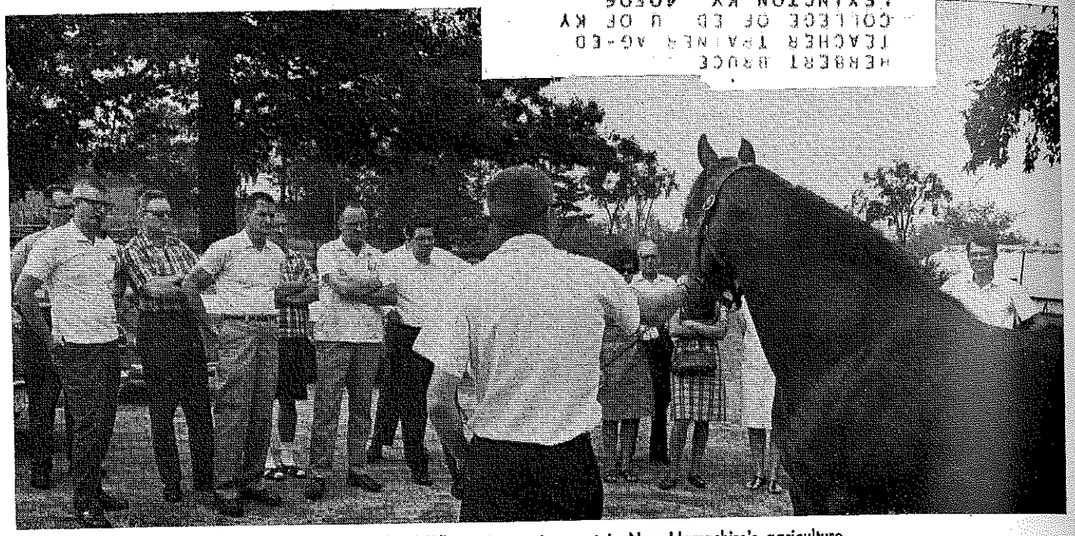
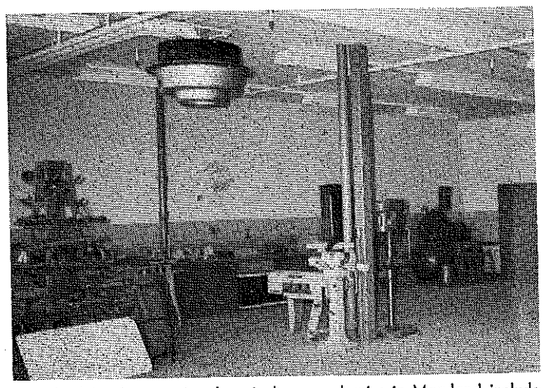


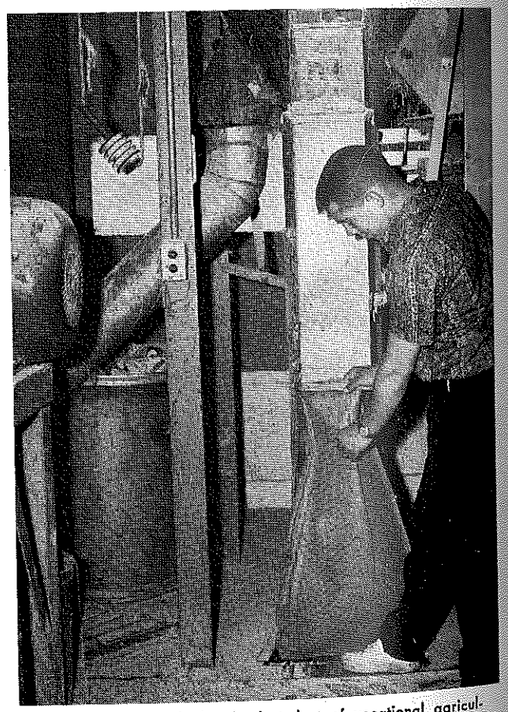
Light horse husbandry fulfills an innovative part in New Hampshire's agriculture.

Stories in Pictures

GILBERT S. GUILER
Ohio State University



New facilities for vocational agriculture mechanics in Maryland include the most recent engineering tools for effective teaching.



A Michigan post high school student of vocational agriculture prepares for employment in the farm elevator business by means of on the job experience. Photo — Ray Clark.

AGRICULTURAL EDUCATION

Volume 40

Agricultural Education

November, 1967

Number 5

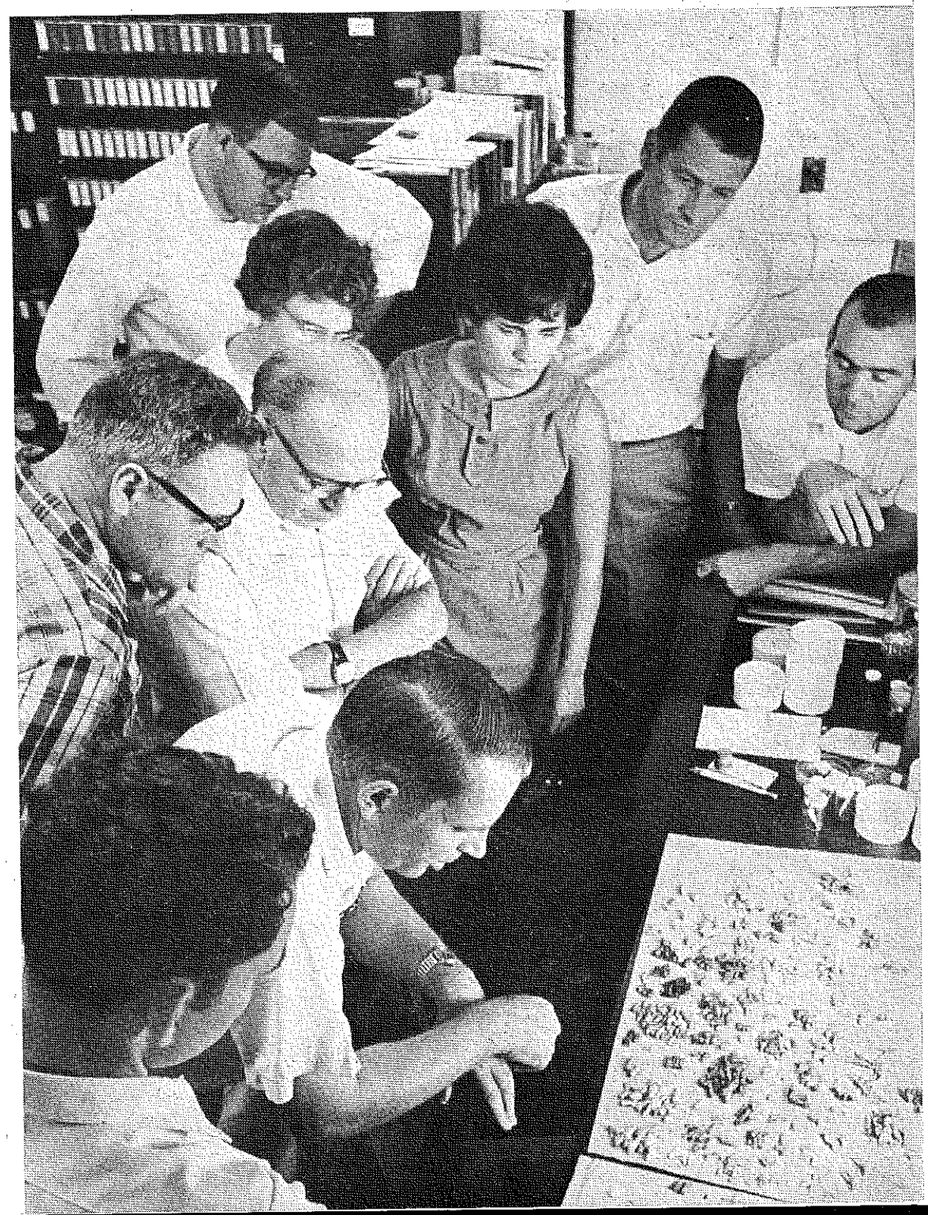
OCCUPATIONAL EXPERIENCE

1917 - 1967

50th ANNIVERSARY

1st National

Vocational Education Act



Vocational educators study one night's collection from a black light insect trap during the Vocational Education Workshop at the University of New Hampshire.

THE
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TABLE OF CONTENTS

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Second-class postage paid at Athens, Ohio.

Editorials

1917 - - OCCUPATIONAL EXPERIENCE - - 1967

About a year ago in an editorial in this space I suggested that we drop the old, familiar term "Supervised Practice" and adopt *Occupational Experience.* The two major reasons given for this change were that the latter is more descriptive of newer programs in vocational agriculture, and that the old term was tied too closely with supervised farming. Well, as with any suggested change, some of you agreed, some disagreed, and most of you did not respond. So, it is the hope of this editorial to gather a few more converts. Failing this, maybe you will continue to give the matter your best thinking.

The point is much more than a term. Sometimes a new term for an old idea goes over and sometimes it does not. (You who do read these columns know that I tried to ascertain where the new term *module* fit into our adoption process but didn't have much luck getting that all straight!) The reason for the continuing concern is that I agree thoroughly with several of you who have pointed out that we are rapidly losing our problem-solving approach in much of our teaching as we rush headlong into new programs. Some teachers find themselves teaching courses for which they are not prepared by experience or education. This in itself violates the basic idea of vocational education, and is destined to lead to poor teaching and fuzzy learning that amounts to very little anyway in the lives of the students.

The argument here is that we need to hang on very tightly to the old idea of supervised practice for the students in the areas that the teacher knows through experience and education. This was the case when we were talking about supervised farming and the farm-reared, agricultural college educated teacher of vocational agriculture. Now, with emphasis on agricultural occupations, to have a learning situation equal to the old days referred to, demands that *Occupational Experience* for *both* student and teacher be at the heart of the modern program in agricultural education. Yes, at the university, the post-secondary institutions, and in the high school program in agricultural education. It is exactly the same idea as in the days of supervised farming, it is just tougher to get done!

How can we get the needed *Occupational Experience?* For teachers now in the field, a double dose of especially designed courses in Agricultural Occupations seem to be urgently needed. Some federally financed programs have made a small beginning. (See the account of seminar at Oklahoma State University in the October *AgEd Magazine.*) But *every teacher* needs to be actively involved, and for more than a short workshop or a speech or two at the state conference. It is a big step from teaching agricultural subject matter and improved practices to that of Agricultural Occupations. Most teachers need help in making this change.

For the high school programs, we can start by giving an *"occupational flavor"* to all that we teach. Every unit, every semester, every year. Don't wait until they get to a course called Agricultural Occupations. And, of course occupational experience built into *every* course, not just one in Ag Sales and Services. Sure, there will be many with supervised farming programs, but these too will have that occupational flavor.

The post-secondary program *must* include work experience as an essential and central part of each curriculum. These institutions usually have the advantage of the university in this regard, and should take full advantage of working with the agricultural businesses in the area. Try asking the prospective employers of these technical graduates what *they* think about work experience as part of the training programs in the post-secondary institutions. They are enthusiastic supporters as well as cooperators for work experience.

So, it seems that if we see programs in agricultural education having a major impact on agricultural occupations, and training for these occupations, we must give attention to developing *Occupational Experience* as an essential phase of any program in agricultural education for each student enrolled.

Cayce Scarborough


Cayce Scarborough

Theory and Practice

"Learning to do by Doing" is apparently still a good way to learn. But as Carsie Hammonds made clear in the pages of this magazine several years ago, this is easier said than done. In fact, I expect that it is used as a slogan more than as a guide for teaching and learning. Certainly it is always a real challenge to an effective teacher to decide what experiences on the part of the students will likely result in the desired learning. Our theme this month of *Occupational Experience* should be of interest to every person in Agricultural Education who is concerned with teaching and learning. That gets us all, doesn't it?

- - -

Dave Craig, University of Tennessee, has been working on a *Model* for work experience in vo ag. We believe that you will be interested in his ideas on this. He has prepared a two-part article, the first appearing this month. Hope to carry the next one in December. Maybe some of you have developed a similar model, or another approach to Occupational Experience. Your ideas will be most welcome.

- - -

Some people *do* read this column, and I can prove it! Don Gentry, Assistant Supervisor, Indiana, not only read my plea for more information in a couple of areas, but he did something about it. See his article as well as Letter to the Editor. Don has just joined the supervisory staff after having worked with the intern program as a cooperating teacher. (See page 102)

- - -

Stock Market Tip. Some experts (?) claim that ups and downs in the stock market follow the ups and downs of women's skirts. Some are predicting that both will go higher! Probably a better tip about investing in the stock market is to be wary of all tips—especially this one.

