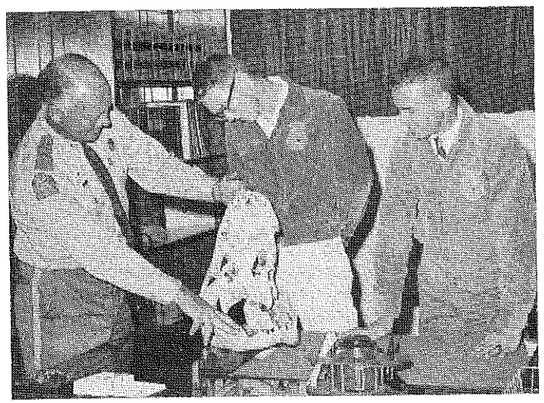
Effective teaching starts with planning. Members of the Agricultural advisory committee at Batesburg-Leesville High School, South Carolina, are shown above as they discuss course outline and supervised practice programs in agricultural occupation training being conducted by the Vocational Agricultural Department, left to right, S. A. Murphy, vocational agriculture teacher; Ellis L. Stockman, principal; Mrs. E. C. Ridgell, J. M. Crout, superintendent; and Leroy Cone.

Photo by Chastain

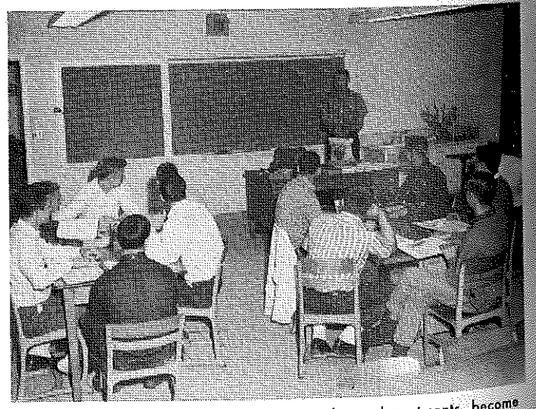
Stories in Pictures

GILBERT S. GUILER
Ohio State University



Effective teaching can be done by outside agricultural agencies. A District Wildlife officer displays a "safe" gator to Charles Palmer and Larry McCraney, Florida.

Photo by Harrell



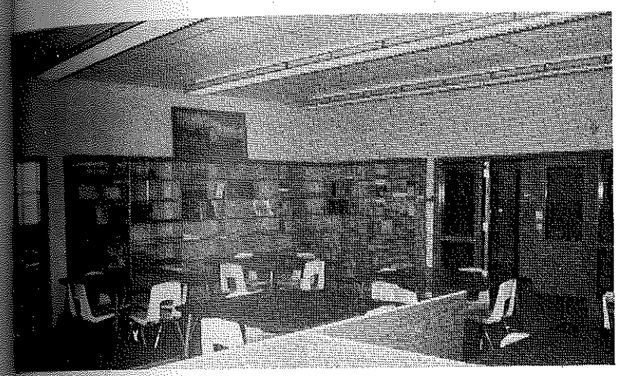
Students in Alabama Vocational Agriculture departments become effective teachers through actual practice in reporting most recent practices of wildlife management.

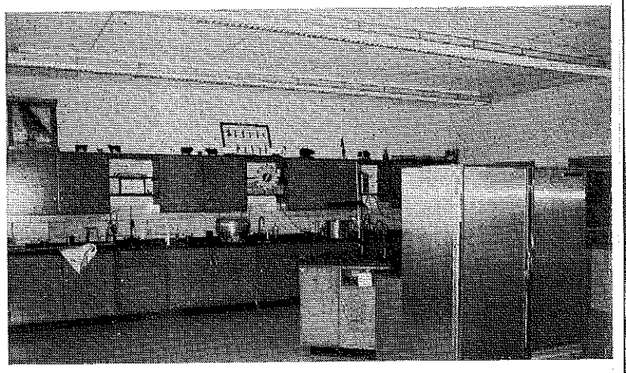
Photo by Faulkner

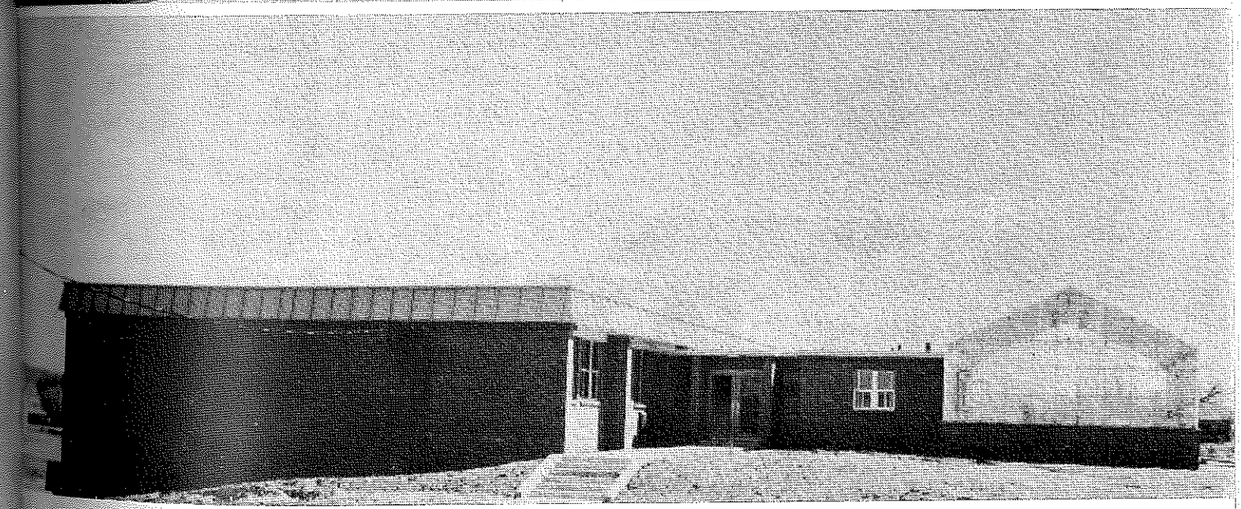
AGRICULTURAL EDUCATION

Agricultural Education

Volume 40 October, 1967 Number 4







Innovative programs in Maryland's Vocational Agriculture departments include facilities for Greenhouse management, separate library, and the applied science research laboratory.

FEATURING INNOVATIVE PROGRAMS

1917 . . . . . 50th ANNIVERSARY 1967
1st National Vocational Education Act

THE
AGricultural EDucation
MAGAZINE
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Editorials

Innovator or Late Adopter?


Cayce Scarborough

Much research has been done on the adoption of improved practices by farmers. Research on the adoption process by teachers of vocational agriculture is more limited. None that I know about has gone far enough to characterize teachers as *Innovators* or *Late Adopters.* However, it appears obvious that teachers of vocational agriculture vary widely as to their *AQ* (Adoption Quotient). Let's assume, for purposes of this discussion, that there is a close relationship between teachers of vocational agriculture and farmers in their adoption of new practices. The description of teachers would be something like this.

The *Innovators* would be about 2½% of the total number of teachers. They are the first to adopt new practices, and have a reputation for doing so. They are willing to take the risk of the new practice rather than waiting until the new practice is proven to be better than the old. If the climate is not favorable for changing ways of teaching, then the innovator will not be the most popular teacher among his fellow teachers. Innovators are mentally alert and looking for new ideas; in fact, they do not wait for the new ideas to be brought through the usual meetings, but may by-pass the usual channels of communication and go to original sources, such as research. They not only have a master's degree but continue to enroll in graduate courses, not always in agriculture or Ag Ed. They are usually not past middle age, but some older teachers continue to be innovators while some younger ones are not.

The *Early Adopters* would be about 13% of the teachers. They have many of the same characteristics as the Innovators but are not as venturesome. They tend to follow channels of communications rather than seeking their own. Usually leaders with the organization. They too have above average education and continue their education but along more conventional lines. Usuall not past middle age.

The *Majority Adopters* would be about 70% of the teachers, but there would be considerable differences within this larger group. They could be divided into Early Majority and Late Majority, in terms of their readiness to adopt a new practice. The earlier ones are conservative and traditional while the later adopters are skeptical of new ideas. These teachers would not read much other than agricultural information readily available. Some of the more progressive of this group would enroll in classes for their professional improvement while at least half of the group would not enroll in a class unless their certification forced them to do so.

The *Late Adopters* would be about 15% of the teachers, the last to adopt a new practice. In fact, some of the Innovators and Early Adopters would have already discarded the idea for a newer one before some of the Late Adopters got around to accepting the previous idea. Some call these *Laggards.* They are usually older, but some younger teachers "get behind" early and never catch up. New ideas are rejected because "they won't work in my situation." Never enroll in any courses unless forced to do so. Do not subscribe to professional journals and have as little as possible to do with professional organizations.

As stated, this description is imaginary, based upon the adoption process among farmers. Perhaps we will soon have some research on adoption of improved professional practices. In the meantime, maybe a close look at your own reaction to a new idea might indicate whether you are more nearly an *Innovator* or a *Late Adopter.*

Cayce Scarborough

Theory and Practice

The life of the innovator is sometimes made more difficult by his coworkers. This is especially true if the innovator is a younger teacher. Complete rejection of this young teacher by the group may result if he is on the state conference program to tell about his successful new approach. Such a situation can be expected if the climate of the group is such that new approaches are not welcome. The life of an innovator, like that of a rebel which he is, is not easy nor a popular one. Furthermore, the reward system in many of our state programs is not designed to encourage innovation.

- - - -

More evidence that the shortage of teachers of vocational agriculture is caused by an exodus is seen in Jim Wall's NVATA News for August. Two former NVATA Presidents and the long-time NVATA Treasurer were listed as taking other positions. Julian Carter, New York, goes to Vermont as State Consultant and FFA Advisor; Walter Bomeli becomes a principal, and Bob Howey enters the guidance field. All able men and continuing in the educational field where their services may be even greater, yet there are three vacancies for teachers of vocational agriculture, difficult to fill.

- - - -

Has anyone made a study of what teachers, supervisors, and teacher educators read? Books, magazines, newspapers, other reading materials. If anyone has made such a study we would like to have an article based on the findings. My guess is that such a study would be very revealing. In a similar way, it would be interesting to know how we spend our recreational time.

- - - -

(Continued on next page)

Theory and Practice

(Continued from page 75)

Here is another interesting "calling card." I wonder how many of us use this device for better understanding and public relations.

