Stories in Pictures

ROBERT W. WALKER
University of Illinois

Production enterprises are an important part of the vocational agriculture program at Triundale County High School, Harrsville, Tennessee. (Photo by Bonn Draper, Vocational Agriculture Teacher, Harrsville, Tennessee)

D. D. Clements (left), President of Mindanao Institute of Technology at Crocodile, Philippines, interviews Dr. Robert Hede, Director of the North Central Soil and Water Conservation Research Center, Morris, Minnesota, during a visit to May 1970 to the University of Minnesota and experimental forests and vocational schools in Minnesota. (Photo by Tsutio Sato, Ciba)

Don Knoll (left), Manager of the Danes Unlimited Hunting Club, Hudson, Wisconsin, demonstrates to FFA officers the proper way of handling a Medford bow to be spayed with yellow or red fluorescent paint. Observing (left to right) are Horton Zopp, Teacher of Agriculture, St. Cloud, Minnesota Technical School; W. J. Kornecki, Executive Secretary, Minnesota Association FFA, Paul Day, State Supervisor, Minnesota; and Glenn Eide, Teacher of Agriculture, Ovations, Minnesota. (Photo by W. J. Kornecki, Minneapolis)
**The Basis for Effective Teaching**

Basic to effective teaching is a thorough understanding of what teaching and learning are all about. Due to some rather far-reaching changes in agricultural education during the past few years, it is crucial that the teaching of agriculture be examined in light of what we know about teaching and learning. There are at least three current trends in agricultural education that have implications for effective teaching.

First is the height priority we now place on specialized instruction. This emphasis frequently means that subject matter is the primary basis for organizing course content. We must be on guard that such an arrangement does not result in subject-centered teaching in contrast to student-centered teaching, which is purportedly one of vocational agriculture’s hallmarks. Next is the appropriate concern for teaching basic principles of agriculture and related sciences. How does a teacher go about teaching basic principles effectively? A third concern is that of providing instruction, particularly at the secondary level, which is applicable to a cluster of agricultural occupations. Here an understanding of the educational psychologist’s concept of transfer of learning is essential.

Motivation of students is the very crux of effective teaching. In the final analysis, students learn precisely what they want to learn. Occasionally, we complain that students are not motivated. Students are motivated, however. The problem comes in that their wants, interests, and aspirations do not correspond with what we think their motivations should be. The effective teacher gives more than lip service to the admonition that the wants, interests, and aspirations of students must be identified and learning activities provided which take these motivations into account.

(Continued on next page)

**Guest Editorial**

The Teacher: Key to Effective Instruction

Effective learning at any level begins and continues with a good teacher. Teaching effectiveness and learning achievements are goals toward which all conscientious vocational agriculture teachers constantly aim. Vocational agriculture has intrinsic qualities that make it “one-up” on many other subjects because of its hands-on-nature setting. The student has to perform to achieve. The student lives in the environment of the career field for which he is preparing. Effective instruction in vocational agriculture, however, is no better than the teaching methods he uses.

The first step in effective teaching is to be well informed. A teacher’s ability to prepare students for careers in the agricultural industry is directly related to his information. That is why thousands of vocational agriculture teachers rely on information they receive from post-graduate courses, professional journals, seminars, workshops, and the associate field of agricultural extension. The teacher must be prepared to help students with unexpected and unexpected problems in any phase of their work. “Staying one lesson ahead of the class” is impossible.

To gain effectiveness, the vocational agriculture teacher must believe in what he is teaching. He must have a sincere faith in agriculture and its implications on the total economy of our nation and the world. He must realize that there have been more changes of the agricultural scene in the past ten years than have been made in the previous fifty. Today the rapidly changing events on the agricultural front won’t permit teachers to relax their efforts for a moment, if we are to continue providing an educational service to farm families and the agricultural industry in the years to come.

The vocational agriculture teacher must create an atmosphere for learning. Many books and articles have

(Continued on next page)
From the Editor

One way of motivating students is teachers and students setting goals cooperatively thereby allowing students a high degree of identification with learning objectives. We know that students are more apt to throw themselves wholeheartedly into an activity if they have participated in selecting and planning the activity. Success in achievement is a strong motivator to teaching which can expel interest in motivating students. It is not happenstance that approximations to teaching which enhance motivation are part and parcel of student-centered instruction.

The best way to help students develop and understand a general concept or principle is to present the concept in numerous and varied specific situations, contrast experiences with and without the principle, then encourage precise formulations of the general principle and its application to situations different from those in which the principle was learned. Evidence indicates that it is best for students to work out the principle involved. The modern trend for this approach to teaching is "discovery." We in vocational agriculture claim this approach as problem solving. How effective are we in using problem solving as a means of formulating general principles?

Directed learning is more effective than un-directed learning. In the development of general principles and in the guidance of students in problem solving, teachers must present clues to direct students toward the successful discovery and application of concepts and principles. Transfer of learning and the development of general principles go hand in hand. Transfer is more likely to take place when the "thing" to be transferred is a general principle. Per for transfer of learning to be maximized, students must be provided in practice in transferring what is learned in one situation to another situation. Students can learn how to learn; they can also learn how to transfer learning.

These are a few of many basic tenets of teaching and learning which are soundly supported by research. But, how are these and other principles of teaching and learning applied? That is precisely the role of the teacher. The task is difficult, but possible; it is essential for effective teaching. It is a task that can be accomplished well only by teachers who have more than passing knowledge and a good understanding of the intricacies of teaching and learning. —JR W

Guest Editorial

Videotape—An Effective Teaching Device

STANLEY OMAL
Vocational Agriculture Teacher
Sedro-Woolley, Washington

Vocational agriculture teachers have been successful over the years by having students practice "learning by doing." The use of videotape in the classroom provides another method of instruction that gives students an opportunity of doing something that can be evaluated quickly and allows them to make immediate self-improvement.

Reports and Demonstrations

One of the most significant improvements I have noted since using videotape is in students' demonstrations and oral reports. Instead of presenting reports and demonstrations live in front of the class, students record their presentations on videotape in another room. After all students in the class have taped their presentations, the tapes are shown to the entire class. Immediately after, a student who has recorded his report or demonstration on videotape, is replayed for him to observe on the TV monitor. He can then see his strong points or any flaws that need correcting. If the student is not satisfied, he can record the presentation again and present a better report or demonstration for the students to see.

Other classes studying the same material can see the presentations without interrupting their classes. If they have given the same report or demonstration, they can compare their performance with others. It is also used to give students a chance to improve their work. It is the easiest way to set up a large group of students to give presentations.

Field Trips

Instead of taking a field trip to a farm or bringing an animal to the school, the portable videotape can be taken to the farm and the skill demonstrated and recorded then brought back to the classroom for presentation on the TV monitor. This can be a timesaver and in large classes of the vocational agriculture students can see what is being demonstrated. If some students miss a part of the skill or require another look, the tape can be replayed.

I have found that students watching a classroom demonstrating a skill on TV are more interested than looking at a professionally prepared film or filmstrip. This has provided an effective teaching device and the student presenting the material feels that he is contributing to the education of the other members of the class.

Benefits

Videotape is not the answer to all the teaching problems in vocational agriculture, but it serves as another technique of instruction that has proven effective in our program. It has added variety to instruction and has provided a very effective method for students to evaluate their presentations.

Students have had another opportunity to develop leadership in their role as program directors and in operating the camera. The equipment is simple to operate and gives students the responsibility of handling the videotape camera.

THE AGRICULTURAL EDUCATION MAGAZINE

OCTOBER, 1970

STANLEY OMAL
Vocational Agriculture Teacher
Sedro-Woolley, Washington
Records Indicate Origin of FFA Ceremonies

PINEGLE J. MYERS
Coordinator of Vocational Agriculture
Chatham, Virginia

In today's world of instability and change there are many crises for relevance and innovation. This is apparently true in occupational education, particularly when it comes to effective teaching practices.

