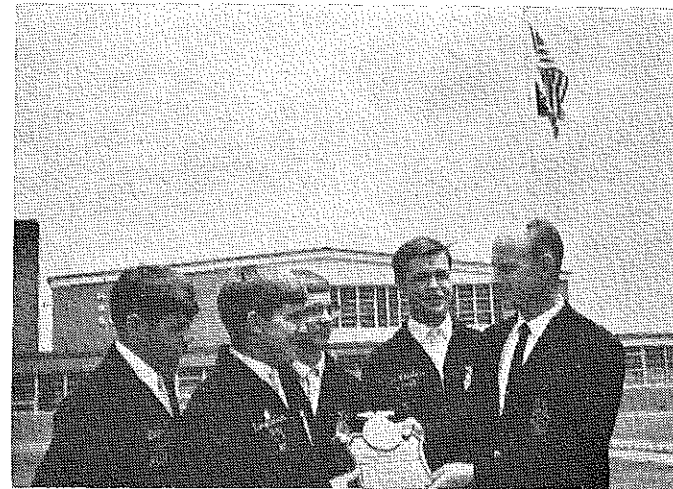


This month's "Stories in Pictures" presents photos made from five of the thirty color slides included in the series "A Future for You — Teaching Vocational Agriculture." The slide series was developed to aid teachers in recruiting future teachers of agriculture.

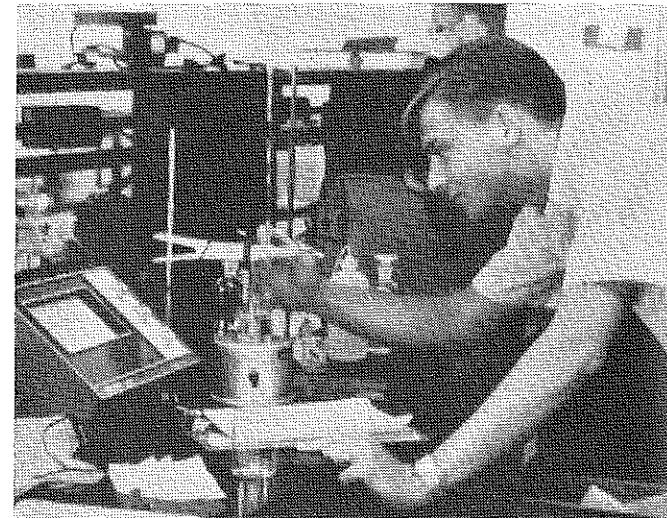


As an advisor to an FFA Chapter the teacher seeks to develop leadership. His understanding of the leader's role as well as the example he provides helps accomplish this important task.

VOCATIONAL AGRICULTURE TODAY

- BIG** — 10,500 TEACHERS IN 50 STATES
- GROWING** — ENROLLMENTS UP ABOUT 3% PER YEAR
- VERSATILE** — NEW PROGRAMS FOR OFF-FARM AGRICULTURAL OCCUPATIONS IN ONE OF EVERY THREE SCHOOLS
- SPECIALIZED** — ONE-FOURTH OF TEACHERS ARE IN MULTIPLE TEACHER DEPARTMENTS
- YOUNG** — 1,100 YOUNG MEN ENTER EACH YEAR
- BUT** — 40 STATES HAD A SHORTAGE OF TEACHERS LAST YEAR

Over the nation vocational agriculture is growing, changing, and improving. But there is a serious shortage of teachers. Last year forty states indicated a shortage of teachers.



Today's students who are preparing to be teachers of agriculture work with sophisticated laboratory equipment. Many college courses provide such laboratory experience.



Through farm experience and study of vocational agriculture in high school, the prospective teacher of vocational agriculture develops knowledge and skill which a successful teacher should possess.

12-68
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in Pictures

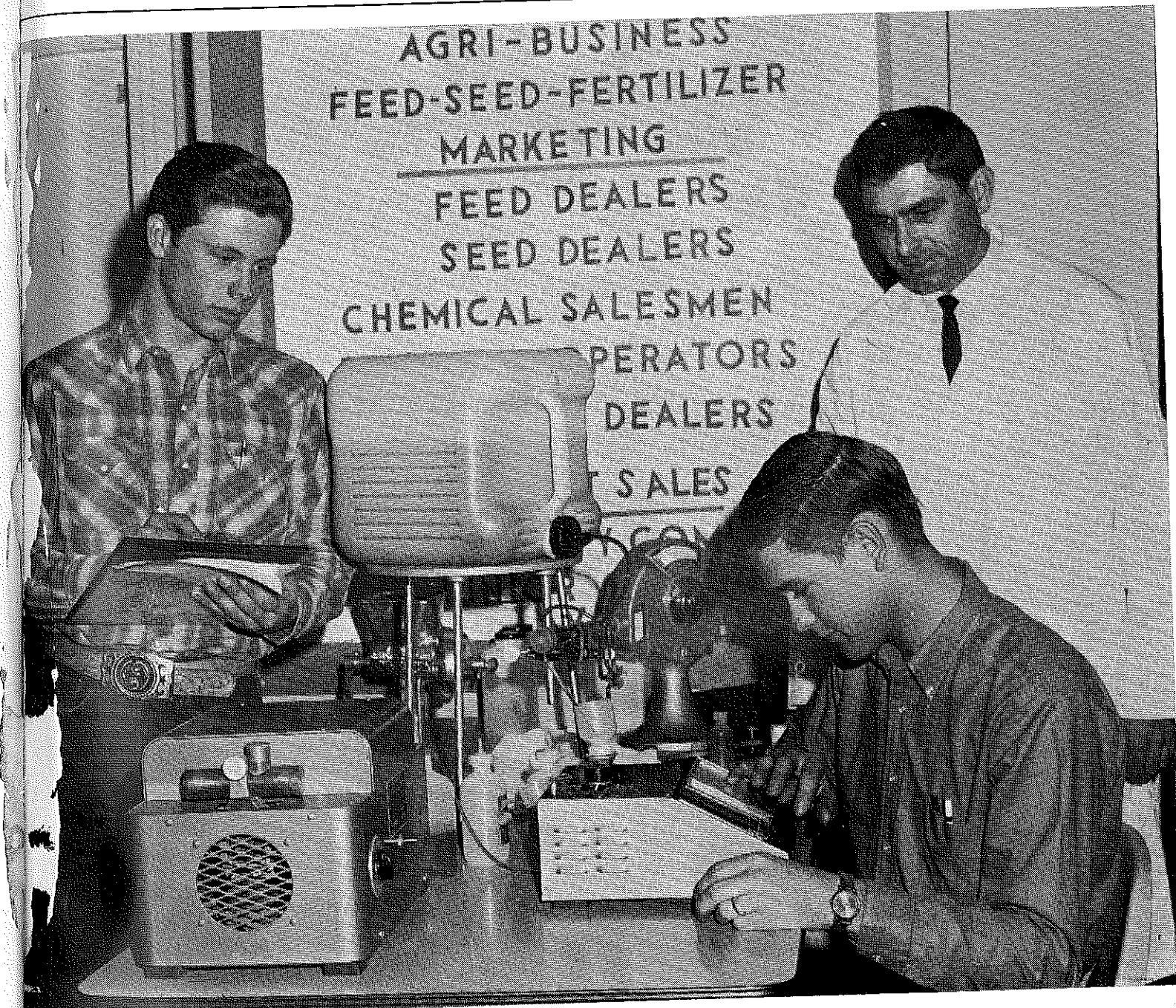
GILBERT S. GUILER
Ohio State University



Agricultural Education

July, 1968

Number 1



Featuring —

COOPERATION AMONG VOCATIONAL AREAS

THE Agricultural Education MAGAZINE

Vol. 41 July, 1968 No. 1

Editorials

From the Editor . . .

What is "General" Vocational Education?



J. Robert Warmbrod

panying this point of view is the allegation that traditional programs of vocational education are concerned primarily with specific skill training and consequently fail to provide the degree of occupational versatility essential for a time when many individuals can expect to change occupations several times. In this context traditional programs of vocational education usually are characterized as programs in the various occupational categories (agriculture, business,

"Across the board" and "break down the barriers between vocational services" are terms currently used in calling for more cooperation among the substantive areas of vocational and technical education. More specifically, the contention is that vocational education, particularly at the high school level, should be reoriented with major emphasis placed on education in broad, generalized skills and knowledge applicable to a variety of occupations. Accom-

distribution, health, home economics, and trades and industries).

An unfortunate interpretation, or intention, of the views of those who advocate reorientation of programs of vocational education is the point of view that high school programs of vocational education either emphasize broad, generalized knowledge and skills or accentuate specific skill training through programs in the traditional occupational categories. This dichotomy is alluded to by the Advisory Council on Vocational Education (1968) in their interpretation that one of the new basic purposes introduced by the Vocational Education Act of 1963 is that "vocational education was to serve the occupational needs of all people in the community through unified programs rather than to train them in separate programs of selected occupational categories."

There is no argument against the need for cooperation among vocational services. There is ample research attesting to the fact that successful performance and advancement in almost any occupational area require technical knowledge

(Continued on next page)

Guest Editorial . . .

Some Implications for Agricultural Education



Glenn Z. Stevens

with students for cooperation among instructors in vocational and general education fields and for coordination with business and industry.

The role of the agriculture department in a secondary or post-secondary school or community college as a source of supporting education for students majoring in other occupational fields has only begun to be identified. There

To make a friend, ask a person to do something for you. To be a friend, do something for another. The statement that "vocational education looks at a man as a part of society and as an individual, and never before has attention to the individual as a person been so imperative" appears prominently on page after page of Publication 3 of the report of the Advisory Council on Vocational Education, 1968. Let us examine the implications for our work

are great possibilities. A question is worth raising whether a school has curriculums or whether each student pursues an individualized program that in total becomes for him a curriculum. Does considerable freedom in choosing combinations and sequences of subjects make this possible? Is it the function of educational guidance to assist each student to synthesize an individually tailor-made curriculum? Integration of experiences in the final analysis always is achieved by the student.

A national leader speaking at a state conference last summer observed that agriculture, over the years, perhaps has had closer relationships with general education than with other vocational fields. He was urging that we try harder to develop supporting courses and help students to get more diversified experiences.

Will it not be a large step forward for agriculture instructors, when supervising cooperative occupational education experiences of students in agricultural businesses and industries, to recognize that the students need and are obtaining formal instruction in units in distribution, technical, and trade and industrial subjects? Similarly, will not industrial leaders who are used as resource persons by

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EDPRESS

JULY, 1968

and skills from several of the substantive areas of vocational and technical education. The proponents of general vocational education for high school students base their position on strong premises when they contend that there are many common elements among occupations, that many persons will change jobs several times, and that vocational education should not overemphasize specific skill training while excluding more versatile occupational education.