SHOP MANAGEMENT — WELDING
TRACTORS & ENGINES
JOB OPPORTUNITIES — STRUCTURES
FIELD MACHINERY

LeROY G. NICHOLS
AGRICULTURE MECHANIZATION INSTRUCTOR
LEWIS COUNTY
AREA VOCATIONAL EDUCATION CENTER
LOWVILLE, NEW YORK 13367

- - - -

Some favorable response from the proposal in the August *Ag Ed Magazine* for a full-time paid Executive Secretary for the Ag Division of AVA. Is this an idea worth pursuing? Worth proposing to our group at AVA in Cleveland in December? Certainly such a step would demand much study, but if we don't get started at our meetings in December it will be another year before any action can be taken. Of course an interim committee could be named, but such a major step should have the endorsement and direction of the entire membership after full and open discussion. Agree? Then let Ralph Bender, our AVA V. P., hear from you, so that he can get the matter on the usually crowded agenda at AVA.

- - - -

The biggest rural boom this country has ever known is just ahead. This is the first sentence in a recent *Kiplinger Letter*. The prediction is based upon the increase in population, particularly in rural areas where they predict that the increase will be felt most by the early 1970's. It is further predicted that about this time there will be more city people moving out than farm people moving in. Some of us who have visited former farming areas now converted to rural living can see some of this prediction already here.

- - - -

Your kind words of encouragement are always appreciated. The other words are also appreciated—both kinds needed! Keep them coming so that we can have a better professional magazine. See you next month.

Cayce Scarborough

How Is the Climate Where You Work?

As indicated in your first study of geography, climate goes a long way toward determining the way of life in an area. In a similar way, the "climate" surrounding an educational program or institution goes a long way toward determining the way a teacher goes. This is particularly noticeable with respect to innovation or creativity on the part of a teacher. If the climate is not right, it is difficult for a teacher to be creative or to even try out a new idea. Some research in this area indicates that teachers can make changes within the classroom or other minor changes, but a major change must have the support if not the leadership of the administration. What determines this *climate* which is such an influence on educational programs, particularly on the teacher interested in innovations?

Professor Harold Anderson, Michigan State University, suggests that school systems can be seen, with respect to encouraging creativity, in two systems, *The Open System* and *The Closed System.*

The Open System permits originality, experimentation, initiative, and invention on the part of students as well as teachers. Such a system recognizes, accepts and encourages uniqueness in perception and in thinking. Emphasis on people as persons. Perhaps the best example of such a system is a pre-school group under the leadership of a teacher who is people-oriented. Some teachers of vocational agriculture are able to develop such an open system in their classes where each individual feels an important part of the class, assuming considerable responsibility for his own learning instead of sitting and waiting for specific directions from the teacher.

The Closed System is concerned mainly with memorizing facts and finding answers. In such a system, much use is made of tests and students are classified according to test results. The teacher and "the system" have all power over the students. The whole educational program is answer-oriented, with the teachers having the answers that the students are to learn for their own good.

Obviously, if there is interest in developing creativity, which seems necessary for innovations, some openness must be present. How does this apply to vocational agriculture? This is especially timely, since most states are making statewide efforts to revise the curriculum in vocational agriculture. These efforts may be needed, likely they are. However, any *statewide effort* may become a Closed System before it gets started. Thus far, we have rejected a national curriculum but it would seem that a state curriculum might hold the same inherent difficulties for a local school or a local teacher.

Apparently, if a major aim in developing a curriculum *is conformity* there can be little creativeness on the part of a teacher. Certainly in such a climate there can be little if any innovation. It seems that leaders in vocational agriculture, particularly in curriculum development, should ponder the scientific fact that progress involves doing something *differently* which may prove *better* than the old, whether it is a new plant, an invention, or a different way of teaching vocational agriculture. Maybe we should consider an award for teachers who develop new ways of doing their job, "most likely to be better than the old." Might even substitute this award for the 30-year award for doing business at the same old stand.

Cayce Scarborough

A TRIBUTE TO DR. W. F. STEWART

Some men live and die and are forgotten, and some men live and die and are remembered. In my opinion, Dr. W. F. Stewart will be long remembered for the many facets of his amazing personality. His breadth of vision regarding vocational education was well known by all his associates and students. However, how many knew of his breadth of vision regarding the purpose and meaning of life. Doing a job to the best of one's ability was exemplified by his complete mastery at the bridge table or his thoroughness in training parliamentary procedure teams. To "doubting Thomas's" and "questionable believers in a Supreme Being" his comments on potatoes and gravy were the succinct and irrefutable arguments of a man who walks humbly with his God.

The poets have written, "A man is a success who has lived long, laughed often and loved much—who leaves the world a better place than which he found it, whether by an improved poppy, a perfect poem or a rescued soul—who always looks for the best in others' and gives it the best that he has." These are some of the reasons Dr. W. F. Stewart will long be remembered.

Harold Engelking
Supervisor, Adult Education
Southern Illinois University

Letter To The Editor.....

Dear Mr. Scarborough:

This is in response to Jim Hanneman's letter of May 29 in which he responded to my "What Would Happen If" column in the Agricultural Education Magazine, May issue.

Mr. Hanneman, it seems to me, is confusing the issue at two points. First, he offers some generalizations about agriculture and farming being used synonymously. This does not show up in the article, and raising the point does not add clarification to the issue. Secondly, the column refers to vocational *practices* and Jim counters with *programs.* This is a rather loose use of logic. I support and encourage the development of occupational programs. We must be extra careful as we develop these programs because to use Jim's own words, "learning activities do not always coincide with requirements." Jim, thanks for supporting my position.

Jim, I am deeply appreciative of your keep interest and your response. Keep up the good work at Michigan State and please respond to any further material.

Sincerely,
John F. Thompson
Assistant Professor
University of Wisconsin

Glad to get your response to Jim's response, John. Maybe both are in general agreement but differ on emphasis. CCS

Themes For The Agricultural Education Magazine

December 1967 - February 1968

Volume 40

December—	TEACHER PREPARATION AND CERTIFICATION (Requirements B.S., M.S. Special Trends)
January—	GRADUATE STUDY AND IN-SERVICE EDUCATION (Assistantships available. Summer Institutes. Other in-service education for teachers.)
February—	TECHNICAL EDUCATION IN AGRICULTURE (Post-secondary programs)

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The Editor

Curriculum Innovation Depends On Teacher Initiative

WILLIAM L. HULL, Teacher Education, Oklahoma State University

By definition, an innovation is perceived as something new or different from the commonplace and familiar.[1] Consequently, most people react to any idea or program perceived as "new" cautiously, sometimes suspiciously, until the idea has proven itself. Any person or group initiating a new and different method of achieving common goals should expect criticism for not sticking with "tried and true" methods. Eicholz and Rogers[2] postulate six different kinds of rejection responses in a study of individuals who were encouraged to adopt an innovation. The investigators developed a framework for identifying forms of rejection.

Occupational experience programs for off-farm agriculture have been legitimized by the 1963 Vocational Education Act. This mandate along with many of the innovative methods used to obtain its objectives have been viewed as a threat by some successful teachers of production agriculture programs.

In addition to newness of an idea, an innovation may not be encompassed by the norms of the social group. The existence of formal or informal leaders in a community who are in favor or opposed to occupational placement of students can enhance or deter the adoption of occupational placement objectives of an agricultural occupations program. A vocational agriculture teacher who enjoys community support of a successful program preparing students for production agriculture has little incentive to devise methods or procedures different from the established community norm. For example, if the power structure of a community expects a winning fatstock judging team, the teacher of agriculture may feel obligated to fulfill that expectation. If his best boys are scheduled to work in Agricultural business cooperative training stations after school and on Saturday, the chances of a winning team are lessened.

Nevertheless, some teachers are rising to the challenge of educating or re-educating their communities to the needs of off-farm agriculture students. Teachers committed to helping their students acquire skills and develop abilities for employment in agriculture are expanding the business aspects of their agricultural curriculum.

Sixty vocational agriculture teachers attended a teacher education institute at Oklahoma State University taught by two Distributive Education teachers.[3] Each of these men had a desire for professional improvement. Some have developed a cooperative placement agricultural distribution program in their local communities. The teachers identified in these examples attended the 1966 Institute.

In Ohio

The unique location of the Marysville Vocational Agriculture Department in close proximity to the O. M. Scott and Sons turf grass research station has provided Odell Miller, Vocational Agriculture Instructor, an excellent training station. During the 1966-67 school year he placed five of thirteen cooperative occupational students at the station. Among them was Bob Wenger, Ohio's star award student in agri-business for 1965. Last year was Miller's third season with the cooperative placement program. He has served on Ohio teacher advisory committees to rewrite the off-farm agricultural occupations section of the state course of study. This program has grown so that the school was looking for a second full-time agriculture teacher to begin this fall.

In Tennessee

The Portland High School Agriculture Department, under the direction of the Tennessee Department of Education in 1965 was approved as a pilot program in off-farm agricultural occupations. Serving as the teacher-coordinator for the pilot project, Harold C. Gregory, Vocational Agriculture Instructor, constructed a training laboratory included fifty fect of display area and a showcase for featured items. In this laboratory, students simulated customer sales to become proficient in sales techniques before becoming a trainee in an agricultural business. Last year, Gregory taught twenty students in Distributive Education as well as ten senior agricultural occupations students.

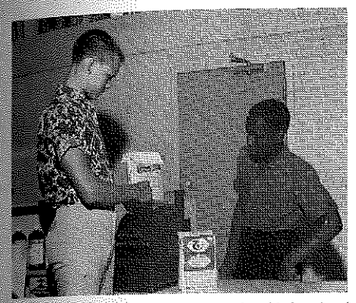
Another feature of the Portland pilot project was the hiring of special teachers for instruction in mechanization. Qualified employed trademen taught units of instruction in carpentry, plumbing, house wiring, air cooled engines, and welding under Gregory's supervision. Two vocational teachers have been hired to continue the program this fall.

High school students took diagnostic tests to determine their interests and abilities before enrolling in vocational courses. A fulltime guidance counselor interpreted their tests scores and assisted vocational teachers with occupational information.

[1] Rogers, Everett M. *Diffusion of Innovations*. New York: The Free Press of Glencoe, 1962, p. 13.

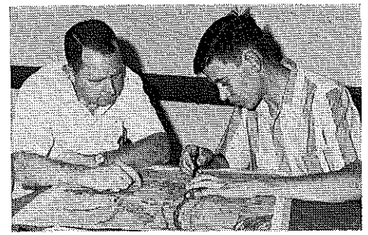
[2] Eichholz, Gerhard and Rogers, Everett M. "Resistance to the Adoption of Audio-Visual Aids by Elementary School Teachers: Contrasts and Similarities to Agricultural Innovation," in *Innovation in Education*, Matthew B. Miles (ed). Bureau of Publications, Teachers College, Columbia University, New York, 1964, p. 306.

[3] Instructors for this institute were Mrs. Lucille Patton, now Teacher Educator in Distributive Education, Oklahoma State University, and Mr. Leroy Ward, Teacher-Coordinator for Distributive Education, John Marshall High School, Oklahoma City.



