service's responsibility to cooperate with vocational agriculture on adult farmer programs.

6. Years with the current agency and years of experience in adult farmer education explained 13 to 18 percent of the variance in adult educators' attitudes as to extension service's responsibility to cooperate with area schools on short courses, special programs and field demonstrations. Years with current agency alone explained 13 to 14 percent of the variance in attitudes for young farmer classes and adult farmer classes.

Multiple regression analysis for programming procedures used by agricultural education agencies

1. Years with current agency and years of experience in adult farmer education accounted for 13 percent of the variance in adult farmer educators' attitudes toward industry as a source of instructional information for adult education. Years with current agency alone explained 12 to 23 percent of the variance for publishing companies and area schools.
2. Years with current agency and years of experience in adult farmer education accounted for 10 percent of the variance in adult farmer educators' attitudes toward participants paying a tuition fee as a means of financing adult farmer programs.

Specific Conclusions Pertaining to Agency Responsibilities

The following conclusions are based on data pertaining to each agency's responsibilities as perceived by personnel within the agency being cited. The ratings listed were obtained using a nine-point scale with one being "no responsibility" and nine being "high responsibility".

1. Vocational agriculture teachers rated vocational agriculture's responsibility for the formulation and delivery of adult farmer education highest for agricultural instruction (7.60) followed by dissemination of educational materials (5.50) and development of instructional materials (5.48).

2. Area school agriculture instructors rated area schools' responsibility for the formulation and delivery of adult farmer education highest for agricultural instruction (8.45) followed by development of instructional materials (6.54) and dissemination of educational materials (5.98).

3. County extension directors and area extension specialists rated cooperative extension's responsibility for the formulation and delivery of adult farmer education highest for dissemination of educational materials (8.72 and 8.63) followed by agricultural instruction (8.48 and 8.70), development of instructional materials (8.04 and 8.37), agricultural research (7.85 and 7.04) and formulation of research reports (7.78 and 7.11).

4. Vocational agriculture teachers rated vocational agriculture's responsibility for methods of adult farmer instruction highest for systematic instruction on a variety of subjects (7.15) followed by field trips (6.18) and on the farm advising (6.05).

5. Area school agriculture instructors rated area schools' responsibility for methods of adult farmer instruction highest for systematic instruction on one subject--formal classes (7.85) followed by special programs (7.51), laboratory instruction (7.28), short courses (7.23), systematic instruction on a variety of subjects (7.03), field trips (6.90), field demonstrations (6.23) and on the farm advising (5.86).

6. County extension directors and area extension specialists rated cooperative extension's responsibility for methods of adult farmer instruction highest for special programs (8.74 and 8.74) and short courses (8.34 and 8.70) followed by on the farm advising (8.17 and 8.11), field demonstrations (8.19 and 7.81), field trips (6.70 and 6.41), and systematic instruction on a variety of subjects (5.87 and 5.28).

7. Vocational agriculture teachers rated vocational agriculture's responsibility to adult farmer populations highest for young farmers (6.98) followed by adult farmers (6.68), average farmers (6.29), low income farmers (6.13) and late adopter farmers (5.93).

8. Area school agriculture instructors rated area schools' responsibility to adult farmer populations highest for farm veterans

(8.58) and young farmers (8.15) followed by adult farmers (7.25), average farmers (7.00), late adopter farmers (6.97), low income farmers (6.96), innovative farmers (6.70) and early adopter farmers (6.50).

9. County extension directors and area extension specialists rated extension's responsibility to adult farmer populations highest for adult farmers (8.40 and 8.44), early adopter farmers (8.40 and 8.11) and innovative farmers (8.15 and 8.00) followed by average farmers (8.00 and 7.85), low income farmers (7.68 and 7.74), young farmers (7.62 and 7.59) and late adopter farmers (7.32 and 7.37).

10. Vocational agriculture teachers rated vocational agriculture's responsibility to cooperate with area schools highest on field demonstrations (5.29) followed by special programs (5.16) and young farmer classes (5.07).