Innovation Technique for Teaching Communication Skills
RAY L. JOHNSON, Graduate Student
North Carolina A & T State University

J. H. DICKENS, Instructor of Agriculture
Elm City, North Carolina

One cannot always say that the technique or teaching practice is new but that it is relevant. If it has been used many times and has proved to be successful and still has merit, then it must be relevant. However with any teaching procedure there can be a new twist, a fresh approach, and a reassessment of what already exists.

New Idea

With a group of freshmen enrolled in the Introduction to Agriculture course we tried a new idea using a tape recorder and a skit. The lesson was on "The Importance of the Voice in Communicating Effectively and Making a Good Impression in a Job Interview." The skit was called "Who's Going to Take Me to the Fair?" The skit consisted of fragments of anecdotal information about each student and references about each student. A young lady, unknown to the students, was used to record the skit on tape. A day later the tape was brought to the classroom and played to the students. Their reactions varied from first amazement and general alarm to pure shock upon hearing their names mentioned by this unknown female voice and the seemingly well-versed knowledge about each of them.

Effective Teaching At the completion of the tape, the students were given a few minutes to improvise responses to the young lady. Each was to convince her that he was the best and most logical applicant for a date with her at the fair. In turn, they recorded their voices each doing his utmost to be a charmer, a go-getter, convincing, and alluring to the young lady.

After the recordings were completed, the tape was played back for them to hear. After the laughter ceased, there was some serious discussion. The students were very objective. They participated readily in discussion and made suggestions relative to what would be needed in similar situations such as job interviews, college interviews, and relationship approaches.

With techniques such as this, creativity and self-examination can be used effectively in teaching. A highly desirable learning situation is created for the teacher as well as for the students in the communications aspect of occupational education in agriculture.

Records Indicate Origin of FFA Ceremonies

(Continued from page 82)

The opening, closing, and initiation ceremonies developed for the Future Farmers of Virginia organization were adopted, with few changes, by the Future Farmers of America organization. The present "sentinel" then "farm watch dog." The sentinel was "called at the owl's next" instead of "here by the owl." A few other minor changes may be found.

Archives

The minutes of the meeting held November 13, 1958 and a copy of the initial wording of the opening and Green Hand ceremonies are now filed in the office of the Division Superintendent of Schools, Chatham, Virginia. They will be sent to the National Headquarters of the FFA to be placed among the archives if a request is received.
Orientation to Careers in Agriculture

DONALD W. SHEPARD
Vocational Agriculture Teacher
Williamsburg, Iowa

A farm boy who leaves agriculture is doing himself a great injustice. If he is interested in medicine, I suggest veterinary medicine; if he aspires to be an engineer, I encourage agricultural engineering; if it’s education he chooses, I recommend agricultural education. Every student in by program, whether he be from the rural area or town, is there because he likes agriculture.

- The Situation
During the past six years, enrollment in vocational agriculture in the Williamsburg Community School has increased from 52 students in 1954 to 1968, the average size of farms in the county increased from 109 acres to 249, the number of farms in the county decreased from 1,399 to 1,476.

Fifty-eight percent of the students studying agricultural education at the Williamsburg Community Schools from 1952 to 1967 are working in agricultural occupations; 23 percent are farming; 2 percent are farm laborers; 3 percent are studying agriculture in college; and 17 percent are employed in agriculture.

A survey of the vocational agriculture students in the spring of 1966 indicated that 52 percent were interested in fields other than farming.

Years ago this same figure was less than 20 percent. Because of changing trends, an additional 20 percent of those presently interested in farming will need to be encouraged to seek related employment.

- Career Orientation
I believe that agriculture is changing and that opportunities in agriculturally related occupations are unlimited. Therefore, agricultural career orientation programs should be conducted at all levels of the vocational agriculture program. Our Departmental Advisory Council has been used in an effort to develop a program that best serves the young people of the community.

Agricultural career orientation begins with the eighth grade and continues throughout Vocational Agriculture I, II, III, and IV. Most of the instruction comes during the senior year and is offered to students having at least two years of vocational agriculture.

This course is offered as a fifth vocational agriculture course. It is offered during the last period of the day. Boys enrolling in the course arrange their schedules so that the period preceding the last period can be free.

The first semester of the course is spent in the classroom studying the following topics: an overview of the agricultural industry, career opportunities in agricultural occupations, agricultural sales, human relations, job interviews and applications, employee-employee relations, employee-employee relations, proper dress and social graces, business relationships, sales slips and their use, how to take an inventory, buying business, credit policies, and developing plans for a work experience program. This material is supplemented with tape recordings, films, film strips, and guest lecturers.

- Work Experience
During the second semester, students are placed for work experience. The students work during the last two periods of the day and after school. Many also work on Saturdays. Since the career orientation program was begun, students have been placed for work experience in the following business firms and custom farm work, Soil Conservation Service, farm supply cooperatives, elevators, farm implement dealerships, and teaching vocational agriculture.

- Evaluation
The career orientation program receives a comprehensive and objective evaluation annually through the four steps indicated below.

- The Departmental advisory council meets annually to evaluate the career orientation program.

- Each cooperating work center completes and returns an evaluation questionnaire concerned with the career orientation program.

- Each student completes an evaluation questionnaire.

- The program is also evaluated by the high school administration, school board members, parents, and the two vocational agriculture teachers.

The program will continue to progress as an expanded basis with minor changes being made as needed.

THE AGRICULTURAL EDUCATION MAGAZINE

Preparing Substitute Teachers of Agriculture

RICHARD L. SPARROW
Vocational Agriculture Director
North Manchester, Indiana

What do your students do when you are absent from the classroom? Do you neglect to attend professional meetings because there are no qualified substitute teachers in vocational agriculture? Do students do busy work while you are gone?

As a teacher of vocational agriculture, I believe it is my responsibility to be professionally prepared with the latest ideas and techniques. Also it is the responsibility of the teacher to take part in professional programs and meetings which might take some time out of the classroom. In the past I have felt unable to take advantage of professional growth opportunities due to the fact there are no qualified substitute teachers in vocational agriculture available in the community.

Preparing Substitute Teachers

The Manchester Community School’s Vocational Agriculture Department in cooperation with the Research Coordinating Unit, Vocational Division of the Indiana State Department of Public Instruction, developed a method of preparing agriculturists to substitute in the classroom using demonstrations of approved agricultural practices. The method includes the preparation of the agriculturalist and in-school presentation by the use of videos as a substitute teacher of vocational agriculture.

After the agricultural specialists agreed to spend time in preparation and presentation of his topic, they were asked to attend a class taught by the Director of Vocational Agriculture on teaching methods which could be used successfully by lay persons. Methods of instruction taught included demonstrations, field trips, and slide lectures. Areas of instruction included production, management, finance, conservation and small tool selection. Three basic points were stressed for use by substitute teachers in making presenta-

Evaluation

This program has allowed vocational agriculture teachers to attend national judging contests, the National FFA Convention, and Indiana State FFA meetings as a delegate of the state association which would have been impossible if qualified substitute teachers had not volunteered to assume the responsibility of the classes while the teachers were absent. The program works very successfully when the absence of teachers can be planned in advance. However, the program does not meet the needs of an emergency absence which cannot be foreseen.

An anticipated reward of the program has been the improved public relations built by the school and the Vocational Agriculture Department with members of the community. The community, through the substitute teachers, has a better understanding as to what is done not only in the vocational agriculture program but also in other special programs of the high school curriculum.

- Richard L. Sparrow is a Vocational Agriculture Director, Manchester High School, North Manchester, Indiana. Fred Ruml, Agriculture Occupational Teacher, Canton, Illinois, was declared Region IV winner in the 1969 NYATA Exchange of Ideas Contest for presenting Mr. Sparrow’s idea which is described in this article.

