

EXTENT AND USE OF AGRICULTURAL EDUCATION INSTRUCTIONAL MATERIALS
BY VOCATIONAL AGRICULTURE TEACHERS IN VIRGINIA

by

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Chapter 1

INTRODUCTION

Preparing instructional materials for use by vocational agriculture teachers in the public schools of Virginia has been primarily the responsibility of the Agricultural Education Program Area at Virginia Polytechnic Institute and State University since the 1920's. One of the early publications of this nature was one by H. W. Sanders who developed a publication entitled "Growing Corn for Grain," Department Mimeograph Number 12. This publication was printed in 1929 and contained fifty pages (Lee, 1975).

During the past fifty-five years, 1920-1975, teachers of vocational agriculture have faced many problems. One important problem is where to find instructional materials to use in teaching vocational agriculture classes (Minutes of the Virginia Vocational Agricultural Teachers Conference, 1975).

Since the passage of the Vocational Education Act of 1963 and the 1968 Amendments to that act, the field of agricultural education has been broadened to include off-farm agricultural occupations as well as those in production-agriculture. The preparation of young people for these new occupations required the development of new instructional materials by the Agricultural Education Program Area at Virginia Polytechnic Institute and State University for agriculture teachers to use in the public schools of Virginia.

A recent list of instructional materials developed by the Agricultural Education Program Area at Virginia Polytechnic Institute and State University, reported by Lee (1975) in Instructional Materials Development in Agricultural Education at Virginia Polytechnic Institute and State University, contains over sixty-two publications for use by teachers of agriculture. The demand by vocational agriculture teachers in Virginia for these instructional materials has been great. The request for new instructional materials is even greater (Minutes of the Virginia Vocational Agricultural Teachers Conference, 1975).

The Agricultural Education Program Area at Virginia Polytechnic Institute and State University develops instructional materials to be used in the public schools in Virginia in the following areas:

1. Agricultural Business
2. Agricultural Machinery Service
3. Agricultural Production
4. Agricultural Science and Mechanics
5. Continuing Education (Adult and Young Farmer)
6. Exploratory Agriculture
7. Future Farmers of America (FFA Youth Organization)
8. Nature Resources Management
9. Ornamental Horticulture
10. Special Needs Program

These instructional materials are provided at no cost for use by 398 teachers in 212 agriculture departments in the state of Virginia.

The 212 agriculture departments are made up of single teacher departments and multi-teacher departments.

A number of young people who have been trained in a technical field of agriculture has also been certified to teach vocational agriculture in Virginia. These people have come into the field of teaching vocational agriculture because of the shortage of fully qualified teachers.

Many of these teachers who were not fully qualified or trained had not taken vocational agriculture in high school. Because of the difference in background, they may not have been aware of existing instructional materials that may be used in teaching vocational agriculture classes. Therefore, a logical question is: Are the instructional materials developed by the Agricultural Education Program Area at Virginia Polytechnic Institute and State University being used by these teachers in their classes?

Vocational agriculture teachers have requested that new instructional materials be developed for use in the public schools of Virginia, but they have not had actual input into instructional material development.

Vocational agriculture teachers attending the 1975 Virginia Vocational Agriculture Teachers Conference requested that the Agricultural Education Program Area Faculty at Virginia Polytechnic Institute and State University do the following:

1. Prepare a list of recommended materials and equipment for the Agricultural Business option.

2. Compile a list of instructional materials on agricultural machinery and then send to all agricultural departments that teach the Agricultural Machinery Service option.

3. Prepare abstracts of instructional materials appropriate to Agricultural Science and Mechanics I and II.

4. Develop curriculum guides on Seafood Production, Seafood Management, Seafood Marketing and Processing.

Before fulfilling the above requests, a study to determine the extent and use made of instructional materials already developed by the Agricultural Education Program Area faculty at Virginia Polytechnic Institute and State University should be undertaken.

PURPOSE OF THE STUDY

The purpose of this study was to determine the extent and use that teachers of vocational agriculture in the public schools in Virginia were making of seventeen selected instructional materials developed by the Agricultural Education Program Area faculty at Virginia Polytechnic Institute and State University.

STATEMENT OF THE PROBLEM

The problem was to obtain selected information about the extent and use that vocational agriculture teachers in the public schools in Virginia were making of the instructional materials developed by the Agricultural Education Program Area faculty at Virginia Polytechnic Institute and State University.

Specifically, the problem was to:

1. Determine:

- a. The extent Virginia vocational agriculture teachers were using the seventeen selected instructional materials developed by the Agricultural Education Program Area at Virginia Polytechnic Institute and State University
- b. Why the instructional materials were not being used in the public schools in Virginia and the reason(s) for not using them
- c. What special feature should be included in new instructional materials developed by the Agricultural Education Program Area faculty at Virginia Polytechnic Institute and State University.

2. Compare the extent that the seventeen selected instructional materials were being used with selected factors, for example:

- a. Supervisory area(s)
- b. Age of teacher
- c. Experience in teaching
- d. Multi versus single teacher departments
- e. Advanced training (M.S. and above) versus no advanced training (B.S.)
- f. VPI and SU graduates versus graduates from other institutions
- g. Level of teaching (middle versus senior high)
- h. Sex
- i. With option areas now teaching.

NEED FOR STUDY

According to The Standards of Quality (1974-76):

Each school division shall provide vocational education for all students to enter the world of work, or make progress acceptable to the Board of Education toward achieving the plan submitted to the Board of Education on June thirty, nineteen hundred seventy-three.

In accordance with local policies and regulations, the teacher shall be responsible for discharging the following major duties:

1. Provide different subject matter and learning experiences and have different standards for individuals with different and/or past achievements;

2. The teacher shall make use of available instructional materials and other resources that are appropriate to the needs of pupils.

Teachers have expressed the need for the development of new instructional materials to aid in teaching vocational agriculture classes in the public schools in Virginia. The teachers' need for development of new instructional materials has been reinforced by the supervisory staff for agricultural education and the Division of Vocational Education in the form of a request that the Agricultural Education Program Area at Virginia Polytechnic Institute and State University develop instructional materials for vocational agriculture teachers to use in the public schools in Virginia.

Grieder (1969) stated:

The critical analysis of instructional methodology and the use of instructional materials is a continuing need in all school systems. New knowledge is being made available constantly which has significance for instructional methods. The extent to which this new knowledge is being used in a school system should be the subject of continuing studies.

Lee (1975) reinforced the need for such a study by stating:

The impact of the instructional materials developed by the faculty in agricultural education at Virginia Polytechnic Institute and State University has been very pronounced on the curriculum in the high school agricultural education programs. No formal evaluations of the usage made of these materials have been conducted.

LIMITATIONS

This study was limited to:

1. The extent and use made of seventeen selected instructional materials taken from the list reported by Lee (1975) in Instructional Materials Development in Agricultural Education at Virginia Polytechnic Institute and State University.
2. Teachers of vocational agriculture in the public schools in Virginia.
3. The option areas in vocational agriculture being taught in the public schools in Virginia.

ASSUMPTION

In order to plan and carry out a research project, certain assumptions must be made. The researcher believes the following assumption was the most important one to be considered in conducting this study:

Vocational agriculture teachers in the public schools in Virginia are using the instructional materials developed by the Agricultural Education Program Area faculty at Virginia Polytechnic Institute and State University.

DEFINITION OF TERMS

Before going further, it seems appropriate to define certain terms as they are used in the study. The list of terms here is not inclusive, but it is believed that other terms used in this study are self explanatory.

Extent and Use: The degree to which the teachers of vocational agriculture are using the instructional materials developed by the Agricultural Education Program Area faculty at Virginia Polytechnic Institute and State University in teaching vocational agriculture classes in the public schools in Virginia.

Instructional Materials: Those materials developed by the Agriculture Education Program Area at Virginia Polytechnic Institute and State University for use by vocational agriculture teachers in the public schools in Virginia. (This includes Resource Units, Source Units, and Teaching Plans.)

Miscellaneous Publications: Those publications that can be used in more than one area in teaching vocational agriculture but are not related to a particular area.

Off-farm Agricultural Occupation:

Includes the industries and workers in occupations that contribute to farming. It is primarily concerned with providing goods and services which aid farmers and ranchers in achieving the greatest efficiency in providing and marketing their products (Binkley and Hammonds, 1970).

Source Unit: "A collection of instructional materials assembled in advance by teachers for the major division of his course outline" (Phipps, 1972).

Teaching Plan: "A teacher's guide for providing instruction.

Generally includes objectives, analysis of the unit teaching procedures, and suggested references" (Cardozier, 1967).

The Vocational Education Act of 1963 (Public Law 88-210):

In 1963, Congress enacted legislation designed to: (1) extend present programs and develop new programs of vocational education; (2) encourage research and experimentation; and (3) provide work-study programs to enable youth to continue vocational education (Roberts, 1971).

The Vocational Education Amendment of 1968 (Public Law 90-576)

Section 101:

It is the purpose of this title to authorize Federal grants to States to assist them to maintain, extend, and improve existing programs of vocational education, to develop new programs of vocational education, and to provide part-time employment for youths who need the earnings from such employment to continue their vocational education, and to provide part-time employment for youths who need the earnings from such employment to continue their vocational training on a full-time basis, so that persons of all ages in all communities of the State--those in high school, those who have completed or discontinued their formal education and are preparing to enter the labor market, those who have already entered the labor market but need to upgrade their skills or learn new ones, those with special educational handicaps, and those in postsecondary schools--will have ready access to vocational training or retraining which is of high quality, which is realistic in the light of actual or anticipated opportunities for gainful employment, and which is suited to their needs, interests, and ability to benefit from such training (Roberts, 1971).

Vocational Agriculture Teachers and Teachers of Vocational

Agriculture: Used interchangeably and refers to those teachers employed in the public schools in Virginia to train students taking vocational agriculture to become gainfully employed.

Vocational Education:

In its simplest term Vocational Education is that aspect of education that aims at the development of human abilities in terms of knowledge, skills and understandings so that the individual may serve happily and efficiently in carrying out the activities in vocational pursuits of his choice (Roberts, 1971).

SUMMARY

The Agricultural Education Program Area at Virginia Polytechnic Institute and State University has prepared instructional materials for use by vocational agriculture teachers in the public schools in Virginia since the 1920's.

The Vocational Education Act of 1963 and the 1968 Amendments to the act provided for the broadening of the instructional program in agriculture to include off-farm agricultural occupations. This added several new option areas of instruction to the vocational agriculture program, which required additional teachers.

The demand by agriculture teachers for new instructional materials has been expressed repeatedly by the area supervisors in the state of Virginia. As a result, the Agricultural Education Program Area at Virginia Polytechnic Institute and State University assumed the responsibility for developing the instructional materials to be used by the vocational agriculture teachers in the public schools in Virginia.

Since 1970, the Agriculture Education Program Area has developed over sixty-two different publications for use by the vocational agriculture teachers in the public schools in Virginia.

It is the belief of the researcher that the instructional materials developed by the Agricultural Education Program Area at Virginia Polytechnic Institute and State University are being used by vocational agriculture teachers in the public schools in Virginia, but the extent and use made of the instructional materials is not known. Therefore, a study to determine the extent and use made of instructional materials developed by the Agricultural Education Program Area faculty at Virginia Polytechnic Institute and State University for use by vocational agriculture teachers in the public schools in Virginia is needed.

ORGANIZATION OF THE STUDY

Chapter 1 consisted of the introduction, purpose of the study, statement of the problem, need for the study, limitations, assumption, definition of terms, and the summary. In Chapter 2 the review of literature is presented; Chapter 3 deals with the research methodology; Chapter 4 deals with presentation of data and analysis of results; and Chapter 5 includes the summary, conclusions, and recommendations.

Chapter 2

REVIEW OF LITERATURE

INTRODUCTION

The research appropriate to this study is minimum. However, it was appropriate to review the literature, insofar as possible, to support the direction of the study and provide the author direction for appropriate completion of the study.

The review of literature for this study consists of: (1) the use of instructional materials, (2) curriculum development, (3) sequencing instructional materials, and (4) evaluation of instructional materials.

USE OF INSTRUCTIONAL MATERIALS

Lee (1966) commented on the effective use of instructional materials. He said:

Teachers need to be thoroughly acquainted with instructional materials and how to use them. Effective use of instructional materials involves more than merely projecting something on a screen. There must be preparation and follow-up. Haphazardly arranged materials may actually hinder the learning process.

Teachers must decide what instructional materials to use and when to use them if maximum outcomes are desired from teaching. Proper instructional materials are appropriate and meaningful. Appropriateness also has relevance of time of use. The effectiveness of appropriate materials can be greatly diminished by using them at the inopportune time.

Instructional materials should exist in the classroom for only one purpose--for more effective teaching and learning. Greater and more permanent learning comes about in a shorter time when proper use is made of instructional materials.

Jacks (1967) in a study entitled, "Development and Use of Subject Matter Materials for Vocational Education in Agriculture," quoted Ridenour and Woodin who said:

The field of agriculture is broad and contains many specialized areas. Due to the limitations of time, teacher ability, and the infeasibility of one person becoming proficient in the many subject areas, there has been a recognized need for providing help to teachers in the form of instructional materials.

The problems of teachers of vocational agriculture relating to curriculum materials can be divided into three main areas: (1) the problem of keeping abreast of vast amounts of technical knowledge in the various fields of agriculture; (2) the problem of finding time to become informed with technical and professional knowledge; (3) the problem of obtaining or preparing materials that are constructed in a logical sequence for teaching.

A subsequent study by Brown (1969) tested the relative effectiveness of the various components which are included in a resource unit. To determine which was most effective, forty teachers were randomly assigned to use one of the following: a course outline and a list of references, a subject matter handbook, or a combination of teacher's guide and subject matter handbook. Half of the teachers assigned to each resource unit component had received inservice education and the other half had not.

Commenting on his findings, Brown said:

There was no significant difference among the four experimental groups in student achievement. However, teachers using the subject matter handbook alone were significantly higher in achievement than the group using the course outline.

Drawbaugh and Hull (1971) reported:

For the most part, the hastily prepared teaching materials were not based on job analysis, did not truly reflect group thinking, did not involve classroom teacher, and were not thoroughly tested for effectiveness of learning before they were disseminated. Under

these circumstances these undesirable shortcuts in the preparation of teaching materials can be partly justified. To disseminate new teaching materials universally, however, before they are evaluated or field tested, is not an approved practice. Production of new teaching materials must continue, but part of the immediate future must also be given to testing, evaluating, or otherwise appraising published materials.

This was revealed in Vocational Education: The Bridge Between Man and his Work (1968):

. . . that innovation in the use of new teaching media is a primary item for consideration by teacher educators serving in the vocational and technical education field. The use of programmed learning devices and computer assisted instruction cannot lack professional excellence. The average American citizen is accustomed to viewing television programs produced by skilled production specialists and will not be impressed with substandard visual or audio device presentation. By the same reasoning there is little doubt that anything less than excellence in the use of all new teaching media will be effective.

Wall (1963) found that the reading level that a student has attained is the result of the following:

(1) his own ability; (2) the training that he has received; and (3) the degree to which he has applied himself. His ability to understand publications containing agricultural information also may be influenced to some extent by his farm experience.

Grieder (1969) commented on success in attaining educational goals. He said:

Educational goals, as they are typically stated, appear to be sets of abstractions which are difficult to express adequately in school programs. Success in translating goals of school into learning opportunities for students requires extensive use of a wide variety of resources needed to assist students in expressing these educational goals in behavioral terms. Effectiveness of the best personnel is seriously handicapped by lack of appropriate materials.

Michigan teachers, in a study by Wall (1963), stated that instructional materials should:

1. Be up-to-date;
2. Be easy to read and understand;
3. Include tables, charts, diagrams, and other graphics;
4. Be free of cost or relatively inexpensive;
5. Be easy to procure;
6. Contain precautions, safety measures, and limitations with regard to use of the information;
7. Include action pictures showing application of the information;
8. Show importance of the subject to agriculture, benefits, and economic influence;
9. Suggest sources of additional information or references;
10. Contain conditions which are necessary for the most efficient and effective use of the information;
11. List special tools, equipment, and instruments needed to utilize the information;
12. Contain an adequate table of contents and index;
13. Include a brief, general history of the subject, its origin and development;
14. Show relationship with closely allied subjects, especially those having reciprocal dependency;
15. List the qualification of the author(s);
16. Discuss special skills and activities needed by the reader in order to use the data; and
17. Contain pictures of the author(s) for identification purposes.

Jones (1967), in a study of "Effectiveness of Vocational Teachers," found that students taking a short-term arc welding, small engine, gas engine, and maintenance course increased in verbal and manual skills. This increase was not related to the teacher's experience as a teacher but to the teacher's knowledge of the subject.

According to Evans and Terry (1971):

The subject matter 'understandings' called for by beginning level teaching roles consisted, in part, of systematic knowledge about the broad 'world of work.' Such knowledge rarely comes from unplanned experiences gained at work. Rather, it requires formal study to build upon, structure, and extend personal experiences.