11. Vocational agriculture teachers rated vocational agriculture's responsibility to cooperate with cooperative extension highest on adult farmer classes (6.85) and young farmer classes (6.62) followed by field demonstrations (6.43), special programs (6.24) and short courses (5.78).

12. Area school agriculture instructors rated area schools' responsibility to cooperate with vocational agriculture highest on young farmer classes (6.13) followed by adult farmer classes (5.90), special programs (5.28), farm veterans (5.18), field trips (5.15), short courses (5.10) and field demonstrations (5.10).

13. Area school agriculture instructors rated area schools' responsibility to cooperate with cooperative extension highest on short

courese (6.63) and special programs (6.63) followed by adult farmer classes (6.58), field demonstrations (6.53), young farmer classes (6.30), field trips (6.03), farm veterans classes (5.78) and laboratory instruction (5.40).

14. County extension directors and area extension specialists rated cooperative extension's responsibility to cooperate with vocational agriculture highest on adult farmer classes (6.89 and 5.15) and young farmer classes (6.47 and 5.37) followed by field demonstrations (6.27 and 4.81) and field trips (6.07 and 4.38).

15. County extension directors and area extension specialists rated cooperative extension's responsibility to cooperate with area schools highest on farm veterans classes (4.80 and 4.27) followed by special programs (4.76 and 4.15) and short courses (4.43 and 4.12).

Recommendations

The findings of this study indicate personnel within vocational agriculture, area schools and cooperative extension service agree and disagree on many areas of responsibility. This being the case, the following recommendations are set forth:

1. An outline of the major findings of this study should be distributed to personnel in charge of inservice education within the three agricultural education agencies studied. With this outline an inservice program could be designed to shed new light on some old issues.

2. Iowa State University Departments of Agricultural Education and Cooperative Extension Service as well as other departments engaged in preservice education of vocational agriculture teachers, area school agriculture instructors, county extension directors and area extension specialists should identify more fully the roles and responsibilities of vocational agriculture, area schools and cooperative extension service in providing adult farmer education. Ways and means for cooperation and coordination of programs among agencies should also be stressed.
3. Administrators within the agencies involved could appoint representatives from their respective agencies to study the feasibility and probability of more cooperation and coordination among agricultural education agencies serving the adult farmers of Iowa.
4. Vocational agriculture, area school agriculture departments and Iowa State University Extension Service should hold "open houses" at the local, area, and state levels to acquaint each other with their objectives and direction for the future.
5. Hold a combined three agency state conference using practitioners from the field to work together in committees to formulate answers to problems and initiate new methods of articulation among agencies to better serve the adult farmers of Iowa.

6. Future study of Iowa adult farmers' expectations of vocational agriculture, area schools and cooperative extension service is necessary to further identify the responsibilities of each agency.
7. With attitudes of agricultural education agency personnel known, further research is needed to determine what causes the attitudes which exist. Years with current agency and years of experience in adult farmer education as independent variables accounted for sporadic and relatively small amounts of variance in adult farmer educators' attitudes. Better predictors of these attitudes toward responsibilities of and programming procedures used by agricultural education agencies serving the adult farmers of Iowa are needed to further promote cooperation and coordination among agencies.
8. Since interagency mail communications of program offerings and interagency meetings to discuss programs and program areas received relatively high ratings from personnel within vocational agriculture, area schools and extension service, adult farmer educators at all levels need to put forth a renewed effort to keep the lines of communication open among agencies.

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A special thanks is extended to Dr. Harold Crawford and Dr. Thomas Hoerner for serving on my graduate committee as well as giving me an opportunity to come to Iowa State University to pursue a degree in agricultural education.

Dr. Clarence Bockhop, Dr. John Wilson, and Dr. Roger Lawrence gave direction in agricultural engineering and adult and extension education, my minor areas. To them I extend my thanks.