The conclusion does not necessarily follow, however, that vocational education for high school students is either "general vocational education" or education in "separate programs of selected occupational categories." An "either-or" dichotomy of alternatives is based on the false premise that programs in occupational categories are concerned primarily with specific skill training. There is evidence to indicate that educational programs in the substantive fields of vocational education now contribute and have the potential for making even greater contributions toward the development of broad, generalized knowledge and skills that are applicable to a variety of occupations.

A perusal of the literature reveals that the common elements among occupations that have been identified deal primarily with desirable work habits, attitudes toward work, and with human relations skills. The subject matter areas identified as common to groups of occupations are described in such general terms (mechanical, electrical, spatial, symbolic, and the like) that they contribute little to the development of meaningful programs. The most potent danger in designing vocational programs around knowledges, skills, and attitudes common to large groups of occupations is that subject matter is given precedence over the interests, needs, and abilities of students. Vocational education can ill afford programs that are subject-centered rather than student-centered.

The psychology of learning tells us that the most effective way to teach general principles is in terms of specifics that are meaningful and interesting to students. For example, the most effective way of teaching desirable attitudes toward work, how to get along with an employer, or a general principle of mechanics is in relation to an occupation or group of occupations that are of special interest to the student. There is a growing realization that the interests of students in specific occupations or groups of occupations are effective means by which broad, generalized knowledge and skills are learned. Some persons propose that vocational education has more to offer as a way of making educational experiences relevant to students than as a separate body of knowledge to be taught. The Advisory Council on Vocational Education concluded that vocational education is "a teaching technique which may have even more to offer as method than as substance."

A reorientation of vocational education to emphasize general vocational competencies does not require a "general vocational curriculum." The reorientation needed is the realization that broad, generalized knowledge, skills, and attitudes can be, and frequently are, outcomes of educational programs organized by occupational areas. A subject-centered vocational curriculum that accentuates content has

little to offer in contrast to student-centered curriculums in the various occupational categories that highlight the development of competencies applicable to a variety of occupations and at the same time develop technical competencies needed for employment and advancement in an occupational area.

The task for agricultural education is twofold. First, we must insure that programs are available in both rural and urban areas to all who have an interest in and a need for occupational exploration and preparation in agriculture. And second, we must design programs that enhance the development of general occupational competencies in addition to competencies unique to occupations involving knowledge and skill in agricultural subjects.—JRW



Guest Editorial . . .

schools respond favorably to finding that there are planned opportunities for their employees to obtain adult education in specific agricultural and biological science and product knowledge areas?

A rapidly expanding, four-year-old community college recently announced proudly that it had chalked up a "first" by initiating a course of studies to serve the growing need for men with training in both sales and service. Completion of the program will enable students to fill positions in electronics sales, service, maintenance and management. Previously there were separate curriculums in the business and technology divisions of the school. Substitute any of the seven instruction areas in agriculture for the electronics technology and the mix becomes a model.

As you read the article by Dr. J. W. Struck, State Director in Pennsylvania, in this issue you should be able to say that the climate is as favorable in your state for significant steps forward in developing programs that involve other vocational services. The case study in change reported from Quincy, Massachusetts, in USOE Bureau of Research, *New Directions in Vocational Education* (1967), outlines a plan of "realistic training for families of skills" that utilizes first and foremost a method of individualized learning. Its six major categories of generalizable knowledge comprise a basic technology to which agriculture teachers can contribute and from which agriculture programs may draw individual student curriculum components.

Confidently we may predict that terms such as vocational education mix, module, team teaching, and supporting education will grow in meaning and application. As agriculture instructors, curriculum innovators, and administrators, take the initiative by asking qualified persons in other subject fields to share in teaching units in your courses or to enroll certain students in their courses. At the same time, encourage leaders in other vocational services to ask agriculture to provide biological, environmental, and human relationships experiences needed by many of their students. All of us learn to accept responsibility through personal involvement with others.

The Vocational Agriculture Teacher as a Team Member

R. J. AGAN, Teacher Education
Kansas State University



R. J. Agan

Nearly everyone agrees that the Vocational Education Act of 1963 has given more responsibility to the high school teacher of vocational agriculture by charging him with the responsibility of preparing present and prospective agriculturalists (formerly the charge was limited to farmers) for proficiency in agriculture (formerly farming). The question immediately arose from the already overworked teacher of vocational agriculture: "How is this extra responsibility possible?" The writers of the 1963 Act undoubtedly anticipated this type of question when they wisely prescribed that 10 per cent of the funds allocated should be used for research. It was therefore possible to pilot test several innovative ideas aimed at the question of "how".

A TEAM APPROACH

One approach to the task of providing adequate educational experiences for future agriculturalists was to actually enlarge the problem to include all boys and girls who could profit from vocational education and increase the number of teachers assigned to the task. This in effect would mean an all school approach to preparing boys and girls for the "world of work". In rural areas such a program would still be basically vocational agriculture, since agriculture is the vital core of every life and business in such a community.

The basic question evolved was: "Could a teacher of vocational agriculture in a rural high school by teaming with the other teachers normally found in the school, provide adequate educational experiences to prepare boys and girls as a part of a high school curriculum for proficiency in the world

of work?" It was reasoned that the teacher of vocational agriculture in a rural high school would normally find a teacher of vocational home economics who would be an excellent helpmate in the problem since she would also be facing the problem of expanded responsibilities under the 1963 Act. There would also usually be teachers of business subjects, shop and mechanical skills, and communicative skills. By coordinating the efforts of such a group of teachers for only a few hours per week under the direction of a competent and vocationally trained teacher, a total program of vocational education, including agricultural education, would be possible. Also, less work would be required on the part of all the teachers in meeting the vocational education needs of all students.

THE PILOT CENTER

The Kansas State University College of Education and the Kansas State Board for Vocational Education selected the Paola (Kansas) High School as the pilot center for testing this idea. The administration and staff of the high school were interested in the project. Paola is a rural town of some 4,000 residents. Graduates of the high school enter farming and non-farming occupations. In all ways it seemed a typical rural community experiencing the effect of the urbanization of nearby larger centers. Strong programs of vocational agriculture and vocational home economics were the only reimbursed programs of vocational education in the high school. Non-reimbursed teachers of typing and shorthand, industrial arts, health, and guidance were regular teachers of the high school.

In order to test the basic idea some over-staffing was introduced. An additional teacher of vocational agriculture was employed to develop the program and to coordinate and direct the

school-community endeavor in providing the total vocational education program. An occupational survey of community employment opportunities and a follow-up study of recent graduates of the high school was made. These studies were used as a base upon which to build and plan the program.

A NEW COURSE

The first task of the team was to construct a new course to be offered at the junior-year level which was to combine into one series of lessons all of the elements common to the various fields of vocational education. The course was called "Commonalities in Vocational Education". The course was later redesigned and improved in a summer workshop held on the Kansas State University Campus.

Students for the junior-year course, which was taught by the team of pilot program teachers, were those who had completed two years of vocational agriculture, vocational home economics, typing and shorthand, industrial arts, or other vocationally oriented courses. In addition to instruction in the skills common to all employment, such as job application, proper dress, employment laws, labor organizations, safety procedures, habits, and attitudes, students were encouraged to study the details of occupations of interest to them including duties, salary, and future trends. The guidance team member provided test scores and personal data regarding the student's aptitude for such a position.

OCCUPATIONAL EXPLORATION

Students then made application to observe the occupation of greatest interest in one of the businesses in the community. Previous arrangements for such observations had been made by the vocational teacher-coordinator. The

(Continued on next page)

junior students observed the occupation of their choice one hour per day for ten days and counseled with the teaching team member with vocational experience most nearly related to the occupation being observed. The teacher of vocational agriculture supervised the boys and girls in the farm related occupations. Each team member visited the students in his occupational area at least once and arrived at an evaluation of the student's experiences in consultation with the cooperating businessman.

Following this observation experience the students entered a period of self-evaluation concerning their personal relationship to the occupation observed. They also started a study of a second occupation in which they wished to observe. If their first observation experience was satisfactory, a closely related occupation was typically chosen. If dissatisfaction was felt, then a more detailed study of a completely different occupation was necessary. The process of occupational observation was followed four times during the year, two times each semester. After the final observation the student made a selection, in consultation with the team of teachers, of an occupation for his senior year occupational experience program.

OCCUPATIONAL EXPERIENCE

Summer employment was encouraged in the occupation selected for the senior year program. Supervision of summer employment by the team of teachers was planned and functioned in the same way teachers of vocational agriculture are accustomed to supervising the farming programs of students or their placement for farming and/or agricultural experience.

The senior students made application and obtained their own occupational experience job for a minimum

(Right)

This student of vocational agriculture participated in the Paola Program during his senior year as a greenhouse technician. He received instruction both from his employer and the team of vocational teachers.

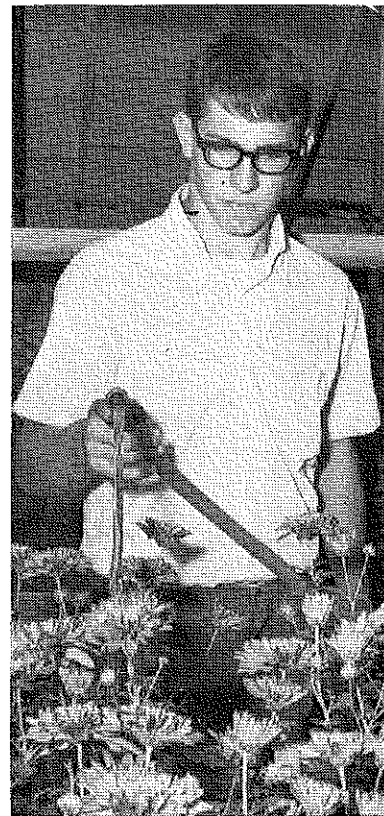


(Above)

This student-trainee learns meat cutting as a part of his occupational experience program. The training station for this student in vocational agriculture is the local grocery. His experience program also includes packaging produce and preparing meats for the display counter.

of fifteen hours per week at one of the businesses approved by the coordinator of the program. This was done in either the spring of the junior year or the fall of the senior year. The advisory council for the program assisted in the location of training stations. An employment agreement including a list of skills to be taught by the employer was signed by the employer, student, parents, and teacher. The salary of the student was set in conference between the student and the employer except where limitations were set by law.