- - -

(Continued on next page)

DEMOCRACY AND THE FFA

Theory and Practice

(Continued from page 99)

Friend A. B. Cordes sent me a copy of the address by Louis Sasman at the Wisconsin Vo Ag Teachers Conference this summer. A most interesting and personal review of the early days of vo ag in Wisconsin. In his review he gave credit to the Wisconsin teachers who worked hard for the establishment of NVATA. Mr. Sasman was among the relatively few state leaders who gave strong support to the establishment of NVATA.

- - -

Have you seen Glenn Stevens' new book? With the simple title, *Agricultural Education,* it is a small but very comprehensive book. It is interesting to note that it is one of a Library Education series published by The Center for Applied Research in Education, New York. Maybe this will get some readers for Glenn's ideas other than members of the AgEd Family. Hope so. Congratulations on a job well done, Glenn!

- - -

Are you trying to keep up with all of the new books on *Work?* Many writers are devoting much time to work in our society, the role of various workers, and education for work. It appears to me that interest in these areas should mean more interest in making vocational agriculture and other vocational education more effective *Occupational Education.* Let's use our years of experience in this field, adapting to the changing picture in agricultural occupations and the education needed for entry and successful advancement in these many career opportunities.

- - -

See you next month. Let me hear.

Cayce Scarborough

A major argument for the FFA through the years has been that it is a democratic organization, run by and for its members. This is a good argument in this country, whether you are seeing the FFA as a chapter, a state organization, or a national legal institution. My experience with the FFA at all of these levels through several years leads me to conclude that democratic action has been the objective most of the time. However, there is some serious question whether the present trend at the national level is in keeping with the best characteristics of a democratic organization supported by dues paid by members, mostly high school students.

The basis for this concern is centered around the fact—I believe that it is a fact that can be easily documented by official minutes of FFA actions at the national level—that the governoring bodies are getting smaller in numbers and therefore less representative of the membership and local leadership. One example of such recent action is the decision to eliminate a special study committee and let the National Board of Directors and National Officers extend their meeting and take care of the work of the special committee. I believe that the reason given for this action was that it was too expensive to have the special committee. There is no point here to say the obvious, but I don't believe that we are yet ready to save expense at the price of democratic action. This would be expensive economy.

Another example tending to limit participation in FFA decision-makeup is the overlapping of membership on the National FFA Board of Directors, and the Board of Trustees for the FFA Foundation.

According to the minutes of the meeting in July 1967 the members of the two boards are as follows: U.S. Office of Education—7; State Supervisors—7; Teacher Educators—2. Four of the supervisors and four from the U.S. Office apparently serve on both boards. If they take on additional responsibilities formerly undertaken by special committees, as indicated in the minutes, these same men would be functioning as still another National decision-making body for the FFA.

Apparently, the decision-making for National FFA matters between sessions of the boards is done by the Governing Board. This is listed in the minutes as having two members from the U.S. Office with a third serving as chairman, the same as for the two national boards.

It must be emphasized that this is an attempt to analyze and clarify a developing situation and question whether it is in the democratic tradition of the FFA. There is *no intent* to criticize or question the purpose of any individual. There is no question of the dedication of the people on these boards. Nor is there any suggestion that any member wishes to do anything except serve for the betterment of the FFA and the cause of Vocational Agriculture.

The purpose is to point out that two of the basic ingredients for democratic action are difficult to identify in some of the FFA policies, and activities at the National level. These two characteristics of a democracy are, (1) Those affected by policies share in their formation, and (2) Built in system of checks and balances. Again this has nothing to do with dedication, hard work, or any other personal attitude. What is needed to assure democratic action is a system requiring certain allocation of functions and limitations of power. Even these must be decided democratically and subject to review!

To develop such a system for the FFA will be a complex problem requiring the help of specialists such as the sociologist and political scientist. In the meantime, some steps can be readily made, it would seem, to distribute decision-making and involve those affected by policies in helping make them. The first *Giant Step* would be to add teachers of Vocational Agriculture to all National FFA Boards. Not as observers or consultants, but as active voting members and in sufficient numbers that they would be a major influence in decision-making. This step to involve more directly in National FFA affairs people in the key positions in FFA is long overdue.

Instead of deciding that we cannot afford to involve more people in National FFA decisions and activities, I believe that we cannot afford to further limit this participation. Do you agree?

Cayce Scarborough

Letters To The Editor

This letter appeared in the Journal of Cooperative Extension. Used by permission of G. L. Carter, Jr., Editor. Do you think that his views are sound for our magazine? CCS

Dear Sir:

In answer to your request for information on states having Young Farmer Organizations: Indiana has a state association of Young Farmers. We are trying to build up an outstanding program in this area and would like to exchange ideas with other state associations.

I am enclosing a brochure recently printed by our state. We believe the Young Farmers Association has a very bright future.

Sincerely,
Don Gentry, Exec. Sec.—Treas.
Indiana Young Farmers
600 Old Trails Building
309 West Washington St.
Indianapolis, Indiana 46204

Thanks, Don, for reading, reacting, and acting! CCS

Dear Sir:

For the past several months, in fact since the implementation of the 1963 Act, attention has been given to the broad area of agriculture-related occupations. This information is essential for the development of programs but now it was our feeling that more specific information about selected job titles was needed. As need creates necessity, the study was initiated last year and subsequently completed this past summer. As the title of the enclosed presentation indicates, we have presented information regarding salary, advancement opportunity, number of employees needed for various job titles in agriculture equipment dealerships. We feel that this information is extremely pertinent in light of the increased emphasis in this area. The study also included information regarding curriculum, but it was our feeling that this was too broad an area for a single presentation.

The enclosed presentation is respectfully submitted for your consideration as an article in *Agriculture Education* magazine.

Sincerely,
Willard H. Wolf
Department of Agricultural Education
Ohio State University
Thomas R. Stitt, Assistant Professor
Agricultural Industries Department
Southern Illinois University

Thanks, gentlemen, see the article in this issue. The entry salary and advancement opportunity have both been missing in many studies. CCS

Dear Cayce:

Congratulations on another fine editorial! I hope every teacher and every teacher educator or supervisor will read and meditate about what you had to say about teaching effectiveness in the September issue.

More importantly, you touched on a means by which we can improve our effectiveness. We can do a better job of defining our objectives. If we seek the help of our students and of the industries we hope to serve, the outcome will be objectives which are meaningful to all concerned.

Gene M. Love, Head
Agricultural Education
University of Missouri

Thanks, Gene, for taking time to write as you begin your new work. Best wishes, CCS

Dear Editor:

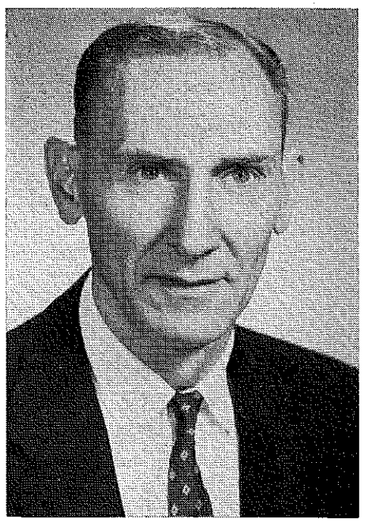
The dialogue presented in the Fall 1966 *Journal* prompts me to add my voice. I too have experienced the frustration of the busy agent syndrome. I was too busy to read the latest *Journal* on my desk and besides, it looked too technical. The jargon was unfamiliar.

It was not until I returned to graduate school (where I am presently) that I realized that we Extension agents have a responsibility to ourselves and to the profession to be aware, not only of what's going on in our country, but what's happening in the state, the nation, the world—even outer space. We need to know the latest developments and research results in our specialty. Perhaps that asking the impossible, but when more people attempt the impossible we'll begin to experience the progress we now only talk about.

In the past year, how many readers have read a novel, attended a lecture, a concert, an art exhibit? How much time has been spent reading professional literature? When county Extension agents accept the need for professional improvement, the *Journal* will be read and understood by all. The responsibility to improve professionally rests with the individual agent, and reading the *Journal* is certainly the best way to begin. Ten per cent of an agent's time is not too much to spend on professional improvement. The technical language problem takes care of itself as the agent expands his horizons. We all learned how to read—let's not let these skills get rusty.

Thanks, G. L. for letting me enter the discussion. The *Journal* has made a great contribution to the Extension profession.

Ronald D. Manthe
University of Wisconsin
Madison



Charles W. Hill, professor of agricultural education at Cornell University since 1955, retired Sept. 30.

He was chairman of the agricultural education section of the Department of Education from 1955 until 1963, taught and advised graduate students, organized in-service education courses for teachers of agriculture, and promoted research in agricultural education. For the last two years he has served the graduate school as field representative for the field of education.

A native of West Virginia, Hill received both the B.S. and M.A. degrees from West Virginia University and, in 1949, the Ph.D. degree from Cornell University. He taught in West Virginia high schools before his appointment as assistant professor at West Virginia University in 1945. He was professor and head of agricultural education there at the time of his Cornell appointment.

Among research projects that Hill has directed are: "Educational Needs of Beginning Dairy Farm Operators in New York," and "The Further Development of Research Competencies of Personnel in Vocational Education Research and Development." Also, he has co-directed other projects.

He is author of two recent bulletins as well as of numerous articles in the professional magazine, "Agricultural Education," which is sponsored by the agricultural division of the American Vocational Association.

He has been a consultant for the Bureau of Vocational Curriculum Development of the N.Y. State Department of Education and for annual state conferences of agricultural teachers in West Virginia, New Jersey, Delaware, and North Carolina. Also, he has taught summer school courses at universities in Colorado, New Hampshire, and Louisiana.

He was a member of the board of trustees of the Future Farmers of America Foundation, and the national advisory committee for the Center for Vocational and Technical Education. As a member of the research committee of the American Vocational Association, Hill was active in initiation, promotion, and development of research in the field of occupational education.

A member of the American Association of Teacher Educators in Agriculture, he served as president of this group in 1957-58 and again in 1965-66. Also, he was chairman of the American Vocational Association's advisory committee for the National Center for Advanced Study and Research in Agricultural Education.

In addition, he is a member of the Association of Teachers of Agriculture in New York, the New York Vocational and Practical Arts Association, Alpha Zeta, Phi Kappa Phi, and Mountain, a men's honorary at West Virginia University.

Prof. and Mrs. Hill will remain in Ithaca at their home at 103 Forest Drive.

SUMMER INTERN PROGRAM

Don Gentry, Supervision, Indiana

For the past two summers Indiana has been training future agricultural teachers in an apprenticeship program, often called the "intern" program. The program is set up to give selected young men some additional experiences in the operation, organization, and management of a local vocational agriculture program during the summer months.

The young men, usually between their junior and senior years in Agriculture Education, are placed in "First-Class" vocational agriculture departments with an instructor, who in most cases, holds the M.S. Degree, is a full-time Vo-Ag instructor and has been teaching in the school for at least three years.

The students are placed for twelve weeks working at least five days a week in the Vo-Ag program. They are paid $100 per week plus 8¢ per mile for all reimburseable mileage traveled. All of the salary and one-half of the mileage is paid from the Indiana State Vocational Funds to the local school corporation who in turn, pay the "intern."

The "interns" participate in the regular summer activities of the Vo-Ag department, working with the Vo-Ag instructor on many activities and on other days are assigned the full responsibility of an activity.

The "interns" keep a notebook of daily activities, impressions, and ideas. These notebooks are used by the Teacher Education Staff of Purdue University and the Indiana State Department of Agriculture Education in evaluating the program.

The "interns" are visited by both the Teacher Education Staff and the State Supervisory Staff at their respective schools.

The program is evaluated by the "interns," the cooperating Vo-Ag instructors, the school administrators, the State Supervisory Staff, and Teacher Education Staff at the end of the twelve week period.

Seven students took part in this program during the summer of 1966. All seven are now actively engaged in teaching vocational agriculture in Indiana. Ten students participated in the program the past summer.

The program has proven itself as a very successful tool in training vocational agriculture instructors and is highly recommended to other states who do not now have such a program.

For additional information contact Dr. James Clouse, Head Teacher Trainer, Agricultural Education, Purdue University, West Lafayette, Indiana or Mr. Delmar Johnson, State Supervisor of Agricultural Education, 600 Old Trails Building, 309 West Washington St., Indianapolis, Indiana.

Suggested Guidelines

EXPERIENCE PROGRAMS FOR OFF-FARM OCCUPATIONS

C. E. Richard

C. E. Richard, Teacher Education, Virginia

In order to assist teachers of agriculture in implementing and conducting off-farm agricultural experience programs in Virginia the major part of the State Agricultural Teachers' Conference, held in July 1967, was devoted to this phase of the Agricultural Education program. This emphasis was followed by two-day workshops, during August, on the various options where more detailed study and planning could take place.