Koonce (1968), in a study of State Prepared Industrial Arts Resources Material: Their Status, Preparation, and Effectiveness, found:

1. That a majority of teachers developed their own materials, and a few used out-of-state materials.

2. Over 90 percent of the teachers in states which prepared materials found the materials inappropriate for direct classroom use.

3. Over 50 percent of the teachers indicated a need for publication sections treating state services to local programs, references, and teaching aids.

4. More value was placed on these materials by experienced teachers and by teachers who held master's degrees than by beginning teachers who held bachelor's degrees.

"An Evaluation of Off-farm Agricultural Materials" by Hensel and Johnson (1967) revealed:

1. That most agricultural teachers who used the materials indicated that they were of high value in initiating and developing off-farm agricultural occupations program.

2. State supervisors of agricultural education indicated that the materials were used to a great extent in planning State programs in off-farm agricultural occupations.

3. It was concluded that the materials were well distributed geographically among the agricultural teachers, favorably received by state supervisory personnel, and generally well accepted by the teachers in the survey.

Peirce (1969), in his study of The Development and Evaluation of Farm Management Instructional Units for Young Adult Farmer Education" stated:

1. The prepared units, when used by teachers with inservice training on their use, were significantly more effective than traditional techniques of teaching farm management as measured by the post-test scores.

2. Teachers who used the units without inservice training ranked second in effectiveness out of three instructional approaches but were not significantly better than those who used traditional techniques.

Ryan (1960) found in his study of "Characteristics of Teachers: Their Description, Comparison, and Appraisal" that a significant difference existed between teachers of different age groups relative to patterns of attitudes, educational viewpoints, emotional understanding, and verbal understanding. Ryan concluded that age must be considered as a relevant independent variable whenever the characteristics of teachers are to be investigated.

Golabeh (1973), in An Investigation to Determine the Relative Effectiveness of the Consumer Home in Distributive Education at the Secondary Level, found no significant effect in regard to the variables of age, grade level, sex, I.Q., and reading.

Emans (1969) concluded that there appeared to be no significant difference between age and educational values, but persons with higher education expressed a greater progressive value orientation than those with lesser educational training.

According to Murray (1973), in a study of "A Description of Occupational Orientation Programs in Mississippi Schools," older teachers tended to give more advice and information about career

development than younger occupational teachers. However, the younger teachers tended to take a competitive point of view with regard to the students. Students tended to see the older teacher as a "parent figure," therefore, less competition was exerted by the students.

Brooks (1974) further elaborated on Murray's conclusion by stating:

Age, experience, and training have been shown to be significantly related to a number of teacher characteristics, including teacher attitudes. There is considerable research which show that the attitude of teachers change in a negative direction as a result of teaching experience. This is especially true during the first year or two of teaching. There is some evidence that the older occupational orientation teachers are more 'educated' to the needs of the students and the teacher's role in providing these needs. The attitudes of the occupational orientation teachers likely change in a positive direction as a result of experience. Further, the occupational orientation teachers who are involved full time in the programs have a better understanding of the program and devote a greater amount of their attention to making the program successful.

CURRICULUM DEVELOPMENT

The curriculum is all the experience a student has under the jurisdiction of a school. Kenneke, Nystrom, and Stadt (1973) said this about curriculum development:

All the curriculum work should be done with full recognition of the many and varied life styles and career patterns of the population to be served. Analysis, selection, and organization of a body of knowledge for instructional purposes must be done in light of individual characteristics and their relationship to functional aptitudes, interests, temperaments, competencies, and subsequent job parameters. Curriculum development must foster a successful marriage of human and occupational characteristics. Similarly, programs should maximize opportunities for individuals to progress at their own rate.

Robinson (1974), in a study of "Teachers' Perceptions of the Use and Development of Curriculum and Instructional Materials for Agribusiness and Natural Resources," revealed that:

1. The curriculum guides used most also need revising:
2. Most guides were used to a "moderate" extent.
3. Significant differences among groups of teachers seldom occurred in the use of guides for factors of age, years of teaching, educational level, pre-service education, and geographical locations.
4. The teachers in the mountain areas favored the Agricultural Mechanics Guide more than teachers in the coastal plains or Piedmont.
5. The teachers were in the greatest need of guides for Exploration in Grades 7-9, FFA leadership, and Agriculture for the disadvantaged.
6. There was a strong need for "short term" curriculum units in horticulture, forestry, and farm mechanics.
7. The types of materials used mostly by teachers with students were filmstrips, agricultural books, and films--whereas books, bulletins, and magazines were used most for planning lessons and professional growth.
8. The State Department of Public Instruction Personnel, teacher educators, and teachers were identified as clientele appropriate for developing, revising, and evaluating materials.
9. There was a need for full-time curriculum specialists who could survey and upgrade materials.

SEQUENCING OF INSTRUCTIONAL MATERIALS

Another aspect of using instructional materials is the sequencing of instructional materials.

Meager and Beach (1967) listed six guides to effectively sequencing instructional materials in teaching. They were:

1. From general to specific. Students mean something different than instructors when they agree they would like instruction to proceed from 'simple to the complex.' Whereas instructors tend to be comfortable with sequencing from the elements of a subject toward the big picture, students generally find it more meaningful to move from the big picture toward the details. Once the student knows the subject matter, he can also find the specific-to-general sequence meaningful.

2. Interest sequencing. To maintain the motivation of the student, start with a unit that contains information in which he is highly interested at the beginning of the course.

3. Logical sequencing. Sometimes the subject matter dictates that one unit be taught before another.

4. Skill sequencing. If a man has to leave a course before finishing it (for whatever reason), it is better to send him away with the ability to do a complete, if lesser, job than to send him away able only to talk about a job.

5. Frequency sequencing. Which skills will a man use most frequently on the job? Teach him first those skills he will use most often; then sequence the rest of your units in order of decreasing usefulness or importance. This way, although you may fail to teach him one or two things because you run out of time, the skills he will be without will be those he will need least often.

6. Total job practice. Some courses systematically give a student knowledge and practice in each element of a job, but allow the course to end without ever giving the student an opportunity to practice the entire job as much as he needs practice in the bits and pieces of the job. At least five percent of the course time should be devoted to such practice, during which the student actually practices, performing the total job under conditions as similar as possible to those he will face when the course is over.

The selection and organization of teaching materials, the use of effective instructional procedures, the adaptation of teaching individual differences and the evaluation of results are all problems of instruction. In some schools the textbook is the course of study, but increasingly the teacher uses a variety of teaching materials: multiple texts, periodicals, paperbacks, audio-visual aids, tapes, overhead projectors, and realia (actual objects to illustrate a lesson) (Encyclopedia International, 1966).

EVALUATION OF INSTRUCTIONAL MATERIALS

Evaluation of instructional materials indicates the strengths and weaknesses of instructional materials and provides information for improvement or administrative judgements.

Thorndike and Hagan (1969) defined evaluation as "the complete process of identifying the objectives of an aspect of education and appraising the extent to which those objectives have been achieved."

Grieder (1969) had this to say about the effectiveness of programs of instruction: "Programs of instruction cannot achieve maximum effectiveness unless they change in the light of new needs created by a changing society."

For future success in the development of sound vocational agricultural programs, evaluation studies of on-going programs are necessary. It was revealed in the Vocational Education magazine (1968) that the findings from such evaluation studies, especially those of comprehensive in-depth investigations, have justified use of funds and personnel time.

The main reasons for evaluating a vocational agricultural instructional program, according to Phipps (1972), are:

1. To find out the strengths and weaknesses of the program.
2. To help the teacher to evaluate the effectiveness of his activities.
3. To determine ways and means of improving the program.

Hammock and Owing (1955) stated that their concept of evaluation has four important characteristics. They are:

1. Evaluation appraises what has been done in order to plan for the future.
2. Evaluation appraises progress toward determined goals.
3. Evaluation is accomplished by those who have participated in the enterprise being evaluated.
4. Evaluation is diagnostic and continuous.

Sutherland (1966) considered eight statements important to evaluating programs of agricultural education. They are:

1. Evaluations of educational programs should be made in terms of program objectives.
2. Evaluations should include assessments and appraisals of both product and process.
3. Evaluation should be a continuous process, not just a "point-in-time" judgement.
4. Evaluations should be made by teams composed of both professional and lay personnel.
5. Evaluations of publicly supported programs should include economic factors and be concerned with input-output relationships.
6. Evaluations and appraisals should be made not only on the basis of what has been done, but also on what has not been done.
7. The major purposes of evaluation should be to provide quality control and a basis for intelligent change.
8. Evaluations should be concerned primarily, if not exclusively, with the key indicators of success or failure.

Hammock and Owing (1955) also had this to say about evaluation:

Evaluation, its look always directed toward the future, wants to know much more than the answer to the question, 'Did we reach the goal?' It wants to know at least three other things also:

1. In reaching a goal did we do harm to any other important goal?
2. Why did we or did we not achieve our purposes?
3. After reaching it, is the goal as worthwhile as we had thought it would be and 'why' is it important to evaluate as a basis for future work?

Hensel (1967) evaluated instructional materials that were developed to help introduce off-farm occupations instruction into the vocational agriculture curriculum. He found that:

The instructional materials had, at best, a limited impact on the curriculum. When the teachers who purchased the instructional materials were surveyed, only 37 percent of those responded had used the materials. Although the instructional materials were written for teachers and students use, they were used primarily by teachers in lesson preparation, rather than as student references. Evidently, teachers who used the materials envisioned them primarily as aids for teachers rather than for students.

SUMMARY

In order to provide a foundation for this study, a review of literature was made. The findings of the review are summarized here.

Teachers should be thoroughly acquainted with instructional materials and how to use them. Effective use of instructional materials involves more than projecting an image on a screen (Lee, 1966). It involves teaching.

The instructional materials teachers use should be up-to-date; be easy to read and understand; include tables, charts, diagrams, and

other graphics; be free of cost or relatively inexpensive; be easy to produce; show importance of the subject to agriculture, benefits, and economic influence (Wall, 1963).

Age, experience, and training have been shown to be significantly related to the use of instructional materials. Teachers, in the first one or two years of teaching, tend to use prepared instructional material more than teachers with experience. Older teachers with experience are more educated to the needs of the students and to the teacher's role in providing information to fulfill those needs.

Chapter 3

RESEARCH METHODOLOGY

INTRODUCTION

The purpose of this study was to determine the extent and use made of instructional materials, developed by the Agricultural Education Program Area faculty at Virginia Polytechnic Institute and State University, by the vocational agriculture teachers in the public schools in Virginia.

POPULATION

The population for this study was vocational agriculture teachers employed in the public schools in Virginia.

Presently, there are 398 vocational agriculture teachers employed in the public schools in Virginia. The state is divided into six supervisory areas (Figure 1). Each area is supervised by an assistant supervisor of agricultural education, working under the direction of the State Supervisor of Agricultural Education. The number of teachers working in the supervisory areas range from a low of fifty-five in the Blue Ridge area to a high of eighty-one in the Central area, with an average of 66.33 (Table 1).

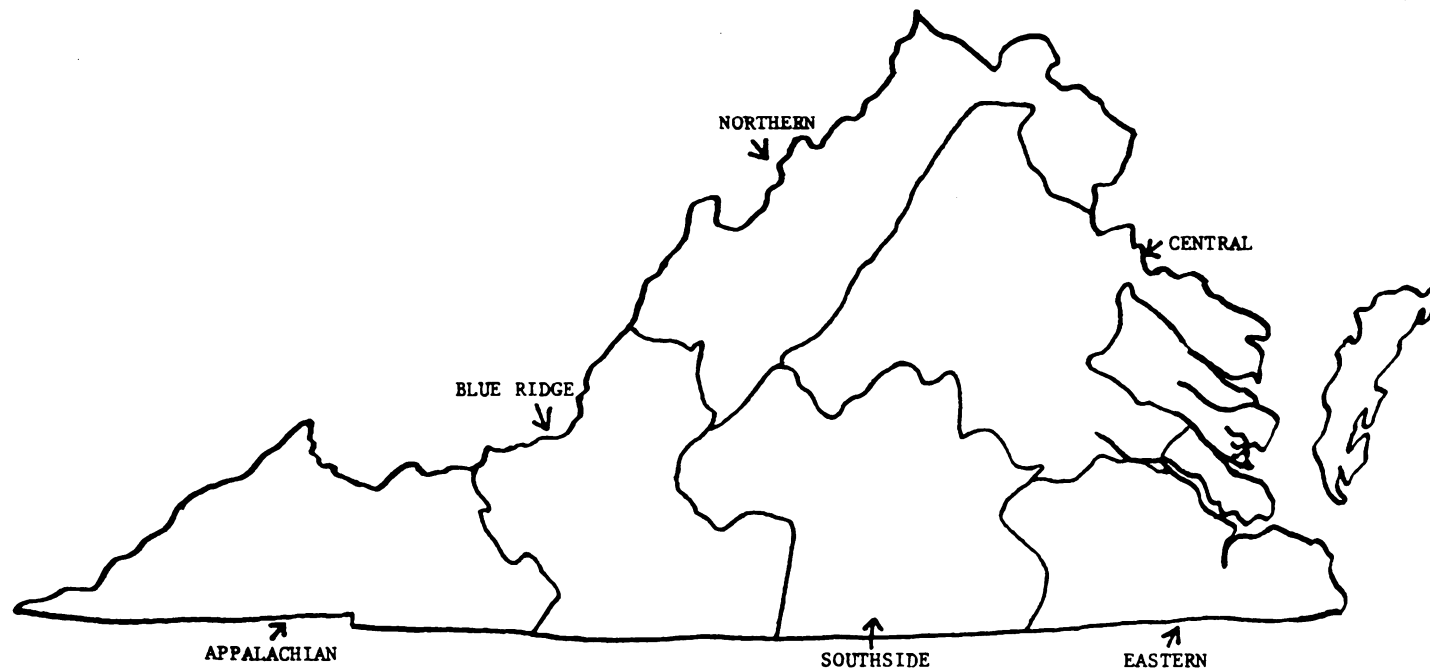


Figure 1
Agricultural Education Supervisory Areas

Table 1
Teachers of Vocational Agriculture in
Virginia By Supervisory Areas

Supervisory Areas	Total Teachers
Appalachian	78
Blue Ridge	55
Central	81
Eastern	59
Northern	57
Southside	<u>68</u>
Total	398

Average = $398 \div 6 = 66.33$ teachers per Supervisory Area

DESIGN OF THE STUDY

The design used in this study was the descriptive-correlational method using the survey technique. The purpose of using this method was to determine if teachers were using the instructional materials developed by the Agricultural Education Program Area faculty at Virginia Polytechnic Institute and State University.

DEVELOPMENT OF SURVEY INSTRUMENT

The following steps were taken in designing the instrument:

1. A list of questions was developed by the researcher.
2. The tentative instrument was then submitted to five Agricultural Education Program Area faculty members to check for content validation.
3. The returned instrument was reviewed by the researcher and changes made where needed.
4. A revised instrument was developed, with the changes included, and resubmitted to the five Agricultural Education Program Area faculty for review.
5. The instrument was checked for clarity and correct language usage.
6. The instrument for the study was completed (Instructional Usage Survey Form, Appendix A).

PROCEDURE

The seventeen selected instructional materials were grouped into five types of materials as defined by Cardozier (1967) listed as follows:

Types of Materials. A number of standard forms have evolved in instructional materials. Although the definitions given here are not accepted by all in the field, they provide a reasonable basis for understanding the more common variables.

Resource Unit: A subject matter coverage of given instructional area, including latest research findings.

Source Unit: A listing of objectives, problems, questions, and activities relating to a unit of instruction.

Teaching Plan: A teacher's guide for providing instruction. Generally includes objectives, analysis of the unit, teaching procedures, and suggested references.

Approved Practice List: Recommended practices to follow in specific agricultural enterprises based upon research.

Job Operation Sheet: A sequential listing of steps in carrying out a given manipulative type job.

In addition to the above, the specialized audio-visual materials such as films, filmstrips, maps, models, mock-ups, and the more recent film cartridge are examples of teaching aids.

Only three of the five types of materials were used. The three types of materials used were: resource unit, source unit, and teaching plan. None of the seventeen instructional materials selected fell into either of the other two categories, approved practice list and job operation sheet. Thus, these types of materials were not used. The seventeen instructional materials were grouped in each of the ten areas of instructional materials in Table 2. The stratified grouping of instructional materials were listed for each option area in a cell. A third party, using a table of random numbers, selected numbers from the list of instructional materials reported by Lee (1975).