THE AGRICULTURAL EDUCATION MAGAZINE

OCTOBER, 1970
It's Great to Get to School

WILLIAM C. PRINCE and RICHARD L. SANDERS
Teachers of Agriculture, Parkland School
Pinellas, Florida

The vocational agriculture program at Parkland School (Pinellas Park, Florida) is for boys with both physical and mental handicaps. The students range in age from fourteen to twenty-one years. Work experiences are offered under the direction of two full-time vocational agriculture teachers.

Experiences provided students enhance the following types of work: landscaping, vegetable gardening, ornamental horticulture, and plant propagation. In conjunction with work experiences, individualized instruction is the technique used to achieve acceptable student work habits. This ability to follow directions, work in a group situation, complete an assigned task, and punctuality and dependability are the general work habits that we are developing in students.

Facilities

A total of five acres is presently under cultivation. In addition, the Pinellas County School Board has allocated an additional ten acres for the future use of field grown plants. Care of all the property of Parkland School also provides learning experiences for students as they maintain the landscaping and care for the lawn around the five buildings that make up the campus.

Under a recent federal grant, 6,000 feet of pipe was purchased in cooperation with a five horsepower electric pump and deep well for irrigation. This system is manually controlled and the students can operate separate sections of the system as needed. Additional equipment purchased with the grant includes 70 operating sprinklers, a diesel tractor, rotovator, arpa rake, and a pair of mobile buckets.

The entire campus of the school is a land laboratory. Vocational Rehabilitation funds were used to construct a 20' x 40' temperature controlled greenhouse. Local contractors supplied the necessary skill to elevate what was once considered swampland so that the students have now created a nursery and vegetable garden from what was once low land.

Philosophy

With the cooperation of the community and the support of the county vocational education department, Parkland School is afforded the unique opportunity to demonstrate the basic philosophy that every student has worth and can contribute to society. Because of the nature of the students at Parkland School, their learning comes from firsthand rather than vicarious experiences. The students have to be taught in a highly structured manner. Most of the things that a normal child might master with no difficulty become a problem for our students.

When you consider that two agriculture teachers have 36 boys under their supervision, it is like saying there are 36 individual instructional plans in operation due to the varied differences of the students. What would normally only take verbal directions for the regular students is not adequate for these boys. They need instruction in actually doing the task even to the extent that the teacher might have to teach the boy the action that his muscles will feel when cultivating. It is not uncommon to see a student and the teacher using the same tool at the same time in order that the student gets the feel of the tool being used.

Supervision of students almost requires that you have eyes in the back of your head. You can take nothing for granted. When it is time to plant a crop, one student will operate a gadget that spaces the seed and punches holes in the soil at the proper depth. Another student will put the required number of seeds in the hole, followed by a student who covers up the planted seed. All jobs are broken down into the smallest and simplest unit that is possible. One student might be a good planter and another student might be a good worker at stacking cans in the nursery, but the reciprocal is not always true. If all a student can do is pull weeds in the canned nursery stock, then this is where the student works and self-confidence is built in the individual by letting him know that the job he is doing is important.

Reward

The incentive for working in the program has rewards. These rewards are tangible in nature. For example, all produce that is grown is given to the students who work in the program. The amount of produce that the individual receives is commensurate with the work he has put forth in relation to his ability. The students' behavior is what counts in the final analysis.

With our basic philosophy having been put to the test, we feel that our program is successful not only in fulfilling product oriented objective goals but in affecting student self-concepts. The only criteria that we have for measuring a change in self-concept is when that big yellow school bus arrives in the morning and the students exclaim the enthusiasm of "it's great to get to school."

If we measured happiness of learners in this way as compared to the more frequent scene of departure being the happiest part of the school day, school would take on its original Greek derivation — leisure. When the students are interested in coming to school and the instructional staff creates an atmosphere conducive to learning, educating youngsters becomes more than a job — it becomes a profession.

Are We Accepting the Challenge to Change?

PHILLIP B. WINTERS
Vocational Agriculture Teacher
Elkton, West Virginia

This is my tenth year as teacher of vocational agriculture at Wirt County High School, Elizabeth, West Virginia. I came to this small, rural county, which has only one high school, in the summer of 1961. That year I taught only production agriculture and shop.

In surveying the school area, additional employment areas were not available. As students graduated, they moved away or found employment in industrial plants in the Ohio Valley. Some enrolled in college, but primarily in fields of study other than agriculture.

Expanding the Program

During my first year we used employment needs and areas of interest to students, parents, business, and professional people. No sign of interest was ignored and each suggestion received was given careful consideration. Many students kept saying they would like to take vocational agriculture but had no place to conduct a supervised farming program. We carefully studied this situation and at a meeting were able to secure a 65-acre farm on a rental basis. The farm was made available to the school for vocational education purposes.

Administrators were presented with the proposal of securing equipment and expanding the program. A loan was secured from the local bank to purchase a tractor, mowers, and plows at low interest rates. A used disc was purchased and rebuilt by the students in farm mechanics classes.

To pay for this and additional equipment which has been purchased the students do garden plowing and other work as long as educational opportunities were present. The program has now expanded to include a full line of equipment for hay harvesting, seedbed preparation, corn planting and spraying.

Demonstration plots are used where possible on the farm to show weed control methods in corn, forage plants, and fertilization treatments. This has definitely added much to our program and has proven very helpful to students with crop enterprises.

Planning Programs

An advisory committee was formed to help in surveying the area and in discussing needs for additional programs. This group was appointed by the Board of Education from a list of names which had been suggested to the County Superintendent of Schools. This group includes a banker, a member of the Board of Education, a rural mail carrier, a farmer, an industrial worker, and the County Agricultural Extension Agent. This group is instrumental in helping to plan and promote programs.

In 1965, a second teacher was employed to teach agriculture mechanics, agriculture sales, and vocational agriculture. The population of our school area is in a transition stage. Employment opportunities for students are changing from the production agriculture programs we have known it for years. Many areas are still planning all the related areas of instruction. Are we accepting the challenge to make the necessary changes?
Instruction to Meet the Needs of the Community

EARL L. GRAY
Teacher of Agriculture
Angier, North Carolina

Industrial Cooperative Training as well as Vocational Agriculture. More flexible policies were needed so that a program that would cut across all the vocational services could be developed.

The business sector of Angier can support a cooperative work program for about 25 students. These jobs include only about five that are entirely agricultural in nature.

Planning the Program

A survey was conducted to determine employment needs as well as the interest of our local leaders and businesspeople. Several conferences were held with local leaders, the high school principal, county personnel, and the district supervisor. From these conferences, adequate funds were included in the county budget to finance a pilot program in Agricultural Sales and Service. Plans were presented to the state vocational leaders for an additional agriculture teacher to conduct the pilot program.

Students were interviewed to determine their interest. Thirteen boys and thirteen girls were selected to enroll.

Reference File

I keep the most used set of personal references in the school. In fact, these records are used at least five times as much as the “real” student files. The files consist of four 4" x 6" index card for each student. I keep the cards fastened together with a rubber band on my desk.

For the first day of each school year, each student is asked to fill out the front side of the card which includes his name, birth date, parents or guardian’s names, mailing address, phone number, daily class schedule, extra-curricular interests, and his locker and locker number. With this information I know how to get in touch with him at any time during the day.

INTERVIEWS

Starting with the first day of school, students are scheduled for interviews with me, usually in the morning before classes. I ask who can stop in the next morning for a five-minute visit, and they usually respond favorably. This may be a student’s first appointment that his parents did not arrange. I learn a lot about his attitude and habits before he gets to my office. If he is on time, I reinforce this habit with a little notice of it. If he is late I know one of his weaknesses and can start figuring a way to help him cure it.