It was my pleasure to work with Mr. W. R. Crabill, Assistant State Supervisor for Northern Area of Virginia, in planning for and conducting a two-day workshop on the Agricultural Supply Option. It was attended by 17 teachers of agriculture, four of whom had already started the option in their schools, and 13 who were either planning to start or in the process of determining the need in their community.

All teachers were enthusiastic about the program and desired more information about it. The program was planned with the assistance of a committee of teachers and was conducted in the Turner Ashby Department in which Mr. R. Z. Arey, one of the local agricultural instructors, has a successful Agricultural Supply Option in operation. This was a most important place for the workshop, because those attending could observe evidence of the occupational experience program in action and discuss each aspect at the location where it was being conducted.

A most valuable feature of this workshop was having the Division Superintendent of Schools, the principal and local guidance counselor on the program to discuss their responsibilities in this optional program. If these individuals do not understand and are not back of the program it is doomed for failure.

The participants requested that a part of the workshop be devoted to developing a suggested procedure and/or guidelines for them to follow in starting and conducting an off-farm agricultural occupational experience program.

Suggested Procedures

These suggested procedures are not necessarily in the order in which they may be accomplished, because several activities will, no doubt, be done concurrently. This is not intended to be an all inclusive list; however, the participants believe that the activities listed are essential in planning and conducting a successful agricultural supply option. It is hoped that this may be of some help to those teachers who may be planning to develop an off-farm occupational experience program.

1. Gather and study all available information about the option.
2. The teacher must believe in the program, develop the proper philosophy and be determined to develop a successful program if it is found to be needed, feasible and approved by the administration.
3. The assistant supervisor of agricultural education in the area contact the superintendent and principal before action is taken by the teacher to start the program.
4. Study the locality. Collect and analyze data to determine the need.
5. Start making tentative plans.
6. Develop an understanding of the program on the part of the administration, school personnel, parents, students, business and others as needed.
7. Determine employment needs, interested and available students, and training centers.
8. Develop an adequate public relations program.
9. Use a consultant committee.
10. Develop operational policies.
11. Select and enroll students.
12. Placement for work experience. Also work permits if needed.
13. Develop teaching calendars.
14. Secure references, teaching materials, equipment, etc.
15. Develop training plans.
16. Develop training agreements.
17. Determine records to keep (by teacher, employer, students). Prepare suitable forms.
18. Develop plans for coordination.
19. Provide related instruction.
20. Develop plans for evaluation of the program.

BOOK REVIEW

Miller, Texton R., SUPERVISED PRACTICE IN VOCATIONAL AGRICULTURE, The Interstate Printers & Publishers, Inc., Danville, Illinois, 61832, 1967 Pp. 30, price 75¢.

This student handbook was developed to help the beginning student in vocational agriculture to understand and appreciate supervised practice. Covered in the booklet are the what, the why and the how of supervised practice.

This is a booklet which every teacher of vocational agriculture may wish to put into the hands of each student. It is addressed to the student, and explains in language that the student can understand what modern vocational agriculture is all about.

Dr. Miller is Associate Professor, Agricultural Education Department, North Carolina State University.

Guy E. Timmons
Michigan State University

A WORK EXPERIENCE MODEL

DAVID CRAIG, Teacher Education, University of Tennessee

David Craig

Part I

This is the first of a two-part series of articles describing a study conducted in regard to work experience in vocational agriculture.* Part I describes the background, objectives, procedures and presents briefly an outline of a proposed work experience model. Part II will present (in the next issue) findings relative to the concerns and expectations of teachers and employers as to implementing the proposed work experience model at the high school and community level.

Traditionally, vocational educators in agriculture have considered important the supervised farming experiences gained outside the classroom by students enrolled in the program. Supervised farming programs have been effective and should continue to provide learning experiences for those students interested in production agriculture. Many changes in the broad field of agriculture have brought about significant trends in the nature of agricultural employment. Recent legislation has broadened the meaning of agriculture and has emphasized the variety and complexity of agricultural occupations. These changes have resulted in the modification of the aim and objectives of vocational-technical education in agriculture.

As the direction of vocational agriculture is modified so should the planned learning experiences also be changed to meet the new objectives. With regard to these changes, many agricultural instructors are asking these questions: Why should I change? When should I change? How should my program be modified? What changes do I need to make? And who should be involved? These questions suggest a need for guidelines to assist teachers in understanding, planning and implementing work experiences for students.

*"*Developmental Aspects of Off-Farm Work Experience in Vocational Agriculture in New York State,"* Ed.D. Thesis, Cornell University, 1967. David G. Craig.

Objectives

This need was explored through the development of a proposed work experience model and the exploration of problems in implementing the model in off-farm curricular areas of vocational agriculture. The objectives of the study were: 1) To develop a proposed work experience model consisting of an aim, objectives and guidelines; 2) To identify the responsibilities of teachers of agriculture and agricultural business employees for implementing work experience; 3) To identify and determine the importance of concerns of teachers and employers regarding the fulfillment of certain work experience responsibilities; and 4) To identify and determine the expectations of teachers and employers regarding the responsibilities of each other in implementing work experiences.

Procedures

Selected aspects of a wide variety of literature were used to achieve objectives one and two. Personal interviews were used to gather data for objectives three and four. The study was limited to the general areas of responsibility for teachers: selecting, placing and supervising students; and employers: selecting, orienting and supervising students. A number of more specific responsibilities were identified within each of the general areas. The concerns were devised as uncertainties of teachers and employers when fulfilling the specific responsibilities. The expectations consisted of those teacher and employer specific responsibilities anticipated of each other when implementing work experience for students.

The sample consisted of 31 teachers of agriculture who were employed by Boards of Cooperative Educational Services (BOCES) and 62 agricultural business employers—two in each of these school districts in New York State. Individuals were personally interviewed using a questionnaire structured around the outline of teacher and employer responsibilities.

Findings

The proposed work experience model below is designed to answer some of the questions raised earlier and to assist the teacher with work experience problems. The proposed model consists of an aim, objectives, and guidelines. It is both theoretical and practical. It is a synthesis of educational philosophy and learning theory, completed research in vocational education, current work experience programs in vocational agriculture and experience with these programs by the author.

Proposed Work Experience Model

Aim of Work Experience. To have students prepare for entry into an agricultural occupation, through an organized and supervised process of learning experiences, by practicing those knowledges, skills, and attitudes learned in school and required of the occupation in an agricultural business.

The aim is a broad directive with an underlying philosophy for work experience. It serves as a basis for the objectives and guidelines which follow.

Work Experience Objectives.

A. To apply on-the-job knowledge, abilities and attitudes learned in school.
B. To develop the ability to think and to solve problems on the job.
C. To explore opportunities in one or more agricultural occupations.
D. To increase interest in an occupation.
E. To accept and use adult supervision and guidance.
F. To adjust to the requirements of the occupation and job.
G. To develop appropriate job habits for stable employment.
H. To accept and cooperate with other employees and the public.
I. To increase a sense of responsibility in all aspects of work.
J. To develop desirable personality traits related to the job.
K. To earn and to appreciate the value of a wage.
L. To accept the role of education in job success.

The objectives logically follow as an attempt to extend the meaning of the aim. The objectives emphasize behavioral changes expected of students who participate in work experience.

Work Experience Guidelines.

A. Work experience is an educational activity in which emphasis is placed upon student learning and growth.
B. The student, teacher, and employer respect one another and cooperate and plan the work experiences together.
C. An on-going off-farm agricultural business is an appropriate place for student learning in which school related instruction is complemented and integrated with on-the-job experience.
D. Students participating in work experience will be high school juniors and/or seniors enrolled in vocational agriculture.
E. Students participate in work experience on a part-time basis.
F. Students are selected for participation in work experience on the basis of their needs and interests, their vocational plans, and their ability to profit from the on-the-job experiences by teachers of agriculture and agriculture business employers.
G. Work experiences will provide the opportunity for the student to learn and to develop the compentencies required in an approved occupation for which he is training.
H. A wide range of work experiences is provided for the student during the employment period.
I. The student has an opportunity to progress from the more simple tasks to the more complex tasks during work experience.
J. Work experience is conducted in a modern up-to-date business which provides the opportunity to learn up-to-date skills.
K. Instruction and supervision of students participating in work experience must be provided by competent individual.
L. The teacher of agriculture and agricultural business employer evaluate the outcomes of work experience.

The guidelines give direction to action as implied from the aim and objectives.

The development of a proposed work experience model has a number of implications. First, it needs to be tested to determine its practicability and applicability in various local agricultural occupational experience program situations. Second, it serves as a basic structure with which to add and delete new facts, information and experiences. It assists agricultural teachers to better explain the purposes and values of work experience to other teachers, administrators, students and other publics. Third, the proposed model serves as a guide to action at the local level, until more definitive procedures become available.

Part II of this article will be found in the next issue of the *Agricultural Education Magazine*. It deals with implementing the proposed model at the local level.

Themes

January

GRADUATE STUDY.
IN-SERVICE EDUCATION

February

TECHNICAL EDUCATION IN AGRICULTURE

March

RESEARCH AND DEVELOPMENT

Send articles to a Special Editor listed on Contents Page, or to

Editor J. Robert Warmbrod
Center for Vocational Education
Ohio State University
Box 2337, 1800 Cannon Drive
Columbus, Ohio 43212

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The Editor

SALARY AND ADVANCEMENT OPPORTUNITIES IN AG EQUIPMENT

THOMAS STITT* and WILLARD WOLF**

Thomas Stitt

Willard Wolf

Preparing personnel for the occupations in farm machinery sales and service is receiving increased attention since the passage of the Vocational Education Act of 1963. However, in the developing of programs of vocational education in agriculture for such personnel, information regarding employment opportunities and competencies required for these occupations is essential. To secure this information a study was conducted by Thomas R. Stitt, assisted by Willard H. Wolf, in Ohio with the cooperation of the Vocational Education Service of the Department of Education of the State of Ohio; the Department of Agricultural Education, the Ohio State University; and the Farm and Power Retailers of Ohio.

Job Titles

Six job titles were identified as common to the Ohio Farm Machinery and Equipment Dealerships. They are: (1) **Set-up Man,** (2) **Equipment Mechanic,** (3) **Shop Foreman,** (4) **Parts Man,** (5) **Equipment Salesman,** and (6) **Truck Driver-Delivery Man.** Similar job titles were identified under the headings of Sales and Service by Stevenson[1] and by the Center for Research and Leadership Development in Vocational and Technical Education.[2] These titles are defined by the **Dictionary of Occupational Titles.**[3]

Employment: Present and Future

Questionnaire responses were received from 270 or 58.4 per cent of the dealerships who are members of the Farm and Power Retailers of Ohio. The attached table shows the members responses to the questionnaire. One thousand four hundred eighty eight full time men were employed by these dealerships or an average of five men per dealership. Less than 8 per cent of the full-time and part-time employees are involved in formal training. Two hundred thirty four or 60 per cent of the part-time employees were set-up men. The ratio of full-time employees to part-time employees is 4 : 1. The anticipated need for replacement and new positions was 866 by 1969. Although the total number of employees needed per year in Ohio by 1969 is slightly less than Edington and Stevenson[4] reported for the same year in Oklahoma, the percentage of distribution of employees needed for each job title is similar. Forester,[5] Hoover,[6] Langdon,[7] and Cushman[8] all of whom conducted similar studies, showed employment needs in occupational areas in their respective states.

1971 Employment Needs

The employment needs for 1971 were projected by taking a sample of 20 non-respondents to the questionnaire who were interviewed by telephone and comparing these responses with the 270 responses received by the questionnaire. It was found that there was no significant difference. The 1971 projected need for replacements and new positions for the six job titles listed is 2,692 persons. As noted in the table, a number of individual needs for each job title are also given.

Salary

The average salary for all employees for dealerships was $2.35 per hour. In one case the parts man was on salary plus commission and in this case, the salary was handled as if no commission were involved. It should be remembered, therefore, that this average salary of the parts man could possibly be slightly higher than reported because of commission. The salesman salaries vary more than do the salaries of other job titles. This is due in part to the fact that some dealerships pay less base to sales employees plus commission, others are paid only hourly wages while still others are paid by commission only. Another factor affecting the total earned income in addition to hourly wages was the number of hours worked per week. The range was from 40 to 56 hours. Some dealerships allowed employees to work 56 hours with overtime for all hours beyond 40. The entry salary and the range in hours per week makes it difficult to present an overall monthly salary. The information regarding salary was secured by interviewing managers of dealerships selected randomly, who employed men in each of the six job titles.