Table 2

Classification of Types of Instructional Materials
By Areas of Instruction

Instructional Materials	Type of Materials Based on Cardozier Classification				
	Resource Unit	Source Unit	Teaching Plan	Approved Practices	Job Operation Sheet
Exploratory Agriculture		2			
Agricultural Business	2		1		
Agricultural Production	7	3	10		
Ornamental Horticulture	1		3		
Agricultural Machinery Service	1		1		
Special Needs Program			1		
Natural Resources Management			1		
Agricultural Science and Mechanics	6				
Continuing Education in Agriculture	4	5	2		
Future Farmers of America	2				
Total	23	10	19	0	0

In grouping the instructional materials according to Cardozier (1967), the author found twenty-three resource units, ten source units, nineteen teaching plans, no approved practices, and no job operation sheets. Of the resource units seven were used; of the source units three were used; and of the teaching plans seven were used, making a total of seventeen instructional materials used in the study as presented in Table 3.

This study did not attempt to determine the extent and use made of all the instructional materials developed by the Agricultural Education Program Area faculty, but to determine the extent and use made of the seventeen selected instructional materials listed below:

1. "Securing and Succeeding on a Job"
2. "Corn: Harvesting, Storing, and Marketing"
3. "Soils: Testing Soil"
4. "Electricity: Selection, Care and Operation of Electric Motors"
5. "Electricity: Using Electrical Control Devices"
6. "Estate Planning: A Teaching Guide for Continuing Education"
7. "Developing Proficiency in Parliamentary Procedure"
8. "Exploring Agricultural Careers: The Importance of Work"
9. "Selecting References for Teaching Animal Science"
10. "The Effective Use of Drugs in Controlling Livestock Diseases"
11. "Planning Guide for Establishing and Conducting the Agricultural Business Option"

Table 3

Identification Numbers of Publications By Areas of
Instruction and Types of Instructional Materials*

Instructional Materials	Type of Materials Based on Cardozier Classification				
	Resource Unit	Source Unit	Teaching Plan	Approved Practices	Job Operation Sheet
Exploratory Agriculture		(8)			
Agricultural Business	(1) (6)		(11)		
Agricultural Production	(2)	(9) (10)	(12)		
Ornamental Horticulture	(3)		(13)		
Agricultural Machinery Service	(5)		(14)		
Special Needs Program			(15)		
Natural Resources Management			(16)		
Agricultural Science and Mechanics	(4)				
Continuing Education in Agriculture			(17)		
Future Farmers of America	(7)				

*See page 31 and page 33 for publication titles of the 17 publications.

12. "Advanced Livestock Production: A Course of Study"
13. "Ornamental Horticulture Plant Propagation: Asexual and Sexual Reproduction"
14. "Agricultural Machinery Service: A Curriculum Guide for Agricultural Education"
15. "Teaching the Disadvantaged: A Curriculum Guide for Classes of Disadvantaged Students in Agricultural Education Programs"
16. "Natural Resources Management"
17. "Rats and Their Control"

In completing Part II of the Instructional Usage Survey Form each teacher was asked to indicate which of the seventeen selected instructional materials listed in the Instructional Usage Inventory Form they used (Appendix A). For each of the instructional materials used, they were asked to complete the survey by checking the appropriate space(s) listed under that instructional material in response to the questions on the left side of the survey form. For the instructional materials not used, they were asked to complete only question two by checking the appropriate space, matching question two on the left side of the survey.

A key was provided for their use in rating the importance of the instructional materials: 1 = Poor, 2 = Fair, 3 = Good, and 4 = Excellent. Under information requested were the following: number 3, completeness of coverage; number 4, up-to-date information; number 5, applicability; number 6, illustrations and photographs (a) number, (b) variety, (c) quality, (d) up-to-date; and number 7, how well are these materials suited for your area.

All vocational agriculture teachers were asked to complete question 8 "What would you like to see included in instructional materials developed in the future?" In the space provided for "other," they were asked to write in what else they wanted included in future developed instructional materials. They were also asked to make comments on the survey form if they desired.

Analysis of Data

The data from this study was analyzed using the Chi-square method, with a .05 level of significance. All the information that was used in the analysis of data came from the data cards. Each respondent had a choice of yes or no concerning the use of instructional materials. These responses became the criterion scores.

Chi-square frequency test:

$$\chi^2 = \sum \frac{(F_o - F_e)^2}{F_e}$$

where

χ^2 = the value of Chi-square

F_o = the observed frequency in each cell

F_e = the expected frequency in each cell

Thus, to calculate a value of χ^2 , find the difference between the observed frequency in each cell and the expected frequency in each cell, square the difference, then divide the difference by the expected frequency in each cell, and sum the total frequencies.

In the Chi-square test, two sets of frequencies are compared:

(1) observed frequencies and (2) expected frequencies. Expected

frequencies are theoretical frequencies which are used for comparison (Ary, 1972).

Crossbreaks were also used in this study.

A Crossbreak is a numerical tabular presentation of data, usually in frequency or percentage form, in which variables are cross-partitioned in order to study the relationship between them. Its principal use, however, is with categorical or nominal data.

Crossbreaks enable the researcher to determine the nature of the relationship between variables. They can be used to organize data in convenient form for statistical analysis.

Another purpose of crossbreaks is to control variables. They allow the researcher to study and test the relationship between two variables while controlling a third variable--that is, differences in degree of relations at different levels of a control variable can be determined (Kerlinger, 1973).

The major independent and dependent variables were nominal data. The Chi-square analysis is the most appropriate statistical method to use in analyzing nominal data. In addition, data were reported in terms of percentages and frequencies, which again made Chi-square analysis the most appropriate statistical method. The Statistical Package for the Social Sciences, Number 17.1.9--Breakdown Tables Printed in Crosstabular Form: The Crossbreak Facility--was used. The statistical package yielded information in the form of percentages and Chi-square.

Obtaining Permission for the Study

Permission to do this study was obtained from the joint state staff of Agricultural Education at their regular meeting in January, 1976. The researcher was given time on the program to express his intention for the study and why it would be important as a dissertation topic. It was stated that the Agricultural Education Program

Area faculty at Virginia Polytechnic Institute and State University has been developing instructional materials for use in the public schools in Virginia since the 1920's. To this date, no study has been done to assess the extent and use made of these instructional materials by vocational agriculture teachers in the public schools in Virginia. This statement was reinforced by the State Supervisor of Agricultural Education. It was then decided by the joint state staff that a study of this type would be important to determine if vocational teachers were using the instructional materials already developed, and if not, why not.

The joint state staff is made up of a State Supervisor of Agricultural Education, three Assistant Supervisors, six Area Supervisors, and Teacher Educators from Virginia State College and Virginia Polytechnic Institute and State University.

It was decided by the joint staff that the best time to secure the information needed for the study was during each of the six Supervisor's Area Conference.

The joint state staff felt that the number of returned surveys would be higher by administering the survey to vocational agricultural teachers attending the Supervisor's Area Conference than by mailing the survey to each individual agricultural teacher in a self-addressed, stamped envelope.

Each of the six Area Supervisors gave his permission and provided the research with the date, time, and place for his conference.

Securing Information

Each vocational agriculture teacher attending the Supervisor's Area Conference was asked to fill out the survey as completely as possible, making comments where deemed necessary, about the information requested in the study (Appendix A).

NULL HYPOTHESES

The following null hypotheses were tested:

Hypothesis Number One: There is no difference in the extent and use made of instructional materials between first year teachers of vocational agriculture and experienced teachers of vocational agriculture.

Hypothesis Number Two: There is no difference in the extent and use made of instructional materials between teachers of vocational agriculture in the six supervisory areas.

Hypothesis Number Three: There is no difference in the extent and use made of instructional materials between age groups.

Hypothesis Number Four: There is no difference in the extent and use made of instructional materials between graduates of Virginia Tech and graduates of other universities.

Hypothesis Number Five: There is no difference in the extent and use made of instructional materials between teachers of vocational agriculture in single teacher departments and multi-teacher departments.

Hypothesis Number Six: There is no difference in the extent and use made of instructional materials between grade levels of teaching.

Hypothesis Number Seven: There is no difference in the extent and use made of instructional materials between teachers of vocational agriculture with Bachelor's degrees and teachers with Master's degrees.

Chapter 4

PRESENTATION OF DATA AND ANALYSIS OF THE RESULTS

The purpose of this chapter was to present the results of the study. The data were presented corresponding to the hypotheses indicated in Chapter 3, page 38. The null hypotheses are restated below along with the findings concerning each hypothesis.

NULL HYPOTHESIS NUMBER ONE

There is no difference in the extent and use made of instructional materials between first year teachers of vocational agriculture and experienced teachers of vocational agriculture.

Teachers of Vocational Agriculture in Virginia Compared By Years of Teaching and the Use of Instructional Materials: As shown in Table 4, teachers of vocational agriculture with 0-5 years of teaching experience used the seventeen selected instructional materials more than any other group of teachers with additional years of teaching. In descending order by averages:

0-5 years	20.24%
11-15 years	6.35%
more than 25 years . .	3.47%
16-20 years	3.41%
6-10 years	2.94%
21-25 years	2.76%

Table 4

Teachers of Vocational Agriculture in Virginia Compared By
 Years of Teaching and the Use of Instructional Materials
 (Given in Percentage)

Years of Teaching	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
0-5	33	18	28	22	26	5	43	44	23	5	8	8	11	26	18	23	3	20.24
6-10	0	5	5	5	5	3	5	7	3	3	0	3	3	0	0	5	3	2.94
11-15	10	8	5	11	11	3	10	12	5	0	5	0	5	5	5	5	8	6.35
16-20	8	5	5	5	0	0	5	5	3	0	3	3	5	3	0	3	5	3.41
21-25	5	5	3	3	3	3	3	2	3	0	3	3	3	5	0	3	0	2.76
25 or more	3	0	5	5	3	0	5	5	5	3	3	3	5	3	3	5	3	3.47
Total	59	41	51	51	48	14	69	75	42	11	22	20	34	42	26	44	22	39.17

In summary, the data did not support the hypothesis of no difference in the extent and use made of instructional materials between first year teachers of vocational agriculture and experienced teachers of vocational agriculture. Therefore, the hypothesis was rejected.

NULL HYPOTHESIS NUMBER TWO

There is no difference in the extent and use made of instructional materials between teachers of vocational agriculture in the six supervisory areas.

Teachers of Vocational Agriculture in Virginia By Supervisory Area and By Extent and Use of Instructional Materials: When comparing the supervisory areas on the basis of the extent and use of the seventeen selected instructional materials in this study, it was found that the Appalachian area had the highest percent with an average of 50.70% in this group for each instructional material. See Table 5.

In all supervisory areas instructional materials number 7 and 8 were ranked higher in terms of use than any other instructional material listed on the Instructional Usage Survey (Appendix A). The other instructional materials listed on the Instructional Usage Survey varied in the extent of use in each supervisory area.

A Chi-Square Analysis of Teacher Use of Seventeen Instructional Materials Among Six Supervisory Areas in Virginia: In Table 6 Chi-square was used to test whether or not the number of teachers using a particular item of instructional materials within supervisory areas deviated from

Table 5

Teachers of Vocational Agriculture in Virginia By Supervisory Area and
By Extent and Use of Instructional Materials
(Given in Percentage)

Supervisory Areas	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Appalachian																		
Yes	67	43	78	68	50	28	87	85	67	36	33	54	33	35	37	33	30	50.70
No	33	57	22	32	50	72	13	15	33	64	67	46	67	65	63	67	70	49.30
Rank	5	9	3	4	8	17	1	2	6	11	13	7	14	12	10	15	16	
Blue Ridge																		
Yes	47	20	42	40	31	37	80	60	40	14	25	22	24	22	22	20	14	32.94
No	53	80	58	60	69	73	20	40	60	86	75	78	76	78	78	80	86	67.06
Rank	3	14	4	5	8	7	1	2	6	17	9	12	10	11	13	15	16	
Central																		
Yes	38	29	71	51	47	20	80	73	50	13	20	33	24	33	22	33	33	39.41
No	62	71	29	49	53	80	20	27	50	87	80	67	76	67	78	67	67	60.59
Rank	7	12	3	4	5	16	1	2	6	17	15	8	13	9	14	10	11	
Eastern																		
Yes	60	43	55	57	53	24	77	71	45	15	24	22	38	48	29	48	27	43.29
No	40	57	45	43	47	76	23	29	55	85	76	78	62	52	71	52	73	56.71
Rank	3	10	5	4	6	15	1	2	9	17	14	16	11	7	12	8	13	
Northern																		
Yes	52	31	54	46	54	31	77	65	58	31	33	37	21	48	19	27	31	42.06
No	48	69	46	54	56	69	23	35	42	69	67	63	79	52	81	73	69	57.94
Rank	6	11	4	8	5	12	1	2	3	13	10	9	16	7	17	15	14	
Southside																		
Yes	67	49	67	53	53	45	88	78	59	31	16	41	29	35	31	43	43	48.71
No	33	51	33	47	47	55	12	22	41	69	84	59	71	65	69	57	57	51.29
Rank	4	8	3	5	7	9	1	2	6	15	17	12	16	13	14	10	11	

Table 6

A Chi-Square Analysis of Teacher Use of Seventeen Instructional
Materials Among Six Supervisory Areas in Virginia

Supervisory Areas	1			2			3			4			5			6		
	Yes	No	Total	Yes	No	Total	Yes	No	Total	Yes	No	Total	Yes	No	Total	Yes	No	Total
Appalachian																		
Fo	34.00	18.00	52.00	19.00	31.00	50.00	37.00	12.00	49.00	33.00	17.00	50.00	23.00	27.00	50.00	10.00	39.00	49.00
Fe	27.88	24.12	52.00	15.60	34.40	50.00	19.93	49.00	49.00	24.72	25.58	50.00	20.72	29.28	50.00	11.03	37.97	49.00
χ^2	1.34	1.55	2.89	.74	.34	1.08	2.16	3.15	5.32	2.77	2.71	5.49	.25	.18	.43	.10	.03	.13
Blue Ridge																		
Fo	20.00	24.00	44.00	7.00	36.00	43.00	16.00	26.00	42.00	15.00	27.00	42.00	9.00	31.00	40.00	10.00	33.00	43.00
Fe	23.59	20.41	44.00	13.42	29.58	43.00	24.92	17.00	42.00	20.76	21.24	42.00	16.58	23.42	40.00	9.68	33.32	43.00
χ^2	.55	.63	1.18	3.07	1.39	4.46	3.19	4.66	7.85	1.60	1.56	3.16	3.46	2.45	5.92	.01	.00	.01
Central																		
Fo	21.00	22.00	43.00	19.00	24.00	43.00	6.00	36.00	42.00	17.00	28.00	45.00	11.00	32.00	43.00	32.00	13.00	45.00
Fe	21.26	21.76	43.00	17.82	25.18	43.00	9.46	32.54	42.00	24.13	20.87	45.00	13.42	29.58	43.00	26.70	18.30	45.00
χ^2	.00	.00	.01	.08	.06	.13	1.26	.37	1.63	2.11	2.44	4.54	.64	.20	.63	1.05	1.54	2.59
Eastern																		
Fo	19.00	18.00	37.00	18.00	20.00	38.00	5.00	32.00	37.00	23.00	17.00	40.00	16.00	24.00	40.00	20.00	19.00	39.00
Fe	18.29	18.71	37.00	15.75	22.25	38.00	8.33	28.67	37.00	21.45	18.55	40.00	12.48	27.52	40.00	23.14	15.86	39.00
χ^2	.55	.55	.55	.52	.25	.55	1.33	0.39	1.72	.11	.13	.24	.99	.45	1.44	.43	.62	1.05
Northern																		
Fo	21.00	28.00	49.00	18.00	29.00	47.00	10.00	36.00	46.00	23.00	25.00	48.00	11.00	36.00	47.00	24.00	24.00	48.00
Fe	24.22	24.78	49.00	19.48	27.52	47.00	10.36	35.64	46.00	25.74	22.26	48.00	14.67	32.33	47.00	28.48	19.52	48.00
χ^2	.43	.42	.85	.11	.08	.19	.01	.01	.02	.29	.34	.63	.92	.42	1.33	.70	1.03	1.73
Southside																		
Fo	23.00	23.00	46.00	22.00	23.00	45.00	18.00	27.00	45.00	31.00	16.00	47.00	19.00	24.00	43.00	30.00	15.00	45.00
Fe	22.74	23.26	46.00	18.65	26.35	45.00	10.13	34.87	45.00	25.20	21.80	47.00	13.42	29.58	43.00	26.70	18.30	45.00
χ^2	.00	.00	.01	.60	.43	1.03	6.11	1.77	7.88	1.33	1.54	2.88	2.32	1.05	3.38	0.40	0.60	1.00
Totals																		
Fo	148.00	128.00	276.00	83.00	183.00	266.00	159.00	109.00	268.00	132.00	1.35	267.00	199.00	154.00	263.00	59.00	203.00	262.00
Fe	148.00	128.00	276.00	83.00	183.00	266.00	159.00	109.00	268.00	132.00	1.35	267.00	199.00	154.00	263.00	59.00	203.00	262.00
χ^2	5.73	6.63	12.36*	8.48	3.84	12.32*	7.93	11.51	19.54**	4.84	4.73	9.57	4.83	3.42	8.25	8.87	2.56	11.39