The senior students were enrolled in the regular senior year courses, regular vocational courses, other subjects most closely related to their occupation, and were assigned to one of the teaching



team for advisement and on-the-job visitation. Where related instruction was not available in a regular class, programmed instructional units were used. Periodic formal evaluations were made in cooperation with the employer.

The boys in vocational agriculture who desired to do so continued a supervised farming program. The regular programs of vocational agriculture and home economics gained in strength and enrollment after the beginning of the new program. With careful planning and the increased advisement given, college entrance requirements were met by all students.

SOME OUTCOMES

The program in Paola, Kansas, has been in operation three years. The regular program of vocational agriculture has increased from a two teacher program to three teachers. This does not include the present program coordinator who was formerly one of the non-reimbursed teachers who taught business subjects in the Paola High School. The teaching team members have become increasingly enthused over vocational education and have taken graduate courses designed to help them meet

(Continued on page 9)

A Cooperative Banquet Aids an Unified Vocational Program

E. C. KITCHENS

Agricultural Occupations Instructor

Norman, Oklahoma

The vocational education departments at Norman High School have for the second consecutive year organized a banquet honoring students and employers who participate in the cooperative occupational experience programs conducted by the school. Students involved in the banquet were enrolled in cooperative office education (stenographic and clerical), cooperative office education (data processing), distributive education, vocational agricultural occupational training, and child care aides (vocational home economics).

Objective of the Banquet

The primary objective of the Cooperative Employer-Employee Banquet is to provide an opportunity for the school, the instructors, and students to recognize businesses that cooperate with the school by providing training stations. The banquet also provides a chance to inform the business people, the community, school administrators,

school board members, parents, and others about the programs of vocational education at Norman High School.

Plans for the banquet and the program emphasize the total program of vocational education. Careful consideration is given to information which benefits all of the students involved. Each department has student representation on the committee planning the banquet program.

Program Presented

A unified image is projected to the public by presenting information that has been combined for all programs. For example, there are 122 students in the cooperative programs this year. The total earnings of students based on the first twenty-seven weeks of the 1967-68 school year were \$56,162.51. Students had worked 57,522 hours in 101 training stations. Approximately 59 major skills had been acquired by students.

The program consists of the welcome

address by a student, a response to the welcome by a local businessman, remarks from the superintendent or principal, the introduction of guests, a presentation of the aims and purposes of the cooperative program, and a description of the accomplishments of students.

The banquet is financed by students. Each student invites his or her parents and respective employer and spouse. School board members, administrators, members of the legislator, and other guests are also invited.

There have been many favorable comments on the banquet. Some persons have been impressed by the unified effort involving the five programs in the school. Others have commented on the number of students involved in this type of training.

Other Cooperative Efforts

Each student enrolled in a cooperative program is a member of his or her respective student organization. Office education students are members of Future Business Leaders of America; distributive education students are members of the Distributive Education Clubs of America; the child care aides are members of the Future Homemakers of America; and students in agricultural occupational training are members of the Future Farmers of America.

While sharing thoughts and exchanging ideas about the common elements of the various programs, it was decided that there were several problems that could be approached effectively through a cooperative effort. Many of the teaching units are similar and are taught about the same time during the school year. This provides an opportunity to share resource persons, teaching plans, visual aids, and the

(Continued on page 19)

THE COVER PICTURE

Two agri-business students run protein analysis on grain samples as the technical agriculture instructor observes. The students are members of the agri-business program in feed, seed, fertilizer, and agricultural chemicals marketing in the Area Vocational Technical Division of Cowley County Community Junior College at Arkansas City, Kansas. (Left to right) Scott Braungardt and Rod Marrs, agri-business students, and Richard E. Tredway, Agriculture Instructor. The students receive classroom instruction in technical agriculture and business and distributive education. They also receive on-job training through supervised occupational experience.



Vocational educators at Norman High School, Oklahoma, plan the second annual banquet honoring students and employers participating in the cooperative occupational experience programs conducted by the school. Seated from left to right are: John Musser, distributive education; Mrs. Mary Elliott, office education (data processing); Mrs. Ellen McKown, office education (stenographic and clerical); Mrs. Betty Hiss, home economics (child care aides); and E. C. Kitchens, vocational agricultural occupational training.

Encouraging and Fostering Innovation

GEORGE L. LUSTER, Teacher Education
University of Kentucky

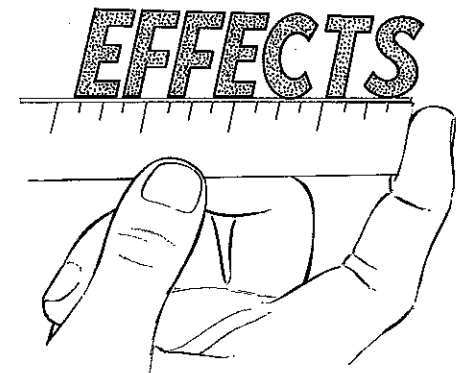
Change is the important point in this article. What are the factors in business and industry that bring about change? Competition, cost of production, shortage of workers, and need for volume are often listed. Outside the economic world a recognized emergency, a crisis, or a great need may force change and innovation.

MOTIVATION IS NECESSARY

But we in education do not often feel the needs which force innovation or change to the same extent as those in the business world. How often do we in agricultural education see educational problems as a crisis or extreme need? How can we effectively stimulate innovation? How can we use innovations in agricultural education to improve vocational programs?

We may feel that agricultural education needs to change, but we also feel it is here to stay. While we will admit that we can always do better, we believe agricultural education has done a good job and its continuing to do good work. This belief does not tend to foster innovation. An intense desire to do better is at the heart of most innovations. Unless we have this desire, innovations are not likely to be brought about.

MEASURING EFFECTS



The effects of innovations in education are difficult to measure.

Another factor that tends to make innovations difficult in education is the problem of measuring their effects. In business the effects of innovation are often easier to evaluate because innovations usually result in a change in a product or in economic returns. These changes are tangible and can be measured. Specific questions can be asked and definite answers given.

The outcomes of innovations in agricultural education are difficult to evaluate because their ultimate results should be desirable changes in the behavior of people. Changes in behavior — in attitudes, in understandings, and in skills and abilities — are not easy to measure and evaluate. In agricultural education changes in the behavior of students as a result of our teaching are difficult to ascertain. Then it is perhaps even more difficult to evaluate the results of innovation in terms of desirable changes in student behavior.

It should be emphasized that innovations are most likely to occur when people in agricultural education are intensely motivated to develop and try new ideas, and when these people have the ability and know-how to evaluate the effects of such innovations.

ENCOURAGING INNOVATION

The following seem to be important in encouraging and fostering innovation.

• We must admit that we do not have all the answers and that whatever we do, as good as it may be, can be done better. The idea that we "have arrived" must be discarded. We live in a day of rapid change, and simply to remain the same will result in our being swept aside by the tide of change. We must continually search for better ways of doing things. Championship athletic teams do not depend upon the same players to win year after year. They are constantly trying to improve — to

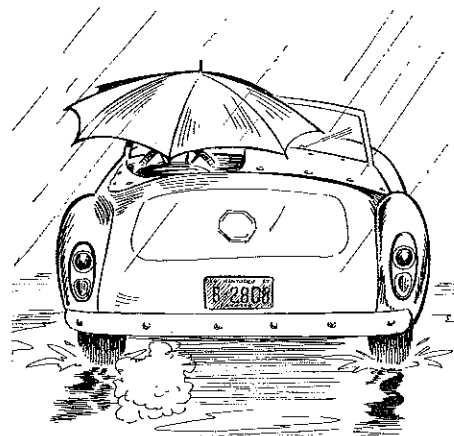


George L. Luster

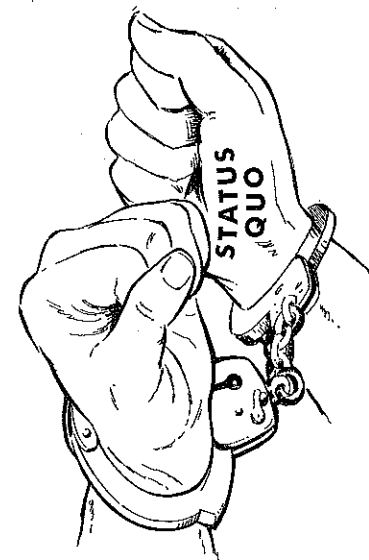
Dr. George L. Luster is Director of the Instructional Materials Laboratory, Division of Vocational Education, University of Kentucky. This article is from a presentation made by Dr. Luster to the Agricultural Education Division of the American Vocational Association, December 1967.

make the good even better. Unless we have the attitude that things can be improved, we will stop innovations before they have a chance to develop. We must have a favorable attitude toward innovation. Everything that we do first exists in our minds as an attitude. The first step in fostering and encouraging innovation is to develop an open attitude toward change.

• A climate of freedom to act is essential. The administrator, manager, supervisor, or director who keeps a tight grip on everything that is done will not encourage innovation. Persons must work in an atmosphere of freedom if they are to be innovative.



A crisis will cause innovation.



To be innovative the hold of the status quo must be broken.

• The security of the status quo must be discarded if innovations are to be fostered and encouraged. Innovations are severely limited by the failure to try something new because of insecurity. None of us is as secure and comfortable with the unfamiliar as with the familiar. But if innovations are to be fostered, we must not let the insecurity of the unknown or new dominate our actions.

• Although freedom of action and a favorable attitude toward change must exist before many innovations will take place, these factors alone do not guarantee change. Those who give direction to and are concerned with leadership in programs in vocational agriculture must be willing to give time, counsel, advice, and help to those concerned with innovation. More than a neutral or permissive attitude toward change is needed. Support may be required through the allocation of funds, the providing of facilities and equipment, and the readjustment of staff and teacher time in order to get the job done.

• Innovations should be cooperatively planned and supported by all who are concerned with carrying them out. Without the cooperative and enthusiastic support of all persons involved, innovations do not have much chance of succeeding.

• Innovations should be encouraged only when they seem, in so far as possible, educationally and philosophically sound. The idea should seem good; it

should show promise. However, it must be recognized that not all seemingly good and promising ideas succeed. None the less, it is very unlikely that an idea that appears unsound to the persons involved in trying it will succeed.

• Innovations should be planned and carried out by the most capable persons available. Only well-qualified and highly successful people should try innovations. It has been persons with creative or exceptional ability who have developed the things upon which progress is built.

• Do not accept the false idea that all change is good. Change itself is just as likely to be bad as good. To change in the absence of research, sound theory, logic, and study is to follow hunch, superstition, prejudice, or chance. Change for the sake of change is not likely to improve anything.

Innovations require a high level of mental activity. A person is not innovative by just being different. Innovation requires creative effort — an effort to develop something that is new and better.