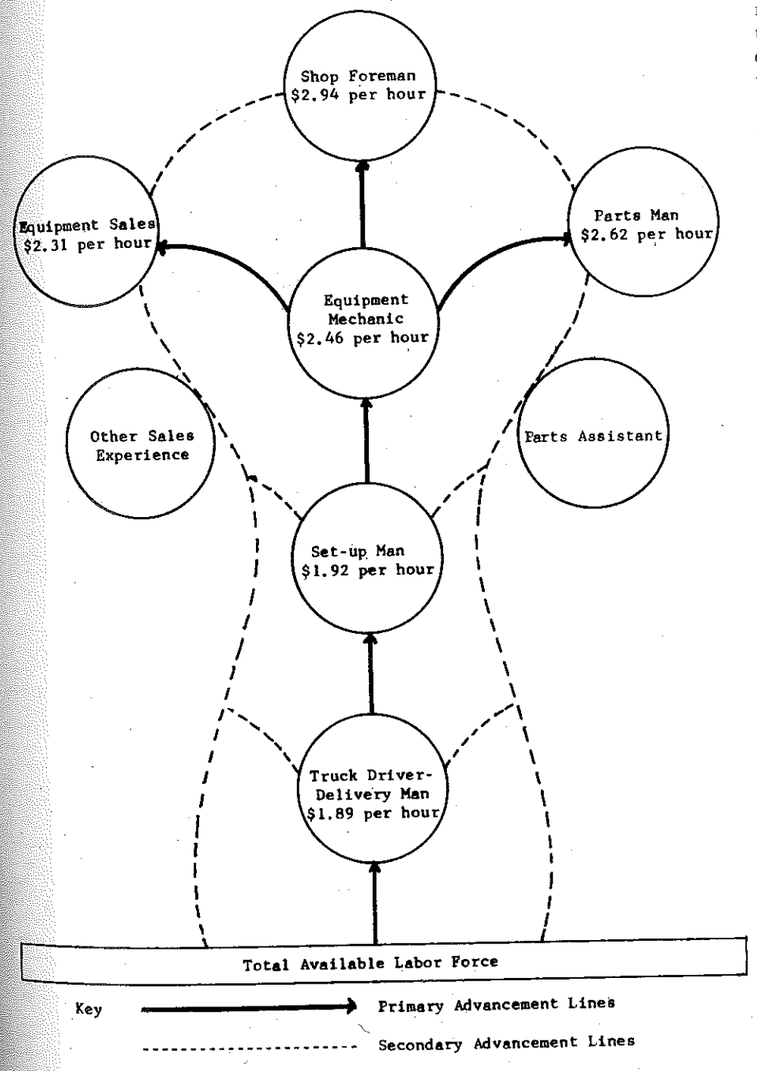
Advancement Opportunities

The consensus of all members interviewed was that there will continue to be almost unlimited opportunity for all men who are willing to work and learn the trade. The managers indicated what had been their past experience and procedure in advancement. A model is presented to show the common procedure for advancement in occupations in farm and equipment dealerships. In the model the beginning entry is the truck driver-delivery man position. Some dealerships will have variations in the job titles at which they start their men. Likewise, there are some salary deviations among job titles depending on where men begin their work in the dealership. In the figure the exception to the advancement and salary relationship is in equipment sales. As was mentioned previously, it is difficult to obtain the exact salary of a salesman on an hourly basis. It is very likely that the individual moving to sales would need a greater salary than he had earned previously.

Table 1. Present number of full-time, part-time, and employees in training and reported need for replacements and new positions by 1969 and 1971 and total projected need by 1971 based on results of response from 270 Ohio dealerships.

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	
	Present Number of:			Reported Needed to fill new and present positions:			Total Projected Need to Fill New and Present Position by 1971.
Job Title	Full-time Employees	Employees in Training	Part-time Employees	1969	1969-1971	Total to 1971	
Equipment Mechanic	554	66	79	342	253	595	1,086
Set-up Man	225	27	234	176	126	302	553
Equipment Salesman	230	14	13	120	83	203	371
Parts Man	240	12	0	114	65	179	327
Track Driver-Delivery Man	113	0	47	64	51	115	210
Shop Foreman	126	7	0	50	30	80	147
Total	1,488	126	373	866	608	1,474	2,694

Figure 1. Model of advancement opportunity as suggested by eleven managers of agriculture equipment dealerships in Ohio with the reported average hourly salary per job title.



Conclusions

The salary level for various job titles varies considerably and seems to be based on the local demand for employees. This is a matter of competition between dealerships and other industry seeking employees. There is definitely an opportunity for employment in dealerships and indications are that the opportunities, numbers and salaries will be greater by 1971 than they are now. Many of the employees in dealerships have been secured by hiring from other dealerships. Some members have employed men who had been previously in dealerships. Another procedure is to move part-time men into full-time positions; however, even if all part-time employees were put on full time, it would only fill 25 per cent of the future jobs and less than 8 per cent of the projected needs for a job title like equipment mechanic. Obviously there is an insufficient number of men now available to meet the demands. It seems logical that educational agencies and dealerships must give serious consideration to the long range solution to employment needs. Many have started but increased cooperation, leadership and support among educational agencies and dealerships is imperative for the success of a program which will provide a sufficient number of adequately trained employees to meet the demands.

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[1]William W. Stevenson, *A Study of Employment Opportunities and Training Needs in Off-Farm Agriculture Occupations in Oklahoma.* Stillwater, Oklahoma: State Board of Vocational Education and Oklahoma State University, 1965, p. 24.

[2]*Summary of Research Findings in Off-Farm Agriculture Occupations.* Developed by the Center for Research and Leadership Development in Voc. and Tech. Educ., The Ohio State University, (Columbus: The Ohio State University, 1965), p. 13.

[3]*Dictionary of Occupational Titles: Definition of Titles,* 3rd Ed., Volume I, (Washington: United States Department of Labor, 1965).

[4]Edington, E. E. and B. W. Stevenson, *Determining Training and Educational Needs for Persons Employed in Agricultural Occupations in Oklahoma,* (Stillwater: Cooperative Study-College of Agriculture Oklahoma State University, and the Oklahoma State Department of Vocational Education, 1964), p. 22.

[5]Foster, Paul J. *A Study of Agriculture Occupations Other than Farming and Ranching in Colorado,* Denver: State Board for Vocational Education, 1965.

[6]Hoover, N. K., McClay, D. R., and Stevenson, G. Z. *Off-Farm Agriculture Occupations in Pennsylvania—Employment Opportunities and Technical Education Needs.* Staff Study, Teacher Education Research Series, Vol. 7, Number 1, 1966. Prepared by Dept. of Ag. Educ., College of Agric., University Park: The Penn. State Univ., 1966.

[7]Langdon, C. L. *A Survey of Agriculture Occupations in Michigan,* Lansing: Vocational Agric. Service, Michigan Dept. of Public Inst., Lansing, and the Michigan Agriculture Conference, 1965.

[8]Cushman, Harold R. Christensen, Virgil E., and Bice, Garry R. *A Study of Off-Farm Agricultural Occupations in New York State.* Agricultural Education Division, Rural Education Department, New York State College of Agriculture. Ithaca: Cornell University, 1965.

Ag Occupations After High School . . . .

J. G. Bryant, Supervision, Georgia

J. G. Bryant

Through the years teachers of agriculture in Georgia have assumed the responsibility, through their local schools, in providing instructional programs to meet the needs of people in their respective communities. Traditionally, their programs have been conducted primarily for high school students interested in becoming farmers or interested in employment in agricultural occupations, and for young and adult farmers, with most emphasis being given to preparation for entry into farming or providing additional information and upgrading skills for those employed in farming.

These programs have proven to be very successful and have contributed much to the individuals enrolled and to the economy of the state. However, in our state there has developed rather rapidly in recent years a need for educational programs to prepare individuals for employment in many agricultural occupations other than farming. This particular demand proved to be a need for post-high school programs less professionalized than the four-year agricultural college program.

Examples

We in Georgia have specific examples of such expressed needs. Representatives of farm equipment dealers contacted officials of one of the state's junior colleges and indicated their needs for employees in their various businesses, with qualifications in repair, service, use and distribution of farm equipment. When these needs were expressed, officials of the junior college (Abraham Baldwin Agricultural College, Tifton, Georgia), representatives of the equipment dealers, and others developed a two-year post-high school program identified as "Equipment Technology" planned specifically to meet some of the employment needs of farm equipment dealers of the state.

The program has proven to be very effective. During the few years the program has been in operation, 99 graduates were employed in farm equipment businesses: 43 in dealer service work, 20 in parts departments, 10 in sales, 13 in general work by major farm equipment companies, eight in short line companies, and five are owners or part owners of dealerships. This accounts for 70 percent of the graduates. Those not entering the farm equipment field directly have returned to the farm, entered some other agricultural business, continued their educational program in agriculture, or entered military service. Representatives of the college indicate that there are about 10 job opportunities available for each graduate from the program.

With these opportunities for employment and a continual request from equipment dealers, representatives of the agricultural education service, trade and industrial education service, the state director of vocational education, and the director of one of our state director of vocational education, and the director of one of our state vocational-technical schools (located at Americus), together with a committee representing the state farm equipment association, planned a new one-year post-high school program identified as "Farm Implement Mechanics." This program has just been activated. It will be administered and operated by personnel of the State Vocational-Technical School at Americus, Georgia. Personnel at the school are employed by the State Board for Vocational Education. The state supervisor of agricultural education or his representative and a representative from the teacher education staff, vocational education in agriculture, and a representative of the junior college staff serve as consultants and as members of the advisory committee to the officials of the school. Other advisory committee members consist of individuals representing different areas of employment in farm equipment dealerships, such as mechanics, sales, distribution, and management.

As a supplement to the two programs outlined above, 20 high schools in the state, through their programs of vocational education in agriculture, are now offering courses in "Agricultural Power Mechanics." The courses are offered as elective courses for high school students in the upper two grades with similar objectives as the above programs, but more elemental. Simply stated, the courses are being conducted to prepare prospective employees for work in the various phases of farm and power equipment, both at the farm operational level and to meet the need for workers by farm equipment dealers. Students who complete the high school course may make one of four choices: (1) accept employment on a farm; (2) accept employment with a commercial equipment establishment; (3) enroll in one of the post-high school programs offered by the junior college or the state vocational-technical school; (4) enroll in a four-year college program.

A parallel to the above programs was a request from the American Pulpwood Association for individuals trained for employment in pulp, paper, or other wood-using industries of the state and nation. Committees composed of vocational staff personnel in agricultural education, including teacher educators, representatives of the pulpwood association and other wood-using industries, a principal from one of the high schools, and a high school teacher of vocational agriculture, developed a program projected to provide training for individuals to meet some of the employment needs expressed above, and a two-pronged approach is being followed.

Initially, programs identified as "Pulpwood Production" in five selected high schools of the state were begun, with a primary objective of educating individuals for employment in timber harvesting or related areas. Members of the committee realized that such a small number of programs would not meet the many employment demands, and provisions were made through the state director of vocational education and members or his staff with responsibilities in area vocational-technical schools, for the initiation of courses in "Timber Harvesting Technology" in two area vocational-technical schools; these are one-year, post-high school programs. Initially each of these courses will accommodate approximately twenty students with provisions for expansion. The five initial courses in high schools have been expanded by eight additional schools offering programs.

A similar example can be cited in the area of "Ornamental Horticulture." Several high schools of the state offering programs of vocational education in agriculture include offerings in ornamental horticulture. These offerings are being strengthened by the initiation of a well planned one-year, post-high school program in ornamental horticulture at another of the state-owned and operated vocational-technical schools (at Clarkesville, Georgia).

Summary

Educators and representatives of business and industry in Georgia realize that a cooperative approach to the problem of providing education for employment is sound. Many individuals in industry and business cooperate in providing supervised work experience opportunities for students enrolled in various programs. Similarly, teachers, local school officials, state staff members, and representatives of business and industry realize that post-high programs have an important place in a total educational program. They realize, too, that it is important to coordinate the high school programs with post-high school programs, in order that the high school programs will tend to complement the post-high school offerings.

Vocational educators have many opportunities and challenges to provide the necessary leadership in cooperation with local school officials and others, in assisting in the activation and operation of programs at the high school and post-high school level that are coordinated to meet the changing employment needs in the agricultural industry.

Need He Live On A Farm?

NO!

Larry Statler, Vo Ag Teacher, Waverly, Iowa

In the present years of expansion in agricultural education, it would be quite easy for us to forget the real strength of our program. Of course, the strength of which I speak is the occupational experience phase, whether it be gotten as a senior year occupational unit or as a part of the supervised home-farming program. The supervised home-farming program, traditionally known as a livestock or crop project, must be a program that meets the needs and facilities of all students that would be in vocational agriculture; regardless of their place of residence.

I believe the time has come when we must broaden our basis for development of supervised home-farming programs. With this in mind, we have worked in a basic area allowing us to provide occupational experience for all; this area being the development of our production agricultural services program.