I am thankful to Mr. Rod Ganey and Mr. Gary Briers for their assistance in the programming necessary to interpret the data collected and also to my typist, Mrs. Sandy Briers.

I am especially grateful to all vocational agriculture teachers, area school agricultural instructors, county extension directors, and area extension specialists for the time they gave to this study.

Tremendous support has been exhibited by my wife, Pauline, and children, Paul, Becky, Heather and Roy throughout my graduate program. To them, my very sincere thanks.

APPENDIX A: CORRESPONDENCE

Iowa State University of Science and Technology Ames, Iowa 50011

Department of Agricultural Education
223 Curtiss Hall
Telephone 515-294-5872

November 3, 1977

Adult Farmer Education is a very important part of programs offered by Vocational Agriculture, Area Schools and the Cooperative Extension Service. The Department of Agriculture Education at Iowa State University has initiated a study to identify the roles and responsibilities of the three above agencies in providing Adult Farmer Education. The results of this study will provide the agencies involved with an indepth understanding of programs offered by agencies other than their own. It will also identify possible areas of coordination and cooperation among agencies.

You have been selected to represent your agency in identifying what you believe the roles and responsibilities are for your agency as well as the other two agencies involved in Adult Farmer Education. We hope you will elect to participate by completing the enclosed questionaire. Please be advised that the information which you provide will be held in confidence and your responses will be combined with other responses and reported only in group summary form. If you have any questions about your participation, please call me at (515) 294-8607.

Please complete the enclosed questionaire, staple so that the self-addressed portion of the back is showing, and return as soon as possible.

Sincerely,

Weldon Sleight

Weldon S. Sleight
Instructor, Ag Engineering
214D Davidson Hall, ISU
Ames, Iowa 50011

David Williams

David Williams
Associate Professor
Agricultural Education

WS/dmf
Enclosure

Iowa State University of Science and Technology Ames, Iowa 50011

Department of Agricultural Education
223 Curtiss Hall
Telephone 515-294-5872

November 11, 1977

Adult Farmer Education is a very important part of programs offered by Vocational Agriculture, Area Schools and the Cooperative Extension Service. The Department of Agriculture Education at Iowa State University has initiated a study to identify the roles and responsibilities of the three above agencies in providing Adult Farmer Education. The results of this study will provide the agencies involved with an indepth understanding of programs offered by agencies other than their own. It will also identify possible areas of coordination and cooperation among agencies.

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Sincerely,

Weldon Sleight

Weldon S. Sleight
Instruction, Ag Eng.
214D Davidson Hall
ISU
Ames, Iowa 50011

Gerald Lamers

Gerald Lamers
Post-Secondary Consultant

WS/dmf
Enclosure

Iowa State University of Science and Technology
233
Cooperative Extension Service
Ames, Iowa 50011
Administrative Offices
Curtiss Hall
Telephone 515-294-3283

November 15, 1977

The following request is being sent to a selected sample of Iowa County Extension Directors.

In 1970 while Dean Lee Kolmer was serving as Assistant Dean of University Extension, he chaired an Agriculture Task Force State Coordinating Committee which developed a policy statement regarding non-credit agriculture education in Iowa. Extension, area schools, and vocational agriculture personnel were involved. The statement outlined roles and responsibilities of Cooperative Extension Service, vocational agriculture and area schools in providing adult farmer education.

To determine where the three agencies stand today, the Department of Agriculture Education is undertaking a brief study to determine the thinking of current staff members involved in adult farmers' education. Questionnaires similar to the enclosed copy are being sent to representative agriculture teachers in high school and area schools.

Would you please complete the enclosed questionnaire, stapled so that the self-addressed portion of the back is showing. We would appreciate a return by November 28, 1977.

Thank you for your cooperation. A summary of the study findings will be provided to you upon completion.

Incidentally, Weldon Sleight, the student giving leadership in this study, is a former ag teacher and county extension agent in Utah.