I have all the cards in one bundle, I greet him and get out his card. My first question is usually, “Where do you live?” I nearly always know this, but this gets the visit off to a good start since it reinforces an interest in him and establishes the logic of my taking notes on the conversation. Then the questions follow in this order: “What do you like?” “What do you mean, what do I like?” “Well, do you like to do?” The answers may be anything from raising cattle to shooting pool. My notes are made thusly: Likes—pool, driving tractor, softball, swimming.

I ask him about subjects he likes best last year. This keeps him from planning vocational agriculture to carry favor and lets parents off the hook to some extent. I ask him what things he likes and test these down also.

I ask him what he would like to do for a living. This appears to be the first time that many students have ever realized that they may one day have to make a living. Discuss tell a lot about a student and his problem. Many lowes are given minimal jobs at home that do nothing to enhance their self-concept. Often what a lost student needs most is a chance to do a meaningful job for someone who respects such as you, another teacher, or an employer.

Relationships with Peers

The relationship of a student to his peers is also highly important. This information is useful to the teacher. In the interview I ask him to name the student he would most like to work with in shop. I record these as his social preferences.

Early in the first year I find an excuse to have students choose sides for two or three sessions. A spellbound, a demagogue, or a test on the spellbound principles works quite well.

A written record of the sequence in which the boys are chosen will quickly give you a good idea of who is popular and who is unpopular. At the second occasion two students who were chosen last the first time are usually the “accidently” made captains. Now they get to do the choosing. Moving the captains around helps sustain the humiliation of always being chosen last.

Knowing the social relationships that exist among the students are helpful in many ways. If a student is an outcast (he may be very poor, have a dirty house, or be on the staff or school board), the other students will unconsciously resent any attempt by you to alter this position. I have found that blame and praise in public are of little use and are often worse than useless. Pride in encourage or expressed, when the situation is one to one, it nearly always taken in the spirit in which it is given. Encouragement or expectation given in the presence of a third party is often as suspect as to move.

I believe I gain more, often a great deal more, with an office interview than I do on a home visit. I do not consider such interviews a substitute for home visits, but for me they are a valuable supplement.

Self-Concept

When a student gets an unsatisfactory report on a failing grade for the first time in his high school career, an emergency exists. He is at a crossroads when it comes to his self-concept. He is about to decide whether he is to play the role of failure or success. He needs help today.

My system for discovering his con-

(Continued on page 51)
Teaching Elementary School

Pupils About Agriculture

ROBERT Q. KIENAN
Vocational Agriculture Teacher
Parkton, Maryland

How do you help the people in your community appreciate agriculture? How do you show the public that agriculture students can contribute positively to the school and community? This article describes one way the agriculture students and teachers at Hereford High School, Parkton, Maryland, faced these problems.

Our school, which has the only Agriculture Department in the county, is in a largely urban and suburban area. Many teachers of elementary school children are always wanting their pupils to visit a farm. Many farmers are reluctant to have groups of pupils visit their farms. The reason is various: farmers are busy when they want to visit; there are possible insurance problems if someone gets hurt; and some farmers just don't want the inconvenience.

Kiddle Farm

With these facts in mind and a couple of acres of ground, the answer was obvious. We decided to have a “Kiddle Farm” where visiting elementary pupils could teach and feed animals.

The idea was presented to a very cooperative administration and received enthusiastic approval. The next step was to get the cooperation and support of the 200 students in the high school's Agriculture Department.

A steering committee of one senior, one junior, and four sophomores was selected. The remaining students volunteered for work on one of the 16 commodity sections. Because of the time involved in meeting with each committee, the two teachers of agriculture worked on the normal basis with the steering committee rather than with all of the other committees.

Ideas

The sub-committees submitted ideas to the steering committee for approval. The steering committee met every other week after school to sort out the ideas given to them. Trying to get the students involved was the idea. We didn't need to worry; they had plenty of good ideas. Here are some of the students' ideas that were used:

- We had exhibits of poultry including ducks, geese, and chickens. We were able to purchase some 26-day old egg and make an invisible egg so that the pupils could see eggs hatch.
- One of the activities was a result of a dairy products unit in the Plant and Animal Science course — making butter.
- We were able to show two market hogs and let the boys and girls touch them. Our students explained where the different cuts of meat come from by using a chart and pointing out the areas on the animals.
- We had some 8-week old pigs. It would have been better to show a few 2-day filler.
- Calves two to six days old were a great delight to the children, particularly when the boys and girls were allowed to feed them with a nipple bottle.
- Goats and a ewe with a small lamb were also of interest.
- We were able to show the pupils a self-propelled combine, a baler, and a plow. We watched a hand corn sheller work and fed the shelled corn to the pigs.
- The pupils showed great delight when they were able to shake hands with Smokey the Bear and the local forest ranger.
- The boys and girls were given a hay ride, pony ride, and had an opportunity to jump into a pile of straw.
- As you can see, the activities were not elaborate. Simple ideas were the best. The more technical the idea, the more confusing to the elementary school pupils.

Operation

All of the activities were spread out over our three-acre Farm Fairgrounds. Pole barns provided shade for the animals and the guides who explained each activity. The Kiddle Farm operated for three days during the last week of April. We used Monday and Friday as preparation and clean-up days.

Invitations to the first and second grades of six schools were made by the Board of Education Office. We tried to keep the visiting schools to about 95 pupils each. One school brought 183 pupils which was a little overwhelming at first. But that actually turned out the best for us since it kept all our students busy as guides.

When each school arrived, the pupils were divided into groups of ten. A student guide, one of our agriculture students, was assigned to each group for the duration of the visit. The visit was intended to last two hours. One school arrived for a tour in the morning and another in the afternoon. We were fortunate to have property that can be used as a picnic area, so the schools were invited to use that facility also.

Moving in groups of ten with a parent from the visiting school made the pupils easy to handle. Depending on the activity, one to five agriculture students were stationed at each stand to explain what was going on. The visiting pupils spent about ten minutes in each area.

The students assigned to the areas were available during their regular 35-minute class period. This was done to allow them to be more versatile and to cut down on absences from other classes. We denied minimum disturbances to the regular school program during the venture. This made an impression on the faculty.

Information

Prior to the visit each elementary teacher was sent a list and description of the activities to take place. During the visit each teacher was given a detailed written explanation of each activity. The written explanations paid off because they also were the basis for our students' explanations. We realized that a few of the agriculture students would not have all of the details for each activity. We wanted to give them confidence and to prevent some from becoming too technical. We did not encourage too much information, but we did encourage students to talk freely in an area in which he or she felt comfortable.

When leaving, each teacher was given a Smokey the Bear book-mark for each pupil, seed corn from the corn sheller, and packages of tomato and marigold seeds to use as a followup at their school.

Guidance: Essential for Effective Teaching

(Continued from page 89)

...diction and getting help involves the following. The secretary is given a list of all day students and asked to list under "homework programs reports" at the end of the first four and one-half weeks of the quarter. Once the students are identified, the students' file is consulted as are other teachers. An attempt is made to find out what he can do to help.

If a teacher can give him a job that he can do with pride, his whole attitude toward school and society may be slightly changed for the better. After all, most problem students today are people like ourselves who have become disillusioned with the system. They have no faith in what we are teaching. I believe that the student is the teacher's job, and the subject is the medium.

Follow-Up

I follow-up students. Many return to visit in subsequent years. When they show up, we get out one of their old cards, which have been filed, compare notes, and add a little to the latest one. When someone needs a reference or an employer is looking for someone with certain qualifications, the cards come in handy.

OCTOBER, 1970


The amount of material for use in agricultural education is extremely large and growing at a rapid rate. If we are to cover the necessary material in the time allotted, we have to make the most efficient use of time and materials. Each student must be taught as an individual and at the same time be a part of a class.