A PROCESS

It should be emphasized again that most worthwhile innovations, unless they come about by accident or chance, develop in stages. The innovation first begins as an idea. Then the objectives of the innovation are developed and defined. Finally a new and different way to attain the objectives is designed, tested, and evaluated. The innovation that seems worthwhile will become more widespread. Finally after extensive use and evaluation, it becomes accepted or standard procedure.



Innovations require creative thinking, the highest form of mental activity.

The drawings for this article were prepared by Tom Vantrese of the Instructional Materials Laboratory for Vocational Education, University of Kentucky.

The Vocational Agriculture Teacher as a Team Member

(Continued from page 6)

certification requirements as a reimbursed vocational teacher.

The local businessmen are increasingly glad to be a part of the high school program and offer without cost opportunities for occupational exploration and occupational experience, the latter at a cost to them in student salaries. Much instruction in the program is given without cost, such as the butcher in the local market who teaches a senior boy in the program how to cut meat and the skills of salesmanship in presenting it to the customer.

The zeal of the students and parents for the program is illustrated by the need during 1967-68 for two sections of the junior-year class in "Commonalities in Occupations" due to larger numbers of students electing to enroll in the program. Although there is no empirical evidence indicating reduction in the number of dropouts, there is agreement among school administrators and the team of teachers that many potential dropouts are still in school as a result of the program. Also, the junior year selection of occupations has been realistic in that very few senior students have needed to change occupations during their senior year experience program.

VALID PRINCIPLES

The same valid principles of superior vocational agriculture brings about desirable results in all vocational education. Teachers of successful programs of vocational agriculture should be encouraged to share these principles of vocational agriculture to enlarge the program to include not only those boys and girls interested in agricultural occupations but those who have an interest and who can profit from vocational education for any worthwhile occupation.

An Instructional Program in Buildings and Grounds Maintenance

ROBERT W. WALKER, Teacher Education
University of Illinois
and

KENNETH L. CHERRY, Agricultural Occupations Instructor
Hollidaysburg, Pennsylvania

The Hollidaysburg Area High School, a Pennsylvania suburban school with a large enrollment in agriculture, has expanded the curriculum in agricultural education to include a new two-year course of study designed to prepare students for the occupations in grounds and buildings maintenance.

The new curriculum offering is popular with tenth-grade boys when they choose courses for their last two years of high school. The 1967-68 class of 20 students was selected from 54 boys who desired to enroll in the grounds and buildings maintenance course.

A Pilot Study

The new curriculum is the result of a pilot study initiated by the Hollidaysburg School District and financed in part by the Division of Vocational-Technical Education, Pennsylvania Department of Public Instruction. The primary concern of the study was to focus on an emerging agriculturally related occupation and develop a course of study specifically designed to prepare boys who desire to enter the occupation or a closely related occupation. The emerging occupation identified in the study was supervisor of grounds and buildings maintenance.

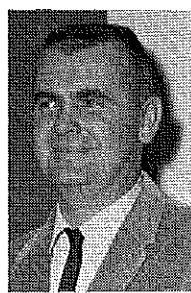
As the study progressed, it was discovered that a student's involvement in course content such as electricity, plumbing, refrigeration, and landscaping, motivated some of the students toward specialized areas of maintenance with some students desiring to become technicians instead of supervisors. Others chose to perform maintenance duties of a custodial nature.

Copies of the report of the "Grounds and Building Maintenance Pilot Project" are available at \$2.00 per copy from Kenneth L. Cherry, Hollidaysburg Area High School, Hollidaysburg, Pennsylvania 16648



Robert W. Walker

At the time the pilot study described in this article was conducted, Dr. Robert W. Walker was a teacher of agriculture and Chairman of the Division of Occupational Education, Hollidaysburg Area High School, Pennsylvania. Mr. Kenneth L. Cherry is currently a teacher of agriculture and Vocational Coordinator at Hollidaysburg Area High School.



Kenneth L. Cherry

In short, the course of study provided for instruction in knowledges and skills needed by students who chose either supervisory, technical, or custodial jobs. Each student has an opportunity to choose a maintenance job compatible with his interest and capability.

Why should the agricultural department offer a course to train supervisors of grounds and buildings maintenance? Primarily because the position and related positions do exist, are in short supply, and very few educational institutions are doing anything about the need. Because of the grounds phase of the instructional program the position should be classified as a related agricultural occupation.

Staff and Facilities

The agricultural department at Hollidaysburg employs two fulltime teachers. Both men have a full teaching load with the regular program. The pilot study required that an additional teacher be hired to release the department chairman to spend three-fourths of his time on the project and one-fourth of his time serving as chairman of the Division of Occupational Education.

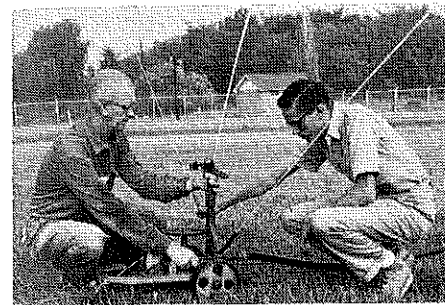
With the addition of the new course the classroom and shop had classes scheduled six periods each day of the week with the last period set aside for student conferences. The facility was used 100 per cent of the time. Needless to say that the administration was

related with the department's use of space. The pilot study instructional program was conducted in the agricultural department classroom and shop for two periods daily (48 minutes each), five days per week. Each grading period was divided equally between classroom and shop activities. The classroom and shop arranged and equipped for the regular agricultural occupations curriculum served to meet most of the instructional requirements for the pilot program. A small number of specialized tools were purchased.

Advisory Committee

Advisory committees are used by many schools to assist in developing and maintaining strong agricultural programs and no exception was made with the pilot study. However, the committee was more functional than many, in fact, the group was called the advisory work committee and the committee lived up to its name. Members selected for the work committee were educators and lay people with a wide variety of professional and vocational competencies in the occupational areas of the study.

Members of the work committee met monthly in three-hour sessions and were compensated for their time and mileage. The work committee was divided into three groups: supervisory, grounds, and buildings. Each group was assigned the task of determining

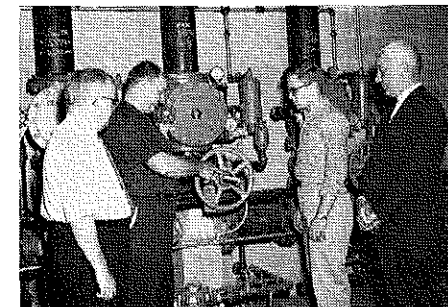


(Right)

The high school principal and the Sears store manager observe as the store's maintenance engineer acquaints a student-trainee with the fire control system in the store.

(Left)

A student-trainee and the grounds and buildings supervisor inspect a field irrigation sprinkler.



the key knowledges and skills that should be taught in each area.

Course of Study

The major units making up the course content resulted from analyzing the work tasks of the supervisor of grounds and buildings. In addition to the three areas for which the advisory committee developed key knowledges and skills, several other areas were identified and included in the course of study. These units included building construction and renovation, basic mechanical skills, construction of individual projects, and vocational and educational planning. The two-year course of study includes the following units of instruction. Safety is integrated with each instructional unit.

- Ground Maintenance
 - Soils and soil fertility
 - Landscape planning
 - Lawns, flowers, shrubs, and trees
 - Exterior structures and facilities
 - Turf and grounds equipment
 - Care and management of grounds
- Buildings Maintenance
 - Work schedules
 - Operational tasks
 - Floor types and care
 - Care of and use of maintenance equipment and materials
 - Purchasing maintenance equipment and materials
 - Maintenance and inspection of water and sewage facilities
 - Roof types and care
 - Heating and air conditioning
- Grounds and Building Maintenance
 - Human relations and supervisory skills
 - Building construction and renovation
 - Basic mechanical skills
 - Individual projects
 - Vocational and educational planning

Most of the instructional content was not new to the teacher of agriculture. Resource specialists were called upon to assist in teaching instructional areas not familiar to the teacher. Considerable free resource materials were available for instructional use. The school served as a laboratory for teaching about maintenance procedures. Students performed maintenance functions in and around the building.

Work Experience

At the end of the first year the students were placed at a training station for a six-weeks summer work experience. The work experience training stations had been located in the spring prior to the summer placement. Forty-four prospective stations were located and the person in charge of maintenance in each was interviewed. Twenty-five administrators were willing to cooperate with the school in assisting with the education of maintenance trainees. Each boy had an opportunity to select the training station that was compatible with his interest and capability. The grounds and buildings training stations were classified as commercial, institutional, industrial, and recreational.

Each boy was supervised at each station by the person in charge of maintenance. The supervisor was charged with the responsibility to instruct the trainee for one hour each day for which the supervisor was compensated by the school.

Student Organization

The boys were invited to join the FFA and several did join but most of them were interested in having their own club. They voiced the opinion that their occupational choice was too far removed from a farming career to call themselves future farmers. A special

club, the Grounds and Buildings Maintenance Club, was organized for the group.

Placement of Graduates

Upon the completion of the two-year course conducted as a pilot study, each student was counseled to determine his plans for the immediate future. Of the 15 boys completing the course, five are continuing their education (three in college and two in trade school); three entered the armed services; and seven accepted employment related to grounds and buildings maintenance.

Part of Regular Program

Now the maintenance course is a part of the regular curriculum in vocational agriculture and a new class of 20 students was selected for the 1967-68 school year. An attempt was made to select boys interested in maintenance of grounds and buildings who possessed a high interest and aptitude for mechanics. Hopefully, the boys will benefit more from the course of instruction and will acquire the key knowledges and skills that will classify all participants of the course as first-rate grounds and buildings maintenance personnel.



Cooperation in Vocational Education

JOHN W. STRUCK

State Director of Vocational Education
Harrisburg, Pennsylvania

Most of us do not have a hobby of looking behind us at the things that have happened in vocational education. With things changing as rapidly as they are, most of our energies are taken up with problems of the present and planning for the future.

A brief look at programs of just a few years ago will reveal that changes took place rather slowly. Money and facilities for new types of programs were relatively scarce, and the problems of administration and coordination were simplified in comparison to those facing teachers and administrators today.

THE CHANGE

Federal legislation prior to 1963 allotted funds to the states by vocational area which encouraged the development of programs in agricultural education, home economics, trades and industries, and other areas of vocational education. The Vocational Education Act of 1963 changed this. Instead of encouraging each area of vocational education to develop programs separately, this legislation does just the opposite — it encourages cooperation among all areas of vocational education in the task of preparing people for the work force of today and tomorrow. The new legislation encourages what is

often referred to as occupational mixes in which skills of one area of vocational education are brought to bear upon the problems facing another. With the many changes that have taken place in occupations in the past few years, a great many of our training programs should include skills and knowledges from various areas of both vocational and general education.