Opportunities

It is my contention that a wealth of opportunities exist within any local community that can be expanded upon and developed for individual students that might be coming from town areas, or for those not being specifically interested in the traditional livestock and cropping program. Using this as a guideline, we developed potential programs for such students in twenty areas. These areas would be grouped, as production enterprises, with good improvement enterprises and supplementary practices; the big difference being that they can be conducted on the farm or in town, depending upon the need. These twenty areas are: (1) Agricultural Carpentry Technology, (2) Farm Management and Records, (3) Agricultural Landscaping, (4) Lawn, Horticultural Care & Management, (5) Fruit and Vegetable Science, (6) Agricultural Metals Technology, (7) Agricultural Concrete Technology, (8) Agricultural Service Center, (9) Soil Sampling, (10) Weed and Insect Control, (11) Test Plot Management, (12) Rodent Control Program, (13) Livestock Exhibition, (14) Farm Improvement & Repair, (15) Farm Chroing, (16) Farm Employment Placement, (17) Swine Probing Technology, (18) D.H.I.A. Milk Testing, (19) Agricultural Conservation, (20) Wildlife Management.

One Example

In explanation, let me simply illustrate one production agricultural service. Keep in mind that the definition of a productive enterprise is a business venture for experience and profit. A student with an interest in soil science may choose a soil sampling enterprise. The competency intentions of this enterprise would be the understandings of human relations, crop sciences, soil sciences, and several others. This enterprise is carried out cooperatively with three local cooperatives, all of whom provide services and supplies for farmers. The participating student offers his soil sampling service, including mapping, to customers of the various cooperatives for a fee. This fee is fifty cents per hour flat rate with a seventy-five cent per sample fee in addition. This includes payment for the entire service and is set up to serve not only as a base payment plan, but as an incentive technique. Ten cents per mile is paid the student for use of his car, while all probe buckets and materials are provided by the student. Net profits are retained by the student as payment.

Why is this type of a productive enterprise not as good as a sow and litter program or many others? We have developed such programs for all of the above twenty areas. Needless to say, these production agriculture services can be attached to most any situation, and certainly are sufficient in fulfilling department requirements for attaining occupational experiences.

Some Tips In Conducting A Young Farmer Program

R. Z. Arey

Vo Ag Teacher, Dayton, Virginia

R. Z. Arey

The purpose of the young farmer program is to provide young men of a given vocation (farming) an opportunity to become identified as such and to continue a much needed self-education program. It should assist individual farmers in becoming proficient in the fast changing complex of the agricultural industry.

The young farmer program, as I conduct it, consists of five phases. Each phase is carefully planned and the young farmers help in the planning. If the program is to fulfill the needs of the young farmers, they should participate in the planning. This participation has several beneficial results. Among these are: (1) the program includes what a majority of the young farmers want, (2) the young farmers are motivated to help carry out the program as planned, and (3) they readily accept appropriate responsibilities in connection with carrying out the program.

The five phases of the program at my school are:

1. Education. Certainly education is paramount and the heart of the program. I do not claim that I teach young farmers. In fact, I learn from them because they know their business. However, I think I have the responsibility of helping provide them information and communicate ideas as needed. I can create a learning situation which will assist young farmers in their search for solutions to the problems they encounter. I feel that I am more a young farmer advisor than an instructor.

The subject matter presented young farmers must be up-to-date, important applicable, interesting and varied.

One practice popular with my group is that of conducting a class meeting in several agri-business places during each year. This breaks the monotony of meeting in the classroom and creates much interest. For example, one of our recent meetings was held at a local bank to study ways of making the most effective use of farm records. This bank makes use of data-processing equipment to analyze farm records. The equipment was explained during a guided tour of the facilities at the bank and then our discussion and business sessions were held in the directors' room. The young homemakers attended this meeting.

Provision is made for the young farmers to participate in group and panel discussions. Our business sessions are conducted by the rules of parliamentary procedure. I continually encourage members to participate in the total awards program as an individual and as a member of an association team. These activities make valuable contributions to the total education of the young farmers and provide opportunities for the development of leadership abilities.

On-farm instruction is an essential part of the educational phase. I am unable to find time to provide all that is needed. His farm serves a young farmer as his laboratory, or testing ground, for practices being considered for adoption and for full-scale use of practices adopted. When I visit the farm of a young farmer, I become well acquainted with his problems as well as with the progress being made to solve them. In such a situation, I am able to provide individual advice and get the reactions of the young farmer. This is a valuable teaching-learning situation for both the young farmer and myself.

2. Organizational Mechanics. Our organization consists of an executive committee composed of six officers, elected annually, and the advisor. This group meets prior to each regular meeting and makes recommendations at the general sessions. This procedure helps keep business to a minimum during regular sessions.

To insure maximum attendance, our secretary mails a notice to each member a day or two prior to each meeting to remind him of the date. Also, the association provides an award to each member with a perfect attendance for the year.

3. Fellowship. An informal gathering after each official meeting gives members a chance to exchange ideas, problems, and advice. This seems to be one of the most enjoyable and inspiring activities of the entire program.

4. Social. We do not want our young farmer association to become a social club, but some social life is mandatory to the successful operation of a young farmer association. During the past year our social activities consisted of: (1) stag night (for members only, (2) family barbecue and picnic, (3) ladies' night banquet, (4) area and state conventions, (5) joint meeting with members of the local young homemakers association, and (6) father-son night. Each of these created much interest among the young farmers.

5. Civic. Although our young farmer association is not a civic club, some of the activities tend to be civic. For example, the young farmers furnish livestock with which local FFA members conduct livestock chains. They provide a scholarship annually for the most deserving FFA member going to an agricultural college, and they generously help each other and their neighbors in cases of emergency.

Our young farmer association is non-partisan. This is as it should be. However, as a group, the members promote issues they feel are for the betterment of the local community and the agricultural industry.

Suggestions for an Agricultural Education Advisor

To conduct a successful young farmer program, an advisor should:

1. Accept responsibility to work.
2. Show enthusiasm for his program.
3. Be receptive to new and different ideas.
4. Recognize the need for the program.
5. Be loyal to his group. Show a sincere interest in each member. When a member is absent from a meeting, call him and tell him he was missed.
6. Strive continuously to inculcate a sense of pride in his organization.

(Continued on next page)

7. Keep the young farmer program an integral part of the total school program.
8. Display a sense of humor and goodwill.

(Left to right) Carl Lively, of the Soil Conservation Service, presenting a plaque to Jack Roberts, Dan Brubaker, and Don Kline, members of the Turner Ashby Young farmer team after they won the 1966 Area Soil Judging Contest. R. Z. Arey, Voc. Agr. Instructor and team coach, looking on.

Conclusions

A sound young farmer program is essential to any progressive agricultural community. The need for such a program is great. Helping an individual better himself certainly will be reflected in his community.

The job is tremendous but the reward is invaluable. The personal satisfaction of having contributed just a bit to the advancement of an individual who becomes successful in his chosen vocation of farming cannot be expressed in words.

Our great industry of agriculture will be better in the future as a result of our educational program for young farmers.

Group of Region V, NVATA State Association Officers made during tour of Agricultural Engineering Center at University of Georgia, Athens. Leading the group during the Regional Conference was: Elvin Walker, NVATA President from Norman Park, Ga., Jim Durkee, Past Pres. of NVATA from Laramie, Wyoming, and Travis E. Hendren, NVATA Region V Vice Pres. from Cleveland, N. C.

RELATIONSHIPS AND THE COMMUNITY

Willie L. Lawrence

Vo Ag Teacher

Ocala, Florida

Willie L. Lawrence

What is this thing you call "relationship"? How does it work? Can you make it work? Webster said that relationship is a state of being mutually interested in a social or business way, friendly with each other and above all, dealing fair." Somewhere in the FFA ceremonies, it states very clearly to its members "play the game fair."

With Principal

The working relationship between the principal should begin on the very first day. It is like starting a fire on the cold night, it warms you up. You should have a conference with your principal early in the school year, the earlier the better. Go over your program with your principal; ask him for his suggestions and wait for his answer. If he fails to offer any suggestions, then go slow in explaining the program to him. This allows him a chance to become educated as you go along. Be open minded and accept criticisms wholeheartedly. Just keep in mind that no one persons knows all the answers. The principal may not know your program but he is your principal. Speaking of being the boss, the boss may not always be right but he is always your boss.

Keep your principal well informed of all your activities at all times. Discuss your program, field-trips, FFA activities, community activities and the like with him and secure his approval far in advance of the event to be sponsored. This helps greatly and will surely keep down misunderstanding.

Supervisor

Next in line is your county Supervisor; keep him aware of what is about to happen as much as possible. He will appreciate it. And remember that your county supervisor was put there for a purpose. Sometimes your County Supervisor can fill the space for **No** with a glorified **yes** at a time when you need "yes" most. Several trips and activities have been turned down because the County Superintendent didn't feel that there was a need for such activity and he might just call in the County Supervisor for verification thereof. The supervisor can say either yes or no. And I am sure that you as well as I would rather have him say "yes" than "no" for a request that you have made.

With Faculty

Closely allied to this, develop a friendly and devoted working relationship with members of the faculty and the community. Work with their program as much as possible and ask the faculty for suggestions and help for your program as well as the community. Do not try to pull your program from the total school's program for it is all one big program of activities. Pulling your program from the total school's program is like tieing a piece of lead to your hook-you are bound to sink. And remember this—always let your principal know where you are at all times during the school day. This is for your security and protection.

With Students

When new or 9th grade students enrolled in Vocational Agriculture for the first time, the following suggestions are offered as possible aid for incoming teachers for the first time and those who have been employed in the county previous years:

1. Say Good Morning — It's a good practice to speak.
2. See that all students are seated comfortable.
3. Write your name clearly on the black board — print your name if necessary.
4. Tell your summer experiences to your student. This seems to give your students some ease and get accustom to your voice.
5. Allow each student to tell his summer experiences. This helps also to ease the student.

(Continued on page 114)

A New Approach To Farm Management Instruction

Richard Barker

RICHARD L. BARKER, Director
New Hampshire Research
Coordinating Unit

and

RALPH E. BENDER, Teacher Education
The Ohio State University

Ralph Bender

High school students of vocational agriculture secure more understanding of the basic concepts of farm business management through the use of newly developed instructional units than when they are taught by traditional techniques. Teachers report that the profit-maximizing principles approach greatly strengthens this vital phase of the vocational agriculture curriculum. The new approach results in greater student interest and achievement. These findings were the results of a recent research project* completed by Richard L. Barker at The Ohio State University.

The purpose of the study, which was supported by the U.S. Office of Education through 4(c) vocational education funds, was to improve the proficiency of farm business management instruction for high school programs of vocational agriculture through the use of instructional units that would enable students to better understand the "whys" involved in the decision-making process of agricultural business. The study entailed the development, field trial, evaluation, and revision of instructional units for teaching the understanding of profit-maximizing principles. The economic principles concentrated upon were: (1) diminishing returns, (2) fixed-variable costs, (3) substitution, (4) opportunity costs, (5) combination of enterprises, and (6) time relationships. The instructional units were designed to be taught by the inductive process of teaching with the discovery approach to learning.

Rational

Teachers of vocational agriculture have too often focused their instruction on factors of production practices and procedures. More attention has been given to production per acre of farm land than to maximum returns per acre through alternative decisions. Today's economy forces the farmer to make logical, well-planned decisions based on known economic principles of farm management.

Duis states that:

One of the biggest problems confronting today's farmer is how to efficiently organize and use resources available to him. He need no longer farm by chance. Through efficient management, farming has become an exacting science and the desired income can be budgeted ahead of time and almost assured. Farming involves tremendous amounts of decision-making. Right decisions result in a good chance of making money while wrong decisions lead to failure.[1]

Farm Management Has Been Dull:

Teachers of agriculture have generally found farm management a dull subject to teach to high school students. Student interest and motivation appear to be lacking partly because of his not yet being in a decision-making setting. The lack of adequate textbooks and teaching materials on the high school level which deal with basic economic concepts has impaired training for entrepreneurship. In answer to a question in Nevada as to why teachers of vocational agriculture did a sporadic or partial job in providing organized instruction in farm management, Christensen found teachers to state the following:

Hard to motivate students! Hard to teach.

Cost studies and usable information that applies to the local situation are not available.

Good teaching outlines are not available.

I don't know enough about it to teach it.

Many teachers lack adequate training and preparation in farm management; therefore, the instruction in this important area is neglected.[2]

The responses above are not unlike those expressed by teachers of vocational agriculture in Ohio in 1966. Selected teachers were asked why they were interested in the profit-maximizing principles research project. The consensus of this group was that they were doing an ineffective job of teaching this important phase of the vocational agriculture curriculum and were looking for assistance on how to improve. They felt a real need for a central core to their instruction to make it more meaningful and useful for the student in training him in basic agricultural decision-making.