Table 6 (continued)

Supervisory Areas	7			8			9			10			11			12		
	Yes	No	Total	Yes	No	Total	Yes	No	Total	Yes	No	Total	Yes	No	Total	Yes	No	Total
Appalachian																		
Fo	45.00	7.00	52.00	43.00	8.00	51.00	33.00	18.00	50.00	14.00	35.00	49.00	11.00	36.00	47.00	25.00	25.00	50.00
Fe	41.60	10.40	52.00	36.54	14.46	51.00	25.37	24.63	50.00	8.51	40.49	49.00	8.61	38.39	47.00	15.09	34.91	50.00
χ^2	.28	1.11	1.39	1.14	2.89	4.03	1.73	1.78	3.51	3.54	.75	4.29	.66	.15	.81	6.50	2.81	9.31
Blue Ridge																		
Fo	35.00	9.00	44.00	25.00	18.00	43.00	16.00	27.00	43.00	3.00	39.00	42.00	6.00	34.00	40.00	5.00	35.00	40.00
Fe	35.20	8.80	44.00	30.81	12.19	43.00	21.82	21.18	43.00	7.29	34.71	42.00	7.33	32.67	40.00	12.08	27.92	40.00
χ^2	.00	.01	.01	1.09	2.76	3.86	1.55	1.60	3.15	2.53	.53	3.06	.24	.05	.29	4.15	1.79	5.94
Central																		
Fo	36.00	9.00	45.00	31.00	12.00	43.00	22.00	22.00	44.00	4.00	39.00	43.00	7.00	36.00	43.00	13.00	30.00	43.00
Fe	36.00	9.00	45.00	30.81	12.19	43.00	22.33	21.67	44.00	7.46	35.54	43.00	7.88	35.12	43.00	12.98	30.02	43.00
χ^2	.00	.00	.00	.00	.00	.00	.00	.01	.01	1.61	.34	1.95	.10	.02	.12	.00	.00	.00
Eastern																		
Fo	28.00	12.00	40.00	31.00	10.00	41.00	16.00	23.00	39.00	4.00	36.00	40.00	8.00	32.00	40.00	7.00	33.00	40.00
Fe	32.00	8.00	40.00	29.37	11.63	41.00	19.79	19.21	39.00	6.94	33.06	40.00	7.33	32.67	40.00	12.08	27.92	40.00
χ^2	.50	2.00	2.50	.09	.23	.32	.73	.75	1.48	1.25	.26	1.51	.06	.02	.08	2.13	.92	3.05
Northern																		
Fo	37.00	12.00	49.00	28.00	17.00	45.00	24.00	22.00	46.00	10.00	36.00	46.00	12.00	35.00	47.00	14.00	33.00	47.00
Fe	39.20	9.80	49.00	32.24	12.76	45.00	23.34	22.66	46.00	7.98	38.02	46.00	8.61	38.39	47.00	14.19	32.81	47.00
χ^2	.12	.49	.61	.56	1.41	1.97	.02	.02	.04	.51	.11	.62	1.33	.30	1.63	.00	.00	.00
Southside																		
Fo	39.00	6.00	45.00	34.00	11.00	45.00	26.00	20.00	46.00	11.00	34.00	45.00	4.00	41.00	45.00	16.00	29.00	45.00
Fe	36.00	9.00	45.00	32.24	12.76	45.00	23.34	22.66	46.00	7.81	37.19	45.00	8.24	36.76	45.00	13.58	31.42	45.00
χ^2	.25	1.00	1.25	.10	.24	.34	.30	.31	.61	1.30	.27	1.58	2.19	.49	2.68	.43	.19	.62
Totals																		
Fo	220.00	55.00	275.00	192.00	76.00	268.00	136.00	132.00	268.00	46.00	219.00	265.00	48.00	214.00	262.00	80.00	185.00	265.00
Fe	220.00	55.00	275.00	192.00	76.00	268.00	136.00	132.00	268.00	46.00	219.00	265.00	48.00	214.00	262.00	80.00	185.00	265.00
χ^2	1.15	4.61	5.76	2.98	7.53	10.52	4.34	4.47	8.80	10.74	2.26	13.00*	4.58	1.03	5.61	13.21*	5.71	18.92*

Table 6 (continued)

Supervisory Areas	13			14			15			16			17		
	Yes	No	Total	Yes	No	Total	Yes	No	Total	Yes	No	Total	Yes	No	Total
Appalachian															
Fo	12.00	36.00	48.00	13.00	35.00	48.00	16.00	34.00	50.00	14.00	36.00	50.00	10.00	38.00	48.00
Fe	9.97	38.03	48.00	14.71	33.29	48.00	10.53	39.47	50.00	14.42	35.58	50.00	10.85	37.15	48.00
χ^2	.41	.11	.52	.20	.09	.29	2.85	.76	3.61	.01	.01	.02	.07	.02	.09
Blue Ridge															
Fo	6.00	34.00	40.00	5.00	35.00	40.00	5.00	35.00	40.00	4.00	36.00	40.00	1.00	39.00	40.00
Fe	8.31	31.69	40.00	12.26	27.74	40.00	8.42	31.58	40.00	11.54	28.46	40.00	9.04	30.96	40.00
χ^2	.64	.17	.81	4.30	1.90	6.20	1.39	.37	1.76	4.92	1.99	6.91	7.15	2.09	9.24
Central															
Fo	10.00	34.00	44.00	13.00	30.00	43.00	9.00	35.00	44.00	15.00	30.00	45.00	13.00	30.00	43.00
Fe	9.14	34.86	44.00	13.18	29.82	43.00	9.26	34.74	44.00	12.98	32.02	45.00	9.72	33.28	43.00
χ^2	.08	.02	.10	.00	.00	.00	.01	.00	.01	.32	.13	.45	1.11	.32	1.43
Eastern															
Fo	12.00	26.00	38.00	16.00	22.00	38.00	10.00	30.00	40.00	17.00	22.00	39.00	8.00	31.00	39.00
Fe	7.89	30.11	38.00	11.65	25.35	38.00	8.42	31.58	40.00	11.25	27.25	39.00	8.82	30.18	39.00
χ^2	2.14	.56	2.70	1.63	.72	2.35	.30	.08	.37	2.94	1.19	4.13	.08	.02	.10
Northern															
Fo	5.00	41.00	46.00	20.00	27.00	47.00	4.00	42.00	46.00	9.00	38.00	47.00	10.00	36.00	46.00
Fe	9.55	36.45	46.00	14.41	32.59	47.00	9.68	36.32	46.00	13.55	33.45	47.00	10.40	35.60	46.00
χ^2	2.17	.57	2.74	2.17	.96	3.13	3.34	.15	4.23	1.53	.62	2.15	.20	.00	.02
Southside															
Fo	9.00	35.00	44.00	13.00	32.00	45.00	12.00	34.00	46.00	18.00	28.00	46.00	17.00	28.00	45.00
Fe	9.14	34.86	44.00	13.79	31.21	45.00	9.68	36.32	46.00	13.27	32.73	46.00	10.17	34.83	45.00
χ^2	.00	.00	.00	.05	.02	.07	.55	.15	.70	1.69	.46	2.17	4.54	1.34	5.92
Totals															
Fo	54.00	206.00	260.00	80.00	181.00	261.00	56.00	210.00	266.00	77.00	190.00	267.00	59.00	202.00	261.00
Fe	54.00	206.00	260.00	80.00	181.00	261.00	56.00	210.00	266.00	77.00	190.00	267.00	59.00	202.00	261.00
χ^2	5.45	1.43	6.87	8.35	3.69	12.04**	8.43	2.25	10.68	11.41	4.62	16.03	13.00	3.80	16.80

the number that would be expected if the probability of their use was .05 in each supervisory area. The sum of the Chi-square values in six supervisory areas for each item of instructional materials was compared with the Chi-square for the appropriate degrees of freedom (five) to ascertain whether or not the degree of use varied among areas. The Chi-square value for eight of the instructional materials exceeded the table value at the .05 level of significance. The large Chi-square indicated that there was a relationship of supervisory areas to the extent that these instructional materials were used. The instructional materials that had significant Chi-square values and indicated a difference in use among the supervisory areas were numbers 1, 2, 3, 10, 12, 14, 16, and 17. This kind of statistical test does not show the intensity of the relationship or the direction.

One asterisk (*) = .05, and two asterisks (**) = .01 level of significance.

In summary, the data did not support the hypothesis of no difference in the extent and use made of instructional materials between teachers of vocational agriculture in the six supervisory areas. Therefore, the hypothesis was rejected.

NULL HYPOTHESIS NUMBER THREE

There is no difference in the extent and use made of instructional materials between age groups.

Age of Teachers of Vocational Agriculture in Virginia By the Use of Instructional Materials: As shown in Table 7, teachers of

Table 7

Age of Teachers of Vocational Agriculture in Virginia
By the Use of Instructional Materials
(Given in Percentage)

Age	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
22-27	28	15	18	14	22	6	33	30	21	5	5	5	3	22	13	18	0	15.18
28-33	5	8	13	14	11	3	13	18	5	3	3	5	8	5	0	11	5	7.65
34-39	5	5	3	6	5	3	5	8	0	0	5	0	3	3	0	0	3	3.18
40-45	3	3	5	3	0	0	5	8	3	0	3	0	3	3	5	0	3	2.76
46-51	3	3	3	3	0	0	3	3	0	0	0	3	3	0	0	3	3	1.76
52-57	5	3	5	6	5	3	5	5	5	0	3	3	3	8	3	5	3	4.12
58 and Over	8	3	5	6	3	0	5	5	5	3	3	3	8	3	3	5	3	4.18
Total	57	40	52	52	46	15	69	77	39	11	22	19	31	44	24	42	20	38.83

vocational agriculture in age group 22-27 used the seventeen selected instructional materials more than teachers in age group 28 years and older. In descending order by averages:

22-27	15.18%
28-33	7.65%
58 and older	4.18%
52-57	4.12%
34-39	3.18%
40-45	2.76%
46-51	1.76%

In summary, the data did not support the hypothesis of no difference in the extent and use made of instructional materials between age groups. Therefore, the hypothesis was rejected.

NULL HYPOTHESIS NUMBER FOUR

There is no difference in the extent and use made of instructional materials between graduates of Virginia Tech and graduates of other universities.

Place of Education of Teachers of Vocational Agriculture in Virginia By the Use of Instructional Materials: As shown in Table 8, teachers of vocational agriculture who completed their educational training in colleges or universities other than Virginia Tech used the seventeen selected instructional materials more than graduates of Virginia Tech. In descending order by averages:

Graduates of Virginia Tech	16.00%
Graduates of other colleges and universities	22.94%

Table 8

Place of Education of Teachers of Vocational Agriculture
in Virginia By the Use of Instructional Material
(Given in Percentage)

Graduate of Virginia Tech	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Yes	20	15	18	22	21	8	30	32	15	5	8	5	16	13	13	18	13	16.0
No	38	25	33	30	26	5	40	44	26	5	13	13	16	29	13	26	8	22.94
Total	58	40	51	52	47	13	70	76	41	10	21	18	32	42	26	44	21	38.94

In summary, the data did not support the hypothesis of no difference in the extent and use made of instructional materials between graduates of Virginia Tech and graduates of other universities. Therefore, the hypothesis was rejected.

NULL HYPOTHESIS NUMBER FIVE

There is no difference in the use made of instructional materials between teachers of vocational agriculture in single teacher departments and multi-teacher departments.

Number of Teachers of Vocational Agriculture in Virginia Per Department By the Use of Instructional Materials: As shown in Table 9, teachers of vocational agriculture teaching in single teacher departments used the seventeen selected instructional materials more than teachers teaching in departments with two, three, four or more teachers. In descending order by averages:

One teacher department	16.47%
Two teacher department	12.65%
Four teacher department	5.39%
Three teacher department	4.59%
More than four teacher department . .	0

In summary, the data did not support the hypothesis of no difference in the use made of instructional materials between teachers of vocational agriculture in single teacher departments and multi-teacher departments. Therefore, the hypothesis was rejected.

Table 9
 The Number of Teachers of Vocational Agriculture in the
 Local Department By the Use of Instructional Material
 (Given in Percentage)

Teachers in Department	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
One	20	15	23	24	18	3	28	29	15	5	13	10	18	21	13	15	10	16.47
Two	25	10	15	16	16	5	23	27	13	0	8	3	5	18	8	18	5	12.65
Three	8	8	8	3	8	3	8	7	5	3	0	3	3	3	3	5	0	4.59
Four	5	8	5	8	5	3	13	12	8	3	0	3	5	0	3	5	5	5.39
More than Four	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	58	41	51	51	47	14	72	75	41	11	21	19	31	42	27	43	20	39.10

NULL HYPOTHESIS NUMBER SIX

There is no difference in the extent and use made of instructional materials between grade levels of teaching.

Level of Teaching of Teachers of Vocational Agriculture in Virginia By the Use of Instructional Materials: As shown in Table 10, teachers of vocational agriculture teaching continuing education classes used the seventeen selected instructional materials more than teachers of other grade levels. In descending order by averages:

Continuing education . . .	24.12%
11-12	8.71%
9-10	3.29%
7-8	3.12%

In summary, the data did not support the hypothesis of no difference in the extent and use made of instructional materials between grade levels of teaching. Therefore, the hypothesis was rejected.

NULL HYPOTHESIS NUMBER SEVEN

There is no difference in the extent and use made of instructional materials between teachers of vocational agriculture with Bachelor's degrees and teachers with Master's degrees.

The Level of Education of Teachers of Vocational Agriculture in Virginia By the Use of Instructional Materials: As shown in Table 11, when comparing teachers of vocational agriculture on the

Table 10

Level of Teaching By the Use
of Instructional Materials
(Given in Percentage)

Grade Level Teaching	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
7-8	5	3	3	5	3	0	8	7	8	0	0	0	3	3	0	5	0	3.12
9-10	5	5	3	5	5	3	5	5	3	0	0	0	3	3	3	5	3	3.29
11-12	12	13	15	11	11	3	15	12	8	3	3	5	11	11	0	10	5	8.71
Continuing Education	35	20	31	30	29	8	43	51	23	8	18	13	16	26	23	23	13	24.12
Total	57	41	52	51	48	14	71	75	42	11	21	18	33	43	26	43	21	39.24

Table 11

The Level of Teachers of Vocational Agriculture in Virginia
By the Use of Instructional Materials
(Given in Percentage)

Education	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Bachelor's Degree	43	30	39	32	34	11	50	51	28	8	8	13	24	26	20	33	10	27.06
Master's Degree	15	10	13	19	13	3	20	24	13	2	12	5	8	16	5	10	10	11.65
Certificate of Advanced Graduate Study	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ed.D.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	58	40	52	51	47	14	70	75	41	10	20	18	32	42	25	43	20	38.71

basis of the use of instructional materials, teachers of vocational agriculture with Bachelor's degrees used the seventeen selected instructional materials more than teachers with higher education. In descending order by averages:

Bachelor's	27.06%
Master's	11.65%
Certificate of Advanced Graduate Study	0
Doctor of Education	0

In summary, the data did not support the hypothesis of no difference in the extent and use made of instructional materials between teachers of vocational agriculture with Bachelor's degrees and teachers with Master's degrees. Therefore, the hypothesis was rejected.

OTHER CONCERNS OF THE RESEARCHER IN THE STUDY

The tables corresponding to other concerns of the researcher in this part of Chapter 4 are presented in Appendix B.

Teachers of Vocational Agriculture in Virginia By Years of Teacher Experience and Supervisory Area: When comparing the supervisory areas on the basis of years of teacher experience, it was found that the Eastern area had the highest percent in the 0-5 years group (57%); and the Appalachian area had the highest percent in the 6-10 years group (30%). The Blue Ridge area had the highest percent in the 16-20 years group (16%), but the Southside area had the highest percent in the 21-25 years group (10%) and in the 26 years or more group (11%). See Table 12.

In all supervisory areas, except the Appalachian area, the percent of vocational agriculture teachers was highest in the 0-5 years of teaching group, with an average of 45.83% in this group for each area. The Appalachian area had the highest percent in the 6-10 years group (30%) with an average for all areas in this experience group of 18.33%.

The average percent for all areas decreased for each experienced group from years taught group 11-15 (11.83%), 16-20 (9.83%), to 21-25 (6.83%). The average percent increased slightly for the 26 years or more group to 7.33%.

Teachers of Vocational Agriculture in Virginia By Years of Teaching Experience in Present Department and By Supervisory Area:

When comparing the supervisory areas on the basis of years of teaching experience in the department, it was found that the Northern area had the highest percent in the 0-5 years group (67%), and the Appalachian area had the highest percent in the 6-10 years group (24%) and in the 26 years or more group (7%). See Table 13.