For example: What agricultural training program should not involve the knowledges and skills of marketing and merchandising? Or the basic knowledges and skills of accounting and keeping of ledgers? And what area of distributive education should not include knowledges and information about the various products which are to be distributed and sold?

This points up the simple fact that the coordination of various areas of vocational education is a very important problem and a challenge for today's and tomorrow's programs. Considerable attention should be placed upon it.

NEW PROGRAMS IN AGRICULTURAL EDUCATION

All areas of vocational education have had their critics as well as supporters. Agriculture is no exception. Cries of outdated programs, outdated equipment, old methods, and living-in-the-past have been leveled at vocational education programs from time to time. Most of these criticisms come from those who generalize from one or two programs but who in fact do not really know the truth about how

programs have improved, changed, and kept up to date.

For example, a recent study in Pennsylvania identified the number and kinds of agriculturally related occupations in the state and the number of trained workers needed for each. This resulted in our agricultural programs being brought up to date thereby providing training for present and future labor market needs. It was found that for every three persons needed in Pennsylvania in production agriculture, eight more were needed in related occupations. This kind of information has given our vocational education administration and teachers facts on which to base changes in programs and facilities.

It takes time to make changes and to see the results of changes through graduates who obtain employment. I am thoroughly convinced that critics of programs of vocational education just have not taken a good, recent look at programs that are in operation or programs which are being developed.

COOPERATIVE EFFORTS

We must make more effort to coordinate the teaching abilities found in the various areas of vocational education. For example, most agriculture teachers cover an extremely wide range of activities in their institutional duties. Would it not make some sense to explore the advantages of having someone from the business education department teach a series of brief and simplified lessons on principles and practices of keeping ledgers? Would it

"We must make more effort to coordinate the teaching abilities found in the various areas of vocational education."



John W. Struck

This article is from an address presented by Dr. Struck to the Agricultural Education Division, American Vocational Association, during the 1967 convention in Cleveland, Ohio, December 1967.

"The coordination of the various areas of vocational education is a very important problem and challenge. Considerable attention should be placed upon it."

not make some sense to explore the advantages of having someone, perhaps from the same department, develop a short course or unit in economics?

Would it not make sense to have the skills of the distributive education staff used to advantage in teaching skills of marketing or a unit on advertising?

Would it not make sense to explore the wider use of the trade and industrial education faculty to teach some of the maintenance and repair specialties — specialties in which agricultural education teachers notoriously have somewhat limited training?

Might it not also be advantageous to have the agriculture teachers, who admittedly have developed tremendous skills in parliamentary procedure, group and conference leading, and in speaking, develop short units for teaching boys and girls in other areas of vocational education?

These kinds of cooperation among teachers plus changes in scheduling of classes should leave the teacher of agriculture far more time to devote to the specialties at which he alone is proficient — specialties which deal primarily with agriculture and for which he is particularly well prepared.

Let me cite just a few more examples. I cannot recall any trade and industrial education programs where they take time to teach boys how to meet the public, how to express themselves orally (such as a foreman or a service manager must do), or a program where they give the boys training and experience in explaining work procedures for jobs to be done by others. Such skills are vitally needed for any of those who plan to go into leadership roles in many industrial occupations. Agricultural education, to the best of my knowledge, is about the only area of vocational education which does an excellent job in teaching these topics. Why not use the skills of agriculture teachers to teach several short units in this area of instruction?

Similarly, I think it is a very rare agriculture teacher who has had an opportunity to develop real in-depth

proficiency in trouble shooting and maintenance of diesel engines, fuel injectors, carburetion, voltage regulators and similar subjects. Many get pretty good — but is pretty good good enough for today and tomorrow? Why not use the best teacher in each specialty to give students the greatest benefit of the skills which we have in our schools today?

IMPROVING COORDINATION

A close look at programs in all areas of vocational education will reveal that any joining of teaching efforts and coordination between one area of vocational education and the other may be largely credited to the resourcefulness and initiative of the particular teachers in the school where this takes place. By and large, administrators and supervisors have not taken the initiative to achieve the occupational mix and the coordination and cooperation between teaching areas of vocational education that is desirable and much needed.

I wish to point up the importance of the problem and to urge greater efforts be spent on cooperation in vocational education. Most administrators simply do not have the time or have been unable to take the time to devote their efforts toward improving existing programs. Administrators tend to turn a class over to a competent instructor and almost forget about it unless they hear of some problems developing. The teacher of agriculture is left to shift for himself. The home economics teacher, the business education teacher, the dis-

tributive education teacher, and the trade and industrial teacher, all of whom are experts in their particular field of specialty, are left to shift for themselves, to develop programs to the best of their ability, and to conduct the best educational program that they can manage by themselves.

This method of operation is no longer sufficient to produce effective programs. We have many good programs in our schools today. We do not have a sufficient number of outstanding programs. It is through the purposefully pooling of efforts, teaching abilities, specialties, and knowledges and through the coordinated planning of educational programs that we can develop outstanding programs in vocational education.

SOME SUGGESTIONS

Administrators of vocational education need to ask each of their teachers to go over carefully the course outlines which they have developed in an effort to identify areas or units to which some other teacher could perhaps bring greater experience and training. At the same time teachers should also identify their areas of specialty which might possibly be incorporated into the educational programs of other areas of vocational education.

Following this, joint meetings need to be held to explore the possibilities of occupational mixing and cooperation between teachers and programs. I see tremendous potential in this technique of bringing together joint energies and concerns to improve curriculum and educational programs.

I urge you to set aside some time for careful consideration of the task of achieving coordination and exploring joint teaching efforts in all areas of vocational education. Let's spend more time on improving programs through joint efforts of all of the staff of the school.

Themes for Future Issues

August	Adult Education
September	Agricultural Education for Persons with Special Needs
October	Agricultural Education in City Schools
November	Supervision in Agricultural Education
December	Supervised Occupational Experience in Agricultural Education



W. Howard Martin

Food Handling Technology Programs in Vocational Agriculture

PHILIP G. STILES

Associate Professor of Poultry Science

and

W. HOWARD MARTIN, Teacher Education

University of Connecticut



Philip G. Stiles

Food handling technology is both the conglomeration of the food sciences plus the marketing specialization of the food business. Taken as a whole it represents one of the largest and oldest of man's enterprises. Yet, taken as an academic area, it is one of the youngest disciplines and has been only recently introduced in a few vocational schools. This is somewhat surprising since food retailers employed over 1,500,000 persons in 1967; food wholesalers employed 500,000; food processors employed 1,800,000; and another 2,000,000 worked in the food services.¹ A recent survey indicated that fewer than 100 vocational schools offered programs related to food handling technology.² From ten to twenty positions are available for every person who graduates in this field.

Formal Training Needed

For the most part a void exists in the formal training in food handling acquired by most employees in the food industries. A recent study in Connecticut indicated that the average number of years of formal schooling completed by food store personnel was 11.5³. The study also showed that the lack of necessary education and training was the greatest single obstacle to job advancement by food store employees.

Skills Needed for Advancement

The food trade demands that em-

¹Monthly Labor Review, Vol. 90, No. 12, Bureau of Labor Statistics, U. S. Department of Labor, 1967.

²SuperMarket Institute, Inc., 500 North Dearborn Street, Chicago, Ill.

³Stiles, Philip G., Martin, W. Howard, and Lalley, Richard. "Curriculum in Food Handling and Distribution." Connecticut Department of Education, Hartford, 1967.

Table 1
Areas of Instruction for Vocational Training in Food Handling

Subject Area	Degree of Need Indicated by: ^a		
	Food Store Managers	Other Food Store Personnel	Vocational Teachers
General Education			
Mathematics	4.47	4.40	4.53
English	3.80	3.71	4.33
Economics	3.54	2.42	4.00
Government	2.13	2.00	3.30
Physics	1.49	1.49	1.89
Chemistry	1.43	1.41	2.52
Business and Management			
Merchandising	4.77	4.65	4.50
Business management	4.68	4.68	4.50
Marketing	4.38	4.41	4.13
Accounting and bookkeeping	4.45	4.10	4.23
Salesmanship	4.32	4.17	4.13
General retailing	3.66	3.33	4.13
Secretarial skills	2.31	2.16	2.45
Food Group			
Sanitation	4.57	4.69	4.50
Food retailing	4.58	4.56	4.43
Food quality	4.53	4.58	4.17
Food identification	4.55	4.53	4.07
Meat handling and cutting	4.45	4.31	3.26
Food processing	4.12	4.29	3.76
Social Group			
Public speaking	4.22	4.04	4.26
Psychology	3.38	3.25	3.66
Sociology	2.66	2.86	3.03
Work Experience			
Placement before graduation	3.92	3.92	4.31
After graduation on-the-job training	4.79	4.59	4.11

^aScale: 5=Great need
3=Moderate need
1=No need

Source: "Curriculum in Food Handling and Distribution." Connecticut Department of Education, Hartford, 1967.

ployees develop certain skills if they are to advance. Meat cutters and bakers normally practice as apprentices before advancement into skilled positions. Produce, grocery, and frozen food managers must be knowledgeable of their products as well as being able merchandisers. Accounting and inventory skills are also requirements for advancement. Clerks and stockboys must be adept in pricing, shelf stocking, product control, and sanitation.

In food manufacturing, plant quality control technicians require vocational training if they are to assure the public that their products meet established standards. Production foreman, salesmen, and warehouse workers must handle their products with skill and efficiency utilizing complex equipment and computerized methods.

Program of Instruction

The basic requirements taken by all students are also needed by food handling students. These establish the core around which applied and vocationally related courses may be added. Table 1 illustrates the relative need for both core courses and applied courses. Courses having a rating of 3 (moderate need) or higher should be included in the curriculum in addition to the basic requirements. High ratings are given to merchandising, business management, sanitation, on-the-job training, food retailing, and food quality. These are the areas directly associated with product sales, profits, and consumer image. Thus they are areas of knowledge and skill development that managers seek when promoting personnel to more responsible positions. The vocational food handling student will have this background and will surpass those persons lacking it.

Table 1 also compares the course need ratings made separately by store managers, other food store personnel, and vocational teachers. For the most part differences are minor, but some differences of opinion do exist. Vocational teachers tend to rate the basics such as science, English, and government higher while business oriented persons rate applied courses higher.

Continuing education for adults and on-the-job training for new employees are paramount to job satisfaction, security, and further advancement.