Concentrating on Basic Principles to Improve Instruction:

The discovery approach and inductive method in teaching farm business management implies a focus upon basic principles. "The experimental course in the principles represents a deliberate and full use of educational philosophy and psychology addressed to three objectives: (a) the demonstration of economic reasoning; (b) the educationally meaningful grouping of economic concepts; (c) the use of the logic of economics and rhythmic education as a basis for selection and emphasis."[3] It is, therefore, believed that vocational agricultural instruction should concentrate on the principles approach to farm management if students are to learn more and better. Hammonds states that "in vocational agriculture much attention is being given to principles, concepts, values and other generalizations, and more attention will be given in the future."[4]

The values of concentrating on principles of economics are shared by many educators. Due and Clower state that the "relationships which result from economic analysis are economic principles. More specifically, economic principles are generalizations which express relationships among various elements of an economic system."[5] Therefore, if students are to learn to make decisions in farm management they must understand the relationships and basic profit-maximizing principles underlying the economic system of the agricultural business.

Economic principles become the primary tools of farm business analysis and management. This analysis is of primary significance in indicating the consequences of alternative actions within the business and thus provides an intelligent basis for choice among the alternatives. Furthermore, economic analysis provides a guide to rational planning. Given the desired goals of the individual farm business, the utilization of economic principles allows an evaluation of various policies for efficient attainment of the goals. "Application of economic principles to existing circumstances should facilitate improved estimates of future decisions . . . The utilization of economic principles to analyze the facts of the particular situation provides the best available basis for prediction and decision-making."[6]

Methodology

Development of Instructional Units:

Five Ohio teachers of vocational agriculture were employed by the Department to aid in the construction of the instructional units. They were directed by Ralph E. Bender, Department Chairman, and staff members Floyd G. McCormick and Richard L. Barker. The units were reviewed for authenticity by a farm management specialist of the Agricultural Economics Department, edited, and prepared for use. Technical information dealing with each principle was adapted (1) to the level of high school student's comprehension, and (2) to strengthen instruction in decision-making by developing understanding of economic principles. Each instructional unit contains a section of (1) unit title, (2) unit objectives, (3) introduction, (4) teacher-learning activities, (5) association of examples, (6) arriving at the principle, (7) student activities, and (8) source references.[7]

Field Trial and Evaluation

Twenty-two high schools offering vocational agriculture to 262 juniors and seniors in Ohio were selected to perform the trial function and to assist in evaluating the worth of the instructional units. Six of the twenty-two schools acted as controls and taught farm management in the traditional manner. Seven of the remaining sixteen schools were assigned as pilot block to teach from the units in an uninterrupted sequence of approximately six weeks while nine schools were designated as pilot-integrated to use the same materials by integrating them with other subject matter over a six month's period.

President Elvin Walker, gavel in his hand, has past president Jim Durkee on his right and Executive Secretary Jim Wall on his left. He is backed by Vice Presidents Fred Hansen, Tom Devin, Hugh Ripper, Gerald Page, Travis Hendren and Alternate V.P. Bill Smith. President Elvin will use the gavel, along with his sense of humor, in getting the annual meetings underway at the AVA Convention in Cleveland, Saturday, December 2, at 10 o'clock.

Student understanding of profit-maximizing principles was measured through the use of an evaluative post-test designed by McCormick.[8] The instrument consisted of 45 multiple-choice questions and served as the primary method of instructional unit evaluation. Pilot teachers who used the principles technique were utilized in obtaining further information of the impact of the units. Teacher subjective appraisal of the units was secured by (1) the investigator visiting each pilot school, (2) the use of a unit evaluative survey instrument, (3) an evaluation meeting with all pilot teachers, and (4) by weekly reporting forms.

Findings and Conclusions

The following findings and conclusions were made, based on the interpretation of the data and information presented in instructional unit evaluation.

1. The use of the developed instructional units enhanced student understanding of profit-maximizing principles to a greater degree than did the traditional technique of teaching farm management used by control schools.
2. When teachers of vocational agriculture used the developed units in an uninterrupted block of instructional time, students showed a greater understanding of profit-maximizing principles than did students whose teachers used the pilot-integrated technique of teaching farm management from the units.
3. Student understanding of profit-maximizing principles was slightly influenced positively by the association of four independent variables as investigated through this study. They were:
   a. Student year in vocational agriculture.
   b. Student years of farm experience.
   c. Student I.Q.
   d. Number of teachers in the vocational agriculture department.
4. Independent variables which had no association with student understanding of profit-maximizing principles were:
   a. Student year in high school.
   b. Economic courses taken by student in high school.

(Continued on page 114)

*"An Appraisal of Instructional Units to Enhance Student Understanding of Profit-Maximizing Principles," Ph.D. Dissertation, The Ohio State University, 1967, 231 p.

New Approach

(Continued from page 112)

c. College quarter hours of economic instruction received by the teacher.
d. Teacher having received Farm Business Plannings and Analysis instruction.
e. Teacher having coordinated a Farm Business Planning and Analysis program.
f. Teacher's years of teaching experience.
g. Teacher's attainment of an advanced degree.
h. Hours of instructional time used.
i. Local grades achieved by students.

5. Teachers who appeared to have the greatest appreciation of profit-maximizing principles, the developed instructional units, and the discovery method of teaching, tended to more effectively employ the new technique of farm management instruction in classes of vocational agriculture.
6. Teachers who used the instructional units believed that the profit-maximizing principles approach to farm management instruction in vocational agriculture greatly strengthened this vital phase of the vocational agriculture curriculum.
7. Pilot teachers found the instructional units challenging, time-consuming, and requiring extra study, yet this extra preparation and teaching efforts tended to result in greater student interest and achievement.

Recommendations

As a result of the findings of this study and the experience of the writers, the following recommendations are made:

1. The profit-maximizing principles approach be continued and extended into more vocational agriculture departments.
2. State vocational agriculture staffs provide assistance to teachers in planning and organizing local farm management instruction and the profit-maximizing principles, the instructional units, and the discovery method of teaching.
3. Prospective teachers be given experience in using the profit-maximizing principles and the instructional units during undergraduate study and student teaching.
4. Greater emphasis be placed on the use of the discovery method and the inductive process in teaching and learning the profit-maximizing principles.
5. A continuous effort be made by teachers to assure a vocational education approach when using the instructional units by relating them to the student's agricultural interests.
6. Further attention be given to the development of instructional units concerning basic principles in other areas of the vocational agriculture curriculum.

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[2]Howard Christensen, *"A Contest Aids in Teaching Farm Management in Nevada," The Agricultural Education Magazine* (September 1963), p. 56.

[3]Meno Lovenstein *et. al., "Development of Economic Curricular Materials for Secondary Schools"* (The Ohio State University Research Foundation, 1966), pp. 45-46.

[4]Carsie Hammonds, *"Teaching Principles, Concepts, and the Like," The Agricultural Education Magazine* (January 1964), p. 123.

[5]John F. Due and Robert W. Clower, *Intermediate Economic Analysis* (5th Ed., Homewood, Ill.: Richard D. Irvin, Inc., 1966), p. 12.

[6]*Ibid.*, p. 18.

[7]*The Profit-Maximizing Principles Instructional Units have now been revised as a result of the evaluation and are available upon request from the Ohio Vocational Agriculture Instructional Materials Service,* Department of Agricultural Education, The Ohio University, Columbus, Ohio 43210.

[8]Floyd G. McCormick, *"The Development of an Instrument for Measuring the Understanding of Profit-Maximizing Principles"* (unpublished Ph.D. Dissertation, The Ohio State University, 1964).

Relationships and The Community

(Continued from page 111)

6. At this point, explain the purpose of Vocational Agriculture:
   a. projects and projects operation
   b. Financing projects, record-keeping and reporting.
   c. F F A activities.
   d. F F A awards.
   e. Scholastic Achievement, etc.
7. List students names alphabetically and call students by name.
8. Learn your students names as soon as possible, and refrain from calling students by "nick-name".
9. You may use numbers assigned to students when calling the roll —it saves time.
10. Assign the same number to the notebook rack. It helps the students from becoming confused.
11. Divide the class into small workable group—say 3 or 4—no more than 4.
12. Ask for volunteers for group leader. Do not appoint group leaders unless it is necessary.
13. For classwork list several subtopics for a particular subject or job to be taught and allow the groups to choose their subtopics.
14. Do not require all students to get the same work for all students cannot perform at the same level.
15. In dealing with students, be firm but friendly and, above all, do not play and tease with students.
16. Lead students to believe that you believe in every word that they say, most of the time, they will tell the truth.
17. Commend students for any level of achievement and urge them to continue toward perfection.
18. Build up gradual and firm confidence in as many students as you can . . . it helps.
19. Study your students carefully and you can determing who you can trust as well as those who can perform certain jobs best.
20. And remember, you are the best judge of character and for the vocational competency among the students under your supervision.
21. Attend your Annual State Conference and other conferences —they are very helpful.
22. And finally, get to school on time . . . that's most important for children are watching you at all times. You must set the example.

VO AG STUDENTS ARE JUNIOR DAIRYMEN

RAY HOEFT, Vo Ag Teacher, Omro, Wisconsin
and
Executive Secretary, WJDA

Ray Hoeft

We as agriculture instructors are always on the alert trying to find opportunities for our students to participate in leadership activities. The Junior Dairymen's Association affords many opportunities for such activities.

The Wisconsin Junior Dairymen's Association was organized at Fond Du Lac, Wisconsin in the spring of 1947 and operated under the auspices of the Wisconsin Dairymen's Association until the summer of 1954 at which time the Wisconsin Junior Dairymen's Association was re-organized by a group of Wisconsin Vocational Agriculture Instructors. On June 7, 1955, the Wisconsin Junior Dairymen's Association was granted a charter from the State of Wisconsin as a corporation without stock and not for profit and with such powers and privileges as provided for by Wisconsin Statutes.

The executive committee of the Wisconsin Junior Dairymen's Association consists of the president, vice president, junior secretary, and publicity director. Five directors and two directors at large are elected in the spring of the year and are eligible to serve a one year term as a director. Any boy or girl who is taking agriculture and whose herd is on some dairy testing and analysis program is eligible to hold membership in this organization.

The advisory board is composed of agriculture teachers who have students on the board of directors. A committee of agriculture instructors appointed by the President of the Wisconsin Association of Vocational Agricultural Instructors also serves on this advisory board. One member from the Rural Division, a supervisor from the Wisconsin State Board of Vocational, Technical and Adult Education serves as a consultant.

Objectives

The Wisconsin Junior Dairymen's Association has four main objectives. They are:

1. To promote a complete testing, record keeping and analysis program
2. To build an efficient producing herd
3. To produce and market a high quality product
4. To develop competent leadership in Wisconsin Junior Dairymen

Approximately 25% of all of the vocational agriculture departments in Wisconsin hold membership in this youth organization.

Activities

Some of the activities of the Wisconsin Junior Dairymen's Association, often referred to as the WJDA, are: district meetings held in the month of April and at which time the following contests are conducted: an extemporaneous speaking contest, a demonstration contest, and the selection of an outstanding junior dairyman from the district.

In early June, the WJDA state convention, banquet and dairy show is staged. This two-day event is held at a different site each year. At the convention, the winners from each of the five districts participate in the extemporaneous speaking contest, the demonstration contest and Junior Dairyman of the year contest. A banquet, held in the evening, attracts 250 to 300 WJDA members, advisers and guests. At the banquet, the winners in the speaking contest, demonstration contest and junior dairyman contest are presented with appropriate trophies. At this banquet, a $500 scholarship is presented to a deserving WJDA member to be used to pursue a college education in dairy science or dairy husbandry. Efficient production and milk marketing awards help to hi-lite the evening banquet.

The second day, of the two-day event, is designated as dairy show day. During the morning, the rural youth, participate in a cow classification demonstration and contest. This part of the dairy show is open to all rural youth, WJDA members, FFA members and 4-H members. Cattle are provided by purebred breeders in the area of the show with fieldmen from the national breed associations, personnel from artificial breed establishments, University agricultural dairy specialists, supervisors in agriculture, vo-ag instructors, extension agents and WJDA directors taking part in the conduct of the show. During the classification demonstration, two animals from each of the breeds are evaluated by qualified breed representatives after which ten animals from the various dairy breeds are brought in to the ring and the youth given an opportunity to classify these animals. Trophies are presented to the top classifiers.