Sincerely yours,

Roger L. Lawrence
Coordinator of Extension
Personnel Training

Weldon Sleight
Instructor, Agricultural
Engineering

Iowa State University of Science and Technology
234
Cooperative Extension Service
Ames, Iowa 50011
Administrative Offices
Curtiss Hall
Telephone 515-294-3283

November 15, 1977

The following request is being sent to a selected sample of Iowa Area Specialists.

In 1970 while Dean Lee Kolmer was serving as Assistant Dean of University Extension, he chaired an Agriculture Task Force State Coordinating Committee which developed a policy statement regarding non-credit agriculture education in Iowa. Extension, area schools, and vocational agriculture personnel were involved. The statement outlined roles and responsibilities of Cooperative Extension Service, vocational agriculture and area schools in providing adult farmer education.

To determine where the three agencies stand today, the Department of Agriculture Education is undertaking a brief study to determine the thinking of current staff members involved in adult farmers' education. Questionnaires similar to the enclosed copy are being sent to representative agriculture teachers in high school and area schools.

Would you please complete the enclosed questionnaire, stapled so that the self-addressed portion of the back is showing. We would appreciate a return by November 28, 1977.

Thank you for your cooperation. A summary of the study findings will be provided to you upon completion.

Incidentally, Weldon Sleight, the student giving leadership in this study, is a former ag teacher and county extension agent in Utah.

Sincerely yours,

Roger L. Lawrence
Coordinator of Extension
Personnel Training

Weldon Sleight
Instructor, Agricultural
Engineering

Iowa State University of Science and Technology Ames, Iowa 50011

Department of Agricultural Education
223 Curtiss Hall
Telephone 515-294-5872

November 28, 1977

On November 11, a gold colored questionnaire was sent to you to get your opinion on adult farmer education and the agencies serving it. We realize this is a busy time of the year for you because you are getting geared up for your adult farmer programs this winter. It is our hope that you will see the necessity to complete the questionnaire as your input is very important to us. If you have any questions about the questionnaire, please phone me at (515) 294-8607.

Thanks so much for your interest in the adult farmer programs in Iowa.

Sincerely,

Weldon Sleight
Instructor, Ag.Engr.

David Williams
Associate Professor
Agricultural Education

P.S. If you have sent your questionnaire in, please disregard this letter.

Dw

December 2, 1977

On November 15, a gold-colored questionnaire was sent to you to get your opinion on adult farmer education and the agencies serving it. As of this date, we have not received yours. It is our hope that you will see the necessity of completing the questionnaire as your input is very important to us. If your questionnaire is in the mail, please disregard this note.

Thanks again for your interest in this study.

Sincerely yours,

Weldon Sleight
Instructor, Agricultural Engineering

Iowa State University of Science and Technology Ames, Iowa 50011

Department of Agricultural Education
223 Curtiss Hall
Telephone 515-294-5872

November 28, 1977

On November 11, a gold colored questionnaire was sent to you to get your opinion on adult farmer education and the agencies serving it. We realize this is a busy time of the year for you because you are getting geared up for your adult farmer programs this winter. It is our hope that you will see the necessity to complete the questionnaire as your input is very important to us. If you have any questions about the questionnaire, please phone me at (515) 294-8607.

Thanks so much for your interest in the adult farmer programs in Iowa.

Sincerely,

Weldon Sleight
Instructor, Ag.Engr.

Gerald Lamers
Post-Secondary Consultant

P.S. If you have sent your questionnaire in, please disregard this letter.

Iowa State University *of Science and Technology* *Ames, Iowa 50011*

Department of Agricultural Education
223 Curtiss Hall
Telephone 515-294-5872

December 12, 1977

Your opinion is very important to us!

We are currently trying to finish up the research study, "ADULT FARMER EDUCATION IN IOWA." As of yet we have not received your questionnaire. Your response to this instrument is very important since you have been selected as part of a random sample. If you have any questions about the questionnaire please call me at (515/294-8607). We are enclosing a second questionnaire for your use if necessary.