A simulated sales transaction assists high school students enrolled in agriculture at Portland, Tennessee to become proficient salesmen of agricultural products. The merchandizing laboratory provides an environment for role-playing many occupational experiences.

Marysville vocational agriculture students harvest grass seed on the O. M. Scott turf grass research station in Ohio. Part-time employment experiences aid the youth in preparing for agricultural occupations off the farm.



Don Geige (left), Work Unit Conservationist, Soil Conservation Service, Blackwell, Oklahoma, assists Carl Reutter, Conservation Trainee and High School Senior in plotting contour lines. Carl expects to major in Agriculture or Engineering when he enters college this fall.

In Oklahoma

No effort had been made in Blackwell, Oklahoma to establish an off-farm agricultural occupations program prior to the participation of Hallard Randell, Vocational Agriculture Instructor, in the Institute. Five of seven students placed for cooperative occupational experience are located in agricultural implement businesses or other positions requiring mechanical skills and abilities. Fort this reason, much of his group instruction last year was in agricultural mechanics. Individually, the students worked on competencies needed in their particular job title.

Randell credits the early formation of a citizens' advisory council with much of the successful placement of students. The students keep weekly records of their assigned tasks. Randell is not completely satisfied with the quality of experiences of all students in training stations, but he hopes to correct these weaknesses next year.

In Arizona

The Glendale public school system has one of two Vocational Agriculture Departments within the city limits of Phoenix. Richard T. Meder, Vocational Agriculture Instructor, teaches suburban students, most of whom have limited backgrounds in agriculture. He attends to this by providing a land laboratory for application of classroom instruction. Last year, the FFA organized a cooperative steer feeding project. It paid handsome dividends to members who held shares in the enterprise.

Even in the Glendale school system of 2,000 pupils, there are many evidences of agriculture class efforts: flower beds tended by agriculture students, concrete stairs and walk, and a small greenhouse for classroom experimentation. This fall the class plans a one-hole golf course near the Vocational Building. Like many vocational agriculture departments, the program has developed so the school plans to hire an additional agriculture teacher.

With the additional teacher will come the initiation of a separate class in agricultural distribution. A few students participated in supervised occupational experience in excellent training stations last year. But Meder feels more supervision and better quality instruction can be provided with a more specialized program.

The four programs noted in this article characterize many efforts of vocational agriculture instructors throughout the nation. It is true that two of these four programs were originally started with the help of non-local monies provided on a short-term basis. But the sustaining feature of each effort is a dedicated aggressive teacher of agriculture who organizes departmental resources to improve the instructional content of his program.

Each of the four departments has a community with unique features which enhance or inhibit the development of a strong program of cooperative education in agriculture. The key ingredient remains the teacher of agriculture. In each of the cases cited, the instructor has from five to ten years of experience teaching vocational agriculture and exhibits a commitment to improving pupil achievement. In each instance a superintendent and/or principal sympathic to innovative behavior provides an important impetus to a quality program of vocational education.

It behooves teacher educators and supervisors to include teacher organization committees, or individual teachers themselves in plans for diffusion and evaluation of innovative programs. In the final analysis Agricultural Education succeeds or fails due to the influence of the practicing educator.

A New Concept In Visual Aids . . . .

John Blessent

JOHN BLESSENT, Vo Ag Teacher,
Champaign, Illinois

Are you using visual aids to their best advantage in instruction? Here is a way to increase the scope and effect of visual aids in the classroom and shop.

If you need something to help increase the class interest in your teaching material try using figures or models of the subject you are using in instruction. An example is the use of figures of a steer, barrow, or sheep in units on judging, animal selection, or wholesome cuts of meat. On one side the figures mark off in different parts and use to teach the students the names and parts of the animal. After the students have learned the parts, the opposite side can be used for a test or quiz by marking off and numbering the parts of the animal. This method is unique in the way figures can be fastened on a chalkboard and instructions or additional material can be written around the figure.

Making the Model

In this method, a figure or model of an animal, machine, map, graph, or other object of the desired size is made out of thin masonite, hardboard, or heavy cardboard, prefferably with two smooth sides. Also, mounting holes are needed for mounting the figure on a bracket for use on a chalkboard or wall. Then the figure should be painted with chalkboard paint or paint with a rough texture on one or both sides the color desired. This gives the figure a surface that can be written on with chalk and easily erased. Next, at least one bracket is needed to hold the outline upright on a table or desk. In addition, a mounting bracket with rubber suction cups is needed to hold the figure to the chalkboard or wall. When these steps are complete the figures are ready for use.

List of Materials Needed for Construction

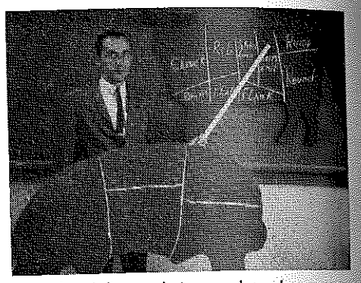
FIGURES

Thin masonite, hardboard, or heavy cardboard 18 x 24 in. or the desired size.

Chalkboard paint or flat wall paint with an abrasive added.

BRACKET FOR CHALKBOARD

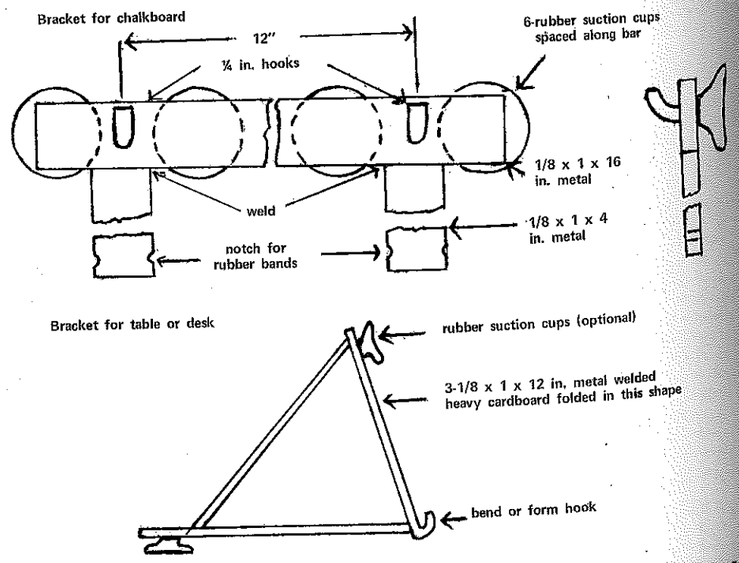
6-small rubber suction cups (available Western Auto Stores).
1-1/8 x 1 x 16 in. metal
2-1/8 x 1 x 4 in. metal
2-1/4 x 2 in. metal rod or bolts
2-rubber elastration bands or heavy rubber bands



Example of figures being used to demonstrate the wholesale cuts of meat of animals to the students.

BRACKET FOR TABLE OR DESK

3-1/8 x 1 x 12 in. metal or heavy cardboard 4 x 36 in.
2-rubber suction cups (optional)



Instructions for Construction

FIGURES

Trace object from pattern or use a slide or film stripe projector to make outline of figure

Make two 1/4 in. holes 12 in. apart centrally located near the top of figure

Paint with chalkboard paint on both sides

Using the Model

The following are some of the advantages of using figures for a visual aid:

1. Attractive colors can be used in presentation of teaching material.
2. Preparation of the figures can be completed before class.
3. Figures can be used on either chalkboard, table, or desk.
4. The figures can be used over again for different teaching areas.
5. One or both sides of the outline can be used for instruction.
6. More than one figure can be used at one time.
7. Students can help in the presentation of subject material.
8. The figures are flexible in allowing the instructor to use them to fit the teaching situation.
9. Figures are not difficult to construct and are relatively inexpensive.

The following is a list of ways the figures can be used:

1. Illustration in teaching of subject matter.
2. They can be used for test and quizes.
3. Figures can be used by students for independent study.
4. Demonstrations of subject matter can be accomplished by either students or instructor.
5. Figures can be used on bulletin boards or in displays
6. The construction of figures could also be a class or shop project.
7. The figures can be used as a guide for tracing an outline of figure on a chalkboard or other material.

NEEDED — A PRE-TECH PROGRAM FOR HIGH SCHOOL

G. Allen Sherman, Dean, Mount San Antonio College, Walnut, California

It is becoming more and more apparent that a high school education is not sufficient for many jobs today. Automation continues to take its toll in the elimination of jobs for unskilled workers in agriculture, business, and industry. At the same time, the demand is increasing for technicians. The technician is one who works at a level above the skilled worker and below the professional worker. He must be able to work with his hands as well as to interpret the work of the professionals. The technician also must be able to make some management decisions.

Employers are increasingly seeking such personnel at the post high school level in the community colleges or technical institutes. This has been reflected in the various states by the rapid establishment of many new junior colleges and technical institutes. The United States Office of Education estimates that over 500 such institutions will be established in the United States in the next ten years.

The Traditional Two

Most high schools today offer a two track system, vocational and college preparatory. How much of each is offered depends somewhat upon the size of the high school. When Conant made his studies of the American high school, he concluded that the comprehensive high school should have three main objectives: general education for all, elective programs for terminal students, and programs for students desiring higher education.

A Third Need

In the past few years we have seen a great deal of study and a definite change in the curricula offered to meet the third objective. More honors programs have been initiated. College admission requirements have brought about the tightening of academic standards. Has the same consideration been given to the twenty to thirty percent of the students who wish to continue in a post high school technical program? Does either the vocational or college preparatory program meet the needs of this considerable group of students? The answer in most high schools is no! Perhaps some of the vocational courses would help develop needed skills, but would be found lacking in the level of math or science required. The college preparatory program may include some of the subject matter desired, but the present teaching methods and equipment may not be the most desirable for this group of students.

It is to be recognized that there is a wide variation of knowledge needed in jobs in the technical areas. There are also common areas of experience for jobs in agriculture, business, and industry. What type of program can be devised to realistically meet this need? Such a program can come only after a serious consideration of goals in the light of present practices and desired changes.

The Problem

When studying this problem, it is not common to find agricultural programs in urban high schools. Yet, many of the technical jobs in agriculture do not require a farm background. On the other hand, a rural high school may have fine programs in agriculture or home economics, but little in business or trade and industrial education. Where is this school meeting the needs of the farm boys who will not be able to stay on the farm and need training in other areas?

(Continued on page 83)

Robert Ray

MEAT ARTS PILOT PROGRAM

ROBERT RAY, Vo Ag Teacher,
Belmont, Wisconsin

During recent years most agriculture instructors have been faced with the problem of keeping the vocational programs in tune with changes that are coming about in the agricultural industry.

Some students enrolled in Vocational Agriculture do not posses a farm background. As agriculture instructors, we have to be especially watchful if we are going to keep these non-farm boys in the agricultural field. It is known that 35 - 40% of all jobs in the U.S. are agriculturally related. In the area around Belmont, Wisconsin, this figure is closer to 95%.