NATIONAL SEMINAR

AGRICULTURAL OCCUPATIONS PROGRAM DEVELOPMENT IN AREA VOCATIONAL SCHOOLS

Purpose: To expedite the development of expanded and enriched programs of vocational agriculture through area schools with major emphasis at the high school level.

Program Emphasis: The following areas will be emphasized:

- A rationale for offering agriculture in the area vocational school.
- Articulating the area agriculture program with other agricultural education programs.
- Choosing appropriate curricular and course offerings.
- Guidance of area school students, including placement and follow-up.
- Facilities and equipment needed.
- Qualifications and selection of faculty members.
- Providing occupational experience.
- Evaluation of programs.

Consultants will be available to make presentations and to meet with committees that will develop recommendations for each area of the program. A day will be spent in visiting three area schools that are in operation in Northwestern Ohio.

Date and Location: September 16-20, 1968, at Bowling Green State University, Bowling Green, Ohio

Participants: The State Supervisor of Vocational Agriculture in cooperation with the State Director and Head State Teacher Educator will nominate from one to four participants from each state. Approximately one hundred persons will be selected from throughout the nation. Through a grant from the U. S. Office of Education to The Ohio State University, each participant will be supported to the extent of \$75 for subsistence in addition to travel being paid on the basis of a round trip, air tourist, tax exempt fare.

For Additional Information: Additional information concerning the Seminar may be secured from:

Dr. Ralph E. Bender, Project Director
The Ohio State University
Department of Agricultural Education
2120 Fyffe Road
Columbus, Ohio 43210

The program should include a means by which further study and class participation can be achieved after graduation. Evening classes, special demonstrations, occupational bulletins, and visiting specialists are possibilities for accomplishing this training. School offerings can frequently be meshed with slack season employment where such routinely exist each year.

Summary

Vocational agriculture curricula may offer several areas basic to food handling technology. These include identification of fruit and vegetable varieties and their seasonal availability, meat cutting and grading, poultry and egg grading, quality control, and sanitation. Vocational agriculture teachers conducting a food handling program need to be well versed in these areas plus have a knowledge of bacteriology, food preservation, and marketing. Discussions on food production, processing, and wholesaling fit well into the agricultural area.

An Experimental Program —

COOPERATIVE VOCATIONAL EDUCATION

C. DUANE PATTON and LOWELL F. HILLEN

Central High School
Champaign, Illinois

Numerous authorities in education and social science throughout the United States consider bonified occupational experience to be socially meaningful regardless of the kind of task a student performs. This idea is the focal point of an experimental cooperative vocational program initiated at Central High School, Champaign, Illinois.

COOPERATIVE VOCATIONAL EDUCATION

Cooperative Vocational Education is a program combining the agri-business, distributive education, diversified occupations, food services, and office occupations programs. Instruction in the common elements of the program — personality development, money management, job application, labor issues, vocational planning, and similar topics — is presented by the coordinators of the various occupational areas working as a team. This same team effort is utilized in the instruction of students and in the placement of students at their training stations.

The cooperative vocational education program incorporates the vocational departments in the school into a combined program yet retains separate classes for specialized training. Students enrolled in the program attend a half-day of school, take one job-related course and three other courses, and are assigned one-half day to a training station in a local business firm. Employers and other qualified businessmen are often asked to participate in the appropriate specialized areas as resource persons.

All job-related classes are scheduled at the same hour, thereby allowing flexibility in scheduling. Scheduling for special interest groups is done on a daily or weekly basis. Examples of special interest groups include students interested in grooming and personal hygiene, automation, interviewing, and educational planning or students who



C. Duane Patton

C. Duane Patton is Chairman of the Cooperative Vocational Education Experimental Program at Central High School, Champaign, Illinois. Lowell F. Hillen is the Agricultural Occupations Instructor at Central High School and is the teacher-coordinator for agri-business on the staff of the Cooperative Vocational Education Program.



Lowell F. Hillen

need special instruction in the use of the telephone, cash register, or other machines. Scheduling for instruction in the vocational areas — agri-business, distributive education, diversified occupations, food services, and office occupations — is on a long-term basis.

AGRI-BUSINESS IN THE COOPERATIVE PROGRAM

The vocational interests of the agri-business students enrolled in the cooperative vocational program are diversified and vary from agricultural mechanics to ornamental horticulture. Emphasis is placed on articulation of the program with post-high school experiences related to high school instruction. Special instruction geared to the interests of the agri-business students is provided as follow-up on topics presented in large group sessions attended by all students in the cooperative vocational program.

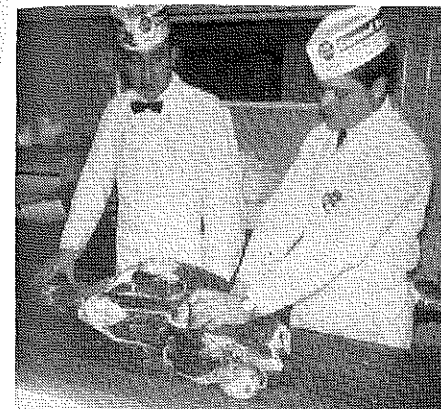
Agri-business students have varied work experience programs. Some students are released in the afternoon for two class periods. If they wish to take more academic subjects, they may do so and obtain work experience after school, on Saturdays or during the summer. Such a program is flexible to meet the needs of college-bound students as well as those students who anticipate some type of post-high school education.

OPERATION OF THE COOPERATIVE PROGRAM

At the beginning of the program three years ago, the staff agreed that it was paramount that the program be flexible in the use of student time and that assignments and activities be based on individual needs, interests, and abilities of students. These principles were difficult to implement due to the traditional orientation of the staff. Each of the staff had several years of experience in their area of vocational education. The colleges from which the staff had graduated had given lip service to flexible pupil planning but in fact called for lock step instruction in each particular area of vocational education. Students in the cooperative vocational programs are still grouped, after three years, according to vocational areas.

Team Teaching

Team teaching in the cooperative vocational education program is becoming more relevant and effective. We are not as concerned about noises in the hall when we schedule students during the middle of a regular period into a large or reorganized group. We are not tied as closely to the bell system as we were three years ago. We are currently thinking in terms of a larger team of teachers than originally



(Left)

A trainee in meat cutting is supervised by the store manager.



(Above)

One agri-business student enrolled in the Cooperative Vocational Education program works as an agronomy assistant for Illinois Foundation Seeds.



(Left)

An ornamental horticulture student enrolled in the Cooperative Vocational Education program works under the direction of his supervisor.

planned. The original concept called for the team of teachers to be made up of the vocational staff regularly assigned to cooperative education. We are finding that the term "coordinator" is a more correct definition of the duties of the staff. We have successfully coordinated the involvement of persons in physical education, English, and guidance to a much greater degree than generally is found in traditional vocational courses.

Utilization of the services of the school's psychologists is more prevalent than at the beginning of the program. Our experience shows that the less experienced coordinators attempt to "save" all students with their own "special understanding and professional skill" rather than calling in a specialist from some other service in the school system. The more experienced coordinators are realistic enough to know that they are less likely to fail in producing a well trained worker if they can enlist as many services as possible. The team teaching approach

makes available to all a greater depth in experience in a shorter period of time.

Professional Growth of Staff

To assist the staff in professional growth, a one-hour staff meeting is held each week. This in-service teacher education program deals primarily with the most immediate problems. Consideration is given also to techniques which might facilitate teaching and a candid look is taken of the current program and its future development. From time to time other staff members in the school district and persons in the community are brought in to discuss special topics. A value of the in-service teacher education program is that it brings teachers face-to-face in considering problems and promotes better understanding of the total field of vocational education as well as better staff relationships.

The team teaching staff attends summer workshops as well as in-service training programs throughout the

school year. For example, the agri-business teacher attended a seminar conducted by the Illinois Department of Labor, two staff members attended a workshop on micro teaching, and three of the staff have visited special projects in other schools.

The Summer Program

The cooperative vocational program conducted during the summer allows a new staff member to become acquainted with the operation of the program with a limited number of students. This allows for follow-up and study of progress in detail which is not possible during the school year because of larger enrollments. The students who are most selective and students who might be difficult to place in proper training stations benefit from the special attention they receive in summer school.

Student Selection and Placement

Traditional programs of vocational education have been restrictive and neglect the capabilities of students and teachers. Traditional programs demand a commitment to a vocational field by the student before he has had an opportunity to explore the world of work. Three years ago we proposed that any student who desired training in a cooperative program would be admitted if we could find a business willing to cooperate. In other words, all screens which had kept students out were to be discarded. As one might expect, many objections were made and all kinds of dire consequences were predicted.

One of the reasons for screening students before they enter the cooperative vocational education program is that the image of the school must be maintained while the students are working in businesses in the community. Experience with the program indicates that when a careful evaluation of the training station is accomplished and matching of students' capabilities to training stations is made judiciously, then progress of students at training stations is in a positive direction.

Coordinators have found that if they do not falsely represent the student-learner to the employer when placement is arranged, little dissatisfaction on the part of the businessman with the student is apparent. If the odds of success on the part of the student in

(Continued on page 19)

A New Term: Agrarian Occupations

ROBERT W. RICHMAN
University of Idaho

Surely the public image of agriculture has been influenced by the research of recent months. A changing image shows up, for example, in conversations with businessmen. However, we also see much disbelief and doubt. Therefore, we still have a distance to go. Perhaps we can yet improve the direction of change just a bit.

The general feeling might be described as an awareness that agriculture may be more important than has been realized. But there is also the feeling that no one is presenting information to define the importance of agriculture. The public is aware of the fact but not of the degree. Those of us who are in contact with research in the field are aware of the degree. Perhaps we do not see why the public does not have the correct picture. A number of factors can be discovered which might contribute to this imperfect image.

Recent studies have reported a definite increase in off-farm occupations, especially those involving contact with the public and those with potential for managership. These data have come from businessmen and sometimes from workers. This research has had some tendency to upgrade the prestige of the field. It has to some extent stirred interest among students and prospective employees.

Multiple Skills and Functions

One difficulty of the research efforts in presenting the importance of agriculture has been the confusion as to the extent and kind of background sufficient to classify a job as agricultural. A recent Idaho study found evidence that the question of extent is not very much to the point when identifying agricultural occupations. Although the study recognized and

categorized three different degrees of relationship of occupations to agriculture, it revealed that the important fact was agricultural relation not the specific extent. Employers changed their requirements as to extent of relationship needed depending on the availability of workers.

Significantly, the Idaho study indicated shortages of agricultural workers needing *business or communications* skills and of *sales personnel* with agricultural background. The point of this has not been stressed in the literature. The fact of dual skills and functions is not apparent to the public.