We again want to thank you for your help in this study and look forward to hearing from you.

Sincerely,

Weldon Sleight
Instructor
Agriculutral Engineering

David Williams
Associate Professor
Agricultural Education

WS/dmf
Enclosure

APPENDIX B: QUESTIONNAIRE

Iowa State University
Ames, Iowa

ADULT FARMER EDUCATION IN IOWA

PART I

Demographical Information

A. _____ Number of years with current agency

B. _____ Years of experience in adult farmer education

C. Please check each agency in which you have had employment experience

1. _____ Vocational Agriculture
2. _____ Area Schools
3. _____ Extension Service

D. Please indicate area in which most of your time is devoted.

1. _____ Animal Science
2. _____ Plant Science
3. _____ Agriculture Mechanics
4. _____ Agribusiness
5. _____ General Agriculture
6. _____ Other _____

PART II

DIRECTIONS:

PLEASE INDICATE WHAT YOU BELIEVE THE DEGREE OF RESPONSIBILITY SECONDARY VOCATIONAL AGRICULTURE, AREA COMMUNITY COLLEGES AND/OR VOCATIONAL SCHOOLS, AND IOWA STATE UNIVERSITY COOPERATIVE EXTENSION SERVICE SHOULD HAVE IN THE FOLLOWING AREAS AS THEY RELATE TO ADULT FARMER EDUCATION

ON EACH SCALE PROVIDED CIRCLE A NUMBER 1 THROUGH 9 WHICH MOST NEARLY REFLECTS YOUR FEELING ABOUT THE ROLE OF EACH AGENCY. USE THE FOLLOWING SCALE AS A GUIDE.

1 2 3 4 5 6 7 8 9

NO RESPONSIBILITY — **AVERAGE RESPONSIBILITY** — **HIGH RESPONSIBILITY**

A. Please circle the degree of responsibility to adult farmer education you believe each of the three agencies has in the following areas.

	Vo. Ag.	Area Schools	Extension Service
EXAMPLE:			
1. Pesticide-use training	(1) 2 3 4 5 6 7 8 9	1 2 3 4 (5) 6 7 8 9	1 2 3 4 5 6 7 8 (9)
1. Agricultural Research	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
2. Formulation of Research Reports	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
3. Development of instructional materials	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
4. Agricultural Instruction	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
5. Dissemination of Educational Materials	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9

B. Please circle the degree of responsibility to adult farmer education you believe each of the three agencies have in the following methods of instruction.

	Vo. Ag.	Area Schools	Extension Service
1. On the farm advising	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
2. Short courses (max. of 3 days)	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
3. Special programs (max. of 1 day)	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
4. Field demonstration	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
5. Field trips	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
6. Systematic instruction--one subject (formal classes)	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
7. Systematic instruction--variety of subjects (one night a week or month)	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
8. Laboratory instruction	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9

C. Please circle the degree of responsibility to adult farmer education you believe each of the three agencies have to the following adult farmer populations.

	Vo. Ag.	Area Schools	Extension Service
1. Young farmers (16-28 years of age)	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
2. Adult farmers (over 28 years of age)	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
3. Farm Veterans (no age limitation)	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
4. Low income farmers	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
5. Late adopter farmers	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
6. Average farmers	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
7. Early adopter farmers	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
8. Innovative farmers	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9

D. Please circle the degree of responsibility vocational agriculture has to cooperate with area schools and the extension service in the following adult farmer programs.

	Area Schools	Extension Service
1. Young farmer classes	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
2. Adult farmer classes	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
3. Farm Veterans classes	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
4. Short courses (max. of 3 days)	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
5. Special programs (max. of 1 day)	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
6. Field demonstrations	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
7. Field trips	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
8. Laboratory instruction	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9

E. Please circle the degree of responsibility area schools have to cooperate with vocational agriculture and the extension service in the following adult farmer programs.