- **Slide Presentation**
  - I would like to describe one method which can be viewed for classes or by individuals. The method makes use of equipment many of us already have. The method involves using overhead transparencies, and developing and screening them by means of an overhead projector, a stereo cassette recorder, and a synchronizer. These must be used as a unit to record and playback the commentary on one track and the inaudible impulse for automatically advancing the slide or the other. A rear view projection screen using close angle lens with correctly placed mirrors can be viewed with ease in a well lighted room or shop.

- **Maximum Learning**
  - I feel that maximum learning takes place with this system because it:
    - Provides a basis for a well organized presentation.
    - Makes it easy to present material in as much detail as you wish.
    - Provides a way for teaching a complete lesson, yet makes possible the use of other audio-visual aids, information, and demonstrations.
    - Gives the teacher time to think and discuss problems and help those who need it on an individual or group basis.
    - Helps teach people and learning.
    - Puts the responsibility on the student for increased learning.
    - Provides for group or individual instruction.

- **Procedure**
  - In using the tape as a commentary, each slide or group of slides is allowed to progress automatically until a question is asked or until all slides for a particular topic on the work sheet are completed. To stop both the tape and the slide, you push the pause button. Thereafter, we may discuss the answer to the question and, if needed, go back to a slide we need to look at again. If more information is desired, refer to other reference materials. After notes are taken, students immediately complete the necessary work on the guide or work sheet.

- **Other Materials**
  - There needs to be other reference materials available. Other audiovisual materials, particularly 16mm color sound movies, film loops, and overhead transparencies, and actual specimens are particularly needed. Also there needs to be a definite plan and scope for guiding students through the presentation in an orderly manner.

- **Maximum Learning**
  - I feel that maximum learning takes place with this system because it:
    - Provides a basis for a well organized presentation.
    - Makes it easy to present material in as much detail as you wish.
    - Provides a way for teaching a complete lesson, yet makes possible the use of other audio-visual aids, information, and demonstrations.

- **Modern Programs**
  - Those of us in agricultural education must take the lead in opening programs to students of all abilities. We must use the variety of means at our command to educate students, not only to the guidance counselors, and administrators to the unusual opportunities for education, growth, and development which exist in a modern educational agricultural program. It is important to note that other vocational service can match vocational agriculture in the percentage of its high school graduates who pursue formal education beyond high school.

- **Unique Programs**
  - We must be vigorous in our efforts to point out the unique features of vocational education in agriculture. We must show and tell others that vocational agriculture has not been in the past, nor will it be in the future, limited to skill training. It excels in other meaningful opportunities for students and potential agriculture for practical theory to practical practice and experience. We must stress the value of high school study as preparation for further study of agriculture in post-secondary institutions, including colleges and universities.

  - Some of the facets of the vocational agriculture program that make particularly important contributions to the
Effective Teaching Results in a Useful Product

Talmadge H. Wimer
Agrology Occupation Teacher
Auburn, Wash.

I wish someone would tell me how to make welding more interesting—if only there was a product involved.

I made these comments to my wife one evening as I walked to the trash burner with a waste bucket of paper. I was glad it was Friday and had mastered to myself "F.O. I.F." when the bell dismissed my sophomore shop who laboriously struggled all week in a seemingly impossible attempt to learn to strike a weld. I had planned the instruction in detail and was using every technique and instructional aid I could think of. Yet all my plans seemed to have gone amiss. Only two of the fourteen boys were making any progress and several were becoming so discouraged that they asked if we could go back to the classroom and study poultry.

As I walked slowly back to the house after setting the match to the trash, my wife remarked, "I'll bet you how to teach welding, the answer," she said, "is in your own yard. Have the students build a trash burner." I have used the trash burner method the past twelve years to teach the fundamentals of electrical arc welding.

Planning

Each student has a plan, including dimensions and procedures to follow which has been discussed and outlined before going to shop. It is necessary to remove the lid or top end of the drum. This is accomplished with the cold chisel and the correct method of holding and using the chisel is taught. The cold chisel is then sharpened by first using a coarse grinding and sharpening is taught.

After the lid is removed, the drum is cut out with a gas torch. A welding chart is started inside the drum to burn out any remaining wood and fumes. This is a must to ensure safety. After the drum is burned out, any jagged edges left by the chisel are hammered down. Next the student marks the length and draws the guidelines for the welds that will provide ventilation and draft.

With the welder set at 180 to 225 amperage for cutting, the student begins cutting and following the chalk lines. The high heat setting makes the arc easy to strike and with some practice the student is able to burn through the steel. I demonstrate the welding motion and the student follows this procedure on the subsequent slots. The welding motion requires tension and improves the ability to hold the arc. By the time the student has cut the slots in the side and end of the drum, he has developed some abilities on striking the arc, holding the arc, and following the line.

Welding

Next the welder is adjusted to about 100 amperes and the student begins to run practice beads in a down-hill position on small scrap plate metal pieces. The welding motion is still emphasized. Each student runs twelve or more acceptable beads. The next step is butt welding two pieces of scrap with a short two-inch bead. The weld is quenched in water and placed in the hydraulic press for the bending test. After the student has welded six scrap pieces that are bent into a "U" by the hydraulic press, he is ready to begin making the bases for the legs.

After the bases are prepared, the leg must be welded on using the fillet bead. For practice, the student welds several short legs in scrap and places them down to serve as a bending test and quality bead.

legs of proper length are next welded to the bases. The sloped drum is turned with the bottom up and the legs are held inside the bottom flange and welded in position. Three legs equally spaced around the bottom are a leg base. This base is set down in all areas of the ground.

Results

By now the student can see the results of his efforts and a feeling of pride and accomplishment is exhibited. The slow learner in the classroom often is the first one to get the most of the burner, and he is recognized by his peers as a welder. This person has accomplished something for which he can be recognized. A teacher's objective has now been fulfilled — to teach boys to gain self-confidence and do something by themselves. I teach boys how to weld; I do not teach welding to boys.

The end of the drum that was removed with the cold chisel is smoothed with a double cut file and a new skill is introduced. The lid is a very light gauge metal and this is an excellent opportunity to teach sheet metal welding. At this point, the student checks reference material on how to weld thin metals in regard to the use of the correct size torch, the correct size gas hose, and proper position of weld. The student then sets up the operation and begins to weld the flanges and handle to the drum lid. Usually the outcome is similar to the results that are predicted in the reference references so students realize the value of checking on how to do an operation instead of using the trial and error method. The student will not have to read at all and the results soon bring an awareness that directions are important and fundamental for success.

The product

New Skills

The students have learned several new skills and abilities including the following: sharpening and using the cold chisel; filing on rough surfaces; reading a plan; making out work; striking an arc and running beads; making boat, fillet, and lap joints; welding thin metals; recognizing a quality bead; and appreciating the skills needed by welder.

The complete project is a useful article and the students have developed pride in their work with the challenge offered by competing with their classmates. There is no resistance in welding two pieces of metal together when the results are tied into the scrap iron pile. I believe the secret in effectively teaching electric arc welding is to have a useful product as the result.

Vocational Agriculture for College-Bound Students

(Continued from page 93)

Development of all students is an individual instruction, learning through supervised practice and laboratory work, home visits, and a year-round program. We must promote vocational education in agriculture as it should be—education for all occupations in business, industry, and on the farm that involve knowledge and skills in agricultural subjects.

With this in mind, modern vocational agriculture programs should stress increased contributions to the education of the average and superior student who may be considering a college education. Any young person with a farm background or a sincere interest in agriculture should be encouraged to follow this interest during his high school career.

College-Bound Students

We all recognize that job opportunities in agriculture are greater than ever before, particularly for the college-prepared. Many of our most valuable young agriculturists are being lost to other professions each year because they are encouraged during their high school years to concentrate on academic subjects to the exclusion of any possible work in vocational agriculture. Through vocational agriculture they can discover the broad scope of agriculture throughout the nation, its fundamental importance to our economy, and the implications of the rapid changes which modern technology is bringing. They can gain a sense of the excitement of work in an area which, in the case of rural youth particularly, they have known from their early childhood.