The afternoon dairy show program consists of a dairy cow exposition (participation restricted to WJDA members). This exposition is entirely different than what we normally associate with a dairy show. Prior to coming in to the ring, the young dairyman is interviewed by a panel of judges, to discover what his knowledge is of dairy feeding, breeding and management. He is also questioned about the breeding in the home herd and what has been done along the line of dairy record analysis. An objective test written and administered by one of the Wisconsin Supervisors in agriculture is given to all contestants in the dairy cow exposition. After the completion of this part of the exposition, the exhibitors are lined up, by breeds, and invited to bring their animals to the show ring. The exhibitor goes through three evaluation stages as he passes, with his animal, through the show ring. As he enters the dairy cattle pavilion, a team of experts will classify his animal. As he reaches the center of the ring, a panel of judges give him a score for his ability as a dairy cattle showman. Another area is set aside in the pavilion where the young dairyman must go before a microphone where he relates to the judges and the audience what he considers are the outstanding dairy characteristics of his animal and likewise if the animal has

(Continued on page 116)

YOUTH NEED HELP IN CHOOSING THEIR OCCUPATIONS

ATHEAL PIERCE, Graduate Student, Ohio State University

Somewhere in the minds of an overwhelming majority of high school seniors—wedged between thoughts of the Rolling Stones, hot rods, cool Mods and football—are fairly complete career plans.

Almost 90 per cent of seniors interviewed last year at Tuskegee Institute High School in Tuskegee Institute, Alabama, had their minds fairly well set on career choices.

They are aiming high.

Perhaps too high.

Comments by high school seniors reveal a need for better vocational counseling in the schools—and in lower grades—lest too many young people be disappointed when they find that the job market and colleges leave fewer openings than they plan to fill.

The choice of a career is doubtless the most significant requirement in the life of each American youth. Many persons benefit each time someone finds work he enjoys—the person himself, his family and society at large. But the opposite is true when one fails to make a satisfactory occupational choice: we are all losers.

There are thousands of different jobs, each somewhat distinctive. Many factors interact to create the complex process of choosing an occupation. All young people are caught up in the process, which, in a sense, begins in infancy and doesn't end until disability, retirement, or death.

At some point, generally in the late teens or early twenties, a choice is made.

How high school seniors made that choice was the subject of an in-depth study last year at Tuskegee Institute High School. The results of that study are summarized in this article.

Two Levels

The occupational plans of the seniors were studied at two levels—jobs strongly considered **prior** to a final choice, if any; and the **actual** choice of a career to pursue. In both cases, similar distributions of data resulted, with significant numbers of students planning on occupations high on the financial and status ladder.

More than 34 per cent of the seniors were aiming for careers as professionals, proprietors of large businesses, higher executives, important public and private officials or bankers . . . although only 20 per cent of today's job holders are in those areas. By 1970, increased demand in those areas should swell available positions to 25 per cent. But the senior's expectations still exceed the projections of job opportunities.

Another 31 per cent of the seniors expressed desires to enter commercial or clerical service or the lower levels of management or proprietorship. More than 23 per cent planned on becoming artisans, petty officials, skilled laborers with some management responsibilities or small-business proprietors.

Surprisingly, females favored jobs within these three groups more than males, 93 per cent of the girls having aspirations within these areas as compared to 85 per cent of the males. Only 11 per cent of all the students had lesser aspirations—for skilled labor jobs or one-man shops. Only 2 per cent were considering unskilled jobs.

(Continued on next page)

Junior Dairyman

(Continued from page 115)

any weaknesses he would point them out also. The young dairyman also has the opportunity to tell the type of a sire he would mate his animal to in order to further improve her progeny. A panel of dairy specialists give the WJDA member a numerical score for his oral presentation.

Cash awards are presented to the winners in all of the dairy breeds. This award money must be used and applied toward the purchase of a purebred dairy animal. Each contestant in the dairy exposition is also awarded a trophy.

One of the reporters covering the state dairy show, summed up the dairy exposition in this way, quote, "The day appears to be over when a young farm boy or girl could grab pa's best cow by the halter and stand or fall in the show ring on her merits alone."

Two state awards are presented to the outstanding departments at the close of the dairy show. One is the state dairy show achievement award (plaque) which is based on the points accumulated by the department in the dairy cow classification contest and the dairy cow exposition. The sweepstakes award, a four-foot high trophy is awarded to the Local Junior Dairymen's Association in the state which has the greatest number of points and based on local department dairy activities, dairy herd improvement practices, and participation in district and state WJDA activities.

Another activity of the Wisconsin Junior Dairymen's Association is the staffing and operation of the Wisconsin State Fair Milkhouse during the time of the State Fair.

The milkhouse is managed by the WJDA Directors as a service to the junior and open class exhibitors at the state fair. It is not uncommon for these young dairy men to handle over 65,000 pounds of milk from the cattle that are being shown at the fair. In order to be of greatest service to the exhibitors, the WJDA Directors open the milk house at 5:00 a.m. and maintain the operation of the milkhouse until 11:00 p.m. The duties performed by the boys consists of checking out milkhouse dairy equipment to the exhibitors, rinsing, washing and sanitizing all dairy equipment as well as sampling and recording the weight of all milk delivered to the milkhouse by the state fair exhibitors. Many of the exhibitors have expressed their appreciation for the service they receive at the milkhouse. The WJDA Directors find the work in the milkhouse to be very rewarding, inasmuch as this offers them an opportunity to meet and talk "shop" with some of the outstanding dairy breeders in the country.

Choosing Occupations

(Continued from page 116)

While more than 80 per cent of the seniors decided on careers in the more prestigious, demanding and financially rewarding occupations, projections for 1975 indicate that only 50 per cent of the available positions will fall in those categories. It is almost certain that a large number of seniors will find it impossible to achieve their goals.

Most students chose a career on the same general aspiration level they had previously considered, not lowering their sights. When students did lessen their aspirations, they were usually females. This probably reflects the attitude that marriage rules out top-flight careers for women.

How certain were these plans? Roughly 40 per cent said they were certain they would not change their minds. Nearly another 50 per cent said they were fairly certain but could change their minds. Eleven per cent were undecided. Girls were more certain by 2 or 3 per cent, probably because of plans for marriage.

What degree of ability did seniors think they had in their chosen fields? About 10 per cent rated themselves very much above average. Another 35 per cent said they were above average. Another 43 per cent thought themselves average. Only 4 per cent said below average. Obviously, these seniors had a great deal of self-confidence.

What degree of thought had gone into these choices? Roughly, 70 per cent said a great deal. Another 25 per cent said some thought. Only 4 per cent said little thought had gone into the career choice indicated. Girls usually had given more thought to the near future: They had marriage in mind while more boys were looking toward college and more years to weigh a career choice.

What chances of success did they think they would have? Over 97 per cent said they thought they had an average or better than average chance of succeeding in their chosen field. Ten per cent said their degree of success would be very much above average; another 41 per cent said above average; 40 per cent said average. These figures compare pretty closely with their estimation of their ability, though there is a slight shift upward in the figures for chance of success. This indicated that seniors think ability is an important factor in determining success . . . but that other factors also enter the picture.

More than 90 per cent of the students planned to continue their formal education after high school. Almost all the girls planned on more education, 98 per cent, as compared to 84 per cent of the boys. Nationally, only 54 per cent of high school students enter college. Thus, the seniors studied were either abnormally high in this regard or will not carry out their plans.

Seventy-eight per cent wanted higher degrees than a high school diploma. Twenty-five per cent is the national average.

The parents of the seniors studied went to college in only 13 per cent of the cases. Eighteen per cent of the mothers and 28 per cent of the fathers had not even finished eight grades. Obviously, the seniors were aiming higher than their parents had attained.

And they aimed not only for more education, but for higher socio-economic status than their parents had achieved.

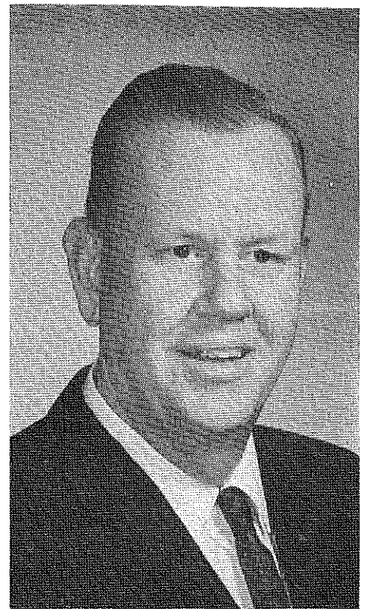
About 70 per cent planned to get help in starting their careers from parents, relatives or friends in that line of work. This is not unusual, but the fact that only one of seven seniors expected help from his *parents* points up the fact that the students' expectations are far considerably more than their parents had achieved.

Only 20 per cent expected to start their careers without help from acquaintances.

The factors that seniors considered important in choosing an occupation varied greatly between the sexes.

Boys were more interested in money than in the difficulty of the required education, 60 per cent to 35 per cent. Girls were split evenly on these considerations. Boys thought working hours to be a more important consideration than social standing, 47 per cent to 40. Girls chose social standing over working hours, 48 per cent to 41. This seems understandable because the boy must become the breadwinner.

Boys favored doing well in their occupation over difficulty of education by more than three to one. But girls were even stronger in this regard—six to one. These figures probably indicate a lack of knowledge about the difficulty of getting a suitable education or an altruistic bias demanding that one does well in his job.



PRESIDING

AVA President Floyd Johnson adds another "first" to his list as he becomes the first Vo Ag Teacher to preside over AVA meetings in December.

Implications

Such a response suggests an idealism that is likely to be drastically modified—or completely overturned—by later experiences. It is suggestive of the need for counseling to insure that seniors get a better insight into the problems they are likely to encounter, and to help them deal successfully with those problems.

From the seniors' strongly expressed preference for top level jobs and their overwhelming expectation of success, we must conclude that they set high standards indeed.

It seems that more counseling—for greater insight into the world of work—is needed if seniors are not to be disappointed in the outcome of their ambitions. The time for this counseling should be done well before their senior year of high school.

This leaves the counselor with the task of changing unrealistically high expectations without causing defeatism or frustration in the student. It would be far more beneficial for the counselor to make suggestions during the formation of expectations rather than to try to change career choices once they are firmly made.

OPPORTUNITIES IN OFF-FARM OCCUPATIONS BUT— Educational Programs Need Revising

ROY DILLON* and PAUL CAIN*

Editor's Note**

In designing new secondary and post-secondary school courses of study for appalachian workers entering present and emerging off-farm agricultural occupations, it is important to ascertain the competencies needed by workers who plan to enter or progress in jobs where employment opportunities exist.

To obtain evidence relating to the employment opportunities, the competencies needed, and how their activities and knowledge should be grouped for curriculum planning, a two-stage random sampling technique with two-way stratification was used for selection and subsequent interview of 284 agricultural business firms in a thirty-eight county area in eastern Kentucky and southern Ohio.

The data were projected to the universe to determine:

1. The total number of workers currently employed in agricultural vocational jobs and agricultural technical jobs.

Statistical estimates indicated that 5531 busines firms in the region of study employ agricultural workers. Of the total workers employed in jobs requiring the use of agricultural knowledge and skills, 3359 were technical level workers and 8343 were vocational level workers. 122 different technical level job titles were represented by these 3359 technical workers. Individual business firms which appeared agricultural by title employed a higher percent of agricultural workers within the firm than those businesses which were not agricultural by title but were defined as firms which may employ workers using agricultural knowledge and skills. The data, however, emphasized as a huge source of employment the businesses that appear non-agricultural by title, but may employ agricultural workers. Estimates indicated that 80% of these businesses in the thirty-eight county area were likely to employ agricultural workers and tended to have a larger group of employees per firm than those firms which appeared agricultural by title.

2. The additional number of agricultural vocational workers and agricultural technical workers needed in the next three and five year period.

Employers were asked to estimate the number of additional workers that would be needed in the next three years and within the next five years due to business growth and employee turnover. The data indicated the number of additional agricultural technicians needed in the next 3 and 5 year period will be 1155 and 1591 respectively. The 5 year estimate included the 3 year estimate.

The data also shows that 2720 agricultural technical workers were employed in the past 5 years. This figure is considerably larger than the number expected to be needed in the next 3 and 5 year period. This larger number probably reflects business growth, employee turnover, promotions, retirement, lack of educational participation and a certain satisfaction with workers currently employed. It is also likely that the employer responded to the interviewer's question about workers needed in the future, primarily in terms of new workers needed for expansion and did not include the anticipated turnover, retirement, and promotions. The investigators believe it is safe to assume that the actual need for agricultural technicians will approach the proportion employed in the last 5 years. This rationale is based upon more than the numerical information collected, and was an impression obtained which was unqualified, but helps explain the quantified data.

The estimates also indicated that a relatively small number of positions are open on a part-time basis, and constitute less than 10 percent of the agricultural technican positions to be filled in the next 3 and 5 year period.

3. The educational requirements, work experience requirements, and age limitations for agricultural technical jobs on which data was gathered.