To many students studying vocational agriculture in high schools today, the word, "agriculture" should mean more than farming. The course of study not only deals with producing food and fiber, but includes all the processing, marketing and affiliated services. Statistics show us there has been a decrease in the number of farmers since World War II and an increase in the number of workers in technical agri-businesses. These jobs range from veterinarians to milk truck drivers.

This is proof that vocational agriculture in our high schools today must not only teach *production agriculture,* but *agri-business* as well if we are to meets the *needs* of our changing field of agriculture.

Program Establishment

Ideas for the present program arose from a trip to Paducah, Kentucky, in April of 1965. This trip was sponsored by the Platteville State University Agriculture Department under the supervision of Dr. Charles DeNure and Mr. Charles SaLoutos. Seven area agriculture instructors from the Platteville vicinity made this trip which was entitled "Seminar on Wheels".

While in Paducah we visited the Reidland High School under the direction of Mr. Clayton Riley, director of the program in occupational courses in agri-businesses. Mr. Riley explained to us how a one-man department was converted into a 3-man department by adding occupational courses to the agriculture curriculum, with the community getting a better understanding of the true needs of the program. The Reidland High School classwork was supplemented by actual on the job training with supervision from the employer as well as the director, Mr. Clayton Riley.

With these new ideas in mind Mr. Ivan Cooper (my superintendent) and I evaluated our program and found where the addition of such a course could benefit our community.

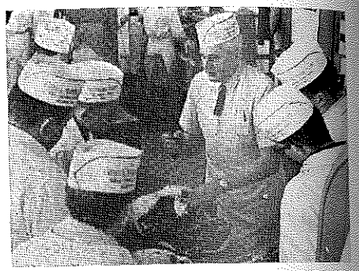
We decided on an occupational course in Meats and Meat Processing. Through discussions with Mr. Clarence Knebel, owner and operator of Knebel's Processing Plant in Belmont, the course of study was established and the program was initiated. We gave the course of study the title "Meat Arts". This name was chosen because it was a fitting title for this occupational course of study.

Finances for the Meat Arts course were provided from two sources: 50% from the Vocational Education Act of 1963 and 50% from the local school budget.

On-The-Job Training

The program was in operation for twelve weeks, ten weeks of on-the-job training at the processing plant and two weeks of class instruction in the Home Economics classroom.

The Junior Agriculture class participated and their classes were scheduled for the first hour in the morning. This got us to the processing plant before the busy hours of the day and Mr. Knebel was able to work with us during the on-the-job training period. Bus transportation to and from the processing plant was provided by the school.



Mr. Knebel instructs class in the fine art of cutting meat.

Our pilot program consisted of 15 boys, in two groups. After assigning the boys to Group I or Group II, a daily schedule was made for the next ten weeks with each group going to the processing plant on alternate days. We found that a smaller group was easier to work with but, a group from 10 - 12 students would be optimum depending upon size of facilities. The group that remained at school attended a study hall with assignments.

The preliminary phase of the course of study was conducted by the agriculture instructor to provide motivation and orientation for the final phase at the processing plant. This included discussion and study in depth on beef, pork, lamb and poultry. Each area was divided into the following topics:

1. *Types and breeds*
2. *Feeding methods*
3. *Housing*
4. *Diseases and sanitation*
5. *Grading and selection*
6. *Market Practices*
7. *Carcass study*

(Continued on next page)

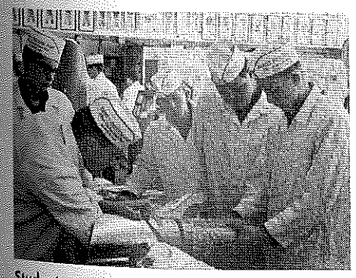
Meat Arts Pilot Program

(Continued from page 82)

All the above categories were supplemented by the use of slides, diagrams, pictures, filmstrips and charts in order to make the learning situation more impressive.

After the classroom course of study, the students moved directly into the on-the-job training phase at the processing plant which included the following areas:

1. *Use and care of tools and equipment*
2. *Selection of animals and birds*
3. *Kill floor procedures*
4. *Hide and/or feather removal*
5. *Removal of internal organs*
6. *Areas for disease diagnosis*
7. *Dissection (processing)*
8. *Meat cut identification (wholesale and retail)*
9. *Carcass evaluation (grading by lean cut yield and loin eye measurement)*
10. *Cooling*
11. *Wrapping*
12. *Freezing*
13. *Storage*
14. *Sausage making*
15. *Smoking and curing*
16. *By-Product disposal*



Students received an abundance of actual experience.

Students were required to wear a white coat and cap which is mandatory of all processing plant personal. This apparel was provided by the processing manager and the cleaning and rental expenses were incorporated into the final sum paid to Mr. Knebel for his services and use of equipment.

Approximately one hour of instruction was given on each phase of the program before the boys went into the actual on-the-job training. Each boy then went through the complete process of slaughter and processing for all meat animals except lamb, which the plant does not process. At all times the boys were under close supervision by the plant operator and myself.

After completion of the course at the processing plant all the students returned to the classroom for two weeks of instruction by the Home Economics instructor on the preparation of the various cuts of meat. At the completion of the Home Economics classroom instruction the boys prepared a dinner with meat being the main course.

Evaluation

The students receive 1/2 credit for the course and the grades were recorded on their permanent records. Students can refer to this record when seeking employment in a processing plant. Employment is also available on Saturdays and after school hours at the processing plant in Belmont, Wisconsin.

Each student was required to turn in a self-evaluation of the occupational program. After careful study of all evaluations, by the personnel involved, it was found that every student rated the course content, practicality and application very highly.

The program has received recognition throughout the local community. The superintendent of schools has indicated that this type of program should be continued and plans have been made to offer the "Meat Arts" course again this fall.

Needed—A Pre-Tech Program In High School

(Continued from page 81)

Many problems face the superintendent of a unified district including three or four high schools when he considers the technical training program. Does he offer every program in each high school or does he put business in one, agriculture in another, and trade and industrial education in another? Under this organization, he could release students to go from one school to another, either full time or part time. However, many problems arise, such as transportation, sports or other extra curricular activities of the students. Another choice to the administrator is the vocational high school. Some of the same objections already stated would apply, and, in addition, such a school usually gets a stigma of "second class" attached to it. It is often assumed that the only students who attend are those who cannot succeed in the regular high school. Also, once committed in the eighth grade, the student would have a limited chance to change.

One Approach

One must be realistic and acknowledge that one school cannot offer subjects in all areas. It is possible, however, to conduct surveys to determine what types of jobs exist requiring post high school education. A good survey should not be too local in nature, due to our mobile population. Such a survey would be valuable not only to determine what employment opportunities exist, but also to show what types of job clusters with common areas of experience are found. This would point up the fact that there would *not* have to be separate programs for pre-agriculture, pre-nursing, or pre-engineering. Many of the basic concepts in math, physical science, biological science, and social science should be common to all programs. These concepts would need to be identified and incorporated into the pre-technical curriculum.

Once these data are obtained, curricula can be planned to allow a realistic grouping of students. The survey may reveal that the old two track system is no longer sufficient in the modern high school. College now means more than transfer to the university.

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SOME GUIDELINES —

INNOVATING PROGRAMS IN OFF-FARM AG OCCUPATIONS

William Hamilton and Joe Bail, Teacher Education, Cornell University

Professional and lay people planning new educational programs in off-farm agricultural occupations can benefit from the results of recent findings concerned with the identification of successful practices in such emerging programs. The study[1] identified and assessed practices followed in innovating educational programs in ornamental horticulture, agricultural business, agricultural mechanization and conservation in ten high schools in New York and Connecticut.

After obtaining a commitment from the school administrators, the teachers were contacted for their willingness to serve as a member of the study panel. Each school was visited by a project staff member. A series of two-hour interviews were conducted by one of the investigators to identify the concerns of the teachers in innovating the programs in their schools. These interviews were open ended with a checklist at the conclusion to assure consideration of all aspects of innovation. From the base of the interviews conducted, a questionnaire was developed and used with administrators, teachers, guidance personnel, school board members, advisory board members, employers, and parents. The questions asked each group represented their areas of concern in these programs.

The successful innovative programs appeared to have a number of common characteristics. Some of these were:

- A depth and care in pre-planning involving the professional and lay groups concerned with the program.
- Extensive use of State Educational Department personnel.
- Application of skills learned in on-the-job work experience.
- Efforts to supply adequate facilities.
- Use of available community resources.
- Continuing efforts to adequately inform the public about the program.
- Use of advisory groups or boards.
- Teacher specialization.

1/Bail, Joe P. and William H. Hamilton. A Study of the *Innovative Aspects of Emerging Off-Farm Agricultural Programs at the Secondary Level* . . . U. S. O. E. Report, 5-85-110. January 1967. Cornell University, Ithaca, N.Y.)

A list of guidelines was developed from the project as suggested here:

GUIDELINE NO. 1. Surveys are Useful in Several Ways

First, surveys can serve as a means of informing people that a new program is being considered. Second, they serve as an indication of student interest and give preliminary estimates of student enrollment. Third, an employer survey can be used to identify some of the skills or competencies that the boys or girls will need during training in the special program being planned. Fourth, this employer survey will help inform employers and develop a favorable attitude towards the program. Fifth, the improved public relations will make work experience stations easier to obtain and will make possible better employer-teacher cooperation in planning and conducting programs.

GUIDELINE NO. 2. A Great Deal of Help is Available from the State Department of Education

Help in planning, survey forms, in securing personnel for meetings with officials and the public, and other consultative services are available. Printed materials from various sources may also be provided to help in getting new programs started.

GUIDELINE NO. 3. Joint Meetings of Administrators, Guidance Personnel, Teachers of Agriculture and Advisory Group Members are Desirable

The involvement in planning of all groups who will be affected by the program will do much toward accomplishing the program goals. The people involved will become knowledgeable, and become supporters of the program. In addition, they will help interpret the program to the people they represent and the people they come into contact with in their daily work, Good public relations can be improved in this manner.

GUIDELINE NO. 4. Visits to Other Existing Programs will be A Useful Tool in the Planning of A Local or Area Program

Actual visits to existing new programs provide the incentive for innovation among the key people responsible for such changes. In addition, the enthusiasm exhibited by those conducting the programs visited, helps to "sell" a number of such individuals who can assist in telling the story locally.

GUIDELINE NO. 5. Work Experience is A Valuable Part of the School Program

The traditional viewpoint that learning is a self-active process and is reflected in changed behavior has been demonstrated through supervised practice programs. Practical work experience in as near a real job setting as is possible should be an integral part of a special program.

Yearly goals in terms of hours of experience varied, with the range in this survey from 150 to over 400 hours per year.