There will, of course, be scheduling and other problems involved in expanding the availability of vocational agriculture programs. Offering single-period courses to fit the crowded schedule of the honor students has helped to provide necessary flexibility. Vocational agriculture teachers must take the lead in an aggressive fight against the stress on a strictly academic program for above-average students. Of primary importance in broadening the scope of vocational agriculture is an attitude by the vocational agriculture teacher toward the program. Once he is convinced of the unique contributions vocational agriculture can make to the development of all interested students, he can begin to work toward educating those included in curriculum planning to make maximum advantage of the variety of opportunities offered. Faculty guidance resulting in overemphasis on academic subjects must be replaced by a more broadly based approach stemming from a genuine understanding of vocational programs and the valid contributions they can make to the education of college-bound youth.
T-Bone Corporation Aids in Teaching Animal Science

DAVID E. BURNS
Teacher of Agriculture
Almont, Michigan

How do you teach animal husbandry to students enrolled in their first year of agriculture if the students live predominately in town and for the most part have no real experience in animal husbandry? The students at Almont (Michigan) High School decided this task could best be accomplished by forming a live stock corporation. The class would buy feeder steers, raise them to market weight, and sell them at the 4-H live stock sale during the following summer.

After the students decided to develop a corporation, they were confronted with an array of questions: What would they feed the steers? How would they raise money to buy the steers? How would ownership be handled? Who would choose the feeder steers to be purchased? Should the corporation buy steers or heifers? How many steers should be bought? What do you feed steers?

Solving Problems
Most of the students enrolled in Basic Agriculture did not know a heifer from a Hereford or a steer from a bull. Students who were familiar with farming were used to help those from town realize the priorities that should be placed on their program. The class decided rainy days should be spent developing guidelines for the corporation and the chores should be used to learn how to judge feeder steers. The best livestock judges in the class would select the feeder calves.

The students decided they would need a source to finance the initial cost. The class considered two sources: the Almont FFA and the local bank. The class concluded the FFA might be convinced to loan the money on a profit-sharing agreement while the bank would probably insist on a specific interest rate. A committee was appointed to develop a proposal to be presented at the next FFA meeting to obtain financial backing. A motion to support the proposal was passed. All stock which was not purchased by students would be owned by the FFA.

T-Bone Corporation

The livestock judges from the class, accompanied by three farmers and the agriculture teacher, bought the steers on November 20. On November 25, the first stockholders of the Almont T-Bone Corporation were held with shares available at one dollar, three dollars, and five dollars. Anyone in the Basic Agriculture class or in the FFA could buy shares, but only members of the Basic Agriculture class could vote in corporate decisions.

The elected Board of Directors for the Almont T-Bone Corporation is responsible for keeping records of all stock transactions. Every Monday, the Board of Directors prepares an Owners' Summarization which is a breakdown of the corporation ownership from the previous week. On Tuesdays, the Board of Directors develops a Stockholders Report which listed the total amounts to date and the value of the shares for the stockholders that week. The stockholders were held during the first fifteen minutes of class on Wednesdays and Fridays. All stock transactions listed in the Stockholders Report to be made between FFA members and the Almont T-Bone Board of Directors. The corporation records would be considered valid in ownership disputes.

(Continued on page 99)

Procedure for Calculating Share Value

Step 1: Multiply 25.62 by the number of weeks the steers have been on feed.
Step 2: Add the answer from Step 1 to $91. (Initial weight)
Step 4: Subtract the amount found in Step 3 from 96 (Initial price).
Step 5: Divide 41 into the price determined in Step 6.
Step 6: Multiply the answer found in Step 5 by the number of weeks on feed.
Step 7: Subtract the result of Step 6 from 96.
Step 8: Multiply the price determined in Step 7 by the weight determined in Step 2.
Step 9: Figure the total deductions to date.
Step 10: Divide the remainder from the value of the shares to determine the value of the shares.

(Continued on page 99)
LABORATORY INSTEAD OF A FARM

ROBERT KNOWLES
Catalyst Farm
Kerman, California

To farm or not to farm, is that the question? Is it a question that we ask at Kerman (California) Union High School asked ourselves more than once. We came up with some answers that may be of value to others.

In California we have some very large school farms, up to 180 acres or more, which are often expected to be operated as an economic unit and always to produce a profit. As a result of this type of management, many of these farms have a full-time manager. However, making a profit and training students are not always compatible. Where this type of school farm may be good in theory, it is not always conducted in a manner which is the best interest of the education of students we serve.

The smaller type farm of ten, fifteen or more acres presents different problems as it is too small to warrant the employment of a full-time manager. Consequently, the agriculture teacher is then the manager and may spend a disproportionate amount of his time doing chores about the work. Sometimes there are teachers who enjoy this situation and would have it no other way. On the other hand, there are teachers who do not want a system of this sort. Because of the large amount of routine work which must be done and because the teacher doesn't have either enough time or voluntery help to do the work, there is likely to be a constant feeling of doing just too much time doing things which it may be difficult to justify as being educational.

• Laboratory Instead of Farm

At Kerman Union High School we have had to overcome many of the drawbacks of the large school farm and yet are able to provide the type of program enrichment which the best of school farms offer. We have done this by making our facility a "laboratory" instead of a "farm."

Let me go back to the beginning. About five years ago we were making preparations to build a new school. We thought there was a need for a school farm and felt it should be included in the new facility. With the aid of our advisory committee we made a thorough study of the various possibilities. The first thing we did was discard any thought of the large type of operation as not being practical for our purpose.

In order to gather ideas, the teachers and a group of advisory committee members visited a number of school farms. After completing the study we arrived at the conclusion that we would need about five acres. We then secured administrative and board approval for the inclusion of the farm in a convenient location on the new school site.

At this point a very fortunate (as it turned out) mistake occurred. In planning, the architect set aside a strip of land only 140' x 800', slightly less than two and one-half acres. This was only half of what we had estimated our need to be. When we discovered the error, it was too late to do anything about it. So we were confronted with solving it with this 140' x 800' strip of real estate.

After careful consideration, we found that this would lend itself very well to a scaled down version of our original plan. It was at this point that we began to realize that the mistake was a favor to us.

What we wanted was an instructional facility providing for demonstration, some experimentation, a limited amount of student practice of farming operations, and a place for students with inadequate opportunity at home to have some kind of project. We did not want a place for teachers to spend the weekends. We wanted a laboratory where a maximum amount of learning can take place with a minimum amount of time expended in menial tasks by teachers.

• Layout

We divided the laboratory into two areas or units: orchard, vineyard, livestock, field crops, truck crops, and masonry or ornamental.

The orchard unit is about three-eighths of an acre and includes the commonly grown varieties of walnuts, almonds, apples, pears, peaches, apricots, plums and citrus. This unit has been mass produced by injection of small trees into the forty-five 800' square inch trees. After careful consideration, we found that this would lend itself very well to a scaled down version of our original plan. It was at this point that we began to realize that the mistake was a favor to us.

The vineyard is another two-eights acre plot including in the permanent plantings about twenty of the common varieties of grapes. This includes all three styles of grape pruning—head, cordoned, and cane. In addition we have about half of the vineyard devoted to temporary plantings in which the students can witness all stages of development from planting to full production. When these vines reach full production (four years) they are removed to make way for the next temporary planting.

This gives students an opportunity not only to see all stages of development at one time, but allows them to participate in all the development procedures during their four years of high school. The vineyard is set up for irrigation in the same way as the orchard.

The animal unit, which is still in the early stages of development, contains about three-fourths of an acre. At the completion of the project it will provide facilities suitable for most types of student feeding projects. We do not plan to have any school or FFA owned animals unless a cooperative project may be carried out. Unfortunately this unit is slow in being developed because of the expense involved.