Information Gap

Even more significant is the promise hidden in all this. Persons working in occupations with some relationship to agriculture have the responsibility for the image of the business enterprise in addition to the responsibility of performing tasks. This gives perspective to the great shortage of workers who have ambitions for a permanent career in agrarian fields with a supervisory or management potential. In fact, the shortage of personnel with qualifications for advancement into management is becoming acute. Such shortages in a field of relatively good advancement and pay opportunities is clear evidence of an information gap and leads to the conclusion that agrarian employment needs to be more strongly described and published.

Occupational Emphasis

Another significant finding of the Idaho study is the expressed belief of employers that there should be more emphasis on trade-school curricula and a return to more expression of respect for careers in skilled fields. The evidence suggests a need for training pro-

grams which cross two or more vocational fields and which extend to post-high school levels.

This picture is consistent with the fact that at least 80 per cent of the students in school are best fitted by interest and aptitudes for careers other than the professions. The actual job structure of society has a similar ratio. In terms of curriculum planning, this means that the majority of high school graduates will seek further education in trade schools or junior colleges where they find practical courses oriented toward trades and business. For example, study of student preferences in one area of Idaho showed a majority of high school students desired trade-technical schooling. This is counter to the opinions of most school administrators who have claimed decreased interest in traditional vocational programs. Perhaps the traditionalism is the problem.

Census Data Inadequate

A very important factor affecting the image of agriculture is the industrial reports largely based on Bureau of the Census data. Most if not all of the off-farm workers are lost within other categories in the census reports. This is to say that off-farm workers are included in seven of the ten "non-farm" categories. Idaho census reports



Robert W. Richman

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provide a detailed breakdown from which we can determine the number of agrarian workers among the categories listed as technical, managers, clerical, sales, craftsmen, operatives, service workers, and laborers. Based on 100 on-farm workers in 1950, we have approximately the following employee data including estimates for 1970:

Workers	1950	1960	1970
On-farm agriculture	100	75	65
Off-farm agriculture	20	35	65
Total agrarian occupations	120	120	130
Supportive non-agriculture	100	180	200
Total agrarian business	220	300	330

Translated into more general terms, one can thus say that the number of persons in agrarian occupations is probably at least an additional 75 per cent of that listed as agricultural in the census. Furthermore, agrarian occupations are increasing. The change in Idaho between 1950 and 1960 being approximately a 75 per cent increase.

A New Term

The foregoing discussion is perhaps brought together more effectively, and at the same time much of the disbelief and opposition to agriculture can be allowed to fade, by shifting to a new term. The author has found it appropriate to include not only fully agricultural off-farm activities, but all occupations in any degree agriculturally related, under the term "agrarian" activities or occupations. If increased prestige is desirable, perhaps this term promotes a different image. Many of the occupations identified in the study are in the technician category needing the equivalent of two years of college; others are occupations leading to management positions. These certainly merit prestige in the eyes of the public and especially in the eyes of parents and students.

Thus under our definition some 250 agrarian occupations were found to exist in Idaho within over 80 different types of agrarian industries or businesses. A number of other occupations could lead to some of these agrarian jobs, if the employee had certain agricultural knowledge to give him entry. These data indicate that *agrarian* pursuits are very important to the country and provide excellent opportunities for work.

A Cooperative Banquet Aids an Unified Vocational Program

(Continued from page 7)

planning of a cooperative employer-employee banquet. Some of the teaching units that the departments have in common include: forms necessary for student employment; legal requirements for employment; applying for a job; planning for careers; personal hygiene; salesmanship; maintaining good relations with employers, co-workers, and customers; taxes, social security; workmen's compensation; and leadership development.

Team Teaching

While definite plans have not been made for team teaching, there are many possibilities for this innovation on both a small-group and combined-group basis. Students would be provided with an opportunity to explore the different areas of training while having the advantage of the knowledges and skills of five different instructors.

Norman High School is in various stages of planning which involve educational innovation in team teaching and modular scheduling. Each department has been asked to participate in these innovations to determine the merits of such planning. The feasibility of team teaching between the vocational agriculture and other courses such as mechanical drawing, industrial arts, and electronics is being considered. There is a trend in Oklahoma toward unification in vocational and technical education. An example is the planned general session of all areas of vocational and technical education during the summer conference in 1968.

Summary

It should be stated in summary that the vocational and technical education programs at Norman High School have benefited from the cooperative banquet. Vocational teachers and school administrators are convinced of the efficiency and desirability of more cohesive occupational programs. Students develop more realistic information by interacting with other students who are preparing for different occupations. And the business community feels willing to support efforts which are nonduplicating and focused on student occupational needs.

An Experimental Program — Cooperative Vocational Education

(Continued from page 17)

a training station have been correctly interpreted to the businessman prior to placement and an unfortunate situation develops, the businessman has generally understood the problem. Experience indicates that each time a student is placed in a business there is generally a positive association and more school contacts result with the business world as the coordinator works with each student.

Student Organization

One of the strong points of the agricultural occupations instructor in his role of teacher-coordinator in the cooperative vocational education program is that of understanding the organization of student activities, particularly the use of parliamentary procedure. In an effort to offer an opportunity for more participation in activities similar to the FFA, a Cooperative Vocational Council was formed at the school. This council is made up of the organizations of vocational students in the school.

EVALUATION OF THE PROGRAM

An in-depth evaluative study of the cooperative vocational education program has been completed.¹ This evaluation of the program has been analyzed by the local administrative staff, the vocational teaching staff, and the Research Coordinating Unit of the Illinois Department of Vocational Education.

We find that we have been able to place any student who expresses a willingness to begin at his level of competency. There have been no students whom we have been unable to place. There have been a few students who have dropped the program because they were unhappy with the training station. In those cases, it was more likely that a change of training program was made.

There has been a tendency for the traditional vocational programs not to lose their identity. This appears necessary if the cooperative effort designed into the experiment is to operate.

¹Holloway, Lewis D. "An In-depth Study of the Cooperative Vocational Education Program, Champaign Central High School, Champaign, Illinois." Unpublished Ed.D. dissertation, University of Illinois, 1967.

Cooperation with the State Conservation Division

Aids in Conservation Education

ANDY SUESS, Vocational Agriculture Instructor
Pittsville, Wisconsin

A small Central Wisconsin school district is setting the pace in conservation education. The heart of the conservation education program of Pittsville School District is a 140 acre, well-developed school forest complete with a man-made pond. School forests in Wisconsin are not uncommon but Pittsville has made extraordinary use of their facility.

Instruction Manual

To make the most of their "outdoor classroom," officials prepared an original instruction manual designed to teach the basics of forestry and conservation. The manual includes material corresponding to the seven major demonstration areas of the forest. The manual was prepared by the local forester of the State Conservation Division and the vocational agriculture instructor at Pittsville High School along with other members of the committee that administers the operations of the forest. The manual also contains technical pamphlets and materials from state and federal conservation agencies.

Cost of the manual was borne by the school district and there is no charge to students for its use. A plastic-covered loose-leaf binder was used so additional materials could be added easily as additions are made to the forest.

Demonstration Areas

The demonstration areas in the forest are used to show such phenomena as the effects of diseases on various tree species, planting techniques, particular characteristics of the area tree species, and the relation of trees and soil to wildlife and aquatic life. The crescent-shaped pond was built last summer to supplement the demonstra-

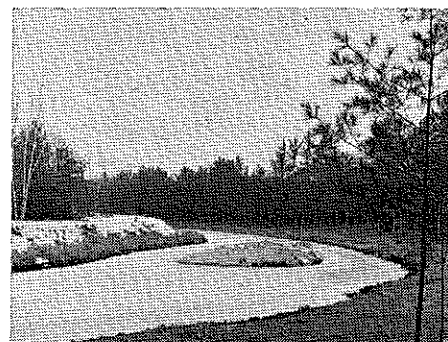
tion areas, specifically in the study of aquatic plants.

Vocational agriculture students have assisted in developing the school forest. In addition to planting trees to supplement the natural hardwood stand, trails have been cleared, areas brushed out, and extensive work has been carried out to prepare the demonstration areas. Seating is provided in some of these areas where students and their instructor can learn first-hand about conservation. Conservation in this atmosphere is seen and felt as well as

heard to make a lasting impression in the minds of the students.

The Future

In the summer of 1968, a well will be drilled and the shoreline of the pond will be further developed for study convenience. More work will be done on the trails and roads and possibly some campsites will be cleared. The district allows other educational and conservation groups to use the forest but the area is not open to the public.



(Above)

Crescent Lake, a man-made body of water within the school forest, provides scenery as well as a study unit for students. This two-acre body of water has been stocked with fish on which winter survival records are kept and growth rates studied.



(Below)

This sign designates the Pittsville School District Forest. The forest occupies 140 acres of managed woodland.



(Right)

Pittsville High School vocational agriculture students receive instruction as Robert Wolff, Biology Instructor, and Andy Suess, Vocational Agriculture Instructor, inspect shrubbery planted on the bank of Crescent Lake. About fifty different shrubs and trees were planted to improve wildlife habitat and to control erosion.

ALL ABOUT SMALL GAS ENGINES by Jud Purvis. Homewood, Ill.; The Goodheart-Willcox Company, Inc., 1963, 304 pp. \$4.50 (School price \$3.38)

All About Small Gas Engines tells and illustrates how small two-cycle and four-cycle engines are constructed, how they operate, what goes wrong, and how to service and repair them. This book is written as a basic reference for those who desire to learn about automobile engines and much of the basic information contained in the book is applicable to automobile engines. As pointed out by the author, working with small gas engines such as are used on lawn mowers, chain saws, outboards, and the like requires little shop space and a minimum amount of tools and equipment. Once the student has mastered basic engine fundamentals and has an interest in learning the automotive service business, he then can go on to additional study pertaining to automobile units.

The author and publisher have drawn liberally on their successful experience with *Motor Service's Automotive Encyclopedia*. The publication is well illustrated and written in language that high school students can understand. This book should be a valuable addition to the agricultural mechanics library and be useful in



Gerald R. Fuller

Dr. Gerald R. Fuller, Assistant Professor of Vocational and Technical Education at the University of Illinois, assumes work as Special Editor for Book Reviews with this issue. Dr. Fuller replaces Dr. Raymond M. Clark of Michigan State University who has served as Special Editor for Book Reviews since July, 1962.

Dr. Fuller has been a member of the staff of the Division of Agricultural Education at the University of Illinois since 1962. He received his B. S., M. Ed., and Ed. D. degrees from Cornell University. Dr. Fuller taught agriculture in high schools at Lisbon and Philadelphia, New York. He was a member of the staff at Cornell University from 1960 to 1962 where he served as Instructional Materials Specialist (part-time) in agricultural education.