In all supervisory areas the percent of vocational agriculture teachers was highest in the 0-5 years of teaching group, with an average of 56.83% in this group for each area. The average percent decreased for years of teaching in the present department 6-10 (19.50%), 11-15 (10.50%), 16-20 (6.16%) except in the Appalachian area which increased in the 21-25 (6%) years in the present department. The average percent for this area also decreased (3.33%). The average percent increased slightly for the 26 years or more group to 3.66%.

Teachers of Vocational Agriculture in Virginia By Level of

Education and Supervisory Area: When comparing the supervisory areas on the basis of level of education, it was found that the Eastern area had the highest percent in the Bachelor's degree group (72%), and the same percent as the Appalachian and Southside areas in the Certificate of Advanced Graduate Study group (2%). The Appalachian area had the highest percent in the Master's degree group (48%), and the Southside area had the highest percent in the Doctor of Education group (2%). See Table 14.

In all supervisory areas the percent of vocational agriculture teachers was highest in the Bachelor's degree group with an average of 64.83% in this group for each area. The Appalachian area had the highest percent in the Master's degree group (48%), with an average for all areas in the Master's group of 33.83%. The Appalachian, Eastern, and Southside areas had the highest percent in the Certificate of Advanced Graduate Study group (2%), and the Southside area had the highest percent in the Doctor of Education group (2%).

Teachers of Vocational Agriculture in Virginia By Sex and By Supervisory Area: When comparing the supervisory areas on the basis of sex, it was found that the Appalachian, Blue Ridge, and Northern areas had the highest percent of male teachers (98%) with an average of 96.5% in this group for each supervisory area. The Southside area had the highest percent of females (6%) with an average of 3.5% in this group for each supervisory area. See Table 15.

Teachers of Vocational Agriculture in Virginia By Number of Teachers in the Department and By Supervisory Area: When comparing supervisory areas on the basis of the number of teachers in the department, it was found that the Eastern area had the highest percent of teachers in one teacher department (41%). The Northern area had the highest percent in two teacher departments (69%). The Blue Ridge had the highest percent in three teacher departments (31%), and the Southside had the highest percent in four teacher departments (4%) and in more than four teacher departments with 2%. See Table 16.

In all supervisory areas the percent of vocational agriculture teachers was highest in two teacher departments, with an average of 46.33% in this group for each area. The average percent decreased for each multi-teacher department from three teachers (22.00%), one teacher (21.16%), four teachers (10.16%) to four or more teachers (.33%).

Teachers of Vocational Agriculture in Virginia By University and By Supervisory Area: When comparing supervisory areas on the basis of the number of Virginia Tech graduates and graduates of other colleges and universities, it was found that the Northern area had the highest percent in the Virginia Tech graduate group (92%), and the Eastern area had the highest percent in graduates of other colleges and universities (50%). See Table 17.

In all supervisory areas except the Eastern area the percent of vocational agriculture teachers was highest in the graduates of Virginia Tech group with an average of 73.83%.

Teachers of Vocational Agriculture in Virginia By Grade Level

Teaching and By Supervisory Area: When comparing supervisory areas on the basis of grade level currently teaching, it was found that the Central area had the highest percent teaching the 7-8 grade level group (27%) and teaching the 9-10 grade level group (24%). The Appalachian area had the highest percent in the 11-12 grade level group (54%), and the Northern area had the highest percent in the continuing education group (78%). See Table 18.

In all supervisory areas, except the Central area, the percent of vocational agriculture teachers was highest in the continuing education group, with an average of 51.50% in this group for each area. The Central area had the highest percent in the 7-8 grade level group (27%), with an average for all areas in this grade level group of 13.83%. The Central area had the highest percent in 9-10 grade level group (24%) with an average in this group of 11.16%. The Appalachian area had the highest percent in the 11-12 grade level group (54%) with an average for all areas in this group of 23.5%.

Teachers of Vocational Agriculture in Virginia By Age and By

Supervisory Area: When comparing supervisory areas on the basis of age of teachers, it was found that the Northern area had the highest percent in the 22-27 age group (45%), and the Blue Ridge area had the highest percent in the 28-33 age group (36%). The Blue Ridge area had the highest percent in the 34-39 age group (22%), and the Appalachian area had the highest percent in the 40-45 age group (19%). The Central area had the highest percent in the 46-51 age group (13%), and the Blue

Ridge area had the highest percent in the 52-57 age group (11%). The Southside area had the highest percent in the 58 and over group (14%). See Table 19.

In all supervisory areas the percent of vocational agriculture teachers was highest in the 22-27 age group, with an average of 30.83%. The average percent for each age group decreased from 28-33 (25%), 34-39 (11.83%), 40-45 (11.16%), to 46-51 (6.5%). The average percent increased slightly for the 52-57 age group (7.5%) and for the 58 and over age group (7.16%).

Teachers of Vocational Agriculture in Virginia By Option(s) and Supervisory Areas: When comparing the supervisory areas on the basis of option areas, it was found that the Appalachian area had the highest percent in teaching the Exploratory Agriculture option (28%), the highest percent teaching Agricultural Production (53%), and the highest percent in Ornamental Horticulture (17%). The Northern area had the highest percent teaching Agricultural Business (27%), Agricultural Machinery Service (29%), and Agricultural Science and Mechanics (77%). The Central area had the highest percent teaching Special Needs Program (20%), and the Eastern area had the highest percent in Natural Resources Management (21%). See Table 20.

In all supervisory areas the percent of vocational agriculture teachers by option areas was highest in Agricultural Science and Mechanics, with an average for this group of 62.66%. The average percent for all areas decreased for each option from Agricultural Production (42%), Agricultural Machinery Service (31.16%), Exploratory Agriculture

(15.33%), Special Needs Program (14.33%), Natural Resources Management (12.83%), Ornamental Horticulture (11.83%) to Agricultural Business (10.33%).

Teachers of Vocational Agriculture in Virginia By Supervisory Area and By Reasons for Not Using the Instructional Materials: When comparing the supervisory areas by reasons for not using the seventeen selected instructional materials, it was found that the primary reason given by vocational agriculture teachers for not using the instructional materials was: Did not need materials. The Eastern area had the highest percent, with an average of 71.83% in this group for each instructional material. See Table 21.

The second reason most frequently given for not using the seventeen selected instructional materials was: Used other materials. The Appalachian area had the highest percent, with an average of 30.71% in this group for each instructional material.

The third reason most frequently given for not using the seventeen selected instructional materials was: Not available. The Central area had the highest percent, with an average of 19.06% in this group for each instructional material.

Completeness of Coverage of the Instructional Materials By Supervisory Area: When comparing the supervisory areas on the basis of completeness of coverage of the instructional materials, it was found that in all areas the vocational teachers rated good the completeness of coverage. The Northern area had the highest percent in good for the

for the completeness of coverage, with an average of 62.59%. The Blue Ridge area had the highest percent in fair for completeness of coverage, with an average of 27.65%. The Central area had the highest percent in excellent for completeness of coverage, with an average of 27.71%. The Southside area had the highest percent in poor for the completeness of coverage, with an average of 7.82%. See Table 22.

Current Information Found in the Instructional Materials By Supervisory Area: When comparing the supervisory areas on the basis of current/up-to-date information of the instructional materials, it was found that all the vocational agriculture teachers rated most of the instructional materials as good insofar as current information was concerned. The Southside area had the highest percent in the good category for current information, with an average of 60.76% in this group for each instructional material. The Blue Ridge area had the highest percent in fair for current information, with an average of 31.65% in this group for each instructional material. The Central area had the highest percent for excellent, with an average of 29.14% in this group for each instructional material. See Table 23.

Applicability of Instructional Materials By Supervisory Area: When comparing the supervisory areas on the basis of instructional material applicability, it was found that vocational agriculture teachers in all the supervisory areas rated the applicability of instructional material as good. The Southside area had the highest percent in good with an average of 56.71% in this group for each instructional material.

The Central area had the highest percent in excellent, with an average of 30.65% for each instructional material. The Central area also had the highest percent in poor, with an average of 13.47% in this group for each instructional material. See Table 24.

Illustrations and Photographs: Number By Supervisory Area:

When comparing the supervisory areas on the basis of illustrations and photographs--number--it was found that vocational agriculture teachers in the Appalachian area had the highest percent in the good response blank with an average of 55.18% in this group for each instructional material. The Blue Ridge area had the highest percent in fair, with an average of 34.41% in this group for each instructional material. The Central area had the highest percent in excellent, with an average of 31.95% in this group for each instructional material. The Appalachian area had the highest percent in poor, with an average of 9.65% in this group for each instructional material. See Table 25.1.

Illustrations and Photographs: Variety By Supervisory Area:

When comparing the supervisory areas on the basis of the quality of illustrations and photographs--variety--it was found that the Southside area had the highest percent in good, with an average of 58.76% in this group for each instructional material. The Blue Ridge area had the highest percent in fair with an average of 30.00% in this group for each instructional material. The Central area had the highest percent in excellent, with an average of 28.77% in this group for each instructional material. The Blue Ridge area had the highest percent in poor, with an

average of 21.41% in this group for each instructional material. See Table 25.2.

Illustrations and Photographs: Quality By Supervisory Area:

When comparing the supervisory areas on the basis of quality of illustrations and photographs, it was found that the Central area had the highest percent in the good response with an average of 64.24% in this group for each instructional material. The Blue Ridge area had the highest percent in fair, with an average of 28.24% in this group for each instructional material. The Eastern area had the highest percent in excellent, with an average of 24.48% in this group for each instructional material. The Northern area had the highest percent in poor, with an average of 12.41% in this group for each instructional material. See Table 25.3.

Illustrations and Photographs: Currentness By Supervisory Area:

When comparing the supervisory areas on the basis of the quality of the illustrations and photographs--currentness--it was found that the Southside area had the highest percent in good with an average of 54.18% for each instructional material. The Appalachian area had the highest percent in fair with an average of 21.59% for each instructional material. The Blue Ridge area had the highest percent in poor with an average of 28.06% for each instructional material. The Central area had the highest percent in excellent, with an average of 34.74% for each instructional material. See Table 25.4.

Suitability of Instructional Materials By Supervisory Area: When comparing the supervisory areas on the basis of suitability of

instructional materials, it was found that the Northern area had the highest percent in good with an average of 53.47% in this group for each instructional material. The Central area had the highest percent in excellent with an average of 32.00% in this group for each instructional material. The Blue Ridge area had the highest percent in fair with an average of 26.00% in this group for each instructional material. The Central area had the highest percent in poor with an average of 13.00% in this group for each instructional material. See Table 26.

Things to Include in Future Instructional Materials: When comparing the supervisory areas on the basis of things to include in future instructional materials, it was found that the Southside area had the highest percent of teachers (74%) requesting transparency masters with an average of 61% in this group for each supervisory area. The Central area had the highest percent of teachers (53%) requesting tear out pages, with an average of 36.33% in this group for each supervisory area. The Central area also had the highest percent (67%) wanting teacher keys, with an average of 41.67% in this group for each supervisory area. The Blue Ridge area had the highest percent (98%) in other, with an average of 34.5% in this group for each supervisory area. See Table 27.

Teachers of Vocational Agriculture in Virginia By Sex and By the Use of Instructional Materials: Table 28 indicates that there are more male vocational agriculture teachers teaching in Virginia than females. Males lead in the use of the seventeen selected instructional materials used in this study. Male teachers used 38.12% of the instructional materials and female teachers used 1.76%.

Teachers of Vocational Agriculture in Virginia Compared by

Option(s) Teaching and the Use of Instructional Materials: Teachers

of vocational agriculture teaching selected option(s) used the Agricultural Science and Mechanics instructional materials more than any of the other selected instructional materials used in this study.

See Table 29. In descending order by averages:

Agricultural Science and Mechanics . . .	18.41%
Agricultural Production	15.35%
Natural Resources Management	13.41%
Agricultural Machinery Service	11.47%
Special Needs Program	5.82%
Exploratory Agriculture	2.71%
Ornamental Horticulture	1.24%
Agricultural Business82%

Teachers of Vocational Agriculture in Virginia Compared By

Years of Teaching in Present Department and the Use of Instructional

Materials: When comparing the years teaching in a department and the use of instructional materials, teachers with 0-5 years used the seven-teen selected instructional materials more than any other group. See

Table 30. In descending order by averages:

0-5 years in department	21.82%
6-10 years in department	5.65%
16-20 years in department	5.24%
more than 26 years in department . . .	3.47%
11-15 years in department	2.88%
21-25 years in department35%

The summary of the study and the conclusions, based on the results of the crossbreaks and Chi-square analysis, are discussed in Chapter 5.

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

SUMMARY

The purpose of this study was to determine the extent and use that teachers of vocational agriculture in the public schools in Virginia were making of seventeen selected instructional materials developed by the Agricultural Education Program Area faculty at Virginia Polytechnic Institute and State University.

Since 1920 the Agricultural Education Program Area faculty has developed instructional materials for teachers of vocational agriculture in Virginia to use in teaching agriculture classes. No study had been conducted to assess the extent and use made of these instructional materials.

The specific problem was to determine the extent and use teachers of vocational agriculture in Virginia were making of the instructional materials developed by the Agricultural Education Program Area faculty at Virginia Polytechnic Institute and State University. A comparison was made among the extent and use of seventeen instructional materials and the variables: (1) supervisory areas, (2) age of teacher, (3) experience in teaching, (4) multi versus single teacher departments, (5) advanced training versus no

advanced training, (6) level of teaching, (7) sex, and (8) option area of teaching.

The population for this study was vocational agriculture teachers in the public schools in Virginia. The design for this study was the descriptive-correlation method using the survey technique.

Seventeen instructional materials were randomly selected by a disinterested third party from a table of random numbers. The instructional materials were grouped into resource units, source units, and teaching plans, according to Cardozier's classification (Table 2). An Instructional Usage Survey Form (Appendix A) was developed with a key so that teachers of vocational agriculture could respond concerning the extent and use of the seventeen instructional materials.

Crossbreaks and Chi-square were used in analyzing the data. The data were presented in percentages and frequencies.

Permission for this study was obtained from the joint state staff of Agriculture Education in Virginia at their regular meeting in January, 1976. Each of the six area supervisors gave the researcher permission to administer the survey instrument during their supervisory teacher conference.

The hypotheses were developed from the review of literature in Chapter 2. The hypotheses were accepted or rejected on the basis of the supportive data.

Other concerns listed in this study consisted of information not used in accepting or rejecting the null hypotheses. However, the concerns are summarized as follows:

Teachers of vocational agriculture in Virginia with less experience, the least number of years in the department, and Bachelor's degrees used the seventeen selected instructional materials more than teachers with more experience, more years in the department, and with Master's degrees, Certificates of Advance Graduate Study, or the Doctor of Education degree. Teachers with 6-25 years of experience and 6-25 years in the department did not make as much use of the seventeen instructional materials listed in this study. However, the use of the seventeen instructional materials increased slightly for the teachers with 26 or more years of experience and 26 or more years in the department.

There are more male vocational agriculture teachers (96.50%) in the public schools in Virginia than females (3.5%). When compared in the use of the seventeen selected instructional materials used in this study, male teachers used an average of 38.12% of the instructional materials and females used an average of 1.76% of the instructional materials.

There are more vocational agriculture teachers employed in two teacher departments in the public schools in Virginia than in single teacher, three teacher, four teacher, or four or more teacher departments. However, vocational agriculture teachers in one teacher departments used the seventeen selected instructional materials more than vocational agriculture teachers in two teacher, three teacher, or four or more teacher departments.

Of the vocational agriculture teachers employed in the public schools in Virginia, 73.83% were graduates of Virginia Tech. But graduates of other colleges and universities used the seventeen selected instructional materials more than graduates of Virginia Tech.

Teachers of vocational agriculture teaching continuing education classes used the seventeen instructional materials more than teachers teaching grade levels 7-8, 9-10, and 11-12.

Teachers of vocational agriculture in age group 22-27 used the seventeen selected instructional materials more than teachers in age groups 28-33, 34-39, 40-45, 46-51, 52-57, and 58 and over.

Teachers of vocational agriculture teaching the Agriculture Science and Mechanics option had the highest average (62.66%) number of teachers, for each supervisory area, teaching this option, and used the seventeen selected instructional materials more than vocational agriculture teachers teaching the Exploratory Agriculture option, Agriculture Business option, Agriculture Production option, Ornamental Horticulture option, Agricultural Machinery Service option, Special Needs Program, or the Natural Resources Management option.

Teachers of vocational agriculture in the Appalachian area used the seventeen selected instructional materials more than in the Blue Ridge, Central, Eastern, Northern, and Southside area, with an average of 50.70% for each instructional material.

The instructional materials number 7 and 8 ranked highest in use in all supervisory areas.

The four criteria given for rating the seventeen selected instructional materials were: 1 = poor, 2 = fair, 3 = good, and 4 = excellent. None of the seventeen selected instructional materials were rated excellent. In terms of completeness of coverage, up-to-date information, and applicability, the seventeen instructional materials were rated good by the teachers of vocational agriculture in all supervisory areas.