The one-half acre field crops area is presently being used with the truck crops area for a cooperative student grower project in sweet corn which the students plan to market through local stores and to individuals. We have both gaunt and sprinkler pipes for irrigation of these crops, so we can again vary irrigation procedures. This area has been used for fertilizer test demonstrations and for growing crops.

The one-fourth acre truck crops unit is not new separated from the field crops unit. We do have plans for the students to use it for a winter garden as part of the curriculum in plant science. It is also available for student projects in the fall.

The one-eighth acre nursery unit has a small student constructed greenhouse fully equipped with thermostatically controlled heating and cooling and clock controlled mist and lighting systems. The students have also constructed block soil beds, put in a large concrete slab for mixing soil, moved in an old building and remodeled it for use as a storage shed, constructed a simple shade area, and begun the development of a specimen group of ornamental plants. This area also includes a planting of trees which are used for practice in budding and grafting.

• Advantages

The total development of the laboratory is far from complete. However, we think we have come a long way in three years.

How much did all this cost? With the exception of furnishing the land and some of the tools, the district has used none of its funds for the development of the facility. The district has spent several hundred dollars, primarily toward the project facilities. Because of this and the nature of the project, it is likely that in three or four years they will be developing a good deal of pride in the laboratory.

With the willingness of the students to help themselves and because the laboratory is small thereby requiring only small quantities of each thing needed, we have had a great deal of help from individuals, organizations, and businesses in the community. All of the materials, fertilizers, implements, and other needed materials have been donated.

Small bunches are somewhat of an advantage. We are not particularly concerned with production per se. If a student makes a mistake, even a bad one such as growing a tree, we are only out the cost of a replacement. Also, we can demonstrate to students how an improper practice can adversely affect production.

When there are menial tasks to do they can be accomplished with the use of a very minimum amount of time, time that could be spent more profitably, rather than a chore. In order to recognize donors, and incidently boost pride in the project, a very attractive sign to acknowledge their contributions and placed it in a prominent place in the fruit garden.

Besides the things already mentioned, the laboratory provides all the advantages of the usual school farm including a place to carry out farm mechanics exercises as well as to develop skills needed in agri-science.

B-T Corp. Corporation Aids in Teaching Animal Science

(Continued from page 97)

The price per pound was determined indirectly by the Michigan Livestock Market.

The students deduced their own controls and the share value was through the manipulation of consumed costs. The cost found the largest consumed cost was the feed. They became interested in the possibility of reducing the cost of feed while simultaneously having the steers attain market weight by sale time. They were interested in to know, "What Do You Determine That To Feed Steer?"

The basic agriculture class used most of the fine semester developing the Almost T-Bone Corporation. Toward the end of the semester, the students studied the terminology, nutrition, and care of other types of livestock. The Board of Directors' Tuesday Stock Report, The Ownership Summarization Report, and the weekly stockmarket continued through the second semester.

The "corporation approach" to teaching animal husbandry to students who live in town is an enjoyable and workable solution to a problem concerning many agriculture teachers who do not have the opportunity to engage in agriculture need a background and understanding of production agriculture.
Resource Persons Aid in Teaching

BROWN DRAPER
Teacher of Agriculture
Huntsville, Tennessee

Some advantages in using resource persons are: the novelty of their presence stimulates student interest; they are specialists since the nature of their work requires it; school-community relations are fostered through working with non-school agencies; specialists assist teachers in keeping abreast of new developments in various fields; and teachers are assisted in guidance programs.

An Increasing Need

In light of recent changes in agriculture, the experience, training, and time that any one teacher can be expected to possess makes the use of resource people essential to a well-rounded program. We have seen many jobs formerly done on the farm by the farmer and his family move into the farm to become farm related occupations. This change has caused production farming as well as work in the related occupations to increase, making more jobs available and more competitive. In order to succeed in the new areas of agriculture, the workers must keep abreast with current information on developments relates to all areas of his operation.

Without using resource people, the teacher is not able to offer all the help the worker or student needs because of the increasing amount of information becoming available. In order to cope with the situation, the teacher must increase his use of resource personnel. He will be impressed by the number of people who are qualified and willing to help. I use resource people in all areas of my teaching program.

Adult Education

Adult education is an important part of vocational agriculture. From year to year it becomes more difficult to provide instruction for specialized farmers and other workers in agriculture. We must be sure that we are meeting their needs if we are to compete with the others on their time.

We planned a cooperative Farm Management Course in our community for the first time in 1969-70. The course was cooperative in that it was planned and conducted by the agricultural agencies of the county and their advisory councils working with the credit agencies and representatives of the milk companies serving the area. By pooling our thinking, we were able to come up with a program based on the needs of the individuals attending as evidenced by an average attendance for the twelve meetings of twenty farmers and workers.

The meetings were held in the school's Vocational Agriculture Department with the main responsibility for the program resting on the Vocational Agriculture Teacher and the County Agricultural Agent. Resource people used in conducting the course were from the Extension Service, Farm Credit Bank, Soil Conservation Service, Agricultural Stabilization and Conservation Service, Farmers Home Administration, and personnel from local banks. From one to five specialists were used in conducting each class session.

Guidance

Resource persons are used in our guidance program also. As we study the professional and occupational opportunities in agriculture, I bring in resource people employed in the occupations and professions studied. Some of the resource people used in the guidance program are representatives of the Tennessee Farmers Co-op, the Tennessee Farmers Mutual Insurance Company, the Tennessee Game and Fish Commission, the Production Credit Association, a major tobacco company, Soil Conservation Service, the Agriculture Economic Department of the Middle Tennessee State University, and a State Area Vocational Technical School.

Students received first-hand information from these people who will help them decide for or against the occupations studied. Student teachers from the Agricultural Education Department of the University of Tennessee play an important part in our guidance program.

Others

Soil Conservation Service personnel helped with our land judging program. Also, the area Soil Conservation District helped prepare the land for the farm level. The County Agent responds to our requests for resource people from the Extension Service. We feel that the use of resource personnel by teachers of vocational agriculture will better enable us to prepare young men for farming and work in related fields and give greater assistance to those now engaged in such occupations.

The videotape recorder is very helpful in preparing students for FHA contests.

Teaching Agriculture from the Air

CLYDE B. RAY
Teacher of Vocational Agriculture
Charleston, Michigan

In 1968 and again this year, the junior and senior vocational agriculture students at Charlotte (Michigan) High School studied Farm Management, Farm Woodlot Management, and Soil Conservation. After studying these units in the classroom, the FHA charter a plane from the local airport so students could view their farms from the air.

Students see the layout of fields, tile lines, open drainage ditches, stone piles, and wooded areas much more clearly than is possible to imagine from the ground. They are surprised to see the variations in the density of crop growth, the difference in soil color, and the relationship of their farms to neighbor farms. Also, the need for a good clean-up of the farmland is evident to some.

After the aerial view of their farms, we go back to the classroom for additional study and the completion of management plans. Students take many ideas home to use on their home farms. Today many of the farms that were studied from the air have instituted the improvements that were planned.

Some Suggestions

The uses of the videotape recorder in the agricultural classroom is only a few of many ways in which it has used it are described briefly.

- The videotape recorder is perfect for collecting information about occupations in agriculture. We continually stress the career opportunities in agriculture. Students interview local agriculture businesses, using a portable videotape unit to record the interviews for later use in the classroom. Business visits working with students and really go into detail during the interview in describing occupations.

- The videotape recorder is used to replace certain field trips. By using the portable unit to record the scenes and events of various field trips, the problems of time and weather are eliminated. When these tapes are played back in the classroom, every student has a front row seat.

- The videotape recorder is used extensively for practice and self-evaluation when students are preparing for leadership contests. When students see themselves visually, they are encouraged to improve. In 1969, the Caledonia FHA won the State Public Speaking Contest, State Farm Forum Contest, and the State Parliamentary Procedure Contest. In 1970 we won both the State Farm Forum Contest and the State Demonstration Contest.