Dr. Fuller is author of the book, *Education for Agricultural Occupations*. At the University of Illinois he is also a member of the Rurban Educational Development Laboratory staff and is concentrating on the problems of post-secondary vocational-technical education. He is presently codirector of the U.S. Office of Education funded project "Development of Human Resources through a Vocationally Oriented Educational Program for Disadvantaged Families in Depressed Rural Areas."

BOOK REVIEWS

GERALD R. FULLER, Special Editor

University of Illinois

classes dealing with small engine subject matter.

Mr. Purvis is Editorial Consultant, *Motor Service Magazine*, and a Member of the Society of Automotive Engineers.

Guy E. Timmons
Michigan State University

SMALL BUSINESS MANAGEMENT by William D. Hailes, Jr. and Raymond T. Hubbard. Albany, N. Y.: Delmar Publishers (Book 1, 1957, 330 pp.; Book 2, 1967, 324 pp.) School price \$3.96. Instructor's guides \$1.50; test packets \$1.00.

The recognition that vocational and technical education in agriculture includes the preparation of youth and adults for nonfarm agricultural occupations has created the need for instruction in the operation and management of small agricultural-oriented

nonfarm firms. These two publications, while not specifically oriented toward agricultural businesses, treat the important aspects of owning and operating small firms in a manner which makes it easy for the student to relate the majority of the content to an agricultural business. In several cases, references to agricultural-oriented firms are included in the presentation of the subject matter.

The authors state that the purpose of the text-workbooks is to introduce students to the major problems that they will meet if they ever plan to start a business venture of their own. The text-workbooks do a good job in introducing students to the problems of managing a small business.

Each text-workbook is divided into logical units of instruction with each unit being subdivided into teachable topics. The units cover such areas as small business organization, location, facilities, finances, record keeping, merchandising, law, personnel relations and aids to the small business man. An instructor's guide and student test packet are available for each text-workbook.

These workbook-type publications appear to be suitable for use as one of the teaching aids for introductory courses at the high school level and possibly for introductory units at the junior college level. They would need to be supplemented for more advanced, in-depth study. The instructor's guide is essential if the text-workbooks are used.

Mr. William D. Hailes, Jr. is the Supervisor of Distributive Education, Bureau of Business and Distributive Education, Albany, New York and Mr. Raymond T. Hubbard is Assistant Professor of Business Administration, Genesee Community College, Batavia, New York.

Gerald R. Fuller
University of Illinois

HOW DO YOUR STUDENTS SELECT

AN AGRICULTURAL SPECIALTY?

WILLIAM H. HAMILTON, Teacher Education
Purdue University



William H. Hamilton

How do you help students select an area of agricultural specialization? Do you have an objective method to aid the student in his assessment? Such an important decision should not be left to chance and a hope for the best.

Interest inventories, test results, and other information are widely used in similar guidance situations. The problem still exists that most of the widely used interest inventories deal with agriculture as a single field rather than as a series of specialized fields with differences in qualifications and in interest patterns of the people successfully employed in each of these fields.

Interest Scale

The author recently completed a research project to develop an "Agricultural Occupations Interest Scale."¹ The scale was designed to meet this particular need of identifying the extent to which high school students' interest patterns most closely match those of successful people in one of the specialized agricultural fields.

Keys were developed for the five specialized fields of production agriculture, ornamental horticulture, agricultural business, agricultural mechanization, and conservation. The keys were based on the returns obtained from 203 men successfully employed in production agriculture, 99 in orna-

Copies of the "Agricultural Occupations Interest Scale" and the scoring keys are available from Dr. William H. Hamilton, Department of Education, Purdue University, Lafayette, Indiana 47907.

mental horticulture, 147 in agricultural business, 109 in agricultural mechanics, and 94 in conservation occupations.

The keys for the scale were not an attempt to measure the amount of interest a person had in a special field but rather an effort to determine the probability that their interests were patterned in a manner similar to those of people successfully employed in a given field. Strong² said: "If a man likes to do the things which men like who are successful in a given occupation and dislikes to do things these same men dislike to do, he will feel at home in that occupational environment."

Predictive Value

The predictive value of the scale can be partially demonstrated by checking its power to identify the field of employment of adults interviewed. If the scales have worth in prediction, they should identify the occupational status of adults more frequently than expected by chance. In order to test the predictive value of the scales, each adult's raw score was converted into a percentile score which was checked against his field of employment. The results are summarized below.

Field of Employment	Per Cent of Agreement with Field of Employment
Production agriculture	76
Ornamental horticulture	83
Agricultural business	53
Agricultural mechanization	72
Conservation	69
All fields of employment	71

The Agricultural Occupations Interest Scale is recommended for trial with the recognition of its experimental nature. Additional research is planned to improve the instrument, to validate the instrument, and to measure its reliability.

Figure 1

Name _____
Age _____ Sex M _____ F _____
Grade 7 _____ 8 _____ 9 _____ 10 _____ 11 _____ 12 _____

INSTRUCTIONS: Please mark the following items quickly giving your first impression. Circle the "L" if you like the activity described by the item or circle the "D" if you dislike the activity. Circle the "U" only if you cannot decide whether or not you like the item.

1. Deliver supplies such as feed to a farm. L U D
2. Plan bridle paths. L U D
3. Repair farm machinery in the field. L U D
4. Sell farm machinery at a dealership. L U D
75. Wait on customers in a florist shop. L U D
76. Plan hiking trails. L U D
77. Raise dairy calves. L U D
78. Weigh grain and compute the number of bushels. L U D

Part II PREFERENCES

INSTRUCTIONS: For each of the following pairs, circle the "a" or "b" in front of the activity you prefer.

79. a. Sell fertilizer for a farm crop.
b. Test the soil for fertilizer need.
80. a. Repair a farm tractor.
b. Operate the tractor on the farm.
99. a. Work in a garden store.
b. Work on the farm.
100. a. Own a floral shop.
b. Own a farm service business.

Scoring

The scale makes use of 100 items of two types: items the respondent reacts to with a like, undecided, or dislike answer, and items requiring a forced choice of a preferred activity. Each item of the first type is intended to represent a single activity or concept with the forced choice items requiring a choice between two activities or concepts. A sample of each type item is presented in Figure 1.

Scoring, when accomplished by hand, requires about seven minutes per person. Hand scoring consists of assigning answer position values to responses for each scale. Scoring keys are available for the production agriculture scale, ornamental horticulture scale, agricultural business scale, agricultural mechanization scale, and conservation scale.

¹William H. Hamilton and Charles W. Hill. *Development of a Scale to Measure Interests in Agricultural Occupations*. Final Report, U.S. Office of Education Project No. 6-8304. Division of Agricultural Education, Cornell University, January 1967.
²E. K. Strong. *Vocational Interests of Men and Women*. Palo Alto, California: Stanford University Press, 1941, p. 52.

Evaluating Production Practices

WILLIAM W. STEWART
Vocational Agriculture Instructor
Maquoketa, Iowa



William W. Stewart

One of the most difficult, yet vital, aspects of teaching is to evaluate effectively learning activities. We are told that two essentials of the process are validity and reliability. We know also that instruments of evaluation must be "workable."

I know of no other enterprise which lends itself to the "doing" phase of our program, and to subsequent evaluation, as does the corn enterprise. The nature of the crop is such that many new and old skills can be updated. A number of these skills lend themselves to study and practice.

Land Laboratory

Our school is fortunate in having fourteen acres of land within two minutes of our classroom door. This provides an excellent opportunity to coordinate the classroom study and field experience. It is not necessary to have a corn field that close however. As an outgrowth of this opportunity, our Crop and Soil Science class developed an instrument for evaluating

corn growing performance. The instrument may have application throughout the country, since corn is grown in every state. The approach is readily adapted to all crop and livestock enterprises. We use the instrument to evaluate the corn enterprise conducted by students on the school's land and encourage students to use it on the home farm.

Use of the Form

Corn varieties vary greatly in their profit-making ability. We do not feel variety comparisons on a scale such as ours would be valid, yet variety selection and variety comparisons on the home farm are not only valid but essential for making effective choice of varieties. Official yields, should take precedence over "number of wagon loads" hauled from the field. The length of our form is not intended to be complete. It is intended only for beginners, but it has stimulated thought, discussion, and action to a greater degree than any other tech-

nique. If we are "doing to learn", this instrument is worth consideration for possible adoption in your teaching.

Form for Evaluating Corn Production Practices

Costs and Returns	Our Farm	Our Goal		
Costs:				
Land cost per acre	_____	_____		
Power cost per acre	_____	_____		
Fertilizer cost per acre	_____	_____		
Labor cost per acre	_____	_____		
Other costs per acre	_____	_____		
Total costs per acre	_____	_____		
Returns:				
Yield per acre	_____	_____		
Total value per acre	_____	_____		
Measures of efficiency:				
Net profit per acre	_____	_____		
Cost per bushel	_____	_____		
Profit per bushel	_____	_____		
Net income per hour of labor	_____	_____		
Net income per \$100 invested	_____	_____		
Field Observation				
Plant population:				
at planting	_____	_____		
at harvest	_____	_____		
per cent loss	_____	_____		
Calibrate sprayer	_____	_____		
Calibrate planter	_____	_____		
Calibrate fertilizer spreader	_____	_____		
Calibrate granular insecticide applicator	_____	_____		
Collect a soil sample and have it tested	_____	_____		
Field check for rootworms	_____	_____		
Field check for corn borers	_____	_____		
Field check for hunger signs	_____	_____		
Variety Comparison				
	A	B	C	D
Per cent root lodging	_____	_____	_____	_____
Per cent stalk lodging	_____	_____	_____	_____
Per cent dropped ears	_____	_____	_____	_____
Bushels dropped ears on ground	_____	_____	_____	_____
Amount of shelled corn on ground	_____	_____	_____	_____
Value of corn remaining in field	_____	_____	_____	_____

AGRICULTURAL EDUCATION MAGAZINE ISSUES NEEDED

The Department of Agricultural and Extension Education, University of Maryland, is attempting to bring its collection of *The Agricultural Education Magazine* up to date and is lacking several issues. They are:

- | | |
|-----------------|----------------|
| September, 1957 | December, 1963 |
| February, 1960 | January, 1964 |
| December, 1960 | November, 1966 |
| February, 1963 | December, 1966 |
| July, 1963 | February, 1967 |
| November, 1963 | |

If anyone has any of these issues which he does not need, we would appreciate receiving them. We will be glad to pay for them at the standard rate charged for back issues.