GUIDELINE NO. 6. The School Should Help Students Find Work Experience Stations

The majority opinion favors the school helping the students locate work experience stations. Among reasons given are the following:

(a) The school has too much at stake to leave this arrangement to chance. Likely this is the student's first job experience and he can use the help and encouragement in making an initial contact.

(b) The school needs to be concerned about the quality of the work station.

GUIDELINE NO. 7. Employers Should be Involved in Planning Work Experience Programs

For full cooperation the employers should be involved in planning the experiences for students who are to be employed in their place of business. Advantage can be taken of particular equipment or techniques involved in a given business. It is also an excellent opportunity to impress employers with the idea that students are there to gain as wide a range of knowledge or experience as possible. In addition, any plan a person helps make is more readily adopted by him and becomes "his" program.

GUIDELINE NO. 8. In Work Experience Programs the Student Should be Paid

Although it is recognized the primary purpose of the program is the training of the student in skills within the business, unless the student is paid he will have very little incentive to do well on the job. The student must show his presence is profitable to the business to justify his presence there. Assuming that the student must show a profit to his employer, the matter of pay becomes one of compliance with the labor laws and motivation. A plan that permits a base starting point in pay with a possible incentive increase after the student has learned some basic skills in the business will serve as a powerful incentive.

GUIDELINE NO. 9. Adequate Facilities are A Must for Quality Programs

In planning for new programs, facilities should be large enough to handle increasing enrollment. The history of these programs has been a small start and a rapid expansion in a period of a few years. The nature of the specialized program will determine the kinds of facilities needed to make the instruction most meaningful.

GUIDELINE NO. 10. Adequate Equipment is A Must for Specialized Programs

Provisions in the budget must be made for adequate equipment appropriate to the speciality being offered. The more intensive the instruction in the specialized program, the greater the need for specialized equipment.

GUIDELINE NO. 11. Teachers Must be Aware of Instructional Materials, and Their Sources in the Specialized Area

Inexperienced teachers or those working in a speciality for the first time, must acquaint themselves with materials of the field. This includes commercial as well as educational materials.

GUIDELINE NO. 12. Community Resources Should be Used in Specialty Programs

Businesses in the community who have specialists and special equipment not available in the local schools can be used as a source for training. The use accomplishes two purposes, first, it provides the student with the experience and second, it helps acquaint the employer with the program.

GUIDELINE NO. 13. The Inclusion of Specialty Programs in the School Curriculum Helps Fill Community Needs

Agriculture is more than farming. The change in community sources of revenue from agriculture to industry, or for services to agriculture, have reduced the number of people required in farm production. Many people serving farmers need extensive agricultural skills. The specialized programs provide an opportunity to train workers for these service businesses.

GUIDELINE NO. 14. Local Dealers and Trade Organizations Should be Informed About Special Programs

Local dealer or trade organizations can be helpful in the conduct of work experience and in planning the in-school portion of these programs. Often a member of such an organization may serve as a member of an advisory board. Good public understanding demands that these people be included in planning such programs. Getting businessmen involved will help them understand the program and also will help the teacher understand the businessman's situation.

GUIDELINE NO. 15. Communications are Very Important in Starting Specialized Programs

Involvement and information builds understanding and support. Estimates of public relations and informational programs are often too high. In the survey, parents, employers, advisory board members and other people were not as well informed about the program as the teachers and administrators of those programs thought they were.

GUIDELINE NO. 16. Wide Publicity is Needed in Starting Programs

All suitable avenues of publicity should be used to inform the public and prospective students of new programs. Some of the methods of publicity used by districts in the study included newspaper stories, radio, TV programs, printed materials, public meetings, student demonstrations, open houses, demonstration plots and special student-parent meetings. For established new programs, most school people stated that word of mouth advertising by other students was the most effective publicity.

GUIDELINE NO. 17. Exhibits are Useful Tools in Promoting Programs

Exhibits serve two useful purposes in promoting programs. First, a properly prepared and placed exhibit may contact with more force, more people than other publicity is able to do. A second value is the experience obtained by students in preparing and placing the exhibits. The type of exhibit may vary according to the specialized program.

GUIDELINE NO. 18. Students Should be Involved in Public Relations Activities

There are several reasons for including students in public relations activities. Among these are: the value to the student involved, parent interest in student participation, opportunity for the public to observe the students of the program and the value of presentation by other than professional personnel.

GUIDELINE NO. 19. Demonstration Plots Can be Used to Advantage in Promoting Programs

The same comments as made concerning exhibits would apply to demonstration plots. The major difference is that the demonstration plots would continue over a longer period of time, perhaps years, whereas an exhibit would likely be of shorter duration.

GUIDELINE NO. 20. Insurance and Liability for New Programs Should be Checked with the School Master Policy

Teachers because they work with the students in these new situations are more cognizant of possible hazards. Most school insurance policies are broad enough to include these new programs in the same framework as existing programs. Perhaps all that is needed is a word to the insurance carrier to check special coverage for these programs.

GUIDELINE NO. 21. Transportation of Students is A Concern in Starting New Programs

Transportation problems were worked out in different ways by different districts. This was a primary concern of students interviewed who attended area centers. They felt that the time they had spent in travel could have been more profitably spent in learning more in the specialty. Care, therefore, should be exercised in planning for the minimum amount of transportation time in bringing students to these new programs. Provision should be made for transportation of students on field trips to facilitate quality instruction.

GUIDELINE NO. 22. The Movement of A Teacher Between Centers can be an Important Concern

Where teachers have to move between centers for different classes, careful scheduling needs to be worked out between the attendance centers. Adequate travel time must be allowed considering travel conditions through the winter months. The amount of time the teacher spends in travel may need careful evaluation.

GUIDELINE NO. 23. Development of Entry Level Skills Must be a Primary Objective

Programs supported under Public Law 88-210 must have this as a primary objective. There are several other objectives that should be considered. Among these are vocational exploration, and preparation for entrance into post-high school institutions.

GUIDELINE NO. 24. In Multiple Teacher Programs One Teacher Should Act As Coordinator

Someone must bear final responsibility for reports and for the overall successful operation of the program. This teacher assumes major administrative responsibilities for the work of the department.

GUIDELINE NO. 25. Differences in Feeder School Programs Should be Considered

Such things as marking systems, differences in student regulation, or scheduled starting times may be problems in the start of a new program. For example, if the area school uses 60 as a passing mark and a local school uses 65, problems may arise at the marking period time. Careful examination of these items in advance can prevent these matters from becoming major pitfalls.

GUIDELINE NO. 26. In New York, the Board of Cooperative Educational Services Program's Responsibility Should be Clearly Defined

Where programs operate in cooperation with a B.O.C.E.S. Center, an opportunity exists for misunderstandings to occur. A clear statement of responsibilities of each party is desirable.

GUIDELINE NO. 27. Careful Attention to Scheduling is Needed

For students who may later consider additional education, careful construction of the schedule is necessary so these students can obtain the necessary college entrance requirements if they so desire. Scheduling may involve the time available for on-the-job experience. An opportunity for the student to participate in other extra-curricular activities should be considered in scheduling.

GUIDELINE NO. 28. Careful Planning is Essential in Scheduling Work Experience Programs

On-the-job experience in specialty training requires careful scheduling of time for the in-class portion of the program as well as the work experience portion. The total number of hours spent in the program as compared to other school programs should also be considered in the awarding of school credit.

GUIDELINE NO. 29. Follow-Up Records of Graduates are Valuable in Program Planning

Current knowledge of the status of graduates and former students can be of considerable value in program planning and development. To be of most value, the teacher of agriculture should be involved in gathering this data. This should be a cooperative endeavor with the guidance department.

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Horses And The New Look

BRUCE W. EMANUEL
Vo Ag Instructor
Greenwich, New York

Members of the vocational agriculture profession have achieved outstanding success to individuals, as well as making important contributions to our society. In spite of the splendid job being done, criticisms are often directed at the Vocational Agriculture Departments, especially in view of the decreasing farm population and the new agricultural trends. Educational insight and leadership have met these criticisms, and new directions in agriculture education have emerged, strengthening our position.

There remains, however, an imbalance of offerings to our students. Many areas of instruction that should be taught are omitted completely in our high schools. Let's be sure to provide instruction that will add an intrinsic and beneficial knowledge to our future agriculturists.

A well rounded program covering many areas develops an appreciative and competent student with enthusiastic convictions towards the whole of agriculture. There are many such areas current with today's agriculture, but I will restrict myself to the largest underdog of all, and incidentally the most neglected—the light horse industry.

Lots of Horses

Dr. M. E. Ensminger, distinguished professor, states that there are "more light horses than ever before." Highlighting this statement is the USDA horse and mule census taken January 1, 1960 on farms and ranches, which stood at 3,089,000 head. Cornell University, in the fall of 1964, estimated that there were over 6 million horses in the U.S., nearly doubling the results of the last federal census.

Looking at it another way, the number of new purebreds registered in 1948 was 26,041, in contrast to 117,552 in 1965, a 351% increase. In fact, one breed showed increased registrations of 3,945%. And remember that the majority of our horses are grades, or crossbreds. In 1959 there were 37,531 4-H boys and girls enrolled in horse projects, in contrast to the 1965 figure of 120,000 enrollees.

The expansion of the horse industry is demanding more field service and breed association personnel, extension personnel with a knowledge of horses, trainers, farm managers, teachers of equitation and horse science, feed company employees, horsemen, farmers, veterinarians and many others to meet the needs of the population explosion in horses.

Knowledge Needed

The successful horse manager must have a good working knowledge in the fields of nutrition, breeding, physiology, animal health, and salesmanship. The feeding of timothy and oats, for example, is far from humorous, especially when a person is striving to develop a finished performance horse. You must realize, too, that many "fast operators" are right now predatoring themselves on the uninformed horse owner, and more than likely some of your students fall into this category.

Interest High

Interest in light horses is at an all-time high in this country. Local and regional horse associations are springing up—riding clubs, dude ranches, horse shows, drill teams and others are developing and expanding their facilities. FFA and 4-H projects have increased in tremendous numbers, and it is gratifying to see recognition given these young people, as illustrated in recent articles of the *National Future Farmer Magazine*. More than once during a supervised farming visit at an outstanding dairy farm, I have found myself working a pleasure horse with a student on simple pivots or other training maneuvers.

On still another level, horse racing far exceeds any other spectator sport in the U.S.—baseball or football, for example—by about 30 million spectators. The growth and outlay in this area is fantastic, and many agriculture graduates are presently leaders in this field. More personnel than ever before are needed to service this segment of the equine world.