These are but a few ways to use the videotape recorder as a teaching tool. By using futuristic teaching tools like the videotape recorder, we can make the study of agriculture both exciting and challenging.

OCTOBER, 1970
BOOK REVIEWS

Gerald R. Puller, Special Editor
University of Vermont


Dr. W. Howard Martin is a professor in the Department of Higher, Technical and Adult Education at the University of Connecticut. This publication is the lecture given by Dr. Martin at the annual meeting of the American Association of Teacher Educators in Agriculture at the 1969 AAV convention in Boston.

Agricultural Education: Image and Substance contains a significant challenge to agricultural educators. Dr. Martin has proposed that a National Commission on Agricultural Education be established to reexamine the goals for agricultural education. He suggested four goals for positive image building and around which desired unity may develop in the new programs: agricultural production and marketing; natural resource management; environmental development; and agricultural research and marketing.

During the past 10 to 15 years much has been said and written regarding the need to reexamine programs of agricultural education. Agricultural educators have moved through the maze of defensive arguments and have in fact established an identity with programs to prepare youth for "modern types of farming." However, as Martin noted, there is still a major image problem. He put it quite boldly by suggesting we ought to be able to go beyond the broad stated goal: "to develop agricultural competencies needed by individuals engaged in or preparing to engage in an agricultural occupation." Martin rejects the image construction since 1963 as being "too centered on needs of industry and too programmed by Big Brother."

While several additions and improvements have been made in the 1969 edition, the basic design of the AGDDEX (Agricultural Education) has not changed. It was originally designed as a comprehensive, numerical system of classifying agricultural publications and for providing an easy, efficient filing system. Teachers of vocational agriculture and county extension agents will find this system particularly helpful in handling the wide range of publications they use.

The system includes a 50-page, spiral-bound filing guide and nearly 1200 guaranteed labels which are color-coded to aid in locating the system and in locating materials. AGDDEX provides for classifying and filing all types of educational materials under many headings. Although the bulk of the system provides for publications on such a variety as small as possible, it also accommodates such material on educational occupations and on professional information. Many publications are being added, so that they can be immediately placed in the appropriate section of the file. The file is requisitioned for installation is generally three to five days.

Donald C. Burgin
Cornell University


Anyone interested in knowing how to identify native trees will find the ninth edition of this manual understandable and easily used. North American Trees has been designed to meet the needs of individuals and organizations, including schools and public places, without sacrificing scientific accuracy.

Drawings showing descriptive characters, location maps, and concise descriptions of botanical and climatic characters have been included for 232 species which are either of economic importance or general interest. An additional 356 less important species are either briefly described or included in the complete key.

Guy E. Timmons
Michigan State University


The objectives of this laboratory manual and workbook are to examine in detail the special factors of farm machinery operations and to indicate procedures for making economic decisions regarding machinery management. Equipment associated with crop production is discussed although the management principles are also applicable to livestock equipment.

This fifth edition of Farm Power and Machinery Management incorporates changes from previous editions. It includes new materials on implement construction, implement tire loading, hydraulic drives, and selection of the optimum farm power level by computer. New illustrations are also used to show the latest farm equipment and new laboratory exercises are included.

The subject matter is of direct value to the present or potential operator of farm equipment. However, the management principles and the machinery operating details are useful to those students preparing for careers in agricultural education, agricultural mechanical engineering, and to the agricultural engineer who might serve as a machinery manager on a large, commercial farm.

Guy E. Timmons
Michigan State University

The data on enrollment trends in agricultural education in the United States (see the tables below) have recently been released by the U.S. Office of Education. These data should be valuable in pointing out that vocational agriculture is changing.

NVATA was represented during July and August at the following activities by the persons indicated.

—Region V Leadership Conference, Athens, Georgia: Millard Gundlach and D. P. Whitten

—Minnesota State Conference: Millard Gundlach

—New Jersey State Conference: Howard Teal

—Virginia State Conference: Howard Teal

The data are based on reports of enrollments from 30 states and the District of Columbia. They do not include enrollments from Alaska, Hawaii, Puerto Rico, and the Virgin Islands.

For the Report Editor's Desk

Level of Instruction
Enrollment in Agriculture, United States 1900-1969

<table>
<thead>
<tr>
<th>Year</th>
<th>High School</th>
<th>Intermediate</th>
<th>Vocational</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900</td>
<td>12,000</td>
<td>15,000</td>
<td>15,000</td>
</tr>
<tr>
<td>1910</td>
<td>20,000</td>
<td>25,000</td>
<td>25,000</td>
</tr>
<tr>
<td>1920</td>
<td>30,000</td>
<td>35,000</td>
<td>35,000</td>
</tr>
<tr>
<td>1930</td>
<td>45,000</td>
<td>50,000</td>
<td>50,000</td>
</tr>
<tr>
<td>1940</td>
<td>60,000</td>
<td>65,000</td>
<td>65,000</td>
</tr>
<tr>
<td>1950</td>
<td>80,000</td>
<td>85,000</td>
<td>85,000</td>
</tr>
<tr>
<td>1960</td>
<td>100,000</td>
<td>105,000</td>
<td>105,000</td>
</tr>
<tr>
<td>1965</td>
<td>120,000</td>
<td>125,000</td>
<td>125,000</td>
</tr>
<tr>
<td>1969</td>
<td>150,000</td>
<td>155,000</td>
<td>155,000</td>
</tr>
</tbody>
</table>

From the Report Editor's Desk

Northern Business and Agricultural Production, United States 1900-1963

<table>
<thead>
<tr>
<th>Type of Program</th>
<th>Number Enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Business</td>
<td>150,000</td>
</tr>
<tr>
<td>Agricultural Production</td>
<td>350,000</td>
</tr>
</tbody>
</table>

From the Report Editor's Desk

Enrollment Trends in Agricultural Business and Agricultural Production, United States 1983-1963

<table>
<thead>
<tr>
<th>Type of Program</th>
<th>Number Enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Business</td>
<td>150,000</td>
</tr>
<tr>
<td>Agricultural Production</td>
<td>350,000</td>
</tr>
</tbody>
</table>

Agriculture tour of Europe sponsored by Geigy Chemical: Millard Gundlach

—National FFA Board of Directors, Washington, D.C.: Glen McDowell

—Receipt and handout for Secretary of Agriculture Clifford Hardin, Kansas City, Kansas: James Wall

—Executive Committee meeting, Agricultural Hall of Fame, Kansas City, Mo.: James Wall

—National Convention, National County Agricultural Agents, Corvallis, Oregon: Millard Gundlach and American Institute of Cooperation, Columbus, Ohio: James Wall

—Kentucky State Conference: Millard Gundlach

—Region VI Leadership Conference, Morgantown, West Virginia: Howard Teal and James Wall
Stories in Pictures

ROBERT W. WALKER
University of Illinois

Students at Oskaloosa (Iowa) Senior High School study soil on land owned by the Chamber of Commerce. Soil profile, or soil test, is taken to the classroom so students can identify soils and plan fertilizer practices. [Photo by John Pilkaven, Teacher of Agriculture, Oskaloosa, Iowa]

L. W. Davis, consultant, Alle-Columbia, Milwaukee, Wisconsin, served as a guest speaker at a symposium on future agricultural occupations held at Montana State University. The symposium was sponsored by the Montana State Collegiate FFA Chapter. Mr. Davis is a trustee of the National FFA Foundation. [Photo by Douglas D. Bishop, Montana State University]

Members of the Champaign (Illinois) FFA Chapter assist at the flag raising ceremony at the county fair. The FFA Chapter also sponsored a youth tent at the fair to exploit career opportunities in agriculture. [Photo by Roger French, Agricultural Occupations Instructor, Champaign High School]

Featuring — RESEARCH IN AGRICULTURAL EDUCATION