None of the instructional materials were rated excellent in illustrations and photographs: number, variety, quality, and being up-to-date. However, teachers of vocational agriculture rated illustrations and photographs good for the seventeen selected instructional materials.

Responding to the suitability of the seventeen selected instructional materials to their instructional area(s), teachers of vocational agriculture rated the instructional materials good.

The main reason checked by teachers of vocational agriculture for not using the seventeen selected instructional materials was: did not need materials. The instructional materials the teachers of vocational agriculture did use were rated as good.

The majority (61%) of vocational agriculture teachers want transparency masters and student workbooks (51.16%) included in future developed instructional materials. They also want, in future developed instructional materials, a teacher key (41.67%) and tear out pages (34.33%).

The six supervisory areas were grouped and a Chi-square analysis was used to test whether or not the number of teachers using a particular item of instructional material deviated from the number that would be expected if the probability of their use was .05.

Based on the responses of the vocational agriculture teachers there were eight out of the seventeen selected instructional materials in which there was a significant difference in the extent and use of these instructional materials. They were numbers 1, 2, 3, 10, 12, 14, 16, and 17. The Chi-square test revealed a difference among the use of instructional materials in areas but it did not show the intensity or the direction.

CONCLUSIONS

It is apparent, from information collected in this study, that teachers of vocational agriculture in the public schools in Virginia are using the instructional materials developed by the Agricultural Education Program Area faculty at Virginia Polytechnic Institute and State University. However, teachers need to become thoroughly acquainted with the instructional materials and the best possible way to use them.

Teachers of vocational agriculture rated the instructional materials as good. It is therefore concluded that the instructional materials developed by the Agricultural Education Program Area faculty are good. It is further concluded that the instructional materials

were well distributed to vocational agriculture teachers in their supervisory areas by the area supervisors.

Based on the classification of types of materials according to Cardozier (Table 2), additional instructional materials are needed in Exploratory Agriculture, Agricultural Business, Agricultural Machinery Service, Special Needs Program, and Natural Resources Management. It is also concluded that instructional materials in Approved Practices and in Job Operations are needed.

It is apparent that the supervisory area of teachers has a relationship to the extent and use of instructional materials used in this study (Tables 4 and 6). No conclusion can be drawn as to the direction of that relationship.

Teachers of vocational agriculture in age groups 22-27; 0-5 years of teaching experience, 0-5 years in the department, having Bachelor's degrees, and teachers in one teacher departments used the instructional materials more than teachers of vocational agriculture in other groupings.

RECOMMENDATIONS

The results of the study would indicate that the following recommendations are in order:

1. That a survey of the vocational agriculture teachers in the public schools in Virginia should be conducted to determine which instructional materials to develop.

2. That a representative sample of vocational agriculture teachers in the State of Virginia be involved in developing instructional materials (perhaps on a rotation basis).

3. That the instructional materials be distributed to vocational agriculture teachers by option(s) taught or only on request to teachers in other option(s) areas.

4. That inservice workshops be conducted on the use of instructional materials for all vocational agriculture teachers in the public schools in Virginia.

5. That future developed instructional materials include transparency masters, student workbooks, tear-out pages, and other teaching aids.

RECOMMENDATION FOR FURTHER STUDY

It is recommended that further study is needed to determine why graduates of other colleges and universities are using the instructional materials more than graduates of Virginia Tech.

BIBLIOGRAPHY

BIBLIOGRAPHY

A. BOOKS

- Arkins, Herbert, and Raymond R. Colton. Statistical Methods. New York: Barnes and Nobel, Inc., 1964, pp. 103-12.
- Ary, Donald, Lucy Jacobs, and Asghar Razavich. Introduction to Research in Education. New York: Holt, Rinehart and Winston, Inc., 1972, pp. 151-56.
- Binkley, Harold, and Carsie Hammond. Experience Programs for Learning Vocations in Agriculture. Danville, Illinois: The Interstate Printers and Publishers, 1970, pp. 331-37.
- Cardozier, V. R. Teacher Education in Agriculture. Danville, Illinois: The Interstate Printers and Publishers, 1970, pp. 331-37.
- Drawbaugh, Charles C., and William Hull. Agricultural Education: Approaches to Learning and Teaching. Columbus: Charles Merrill Publishing Company, 1971.
- Encyclopedia International, "Education," Volume 6. New York: Grolier Incorporated, 1966, p. 276.
- Evans, Rupert N., and David R. Terry. Changing the Role of Vocational Teacher Education. Bloomington, Illinois: McKnight & McKnight Publishing Company, 1971, pp. 29-55.
- Golabek, Dennis B. An Investigation to Determine the Relative Effectiveness of the Consumer Game in Distributive Education at the Secondary Level. New Jersey: Rutgers University, 1973.
- Grieder, Calvin, Truman M. Pierce, and K. Forbis Jordan. Public School Administration. New York: The Ronald Press Company, 1969.
- Hammock, Robert, and Ralph S. Owing. Supervising Instruction in Secondary Schools. New York: McGraw Hill Book Company, 1969.
- Kenneke, Larry J., Dennis C. Nystrom, and Ronald W. Stadt. Planning and Organizing Career Curricula: Articulated Education. New York: Howard W. Sams and Company, Inc., 1973, p. 122.
- Kerlinger, Fred N. Foundations of Behavioral Research. New York: Holt, Rinehart and Winston, Inc., 1973, pp. 157-83.

- Koonce, Tommy Ray. State Prepared Industrial Arts Resource Materials: Their Status, Preparation, and Effectiveness. Ann Arbor, Michigan: University Microfilm, Inc., 300 North Zeeb Road, 1968.
- Meager, Robert F., and Kenneth M. Beach, Jr. Developing Vocational Instruction. Palo Alto: Fearon Publishers, 1967.
- Nie, Norman, C. H. Hull, and others. Statistical Package for the Social Sciences. New York: McGraw Hill Book Company, 1975, p. 264.
- Peirce, Harry E., Jr. The Development and Evaluation of Farm Management Instructional Units for Young Adult Farmer Education. Ann Arbor, Michigan: University Microfilm, 300 North Zeeb Road, 1969.
- Phipps, Lloyd J. Handbook on Agricultural Education in Public Schools. Danville, Illinois: The Interstate Printers and Publishers, 1972, pp. 93-95, 101, 579.
- Roberts, Roy W. Vocational and Practical Arts Education. New York: Harper and Row Publishers, Inc., 1971, pp. 5-19, 459.
- Thorndike, Robert, and Elizabeth Hagan. Measurement and Evaluation in Psychology and Education. John Wiley and Sons, Inc., 1969.

B. BULLETINS

- Hensel, James W., and Cecil H. Johnson, Jr. An Evaluation of the Off-Farm Agricultural Occupations Materials. Research Series No. 21. Columbus, Ohio: The Center for Research and Leadership Development in Vocational and Technical Education, The Ohio State University, 1967.
- Lee, Jasper S. Instructional Materials Development in Agricultural Education at Virginia Polytechnic Institute and State University, 1975.
- Minutes of the Virginia Vocational Agriculture Teachers Conference. Blacksburg, Virginia: Virginia Polytechnic Institute and State University, Agricultural Education Program Area, July, 1975.
- Public Law 90-576. An Act: Amendments to the Vocational Education Act of 1963. 90th Congress: H.R. 18366, 1968, p. 7.
- Standards of Quality and Objectives for Public Education in Virginia 1974-76. The General Assembly of Virginia, 1974.

Sutherland, S. S. Objectives and Evaluation in Vocational Agriculture. Columbus: The Center for Vocational and Technical Education, The Ohio State University, 1966.

Vocational Education: The Bridge Between Man and His Work. Washington, D.C.: U.S. Department of Health, Education and Welfare, Office of Education, 1968.

C. DISSERTATION

Jacks, Lloyd P. "Development and Use of Subject Matter Materials for Vocational Education in Agriculture." Unpublished Doctoral dissertation, State College: The Division of Vocational and Technical Education, Mississippi Department of Education and Mississippi State University, 1974.

D. DISSERTATION ABSTRACTS

Brooks, William Kent. "A Study of Attitudes and Teaching Behavior of Occupational Orientation Teachers in Mississippi." Unpublished Doctoral dissertation, Ohio State University, 1974.

Gurrola, Soledad. "Determination of the Relative Effectiveness and Efficiency of Selected Combinations of SQ3R Study Methods Components." Unpublished Doctoral dissertation, New Mexico State University, 1974.

Robinson, Ward Rhyme. "Teacher's Perceptions of the Use and Development of Curriculum and Instructional Materials for Agribusiness and Natural Resources." Unpublished Doctoral dissertation, North Carolina State University, 1974.

E. JOURNALS

Emans, Robert. "Teacher Attitudes as a Function of Values," Journal of Education Research, 62 (July-August, 1969), pp. 159-63.

Jones, Charles L. Effectiveness of Vocational Teachers. Raleigh: North Carolina Research Coordinating Unit in Occupational Education, 1967.

Murray, Morris. "A Description of Occupational Orientation Programs in Mississippi Schools." Unpublished Report to the Research and Curriculum Unit. State College: Mississippi State University, July, 1973.

Ryan, David G. Characteristics of Teachers: Their Description, Comparison and Appraisal. Washington, D.C.: American Council of Education, 1960.

F. MAGAZINES

Brown, William J., Jr. "The Effectiveness of Instructional Materials in Improving Teaching and Learning," Agricultural Education Magazine, Vol. 41, No. 10, Athens: The Lawhead Press, Inc., 1969, pp. 242-43.

Lee, Jasper S. "Instructional Materials and Effective Teaching," Agricultural Education Magazine, Vol. 41, No. 11, Athens: The Lawhead Press, Inc., 1969, p. 267.

Wall, James E. "The Utilization of State Agricultural College Publication in Vocational Agricultural Departments," Agricultural Education Magazine, Vol. 35, Athens: The Lawhead Press, Inc., April, 1963.

APPENDICES

APPENDIX A
INSTRUCTIONAL USAGE SURVEY FORM

EXTENT AND USE OF AGRICULTURAL EDUCATION INSTRUCTIONAL MATERIALS

DIRECTIONS TO INSTRUCTIONAL USAGE SURVEY FORM

Please complete the attached instructional usage survey form by checking the appropriate spaces. Please note that the instructional usage survey form is divided into two parts.

Part I consists of general information (about you). There is no place listed for your name or school. There are no coded numbers on the survey to identify you. The information you list in the survey will be destroyed as soon as it is summarized/compiled.

Part II consists of questions about the usage of the seventeen selected instructional materials listed. Please check the appropriate space under each instructional material.

INSTRUCTIONAL USAGE SURVEY FORM - PART I

Teacher Supervisory Area:

1. Appalachian 3. Central 5. Northern
2. Blue Ridge 4. Eastern 6. Southside

1. How many years have you taught vocational agriculture? (1) 0-5, (2) 6-10, (3) 11-15, (4) 16-20, (5) 21-25, (6) More than 26.
2. How many years have you taught in the present department? (1) 0-5, (2) 6-10, (3) 11-15, (4) 16-20, (5) 21-25, (6) More than 26
3. What is your level of education? (1) Bachelor's degree, (2) Master's, (3) Certificate of Advanced Graduate Study, (4) EdD
4. What is your sex? (1) Male, (2) Female
5. How many Vocational Agriculture teachers are in your department? (1) one, (2) two, (3) three, (4) four, (5) More than four
6. Are you a graduate of Virginia Tech? (1) Yes, (2) No
7. What grade level are you currently teaching? (1) 7-8, (2) 9-10, (3) 11-12, (4) Continuing Education
8. What is your age? (1) 22-27, (2) 28-33, (3) 34-39, (4) 40-45, (5) 46-51, (6) 52-57, (7) 58 and over
9. What option area(s) are you now teaching? (1) Exploratory Agriculture, (2) Agricultural Business, (3) Agricultural Production, (4) Ornamental Horticulture, (5) Agricultural Machinery Service, (6) Special Needs Program, (7) Natural Resource Management, (8) Agricultural Science and Mechanics

INSTRUCTIONAL USAGE SURVEY FORM
PART II

INSTRUCTIONAL MATERIALS

INFORMATION
REQUESTED

	1 S. curing and Succeed- ing On a Job		2 Corn: Harvesting, Storing and Marketing		3 Soils: Testing Soil		4 Electricity Selection, Care and Operation of Electric Motors		5 Electri- city: Using Elec- trical Control Devices		6 Estate Planning: A Teach- ing Guide to Con- tinuing Education		7 Developing Proficiency in Parlia- mentary Procedure		8 Exploring Agricultural Careers: The Impor- tance of Work		9 Selected References for Teach- ing Animal Science			
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No		
1. Have you ever used these materials?																				
2. For the materials you have not used, please indicate the reason(s): 1 - not available 2 - used other materials 3 - did not need materials	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
Key: 1 - Poor Please rate materials 2 - Fair as to importance by 3 - Good checking the 4 - Excellent appropriate spaces.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Instructional materials used:																				
3. Completeness of coverage. . . .																				
4. Up-to-date information. . . .																				
5. Applicability.																				
6. Illustrations and photographs:																				
number																				
variety																				
quality																				
up-to-date																				
7. How well are these materials suited for your area?																				
8. What would you like to see included in future developed instructional materials?																				
(1) ___ transparency materials																				
(2) ___ tear out pages																				
(3) ___ student workbook																				
(4) ___ teacher key																				
(5) ___ other _____																				

INSTRUCTIONAL USAGE SURVEY FORM
PART II

INSTRUCTIONAL MATERIALS

INFORMATION
REQUESTED

1. Have you ever used these materials?
 2. For the materials you have not used, please indicate the reason(s):
1 - not available
2 - used other materials
3 - did not need materials
- Key: 1 - Poor Please rate materials
2 - Fair as to importance by
3 - Good checking the
4 - Excellent appropriate spaces.
- Instructional materials used:
3. Completeness of coverage.
 4. Up-to-date information.
 5. Applicability.
 6. Illustrations and photographs:
number
 - variety
 - quality
 - up-to-date
 7. How well are these materials suited for your area?

10 Effective Use of Drugs in Controlling Livestock Diseases		11 Planning Guide for Establishing and Conduct- ing the Agriculture Business Option			12 Advance Livestock Production: A Course of Study			13 Ornamental Horticult- ure: Plant Propagation			14 Agricultural Machinery Service: A Curriculum Guide for Agricultural Education			15 Teaching the Disadvan- taged: A Curriculum Guide for Classes of Disadvan- taged in Ag. Ed.			16 Natural Resource Management			17 Rats and their Control							
Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No								
1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3				
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

APPENDIX B
TABLES RELATED TO OTHER CONCERNS
OF THE RESEARCHER

Table 12

Teachers of Vocational Agriculture in Virginia By Years
of Teacher Experience and Supervisory Area
(Given in Percentage)

Years of Experience	Supervisory Areas						Average
	Appalachian	Blue Ridge	Central	Eastern	Northern	Southside	
0-5	22	42	49	57	54	51	45.83
6-10	30	22	20	12	12	14	18.33
11-15	23	11	2	12	15	8	11.83
16-20	11	16	13	7	6	6	9.83
21-25	7	2	7	7	8	10	6.83
26 or more	7	7	9	5	5	11	7.33
Total	100	100	100	100	100	100	99.98

Table 13

Teachers of Vocational Agriculture in Virginia By Years
of Teaching Experience in Present Department
(Given in Percentage)

Years in Department	Supervisory Areas						Average
	Appalachian	Blue Ridge	Central	Eastern	Northern	Southside	
0-5	46	58	55	60	67	55	56.83
6-10	24	22	22	19	12	18	19.50
11-15	20	11	2	7	11	12	10.50
16-20	2	7	7	7	6	8	6.16
21-25	6	2	7	2	2	1	3.33
26 or more	2	0	7	5	2	6	3.66
Total	100	100	100	100	100	100	99.98

Table 14

Teachers of Vocational Agriculture in Virginia By
 Level of Education and Supervisory Area
 (Given in Percentage)

Level of Education	Supervisory Areas						Average
	Appalachian	Blue Ridge	Central	Eastern	Northern	Southside	
Bachelor's Degree	50	56	69	72	71	71	64.83
Master's Degree	48	44	31	26	29	25	33.83
Certificate of Advance Graduate Study	2	0	0	2	0	2	1.00
Ed.D.	0	0	0	0	0	0	.33
Total	100	100	100	100	100	100	99.99

Table 15

Teachers of Vocational Agriculture in Virginia
 By Sex and By Supervisory Area
 (Given in Percentage)

Sex	Supervisory Areas						Average
	Appalachian	Blue Ridge	Central	Eastern	Northern	Southside	
Male	98	98	96	95	98	94	96.5
Female	2	2	4	5	2	6	3.5
Total	100	100	100	100	100	100	100.0

Table 16

Teachers of Vocational Agriculture in Virginia By Number
of Teachers in the Department and By Supervisory Area
(Given in Percentage)