The family sport of riding is gaining rapidly in popularity, with the increasing glamour of outdoor recreation. The horse is no longer simply a poor animal at home to be neglected and abused by the owner. Rather, owners, and young people especially,

(Continued on next page)

recognize the challenge of mastering the basic fundamentals and the great reward and enjoyment there is in training and managing the horse, and the knowledge and use of proper equitation. It is a skillful rider who can properly put together his horse, collecting him with the use of his aids and the proper seat. You will find students progressing from pleasure riding to gymkhanas and horse and breeder shows, and eventually into more sophisticated and challenging skills of advanced equitation.

Suggested Program

I realize that in many cases it would be impractical to develop a concentrated course on horses. Perhaps to start you would want to spend only a week with an introductory unit for your freshmen. However, once formal instruction begins, you will find it a real benefit to all, and your class will show great attentiveness and appreciation of the material. Listed below are several areas of instruction easily initiated in a course of study.

HORSEMANSHIP

Grooming; tack; natural and artificial aids; mounting and dismounting; riding at the walk, trot, and canter; cooling out process; preparing a horse for showing.

HORSE BEHAVIOR AND TRAINING

Horse psychology; lead training; gentling and handling horses; training to lead; preparation for riding; initial riding; preliminary training; advanced training; finished horse.

PHYSIOLOGY OF REPRODUCTION

Basic anatomy and physiology of the male and female reproductive tracts; hormones that control reproduction; seasonal factors associated with fertility in mares; breeding season management.

SELECTING AND JUDGING HORSES

Comparative judging techniques and type standards; skeletal sructure and parts; unsoundness; reasons for placing of classes; showing techniques and procedures.

HEALTH AND DISEASE PREVENTION

General health program; types, causes, symptoms and prevention of diseases and parasites.

NUTRITION

Digestive system; function of feeds; nutritive needs; applied horse feeding; nutritive diseases and ailments.

BASIC FARRIER SCIENCE

Hoof examination; control of the horse; anatomy of the hoof; basic pathological observation and explanations.

It is my opinion that if educators turn their backs on these related topics, our rural youth will have missed a vital part of their training. Study of the modern light horse industry offers an opportunity for the vo-ag instructor to serve both vocational and recreational interests of his students.

Innovating Programs In Off-Farm AG Occupations

(Continued from page 85)

GUIDELINE NO. 30. A Youth Organization is a Valuable Adjunct to Training Programs

Where area programs have been involved, three types of organizational patterns have been reported. Careful evaluation of these programs needs to be made before final decisions are made in regard to the type of youth organization. The first type involved an FFA at each of the feeder schools for boys in the first two years with a senior FFA in the last two years of specializations at the area center. The second type involved an FFA Chapter at the local school with members from both the home school and the area center. The third type involved the organization of an FFA only.

GUIDELINE NO. 31. A Written Policy for the Operation of the Program is Desirable

Some type of written guidelines are needed at the beginning of the program although policy should not become rigid. Provisions should be made for revising policies based on experience and changing conditions.

GUIDELINE NO. 32. Students Should be Able to Elect a Specialty Without Having Had Previous Agricultural Courses

It is recommended that students take Ag. 1 and 2 before entering special programs unless the specialty begins at the sophomore level. However, students may decide later in their academic careers to explore one of the specialities and a requirement that they take a preliminary course would probably exclude them. These students should recognize, however, that they may be at a disadvantage compared to those who have pursued the entire sequence.

GUIDELINE NO. 33. In the Multiple Teacher Program Teacher Specialization Should be Practiced

The obvious benefits of having each teacher operate in the area of his most adequate preparation and experience is obvious. Specialization within the department will permit teachers to take courses to increase their competencies. Improvement in teacher competency can be accomplished more rapidly with specialization.

Needed—A Pre-Tech Program For High School

(Continued from page 83)

A three or even four track system now seems more realistic. The tracks would be as follows: one, university or junior college transfer for those who wish to complete a four year program for a professional career; two, junior college or technical school for those who wish to continue training for a two year technical program; three, vocational for those who wish to enter gainful employment following high school graduation; four, modified or continuation school for those who wish to work part time and go to school part time until graduation from high school.

One Study

A study of one surburban high school in southern California showed that this type of student grouping would be realistic. A survey of the student population in this school in 1965 showed the following breakdown:

Grade	9		10		11		12		Total	
Post Graduate Plans	No.	%	No.	%	No.	%	No.	%	No.	%
Work and Military	48	12	57	17	58	17	59	18	222	15
JC Tech and Spec Sch.	70	17	82	23	88	26	94	28	334	23
JC Trans to 4-yr col.	60	14	51	14	68	20	71	21	250	17
Four Year College	96	23	88	24	70	21	59	18	313	22
Undecided and No Plan	139	34	84	23	53	16	52	16	328	23
Total students	413		362		337		335		1,447	

The chart indicates that 23% of the students plan to enter a post high school technical program. Another 17% plan to take the transfer program at the junior college and 22% plan to enter a four year college. It is doubtful if 39% of these students complete a four year college program. Perhaps half of these students would—or should take the technical program at the post high school level.

Of the 23% who are undecided, it is reasonable to assume that part of these might eventually choose the pre-technical program if it were available to them. A good pre-technical program could appeal to up to forty percent of the students.

Summary

It has been pointed out that the changing technology in agriculture, business, and industry has led to a need for more technically trained people. In the more technical jobs, a high school education is no longer sufficient. Many new post-high school institutions have been established to fill this need, and many others are being planned in various states.

The emerging educational programs for technicians indicate the need for a new track or type of preparation in high school. The program suggested here is a pre-technical track in addition to the traditional vocational and college preparatory programs.

It is hoped that the high school administrators who wish to have a truly comprehensive high school will give serious thought to a pre-technical program. It could serve the needs of up to forty percent of his student body.

Focus on Evaluation

JOHN CECCHINI, Vo Ag Teacher, Woodbury, Connecticut

Evaluation of vocational agricultural programs can and should be approached from an improvement standpoint! Its mission is discovery of areas of improvement, in light of program goals or purposes rather than on enumerating outcomes.[1] This places the emphasis of evaluation on objectives and future possibilities of development. It implies that evaluation is looking forward rather than backward.

The first step in program improvement is awareness of the problems that the program encounters. Once these problems are *discovered, action* can be planned in solving them.

Discovery

The model, opposite page, focuses evaluation on identifying problems by comparing the present program with its established purposes or long run objectives. The purposes of vocational agriculture are to serve the community's and individual's needs. Specifically, the program objectives are:

1. To develop agricultural competencies needed by individuals in or preparing to engage in production agriculture.
2. To develop agricultural competencies needed by individuals engaged in or preparing to engage in agricultural occupations other than production agriculture.
3. To develop an understanding of and appreciation for career opportunities in agriculture and the preparation needed to enter and progress in these careers.
4. To develop the ability to secure satisfactory placement and to advance in an agricultural occupation through a program of continuing education.
5. To develop those abilities in human relations which are essential in agricultural occupations.
6. To develop abilities needed to exercise and follow effective leadership in fulfilling occupational, social, and civic responsibilities.[2]

In making this comparison, areas that the program does not serve, and activities that no longer serve its purposes can be discovered. It then points out possible alternative activities that can be selected in light of program objectives. The end result of this comparison is goal clarification. Through the evaluative effort, in discovering alternative activities, future program goals or areas of potential development are identified. In other words, as the community's and individual's needs change, so should the vocational agriculture program.

Action

The *model* (opposite page) focuses evaluation in terms of possible change or improvement of the local program. It is through program planning that these areas are accepted or rejected, and a *new* program developed. Evaluation then becomes an integral part of program planning.

Explanation of the Model

A=Community and Individual Analysis. (A) is the basis for the discovery phase of evaluation. This involves an analysis or discovery of the needs of the community and the individuals in that community that vocational agriculture program are designed to serve. The study takes into account the level of agricultural knowledge, type and amount of employment, number and type of training stations, types of individuals, number of individuals, etc. We must know these, in order to determine the areas of potential development or change.

Once the analysis of (A) is complete, the results should be discussed in conference with the consulting committee and administration to redefine program objectives. These objectives should be stated in light of trends in the community, as well as present needs.

The arrows indicate that the community and individuals needs are variables. This means that evaluation has to be a continuous process to keep the program in line. As needs and opportunities change so should the present program.

B Analysis of the Present Program. This aspect of the model indicates study of the vocational agricultural program as it exists at the present. It takes into account *all* phases of the program such as occupational experience, classroom instruction for both adults and youth, leadership-FFA, public relations, laboratory facilities and the consulting committee.

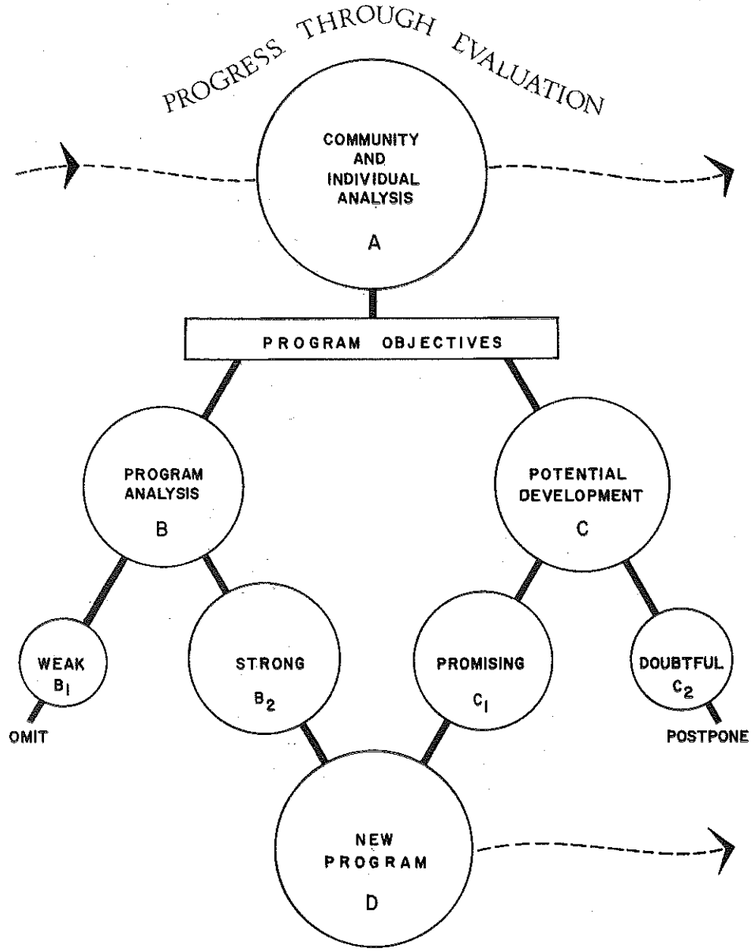
As in (A), there must be a means for analyzing the present program. The analysis, in order to yield desired information may be conducted in three phases.