	Vo. Ag.	Extension Service
1. Young farmer classes	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
2. Adult farmer classes	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
3. Farm Veterans classes	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
4. Short courses (max. of 3 days)	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
5. Special programs (max. of 1 day)	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
6. Field demonstration	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
7. Field trips	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
8. Laboratory instruction	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9

F. Please circle the degree of responsibility the extension service has to cooperate with vocational agriculture and area schools in the following adult farmer programs.

	Vo. Ag.	Area Schools
1. Young farmer classes	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
2. Adult farmer classes	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
3. Farm Veterans classes	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
4. Short courses (max. of 3 days)	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
5. Special programs (max. of 1 day)	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
6. Field demonstration	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
7. Field trips	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
8. Laboratory instruction	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9

PART III

ON EACH SCALE PROVIDED CIRCLE A NUMBER 1 THROUGH 9 WHICH MOST NEARLY REFLECTS YOUR FEELINGS ABOUT PROGRAM PROCEDURES.

1 2 3 4 5 6 7 8 9

NO USE — **MEDIUM USE** — **HIGH USE**

A. Please circle the degree each of the following are used in determining adult farmer education program needs by your agency.

1. Survey	1 2 3 4 5 6 7 8 9
2. Advisory council	1 2 3 4 5 6 7 8 9
3. Other organizations	1 2 3 4 5 6 7 8 9
4. Adult farmer requests	1 2 3 4 5 6 7 8 9
5. Staff and administration	1 2 3 4 5 6 7 8 9
6. Specialists	1 2 3 4 5 6 7 8 9

B. Please circle the degree each of the following sources of instructional information are used by your agency in adult farmer education.

1. Self developed 1 2 3 4 5 6 7 8 9
2. Vocational agriculture 1 2 3 4 5 6 7 8 9
3. Area schools 1 2 3 4 5 6 7 8 9
4. Extension service 1 2 3 4 5 6 7 8 9
5. Industry 1 2 3 4 5 6 7 8 9
6. Publishing companies 1 2 3 4 5 6 7 8 9

C. Please circle the degree the following are used in scheduling adult farmer meetings by your agency.

1. Instructors 1 2 3 4 5 6 7 8 9
2. Advisory council 1 2 3 4 5 6 7 8 9
3. Resource personnel 1 2 3 4 5 6 7 8 9
4. Participants 1 2 3 4 5 6 7 8 9
5. Season of the year 1 2 3 4 5 6 7 8 9

D. Please circle the degree each of the following are used in evaluating adult farmer programs by your agency.

1. Number in attendance 1 2 3 4 5 6 7 8 9
2. Observation by instructor 1 2 3 4 5 6 7 8 9
3. Evaluation form filled out by participants 1 2 3 4 5 6 7 8 9
4. Advisory council 1 2 3 4 5 6 7 8 9
5. Practices adopted 1 2 3 4 5 6 7 8 9

E. Please circle the degree each of the following are used by your agency in counting participants when more than one agency is sponsoring an adult farmer program.

1. Agency providing instruction 1 2 3 4 5 6 7 8 9
2. Agency coordinating educational program 1 2 3 4 5 6 7 8 9
3. Agency providing the facility 1 2 3 4 5 6 7 8 9

F. Please circle the degree each of the following are used by your agency in financing adult farmer educational programs.

1. Participants pay no fee 1 2 3 4 5 6 7 8 9
2. Participants pay for educational materials only 1 2 3 4 5 6 7 8 9
3. Participants pay a tuition fee 1 2 3 4 5 6 7 8 9

G. Please circle the degree you feel cooperation could be used among agencies in providing adult farmer education.

1. Inter-agency mail communications of program offerings 1 2 3 4 5 6 7 8 9
2. Inter-agency meetings to discuss programs and program areas 1 2 3 4 5 6 7 8 9
3. Inter-agency committees to determine programs, instruction and coordination 1 2 3 4 5 6 7 8 9

NOTE: Thank you for your help in this study.
Please fold, tape or staple closed and return by mail.

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