Number of Teachers in Department	Supervisory Areas						Average
	Appalachian	Blue Ridge	Central	Eastern	Northern	Southside	
One	20	18	24	41	12	12	21.16
Two	43	42	38	41	69	45	46.33
Three	26	31	29	7	12	27	22.00
Four	11	9	9	11	7	14	10.16
More than four	0	0	0	0	0	2	.33
Total	100	100	100	100	100	100	99.98

Table 17

Teachers of Vocational Agriculture in Virginia
 By University and By Supervisory Area
 (Given in Percentage)

Tech Graduates	Supervisory Areas						Average
	Appalachian	Blue Ridge	Central	Eastern	Northern	Southside	
Yes	87	82	67	50	92	65	73.83
No	13	18	33	50	8	35	26.16
Total	100	100	100	100	100	100	99.99

Table 18

Teachers of Vocational Agriculture in Virginia By Grade
 Level Currently Teaching and By Supervisory Area
 (Given in Percentage)

Grade Level Teaching	Supervisory Areas						Average
	Appalachian	Blue Ridge	Central	Eastern	Northern	Southside	
7-8	4	22	27	10	12	8	13.83
9-10	15	11	24	5	4	8	11.16
11-12	54	7	33	21	6	20	23.50
Continuing Education	27	60	16	64	78	64	51.50
Total	100	100	100	100	100	100	99.99

Table 19

Teachers of Vocational Agriculture in Virginia
 By Age and By Supervisory Area
 (Given in Percentage)

Age	Supervisory Areas						Average
	Appalachian	Blue Ridge	Central	Eastern	Northern	Southside	
22-27	20	2	42	41	45	35	30.83
28-33	30	36	16	24	17	27	25.00
34-39	19	22	7	7	10	6	11.83
40-45	19	16	9	7	10	6	11.16
46-51	5	9	13	2	6	4	6.50
52-57	7	11	4	7	8	8	7.50
58 and Over	0	4	9	12	4	14	7.16
Total	100	100	100	100	100	100	99.98

Table 20

Teachers of Vocational Agriculture in Virginia By
Option Areas and Supervisory Area
(Given in Percentage)

Option Area Teaching	Supervisory Areas						Average
	Appalachian	Blue Ridge	Central	Eastern	Northern	Southside	
Exploratory Agriculture	28	13	13	7	19	12	15.33
Agriculture Business	11	9	11	2	27	2	10.33
Agricultural Production	53	29	42	31	50	47	42.00
Ornamental Horticulture	17	13	13	12	6	10	11.83
Agricultural Machinery Service	7	7	7	21	29	8	31.16
Special Needs Program	11	11	20	17	10	6	14.33
Natural Resources Management	9	11	9	21	15	12	12.83
Agricultural Science and Mechanics	67	58	69	48	77	57	62.66

Table 21

Teachers of Vocational Agriculture in Virginia By Supervisory Area and
By Reasons for Not Using the Instructional Materials
(Given in Percentage)

Supervisory Areas	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Appalachian																		
Not available	17	0	0	30	0	0	33	25	8	0	0	12	20	0	19	33	13	12.35
Used other materials	50	75	0	30	75	0	45	50	46	50	0	24	20	0	23	34	0	30.71
Did not need materials	33	25	100	40	25	100	22	25	46	50	100	64	60	100	58	33	97	56.94
Blue Ridge																		
Not available	10	6	17	4	3	0	0	7	5	17	7	10	9	7	9	9	19	8.18
Used other materials	19	9	31	16	27	10	10	33	18	17	7	23	25	10	12	18	20	20.29
Did not need materials	71	85	52	80	70	90	90	60	77	66	86	67	66	83	79	73	61	71.53
Central																		
Not available	39	0	0	28	0	0	38	0	33	31	50	0	25	0	29	25	26	19.06
Used other materials	22	0	13	11	0	0	12	50	0	15	0	17	8	0	19	19	11	11.59
Did not need materials	39	100	87	61	100	100	50	50	67	54	50	83	67	100	52	56	63	69.35
Eastern																		
Not available	21	0	13	7	7	7	20	0	5	10	8	15	14	6	13	12	9	9.82
Used other materials	29	21	33	14	20	19	40	29	30	21	8	8	14	6	8	12	0	18.35
Did not need materials	50	79	54	79	73	74	40	71	65	69	84	77	72	88	79	76	91	71.83
Northern																		
Not available	0	0	5	4	4	3	0	0	16	14	4	19	11	4	11	15	7	6.89
Used other materials	35	25	45	31	30	13	50	13	21	21	13	18	16	12	8	14	20	22.65
Did not need materials	65	75	50	65	66	84	50	87	63	65	82	63	73	84	81	71	73	70.46
Southside																		
Not available	13	13	15	9	0	4	17	0	24	15	18	9	19	20	15	9	13	15.53
Used other materials	20	22	39	18	24	21	33	46	18	19	9	17	7	0	0	9	8	18.24
Did not need materials	67	65	46	73	76	75	50	54	58	66	73	74	74	80	85	82	79	66.23

Table 22

Completeness of Coverage of the Instructional
Materials By Supervisory Areas
(Given in Percentage)

Supervisory Areas	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Appalachian																		
Poor	0	0	3	10	7	5	13	9	0	26	11	0	10	0	11	13	0	6.94
Fair	17	40	17	14	10	18	26	23	15	32	67	0	0	50	11	33	80	26.65
Good	67	60	53	52	63	54	48	50	60	42	22	100	90	50	78	53	20	56.59
Excellent	16	0	27	24	20	23	13	18	25	0	0	0	0	0	0	0	0	9.82
Blue Ridge																		
Poor	0	0	0	8	0	0	9	5	0	0	0	0	16	0	0	25	0	3.71
Fair	17	60	21	31	0	56	6	27	20	50	20	0	17	0	20	25	100	27.65
Good	67	40	57	31	67	44	61	50	47	50	60	80	17	75	0	25	0	45.35
Excellent	16	0	22	30	33	0	24	18	33	0	20	20	50	25	80	25	0	23.29
Central																		
Poor	5	0	7	4	3	5	0	5	0	0	0	0	7	8	5	0	14	3.71
Fair	18	36	20	4	10	32	37	30	20	14	15	19	30	25	11	13	45	22.29
Good	64	28	60	74	60	47	53	50	47	45	56	33	37	30	56	47	0	46.29
Excellent	13	36	13	18	27	16	10	15	33	41	29	48	26	37	28	40	41	27.71

Table 22 (continued)

Supervisory Area	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Eastern																		
Poor	5	0	5	6	6	0	4	4	0	0	0	0	0	7	0	6	0	2.53
Fair	18	36	28	13	18	0	15	12	7	25	13	0	30	27	13	25	0	16.47
Good	64	36	17	56	59	80	42	60	71	50	25	83	40	46	62	56	71	54.00
Excellent	13	28	50	25	17	20	39	24	22	25	62	17	30	20	25	13	29	27.00
Northern																		
Poor	0	0	5	0	12	0	2	0	4	0	0	0	20	20	0	0	0	3.59
Fair	41	20	18	19	6	33	12	20	22	11	12	0	0	20	50	0	12	17.41
Good	55	70	68	66	65	56	65	64	65	78	50	91	80	60	50	63	18	62.59
Excellent	4	10	9	14	17	11	21	16	9	11	38	9	0	0	0	37	0	16.41
Southside																		
Poor	10	11	7	5	10	0	8	0	4	0	0	13	25	9	25	6	0	7.82
Fair	13	21	13	14	19	13	13	34	23	18	25	6	38	18	0	22	14	17.88
Good	60	58	67	76	52	69	61	53	65	64	25	75	25	64	63	56	64	58.65
Excellent	17	10	13	5	19	18	18	13	8	18	50	6	12	9	12	16	22	15.65

Table 23

Current Information Found in the Instructional
Materials By Supervisory Area
(Given in Percentage)

Supervisory Area	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Appalachian																		
Poor	0	5	7	4	3	5	0	5	0	4	11	0	11	5	0	5	0	3.82
Fair	20	55	20	4	10	32	37	30	20	15	16	13	21	32	37	30	20	24.24
Good	47	30	60	74	60	47	53	50	47	50	58	56	47	47	53	50	47	51.53
Excellent	33	10	13	18	27	16	10	15	33	31	15	31	21	16	0	15	33	20.41
Blue Ridge																		
Poor	0	0	0	9	0	0	7	0	7	0	17	0	0	0	0	25	0	3.82
Fair	20	33	33	27	33	29	7	37	29	50	17	0	33	25	40	25	100	31.65
Good	60	67	50	36	50	57	59	42	43	50	50	80	17	75	40	25	0	47.12
Excellent	20	0	17	28	17	14	27	21	21	0	16	20	50	0	20	25	0	17.41
Central																		
Poor	0	6	0	5	7	7	5	0	0	0	0	5	7	7	7	0	5	3.59
Fair	15	0	6	11	0	0	11	38	50	6	6	11	0	60	7	5	60	16.82
Good	50	55	61	53	58	60	52	56	35	55	61	53	57	0	54	68	25	50.18
Excellent	35	39	33	31	35	33	32	6	15	39	33	31	36	33	32	27	10	29.41

Table 23 (continued)

Supervisory Area	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Eastern																		
Poor	6	0	6	0	0	0	4	5	0	0	0	0	13	0	0	0	0	2.00
Fair	12	10	18	23	23	0	13	18	31	33	29	50	13	25	13	21	0	19.53
Good	53	50	35	54	54	100	35	46	39	67	29	50	62	58	62	57	50	53.00
Excellent	29	40	41	23	23	0	48	31	30	0	42	0	12	17	25	22	50	25.47
Northern																		
Poor	0	11	0	0	0	0	3	5	5	11	0	0	33	7	0	0	0	4.41
Fair	30	44	20	16	14	15	7	18	35	11	11	0	0	39	67	13	50	22.89
Good	60	33	65	14	79	72	60	59	50	67	45	89	67	46	33	75	38	56.00
Excellent	10	12	15	10	7	14	30	18	10	11	44	11	0	8	0	12	12	16.70
Southside																		
Poor	4	12	7	10	11	6	3	3	4	11	0	0	33	7	0	0	0	4.41
Fair	16	12	22	10	7	19	14	21	46	11	11	0	0	39	67	13	50	22.89
Good	64	70	52	75	66	50	56	73	42	67	45	89	67	46	33	75	38	56.00
Excellent	16	6	19	5	16	25	27	3	8	11	44	11	0	8	0	12	12	16.70

Table 24

Applicability of Instructional Materials
By Supervisory Area
(Given in Percentage)

Supervisory Area	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Appalachian																		
Poor	0	10	11	0	11	10	9	18	13	0	11	13	11	10	9	18	13	9.82
Fair	30	30	16	13	21	20	27	9	0	13	16	56	21	20	27	9	50	22.24
Good	50	40	58	56	47	50	55	55	50	63	58	0	47	50	55	55	0	46.41
Excellent	20	20	15	31	21	20	9	18	37	25	15	31	21	20	9	18	37	21.53
Blue Ridge																		
Poor	0	0	8	8	0	17	7	10	15	0	33	0	0	25	0	25	0	8.71
Fair	18	75	15	50	29	33	17	10	23	50	0	0	33	0	20	0	100	27.82
Good	53	25	46	17	57	50	40	61	39	50	50	80	17	75	60	50	0	45.29
Excellent	29	0	31	25	14	0	36	19	23	0	17	20	50	0	20	25	0	18.18
Central																		
Poor	7	0	0	16	25	17	25	6	0	0	17	25	17	25	17	25	7	13.47
Fair	33	14	13	25	17	17	12	33	14	13	25	16	17	13	17	13	20	18.35
Good	28	50	40	42	33	33	25	39	50	47	42	33	33	25	33	25	53	37.53
Excellent	22	36	40	17	25	33	38	22	36	40	16	26	33	37	33	37	20	30.65

Table 24 (continued)

Supervisory Area	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Eastern																		
Poor	0	0	12	7	7	0	0	4	0	0	0	0	14	0	0	0	0	2.59
Fair	25	10	24	29	33	0	17	17	29	0	57	20	14	33	25	27	0	21.18
Good	70	50	17	43	47	100	50	58	43	100	43	60	57	33	63	47	67	55.76
Excellent	5	40	47	21	13	0	33	21	28	0	0	20	15	34	12	26	33	20.47
Northern																		
Poor	5	0	5	0	0	11	7	10	10	12	0	0	50	0	0	14	0	7.29
Fair	21	33	21	22	18	11	15	19	30	12	0	11	50	58	33	29	33	24.47
Good	58	50	37	66	46	67	52	48	55	63	71	89	0	25	67	57	67	54.00
Excellent	16	17	37	11	36	11	26	23	5	13	29	0	0	17	0	0	0	14.24
Southside																		
Poor	7	6	7	5	5	0	0	0	0	0	0	6	25	17	22	6	0	6.24
Fair	7	24	14	15	11	6	12	28	17	10	25	25	25	17	11	18	14	16.41
Good	64	70	57	70	68	50	68	59	75	50	25	63	38	41	56	53	57	56.71
Excellent	22	0	22	10	16	44	20	13	8	40	50	6	12	25	11	23	29	20.64

Table 25.1

Illustrations and Photographs: Number By Supervisory Area
(Given in Percentage)

Supervisory Areas	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Appalachian																		
Poor	27	0	9	12	10	7	13	0	13	0	0	22	25	0	9	6	11	9.65
Fair	15	15	15	25	5	47	13	13	0	12	25	33	13	13	5	9	11	15.82
Good	19	54	76	50	65	40	62	75	50	63	63	0	62	87	66	54	52	55.18
Excellent	39	31	0	13	20	6	12	12	37	25	12	45	0	0	20	31	26	19.35
Blue Ridge																		
Poor	14	0	17	9	14	0	27	24	20	0	50	0	33	50	75	50	0	22.53
Fair	21	67	33	55	0	83	19	35	30	50	25	0	17	50	0	0	100	34.41
Good	50	33	33	18	72	0	39	18	30	50	25	67	0	0	25	25	0	28.53
Excellent	15	0	17	18	14	17	15	23	20	0	0	33	50	0	0	25	0	14.53
Central																		
Poor	7	0	0	0	20	0	0	0	0	0	0	0	13	19	10	5	0	4.35
Fair	20	25	20	40	40	33	25	33	20	16	7	11	26	14	20	26	11	22.76
Good	53	25	20	40	0	33	25	34	40	50	63	52	48	57	55	53	48	40.94
Excellent	20	50	60	20	40	34	50	33	40	34	30	37	13	9	15	16	41	31.95

Table 25.1 (continued)

Supervisory Areas	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Eastern																		
Poor	6	0	7	0	7	0	5	17	0	0	0	0	14	22	40	8	0	7.41
Fair	33	15	36	39	27	50	20	17	18	0	17	25	14	11	0	8	0	19.41
Good	50	54	28	46	53	50	45	44	73	100	50	50	43	33	40	42	83	52.00
Excellent	11	31	29	15	13	0	30	22	9	0	33	25	29	34	20	42	17	21.18
Northern																		
Poor	0	0	8	9	12	17	15	9	20	33	17	16	33	20	33	17	0	15.24
Fair	20	20	25	9	13	17	37	18	30	17	17	0	33	40	33	33	25	22.76
Good	80	60	58	55	50	33	32	46	50	50	33	67	34	30	34	33	75	48.24
Excellent	0	20	9	27	25	33	16	27	0	0	33	17	0	10	0	17	0	13.76
Southside																		
Poor	19	7	0	6	0	0	7	10	12	0	0	0	14	12	25	7	0	7.00
Fair	33	40	35	24	25	30	22	19	29	33	33	21	29	25	0	29	18	26.18
Good	43	47	40	59	56	50	52	57	53	56	67	72	43	38	75	43	64	53.82
Excellent	5	6	25	11	19	20	19	14	6	11	0	7	14	25	0	21	18	13.00

Table 25.2

Illustrations and Photographs: Variety By Supervisory Area
(Given in Percentage)

Supervisory Areas	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Appalachian																		
Poor	9	5	11	18	20	11	10	6	11	18	16	15	13	0	13	20	0	11.53
Fair	5	9	10	25	16	59	5	9	11	25	20	15	30	32	39	48	17	23.00
Good	66	54	53	43	44	15	66	54	52	43	44	59	39	49	30	32	33	45.65
Excellent	20	32	26	14	20	15	19	31	26	14	20	11	18	19	18	0	50	19.82
Blue Ridge																		
Poor	18	0	18	18	0	0	24	18	10	0	50	0	33	50	75	50	0	21.41
Fair	27	50	27	46	0	50	16	35	30	50	25	0	17	50	0	0	100	30.76
Good	27	50	37	18	83	33	44	18	40	50	25	67	0	0	25	25	0	31.88
Excellent	28	0	18	18	17	17	16	29	20	0	0	33	50	0	0	25	0	15.95
Central																		
Poor	4	4	4	9	22	6	6	14	6	11	6	7	0	0	5	0	0	6.06
Fair	26	12	8	32	11	17	25	57	11	59	19	20	20	20	10	25	67	25.82
Good	35	56	54	41	50	55	44	0	6	0	37	46	47	50	40	75	33	39.35
Excellent	35	28	34	18	17	22	25	29	27	30	38	27	33	30	45	0	0	28.77