1. *Total Program Make-up.* The purpose is to supply information for answering the following question. How well does the total vocational agriculture program serve the needs of the community and individual?
2. *Effectiveness of the Total Program.* The analysis should yield information as to the effectiveness of the program. This then serves as a check on the merit of those areas that were previously improved or incorporated into the program.
3. *Efficiency of the Total Program.* Efficiency is a program managerial problem. It is concerned with the problem of resource use in relation to results. Evaluation should also help answer this question. How can the program be managed to achieve maximum results?

The present program may be composed of two distinct groups of alternatives.

[1] W. Howard Martin. "Evaluation and Program Planning." *Evaluation and Program Planning in Agricultural Education, A Report of a National Seminar.* Columbus: Ohio State University, 1966. p. 109.

[2] *Objectives for Vocational and Technical Education in Agriculture.* Washington: U.S. Department of Health, Education, and Welfare, Office of Education, 1966, p. 3.



B Weak Alternatives for Serving (A). These are alternatives in the present program that no longer are vital in view of the need and objectives. Through careful planning they may be discontinued or changed.

B Strong Alternatives for Serving (A). These are the remaining areas of (B) that still serve a vital function. Through careful planning, these areas might be further strengthened.

C Total Potential Areas of Development. This is defined as those areas in (A) that are not in (B). Specifically, those areas that the present program are not serving. It indicates the possibilities of potential change. (C) is discovered, when (A) and (B) are known, by subtracting (A) from (B).

(A) - (B) = (C)

C Promising Alternatives in (C). These are that portion of (C) that seem feasible to incorporate into the present program. They mark the actual amount of progress or change that might take place once they have been introduced.

C Doubtful Alternatives in (A). These are avenues of (C) that seem incompatible at the present moment. Because of the changing characteristic of (A) they should not be discarded but postponed for consideration at a future date.

D Development of a New Program. The last step in the action phase and the most dramatic is the formalization of a new program. It involves combining B_2 with C_2.

(B_2) + (C_2) = (D)

Through the result of evaluation and program planning, a new program emerges. It has changed from the old, in light of the community's and individual's needs at that time.

The arrows represent the same path as the arrows of (A) in testimony that, as (A) changes or moves in time so should (D), therefore, evaluation (1) must be continuous, (2) must result in eliminating poor elements and, (3) must provide for innovative new elements in the program.

BOOK REVIEWS

RAYMOND M. CLARK, Michigan State University

Burlingham, H.H. and Elwood Juergenson, SELECTED LESSONS FOR TEACHING OFF-FARM AGRICULTURAL OCCUPATIONS, Danville, Ill.: The Interstate Printers and Publishers, 1967. pp. 172, Price $4.75.

The book consists of a series of lesson plans for use by teachers in instructional programs for off-farm agricultural occupations. The authors suggest that the lessons be used as a guide and that teachers assess their community situations, explore employment opportunities and supplement the lesson plans with state and local instructional materials.

The lessons were prepared by outstanding teachers who had prepared materials appropriate for the book. The following items in the Table of Contents provide a general idea of the coverage of the book:

1. Preparing to Teach
2. Opportunities in Off-farm Agricultural Occupations
3. Practice and Work Experience Opportunities for Youth
4. Landscape Horticulture
5. Agriculture Recreation Enterprises
6. Forest Industries
7. Financing Agriculture
8. Assembling and Processing Agricultural Goods
9. Marketing and Sales of Agricultural Products; Communications
10. Custom work
11. Management and Professional Careers
12. Selecting a Career in Agriculture
13. Applying for and Securing a Job
14. Holding the Job and Advancing in It

Teachers of vocational agriculture should find many excellent suggestions for their instructional programs in these lesson plans. If the suggestion of the authors is followed, that the material be supplemented with local materials and adaptations, the book should be a valuable addition to professional libraries in vocational agricultural education.

Raymond M. Clark
Michigan State University

Water and America's Future, SOIL CONSERVATION SOCIETY OF AMERICA, 7515 N. E. Ankeny Road, Ankeny, Iowa, 50021, 1966. Pp. 239, Price $5.00 - single copy, $4.00 - ten or more copies.

The proceedings of the 21st Annual Meeting of the Soil Conservation Society of America constitute the subject content of this softbound volume.

In August 1966, more than 600 resource conservationists from throughout North America met in Albuquerque, New Mexico, to discuss water resources problems, policies and programs on this continent. A total of 47 presentations were made covering such topics as water pollution, river basin development, water oriented recreation and natural beauty, water conservation, erosion and sedimentation and reclamation and reuse.

Much factual and up-to-date information is presented in this volume. Many people feel that the proper development and management of water resources is the most challenging problem confronting resource conservationists in North America today. This volume should prove to be interesting and of value to all persons concerned with water and the role it plays in North America.

Guy E. Timmons
Michigan State University

Price, Harry B. editor, RURAL RECONSTRUCTION AND DEVELOPMENT, 111 Fourth Ave., New York, N.Y. 10003: Fredrick A. Prager, Publishers, 1967, pp. 426, $10.00.

The manual discusses how personnel who are training peasants to organize their programs and to set up and carry out integrated projects in education, health, self-government and earning a living; also qualifications and the training of field workers, predicated on the rural reconstruction program first developed in China, next applied in the Philippines, and then extended to Guatemala and Columbia.

The manual should be useful to leaders of various types of organizations who are engaged in rural activities, particularly teachers, extension workers, health personnel, cooperative supervisors, and ministers or priests who are engaged in rural work in underdeveloped nations.

Harry Price is Director of Technical Cooperation and Publication.

Walter W. McCarley
Michigan State University

EDUCATIONAL AND OCCUPATIONAL ATTAINMENTS OF TAIWAN VOCATIONAL AGRICULTURE GRADUATES, O. Donald Meaders, Institute for International Studies, Michigan State University, College of Education, East Lansing.

In this bulletin is presented an approach educators in agriculture may use in the developing countries to answer the questions of (1) the role of vocational schools, (2) the entry of graduates into the fields for which they were trained and (3) the effectiveness of vocational schools in preparing people for the world of work. Secondly, in the bulletin is presented data related to hypotheses in the above three areas for the country of Taiwan based on a population of the graduates of the program (13,442) for a period of three years.

The following hypotheses were accepted as a result of the study:

1. Taiwan vocational agriculture graduates in agricultural occupations credit their training in vocational agriculture as being influential to their entrance into these occupations.
2. The vocational agriculture graduates consider the vocational argiculture schools to be positive forces for helping change agricultural practices.
3. Levels of agricultural occupations attained tended to be positively correlated with the levels of education attained.
4. Education in agriculture, if limited to the junior vocational agricultural school level, was significant only for entrance into farming occupations.
5. Farm residence at the time of entrance into a vocational agriculture school was positively correlated to entrance into farming and *non-farm agricultural occupations.*

The conclusion which the author derived from the study was that many of the graduates now look to the vocational agriculture schools to provide leadership for changing practices in agriculture. At the same time the graduates believe the schools are not doing as much as should be done. It is necessary for the schools to strengthen their relationships to other agricultural agencies and organizations as well as to strengthen the internal program of the school. Obviously this will require coordination, communication and cooperation among educational and agricultural agencies and organizations at all levels of government and within the communities.

Raymond Agan
Kansas State University

Paddock, William and Paul, FAMINE 1975!, AMERICAS DECISION: WHO WILL SURVIVE? 34 Beacon St., Boston 02106: Little Brown & Co., 1967, pp. 276, $6.50.

The purpose of this book is to give the reader a greater insight into the great constructive power contained in our agricultural richness. Yet, as the gap between the developed nations and the underdeveloped nations widens, it becomes important for policies to be developed regarding food distribution. The authors feel that the United States will not be able to feed the world and that choices as to those who get the food will need to be made. The prediction is made that by 1975 a great famine will face the world. Our advanced technology will be unable to increase food production in time to avert the death of millions of people by starvation. This is the greatest problem facing mankind.

The book is divided into the following three parts: (1) Inevitably of Famine in the Hungry Nations; (2) Nor can the Resources and Talents of the Developed World Avert Famine from the Hungry Nations and (3) Potential Role of the United States During the Time of Famine.

This book should be a valuable reference for high school students, community college students or university students studying agriculture or the Social Sciences.

The authors are brothers, one served in the U.S. Foreign Service; the other an experienced agronomist formerly associated with Iowa State College and presently doing private consultant work on tropical agriculture.

Walter W. McCarley
Michigan State University

Iowa State University Center for Agricultural and Economic Development, ALTERNATIVES FOR BALANCING WORLD FOOD PRODUCTION AND NEEDS, The Iowa State University Press, Ames, Iowa, 1967. pp. 273, Price-$4.95.

This book is a report of a conference sponsored by the Iowa State Center for Agricultural and Economic Development.

Participants at the conference agreed that the outcome of the race to feed our hungry world is an optimistic one, *if* the necessary policies are activated. They state that nations and world organizations must adopt vigorous programs directed at both increasing food supply through agricultural development and restraining demand for food supply through population control, and that it is especially important that the underdeveloped nations faced with population problems, and the United States which is deeply involved in food aid programs, take these steps.

Outlining the steps needed to accomplish these goals, the book opens with a critical look at two simultaneous explosions — the much discussed population explosion and the income explosion. The latter, while less well known, is an equally important factor in the expanding demand for food. The authors explain how rising incomes exert increased pressure on food production by generating an additional demand for meat and other animal products, as opposed to grain products. Two chapters explore the protein question. One looks at the research being done in the development of protein substitutes; the other deals with the increasing role of fish and fish products in alleviating protein malnutrition.

Other topics dealt with include religious and ethical aspects of the food problem, patterns of food consumption, institutional obstacles to the problem, and the "human side" of the food situation. Long run policies such as education, technical assistance, loans, population control, and agricultural development are also suggested as solutions to the food crisis.

Guy E. Timmons
Michigan State University

AGRICULTURAL EDUCATION RESEARCH STUDIES COMPLETED IN 1966

*A national list of studies by author, title, and institution**

Glenn Z. Stevens, Teacher Education, Pennsylvania State University

Attention to problems in a wide distribution of significant areas of investigation is evident in the titles of 154 studies completed in 1966. Systematic inquiry into occupational opportunities for vocational education students and their educational needs in agriculture characterized the research of 39 authors. This emphasis first became evident in the report for the previous year as published in *Agricultural Education Magazine* in the October 1966 issue.

Abstracts of the studies in each of four regions were assembled in mimeograph form by the Research Committee of the Agricultural Education Division of the American Vocational Association. Copies may be obtained from J. R. Warmbrod, Chairman, Univ. of Ill., Central Region; C. O. Loreen, Wash. State U., Pacific Region; R. A. Baker, Auburn U., Southern Region; and D. F. Shontz, Univ. of Rhode Island, North Atlantic Region.

The 300 to 500 word abstracts briefly state the purpose, method, and findings. They provide complete information on where the manuscript (if a thesis) or the published report may be borrowed or otherwise obtained. Staff study reports, an increasing number of which are in numbered series, may be requested from the respective institutions. Master's theses are available on inter-library loan. Doctoral theses should be purchased on microfilm.