Conclusions —

1. Forty percent of all workers employed in businesses defined as businesses need some knowledge and skills in agriculture.

2. Sixteen percent of all workers employed in business defined non-agricultural businesses that may employ agricultural workers need some knowledge and skills in agriculture.

3. The job titles identified within each job-title cluster could be defined as technical or vocational level jobs. Workers with vocational job titles probably perform the activities and use the knowledges identified at the vocational level, while those workers with technical job titles probably perform activities and use the knowledges identified at the technician level. It was, therefore, possible to project the numbers of employment opportunities for the identified agricultural vocational and agricultural technical job titles within each job-title cluster.

4. There appeared to be a high potential for job openings for agricultural-technical workers and agricultural vocational workers. The data indicated that two and one-half times more agricultural vocational workers than agricultural technicians will be needed to take entry-level positions in the next five years.

a) 8 of every 10 businesses in the universe which employ workers needing agricultural knowledge and skills were businesses which appear non-agricultural.

b) 3 of every 10 workers employed in agriculturally-oriented jobs studied were performing jobs which required technical level proficiency, while 7 of every 10 workers employed in agriculturally-oriented jobs studied were performing jobs requiring vocational level proficiency.

c) 9 of every 10 agricultural-technical position openings anticipated in the next five years will be full-time jobs.

d) It was estimated that 2746 workers will be needed in the next five years in the job titles defined as agriculture technicians, in the region of study. This estimate is based primarily on business growth, and would be about 525 per year. If we examine the number of agricultural technicians needed during the same period based on employee turnover data, we find that 2720 agricultural technicians are needed per year. Therefore, more than 500 but not more than 2720 can be estimated as a realistic goal in establishing educational programs. It can be concluded there has been a high degree of turnover of agricultural-technical workers, probably due to the trend for these workers to move out of the area to better paying jobs. There was a higher degree of employee turnover in agricultural-technical jobs in the Kentucky counties studied than in the Ohio counties. More specifically, there was a higher degree of employee turnover in agricultural-technical jobs in the telephone exchanges in Kentucky where the population of the largest town was under 1000 than for similar geographic areas studied in Ohio.

Some Recommendations

Who may use these results:

This research information should be of interest to employment service counselors, personnel directors, employee counselors, school counselors, vocational and technical teachers, educational leaders, and laymen who are involved in the research, planning and carrying-out of training programs at all experience and educational levels.

In a special effort to make the results more meaningful to user groups, the research staff carefully compared each of the agriculturally-oriented job titles identified with job descriptions in the *Dictionary of Occupational Titles*, Third Edition, 1965. The names and D.O.T. numbers were listed for the Dictionary of Occupation Title(s) most nearly corresponding to the job description as obtained by the interviewers. Many of the D.O.T. job-titles fall in the plant and animal science, or mechanics areas, and tend to based upon worker functions.**

How the results may be used:

1. The investigators believe the data have been scientifically obtained and systematically analyzed to this stage of curriculum development. The activity and knowledge factors identified tell the investigators what general areas of knowledge the workers need as they perform identified job activities. The identified job title clusters tell the investigators what kind of people can be trained together, based upon their responses on the activities and knowledges.

2. It is not practical to have a different curriculum for each different job title identified for which workers should be trained. For example, there are 9 job titles in the job-title cluster described here. According to the data projected, these 9 job titles represent 588 full-time job opportunities in the next five years; 201 jobs at the technical level and 387 jobs at the vocational level. Persons with these job titles may be pursuing varying curriculums, but can be trained together in general courses identified by the cluster technique.

3. The study does not provide data which indicate the details needed within the general areas of knowledge. The narrative description obtained by the interviewers on each position interviewed should aid the curriculum planner in understanding how the knowledges are used in the jobs identified, but the curriculum planner must refine the curriculum and, therefore, will need to obtain more detailed information concerning the identified areas of knowledge and worker activities before units of instruction can be planned.

4. The level of need for activities and knowledges by workers in the job-titles identified should have basic implications for the methodology of training programs. The instructional programs planned for the agricultural vocational jobs in the cluster should be more basic and general in nature than for courses which would train for agricultural-technical jobs in the same cluster. Persons preparing for all those agricultural technical jobs having a high factor loading should have courses which contain those activities and knowledges taught in a way they would be used on the job.

5. The in-school instructional programs at the vocational and technical levels should provide the broad theoretical base for the learning of applied principles and details in an on-the-job experience program as a part of the course of study. These on-the-job experience programs should be conducted at:

a) The high school level.
b) The university associate-degree level.
c) The multi-level area vocational and technical school level.

6. Advisory groups made up of educators and business representatives should evaluate these research findings, and advise the curriculum planner concerning the experience programs.

7. New vocational and technical programs should be designed to train persons to enter and advance in positions they now hold in Appalachia. Vocational agriculture programs at the high school level will need to be redesigned in order to adequately train people to take entry positions in vocational jobs identified. These specialized sources in agriculture at the high school and post-high school level may be supported by other technical subjects taught in the comprehensive high school and post-high school institutions.

8. Since there is a high mobility of workers, and since the entry job may not be in the same geographical area where the second or third job may be located, there is justification for training for a "family" or cluster of jobs as is being recommended in the curriculum planning approach in this study.

9. This curriculum planning approach should have implications for guidance purposes, in that curriculums will provide basic education for all the job-titles included in a particular cluster of "family" of jobs.

10. New educational and guidance programs must re-orient the prospective employee to the idea that he need not seek employment in a readily identifiable agricultural business to find a job. As the study shows, persons with agricultural knowledge and skills are rather widely marketable in businesses that appear non-agricultural but employ people needing these knowledges and skills.

11. Financial support should be sought for well-planned pilot programs at the university associate-degree level, multi-level area vocational and technical school level, and high school vocational level in order to further refine and evaluate more detailed curriculums.

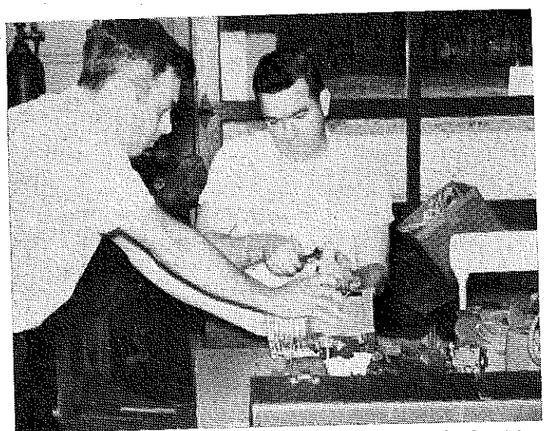
*Dillon, Roy D. and Cain, Paul S., "Employment Opportunities and Usable Agricultural Skills in Non-Farm Agricultural Occupations in Appalachia," Final Report of a Study, School of Applied Sciences and Technology, Morehead State University, Morehead, Kentucky, December, 1966, 186 pp.

**For detailed information regarding the data analyses used, the reader is referred to the monograph: Roy D. Dillon and Paul S. Cain, "Employment Opportunities and Usable Agricultural Skills in Non-Farm Agricultural Occupations in Appalachia," Executive Report, School of Applied Sciences and Technology, Morehead State University, Morehead, Kentucky, December, 1966, 62 pp.

Photo by Annis

Chemical engineering laboratory tour for vocational education teachers provides insights into facilities available at the University of New Hampshire Engineering Experiment Station.

Baby chicks on a ferris wheel, Nebraska State Fair. C. A. Cromer — photo

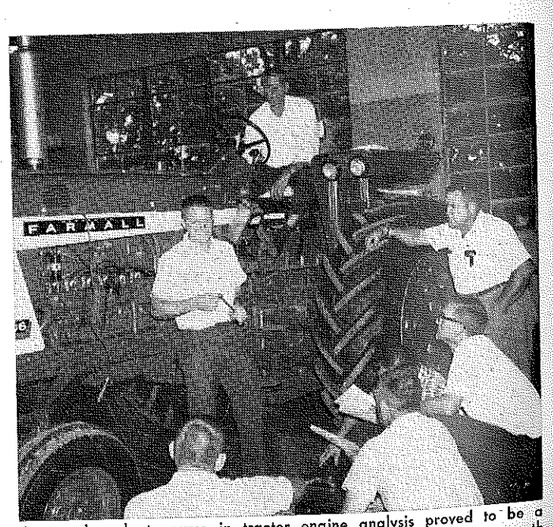


Workshops for teachers in New Jersey provide for specialized training.

Stories in Pictures

GILBERT S. GUILER

Ohio State University



A one day short course in tractor engine analysis proved to be a worthwhile training program for Illinois teachers. Photo — Bosomworth

AGRICULTURAL EDUCATION

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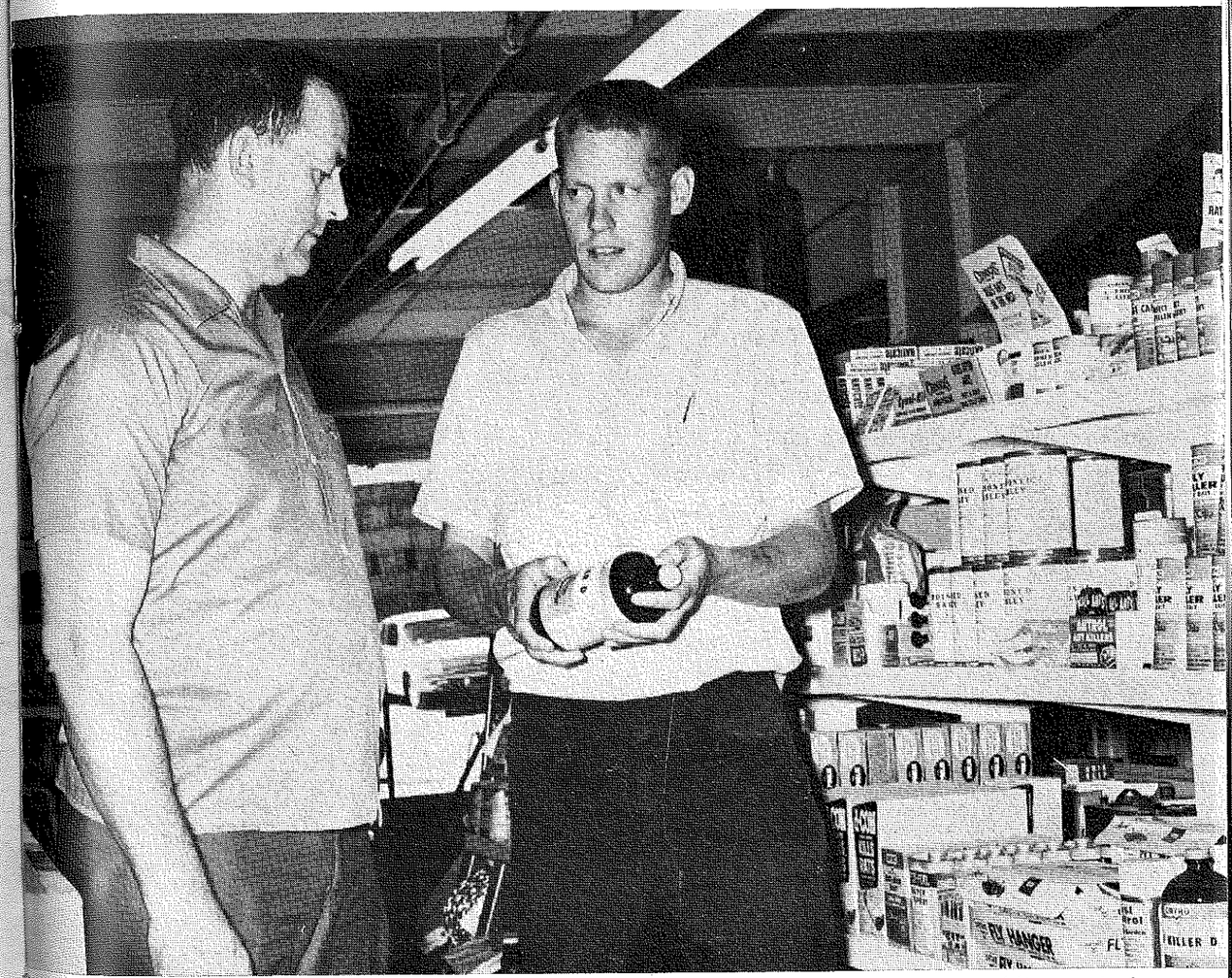

Roy Faught, a student majoring in Agricultural Education at the University of Nevada, is advising a customer as part of his occupational experience program in an agricultural field. Photo by H. Christensen.

Featuring: TEACHER PREPARATION and CERTIFICATION

1917 ..... 50th ANNIVERSARY 1967

1st National Vocational Education Act