Table 25.2 (continued)

Supervisory Areas	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Eastern																		
Poor	13	0	7	8	14	0	6	11	0	0	0	0	14	25	40	9	0	8.65
Fair	31	36	36	25	14	50	12	11	18	0	17	33	14	13	0	0	0	18.24
Good	44	46	28	50	57	50	47	56	64	100	50	67	29	37	40	46	83	52.59
Excellent	12	18	29	17	15	0	35	22	18	0	33	0	43	25	20	45	17	20.52
Northern																		
Poor	0	0	7	0	0	12	15	7	15	14	0	0	33	22	33	16	0	10.24
Fair	21	0	43	23	22	25	30	21	39	29	29	16	33	45	33	67	20	29.18
Good	64	80	36	54	56	50	40	57	39	57	57	67	34	33	34	67	80	53.24
Excellent	15	20	14	23	22	13	15	15	7	0	14	17	0	0	0	17	0	7.34
Southside																		
Poor	0	8	5	5	0	0	7	13	6	0	0	0	14	10	17	7	0	5.41
Fair	26	39	27	21	28	25	7	13	22	40	33	25	29	0	17	13	8	21.94
Good	63	53	46	64	56	58	76	58	56	20	67	58	43	80	66	60	75	58.76
Excellent	11	0	22	11	16	17	10	16	16	40	0	17	14	10	0	20	17	13.89

Table 25.3

Illustrations and Photographs: Quality By Supervisory Area
(Given in Percentage)

Supervisory Areas	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Appalachian																		
Poor	13	0	13	13	0	0	0	12	12	0	22	25	0	13	13	25	0	9.47
Fair	13	13	50	0	25	13	37	63	75	25	33	12	13	75	87	13	22	23.94
Good	62	75	0	62	63	62	50	13	13	62	45	63	87	75	87	0	45	50.82
Excellent	12	12	37	25	12	25	13	12	10	13	0	0	0	12	0	62	33	15.77
Blue Ridge																		
Poor	15	0	18	9	0	0	19	18	18	0	40	0	33	67	75	50	0	21.29
Fair	15	67	27	46	0	67	15	35	18	50	40	0	0	0	0	0	100	28.24
Good	54	33	18	27	67	16	50	18	46	50	20	33	17	33	25	25	0	32.29
Excellent	16	0	37	18	33	17	16	29	18	0	0	33	50	0	0	25	0	18.18
Central																		
Poor	0	0	0	0	0	0	0	16	20	50	0	0	0	0	0	0	10	5.65
Fair	50	33	33	33	0	33	14	17	20	0	25	25	0	0	27	25	20	20.88
Good	50	67	67	67	100	67	72	50	40	50	75	75	100	67	55	50	40	64.24
Excellent	0	0	0	0	0	0	14	17	20	0	0	0	0	33	18	25	30	9.23

Table 25.3 (continued)

Supervisory Areas	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Eastern																		
Poor	6	0	13	15	13	0	12	11	0	0	0	0	0	13	40	9	0	7.76
Fair	22	45	20	23	27	50	6	11	18	0	17	33	14	25	0	0	0	16.94
Good	56	22	33	39	53	50	47	50	64	100	50	33	43	37	40	64	83	50.82
Excellent	16	33	34	23	7	0	35	28	18	0	33	34	43	25	20	27	17	24.48
Northern																		
Poor	0	0	8	15	13	12	10	8	23	14	0	0	50	22	33	16	0	12.41
Fair	15	0	31	8	25	25	25	15	23	14	14	0	0	34	33	17	40	18.76
Good	77	80	38	54	37	38	55	46	46	72	57	83	50	33	34	50	60	53.53
Excellent	8	20	23	23	25	25	10	31	8	0	29	17	0	11	0	17	0	15.30
Southside																		
Poor	5	21	9	5	0	0	10	8	0	0	0	0	14	10	17	7	0	6.24
Fair	26	7	32	21	22	25	10	21	24	29	67	8	29	0	17	20	8	23.18
Good	53	72	46	63	61	50	62	54	65	57	33	76	43	80	50	53	58	57.41
Excellent	16	0	13	11	17	25	18	17	11	14	0	16	14	10	16	20	34	13.17

Table 25.4

Illustrations and Photographs: Currentness By Supervisory Area
(Given in Percentage)

Supervisory Areas	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Appalachian																		
Poor	18	12	0	12	0	12	0	0	0	0	13	0	13	12	0	22	25	7.12
Fair	9	50	12	12	12	50	12	25	13	13	13	12	0	63	25	33	13	21.59
Good	55	0	63	63	75	0	63	63	87	62	62	75	50	0	63	45	62	52.24
Excellent	18	38	25	13	13	38	25	12	0	25	12	13	37	25	12	0	0	19.05
Blue Ridge																		
Poor	20	25	10	22	0	0	18	20	20	0	67	0	33	100	75	67	0	28.06
Fair	20	25	40	33	0	60	5	33	20	50	0	0	0	0	0	0	100	22.71
Good	40	50	30	22	67	20	59	27	30	50	33	50	0	0	0	33	0	35.53
Excellent	20	0	20	23	33	20	18	20	30	0	0	50	0	0	0	33	0	13.70
Central																		
Poor	10	14	0	0	0	12	0	0	0	11	0	0	0	8	10	8	0	3.52
Fair	20	28	28	25	0	25	11	14	13	44	0	0	40	29	20	75	0	20.35
Good	40	29	43	25	60	0	45	43	37	45	50	50	40	29	50	75	43	41.41
Excellent	30	29	29	50	40	63	44	43	50	0	50	50	60	71	20	25	57	34.72

Table 25.4 (continued)

Supervisory Areas	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Eastern																		
Poor	0	0	13	0	7	0	5	15	0	0	0	0	0	25	50	0	0	6.76
Fair	39	27	20	42	29	33	16	15	20	0	25	33	17	13	0	10	0	19.94
Good	44	37	33	33	50	67	42	40	50	100	50	67	17	37	25	70	80	50.47
Excellent	17	36	34	25	14	0	37	30	30	0	0	0	66	25	25	20	20	22.83
Northern																		
Poor	0	0	8	8	0	12	14	15	17	12	0	0	20	22	33	20	0	10.65
Fair	15	20	25	8	37	12	29	23	25	13	14	0	0	33	33	0	25	18.39
Good	62	60	42	69	38	63	38	31	41	75	43	67	80	34	34	60	50	52.18
Excellent	23	20	25	15	25	13	19	31	17	0	43	33	0	11	0	20	25	18.78
Southside																		
Poor	5	21	9	11	0	0	14	8	11	0	0	8	29	18	17	19	0	10.00
Fair	35	7	18	17	28	23	7	33	33	13	50	23	29	9	17	13	8	21.35
Good	50	57	41	67	61	54	62	42	50	75	50	54	28	55	50	56	69	54.18
Excellent	10	15	32	5	11	23	17	17	6	12	0	15	14	18	16	12	23	14.47

Table 26

Suitability of Instructional Materials By Supervisory Area
(Given in Percentage)

Supervisory Area	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Appalachian																		
Poor	0	22	25	0	10	6	5	0	13	9	6	11	17	16	15	13	0	9.88
Fair	25	33	13	13	5	9	10	20	25	5	9	11	25	20	15	30	32	17.65
Good	63	0	62	87	65	54	65	23	0	66	54	52	43	44	59	39	49	48.53
Excellent	12	44	0	0	20	31	20	62	62	20	31	26	15	20	11	18	19	23.94
Blue Ridge																		
Poor	0	25	0	9	0	0	7	6	0	0	33	0	33	25	0	25	0	9.59
Fair	36	25	18	27	17	60	4	28	27	50	0	0	0	25	25	0	100	26.00
Good	57	50	46	36	66	0	57	44	46	50	50	60	0	25	25	25	0	37.47
Excellent	7	0	36	28	17	40	32	22	27	0	17	40	67	25	50	50	0	26.94
Central																		
Poor	14	14	13	0	0	12	12	14	0	43	38	50	11	0	0	0	0	13.00
Fair	0	14	13	20	33	13	13	14	33	29	0	0	11	9	11	11	11	13.82
Good	72	43	37	50	34	63	50	57	22	0	25	0	45	45	56	45	56	41.18
Excellent	14	29	37	30	33	12	25	15	45	28	37	50	33	46	33	44	33	32.00

Table 26 (continued)

Supervisory Area	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Eastern																		
Poor	0	0	13	0	0	0	0	9	0	0	0	0	0	9	17	8	0	3.29
Fair	16	27	20	25	21	0	29	14	31	50	14	40	29	36	33	8	0	23.12
Good	74	46	33	58	72	100	47	64	62	50	57	20	71	18	33	54	40	52.88
Excellent	10	27	34	17	7	0	24	13	7	0	29	40	0	37	17	30	60	20.71
Northern																		
Poor	5	10	0	0	0	6	6	9	10	0	0	0	20	0	0	0	0	3.88
Fair	23	10	33	19	25	19	16	17	29	22	11	9	0	31	67	0	25	20.94
Good	41	60	48	67	55	37	41	44	47	56	56	55	80	69	33	57	63	53.47
Excellent	31	20	19	14	20	38	37	30	14	22	33	36	0	0	0	43	12	21.71
Southside																		
Poor	10	7	9	11	6	7	11	4	0	0	0	0	14	10	14	7	0	7.06
Fair	14	13	22	17	6	7	18	22	28	25	67	7	29	10	14	7	7	18.41
Good	57	60	39	44	59	29	43	48	33	25	33	71	43	70	29	72	50	47.35
Excellent	19	20	30	28	29	57	28	26	39	50	0	22	14	10	43	14	43	27.18

Table 27

Things to Include in Future Instructional
Materials By Supervisory Area
(Given in Percentage)

Things to Include in Future Materials	Supervisory Areas						Average
	Appalachian	Blue Ridge	Central	Eastern	Northern	Southside	
Transparency Masters	64	60	56	52	60	74	61.00
Tear Out Pages	30	29	53	38	27	41	36.33
Student Workbook	59	53	67	38	39	51	41.67
Teacher Key	48	35	58	31	33	45	41.67
Other: (see attached page)	2	98	4	93	2	8	34.50

Table 27 (continued)

8. What would you like to see included in future developed instructional materials?

Other:

1. More color pictures
2. Prepare a loose leaf notebook with one copy of each reference as a teaching guide
3. Visual aids (film strips), slide sets, films
4. Instructor bulletin on farm machines (baylors, rakes, mowing machines, combines and tractors)
5. More instructional units
6. Practical application
7. Student workbook on safety and ways to teach it
8. Pre-test and post-test made up
9. Need Agricultural Mechanics materials

Comments:

1. Too technical
 2. A majority of these areas are not applicable for the area which I am teaching. Also some areas have not come up for class discussion as of this time.
 3. Not used because of team teaching
 4. Not interested in junior high
 5. No materials in dairying
 6. Soil out of date
 7. Feeds and feeding not complete
 8. No tool I.D.
 9. Small engines materials scarce
 10. No safety rules of machines
 11. Not available
 12. Need more materials for the handicapped--deaf and blind (material not suitable)
 13. Have not taught
 14. Good job
 15. I teach only shop
-

Table 28

The Sex of the Vocational Agriculture Teachers in Virginia
 By the Use of Instructional Materials
 (Given in Percentage)

	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Male	58	40	49	51	47	14	70	73	41	10	20	18	29	42	23	43	20	38.12
Female	0	0	3	0	0	0	0	2	0	0	0	0	3	0	2	0	20	1.76
Total	58	40	52	51	47	14	70	75	41	10	20	18	32	42	25	43	40	39.88

Table 29

Comparison of Option Area(s) Teaching By
the Use of Instructional Materials
(Given in Percentage)

Option(s)	Teachers Using Instructional Materials																	Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
Exploratory Agriculture	Yes	3	3	0	3	3	0	5	7	5	0	0	0	3	3	3	5	3	2.71
Agricultural Business	Yes	3	3	0	0	0	3	0	2	0	0	3	0	0	0	0	0	0	.82
Agricultural Production	Yes	23	23	21	22	21	5	25	22	18	5	8	10	13	16	0	21	8	15.35
Ornamental Horticulture	Yes	0	3	5	0	0	0	3	2	0	0	0	0	5	0	0	3	0	1.24
Agricultural Machinery Service	Yes	18	10	15	19	16	8	18	17	10	3	5	3	3	24	5	13	8	11.47
Special Needs Program	Yes	10	8	5	5	8	0	10	15	5	3	3	3	5	5	18	3	3	5.82
Natural Resources Management	Yes	18	10	18	19	21	3	20	22	13	3	8	10	11	16	5	23	8	13.41
Agricultural Science and Mechanics	Yes	30	10	23	19	21	0	40	42	26	5	10	10	13	18	20	21	5	18.41

Table 30

Teachers of Vocational Agriculture in Virginia By Years of Teaching
in Present Department and the Use of Instructional Material
(Given in Percentage)

Years Teaching in Department	Teachers Using Instructional Materials																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
0-5	35	18	28	27	31	5	48	46	26	5	8	8	8	29	18	26	5	21.82
6-10	5	10	10	8	5	3	8	12	5	3	3	3	5	3	3	5	5	5.65
11-15	8	5	3	3	3	3	3	5	0	0	5	0	5	3	0	0	3	2.88
16-20	8	8	5	8	5	0	8	7	5	0	3	5	8	3	3	8	5	5.24
21-25	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0	0	.35
26 and over	3	0	5	5	3	0	5	5	5	3	3	3	5	3	3	5	3	3.47
Total	59	41	51	51	47	14	72	75	41	11	22	19	31	44	27	44	21	39.41

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EXTENT AND USE OF AGRICULTURAL EDUCATION INSTRUCTIONAL MATERIALS
BY VOCATIONAL AGRICULTURE TEACHERS IN VIRGINIA

by

Charles J. D. Tillman

(ABSTRACT)

During the past fifty-five years, 1920-1975, vocational agriculture teachers have faced many problems. One important problem was where to find instructional materials to use in teaching vocational agriculture classes.

The problem was to obtain selected information about the extent and use that vocational agriculture teachers in the public schools in Virginia were making of the instructional materials developed by the Agriculture Education Program Area faculty at Virginia Polytechnic Institute and State University. Specifically, the problem was to find the answers to the questions listed in the objectives.

OBJECTIVES OF THE STUDY

The objectives of this study were to:

1. Determine the following:
 - A. The extent Virginia vocational agriculture teachers were using the instructional materials developed by the Agricultural Education Program Area at Virginia Polytechnic Institute and State University.

- B. What special features to include in new instructional materials (transparencies, tear-outs, workbook, exercise sheet, teacher's key, etc.).
- C. Why the instructional materials were not being used in the public schools in Virginia and the reason(s) for not using them.

2. Compare the extent instructional materials were being used with selected factors, for example:

- A. Supervisory geographical area(s)
- B. Age of teacher
- C. Experience in teaching
- D. Multi- versus single-teacher departments
- E. Advanced training (M.S. and above) versus no advanced training (B.S.)
- F. VPI and SU graduates versus graduates from other institutions
- G. Level of teaching (middle versus senior high)

PROCEDURE

The seventeen selected instructional materials were grouped into five types of materials as defined by Cardozier (1967) listed below:

- 1. Resource Unit: A subject matter coverage of given instructional materials, including latest research finding.
- 2. Source Unit: A listing of objectives, problems, questions, and activities relating to a unit of instruction.
- 3. Teaching Plan: A teacher's guide for providing instruction.

4. Approved Practice List: Recommended practices to follow in specific agricultural enterprises based upon research.

5. Job Operation Sheet: A sequential listing of steps in carrying out a given manipulative type job.

POPULATION

The population for this study was vocational agriculture teachers employed in the public schools in Virginia.

SUMMARY

Teachers of vocational agriculture in Virginia with 0-5 years teaching experience, 0-5 years in the department, and teachers with a Bachelor's Degree used the seventeen instructional materials to a greater extent than teachers with 6-25 years or more of teaching experience; teachers with 6-25 years or more in the department, and teachers with Master's, Certificate of Advanced Graduate Study, or with the Doctor of Education Degree.

There are more males teaching vocational agriculture in the public schools in Virginia than females.

Teachers of vocational agriculture in age group 22-27 used the instructional materials more than teachers in age groups 28-33, 34-39, 40-45, 46-51, 52-57, and 58 and over.

All of the seventeen selected instructional materials were rated good by vocational agriculture teachers in the public schools in Virginia.

Teachers of vocational agriculture want transparency masters, student workbooks, tear-out pages, and teacher's keys in future developed instructional materials.