The classification of studies in the list that follows is practically the same as adopted by the Center at Ohio State for use by selected leaders in seven vocational education fields in the preparation of reviews of recent research. The 140-page *Review and Synthesis of Research in Agricultural Education* was written by J. Robert Warmbrod and Lloyd J. Phipps. Research staff members, and graduate students as well, will find the publication useful. It covers primarily the 1960 to 1965 studies and only a few of the 1966 list presented here.

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ESSLINGER, DONALD L. Kansas School Superintendents' Perceptions of the 4-H Club Program. Thesis, M.S., 1966. Library, University of Maryland, College Park.

HERNDON, LEO PRICE. Expectations of a Vocational Agriculture Program as Expressed at the Local School Level in New York State. Dissertation, Ed.D., 1966. Library, Cornell University, Ithaca.

LAY, CHARLES FRANCIS. The Image of 4-H Work Among Adults in Two Urbanized Counties in Maryland. Thesis, M.S., 1965. Library, University of Maryland, College Park.

LONG, WILLIAM B. A History of Vocational Agriculture in Tennessee from 1917 to 1955. Thesis, M.S., 1966. Library, University of Tennessee, Knoxville.

MILLER, TEXTON R. Teacher Perception of Principal's Views on Vocational Education. Research Series in Occupational Education, 1966. North Carolina Research Coordinating Unit and Department of Agricultural Education, North Carolina State University, Raleigh.

RHODES, CHARLES IRVIN. An Investigation of Certain Socio-Economic Factors Which May Influence Vocational Objectives of West Virginia Vocational Agriculture Students. Thesis, M.S., 1966. Library, West Virginia University, Morgantown.

ROYS, WALTER L. The Contribution of Vocational Agriculture to Leadership Development in Selected Washington High Schools. Thesis, M.S., 1966. Library, Washington State University, Pullman.

STAUFFER, ROBERT HARRY. Learning Orientation Priorities of Cooperative Extension Clientele in Selected Pennsylvania Counties. Thesis, D.Ed., 1966. Library, The Pennsylvania State University, University Park.

THOMPSON, O. E., and CARR, S. G. Values of High School Students and Their Teachers. Staff Study, 1966, Department of Agricultural Education, University of California, Davis.

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ALBRACHT, JAMES JOSEPH. A Process for Determining Vocational Competencies for the Performance of Essential Activities for the Sales Function by Sales Personnel in the Feed Industry, and the Loci at Which the Competencies Could Be Taught. Thesis, Ph.D., 1966. Library, Michigan State University, East Lansing.

ANDERSON, OBER JAY. Competencies in Farm Credit Needed by Farmers. Thesis, M.S., 1966. Library, Iowa State University of Science and Technology, Ames.

BECKET, JAMES W. The Domestic Farm Laborer, A Study of Yolo County Tomato Pickers. Staff Study, 1966. Research Monograph No. 2, Department of Agricultural Education, University of California, Davis, and Bureau of Agricultural Education, California State Department of Education, Sacramento.

CAMPBELL, DONALD RAY. Job Opportunities and Training Needs in Off-Farm Agricultural Occupations in Concordia Parish, Louisiana. Master's Study, 1966. Department of Agricultural Education, Louisiana State University, Baton Rouge.

CARLSON, KEITH R. Competencies Needed by Farm Credit Agency Employees. Thesis, M.S., 1966. Library, Iowa State University of Science and Technology, Ames.

CHRISTY, JAMES RAYMOND. Competencies in Farm Business Analysis Needed by Farmers. Thesis, M.S., 1966. Library, Iowa State University of Science and Technology, Ames.

DILLON, ROY D., and CAIN, PAUL S. Employment Opportunities and Usable Agricultural Skills in Non-Farm Agricultural Occupations in Appalachia. Staff Study (USOE Contract No. OE-5-85-028), 1966. Library, School of Applied Sciences and Technology, Morehead State University, Morehead, Kentucky.

DOUGLAS, G. STUART. A Survey of Non-Farm Agricultural Occupations in Southern Washington County to Determine Employment Opportunities and High School Curriculum Needs. Thesis, M.S., 1966. Library, University of Rhode Island, Kingston.

GENTRY, GENE A. Mechanical Competencies Needed for Employment in Agri-Businesses in Five Maryland Counties. Thesis, M.S., 1966. Library, University of Maryland, College Park.

GUNDERSON, ORLEY D. An Analysis of Occupational Titles and Competencies Needed in Off-Farm Agricultural Supplies Businesses. Thesis, M.S., 1966. Library, The Pennsylvania State University, University Park.

HEANEY, DONALD S. Off-Farm Agricultural Occupations in Montana: Employment and Education. Thesis, D.Ed., 1966. Library, The Pennsylvania State University, University Park.

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HYDE, WILLIAM SANFORD. Agricultural Opportunities and Training Needs of Vocational Agricultural Students in Tangipahoa Parish. Master's Study, 1966. Department of Agricultural Education, Louisiana State University, Baton Rouge.

KNIGHT, WALTER STEWART. Analysis of Agricultural Businesses at Plainview, Texas, with Emphasis on Educational Needs. Report, M.E., 1966. Library, Texas Technological College, Lubbock.

LAUER, ALOIS J. Employment Opportunities and Needed Competencies in Agricultural Occupations Other than Farming in Anoka County, Minnesota. Colloquim Paper, M.A., 1965. Library, Institute of Agriculture, University of Minnesota, St. Paul.

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LEE, JASPER A. A Profile Study of Employees in Off-Farm Agricultural Occupations in the Greater Jackson, Mississippi, Area. Thesis, M.S., 1966. Library, Mississippi State University, State College.

LINDLEY, WILLIAM I. Estimate and Prediction of Persons Employed in Five Off-Farm Agricultural Occupation Areas by Counties in Pennsylvania. Thesis, M.S., 1966. Library, The Pennsylvania State University, University Park.

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LUTHER, CARTER V. A Study of Opportunities and Pre-Employment Competencies Needed for Off-Farm Agricultural Occupations. Thesis, M.S., 1965. Library, University of Idaho, Moscow.

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WOOD, JAY MILTON. The High School Education Needed for Entry Into Occupations in the Farm Machinery Business in Spokane County, Washington. Thesis, M.S., 1966. Library, Washington State University, Pullman.

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**This list was prepared by Dr. Stevens at the request of the Editor. Dr. Stevens says that Don McCreight, graduate assistant, deserves much credit. CCS*

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OLSON, FRANCIS MILO. A Study to Determine the Need for Employment of a Full-Time Adult Farm Instructor in the Reedsburg School District. Report, M.S., 1966. Department of Agricultural and Extension Education, University of Wisconsin, Madison.

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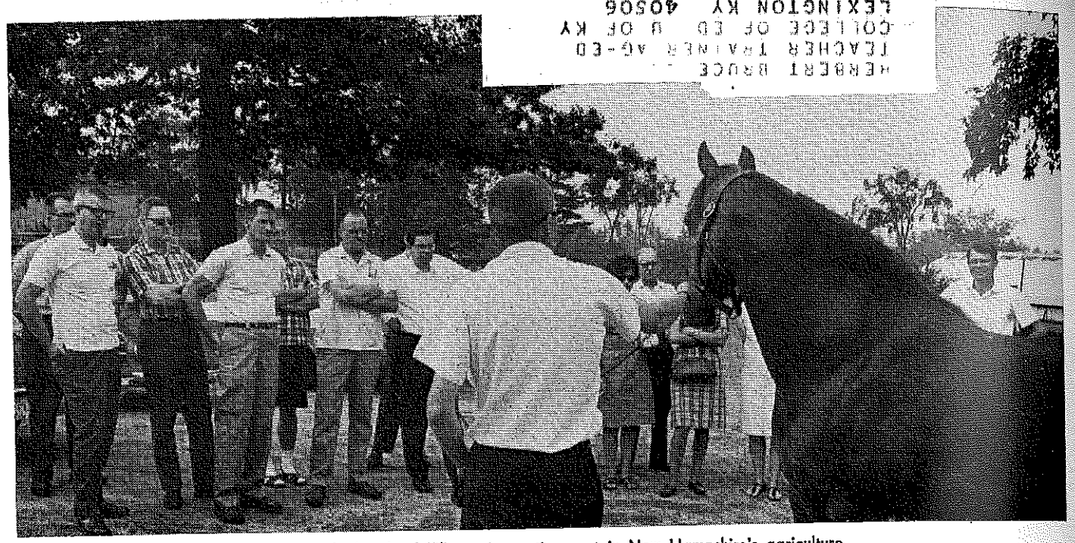
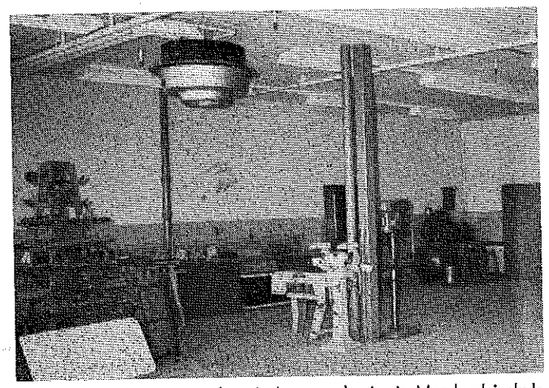


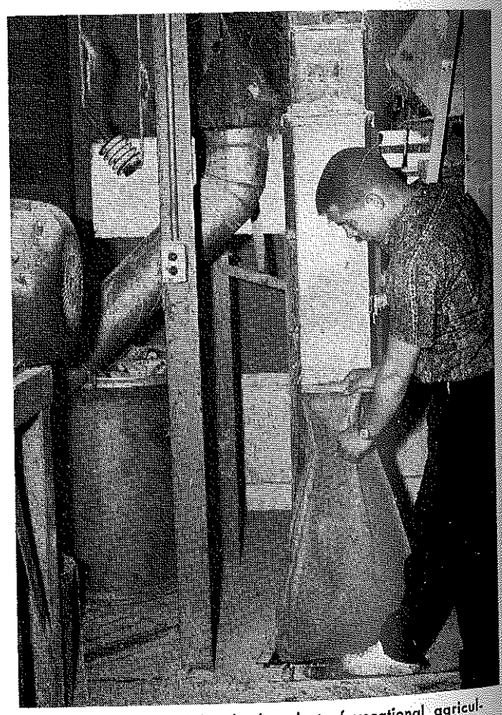
Light horse husbandry fulfills an innovative part in New Hampshire's agriculture.

Stories in Pictures

GILBERT S. GUILER
Ohio State University



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



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

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OCCUPATIONAL EXPERIENCE

1917 - 1967

50th ANNIVERSARY

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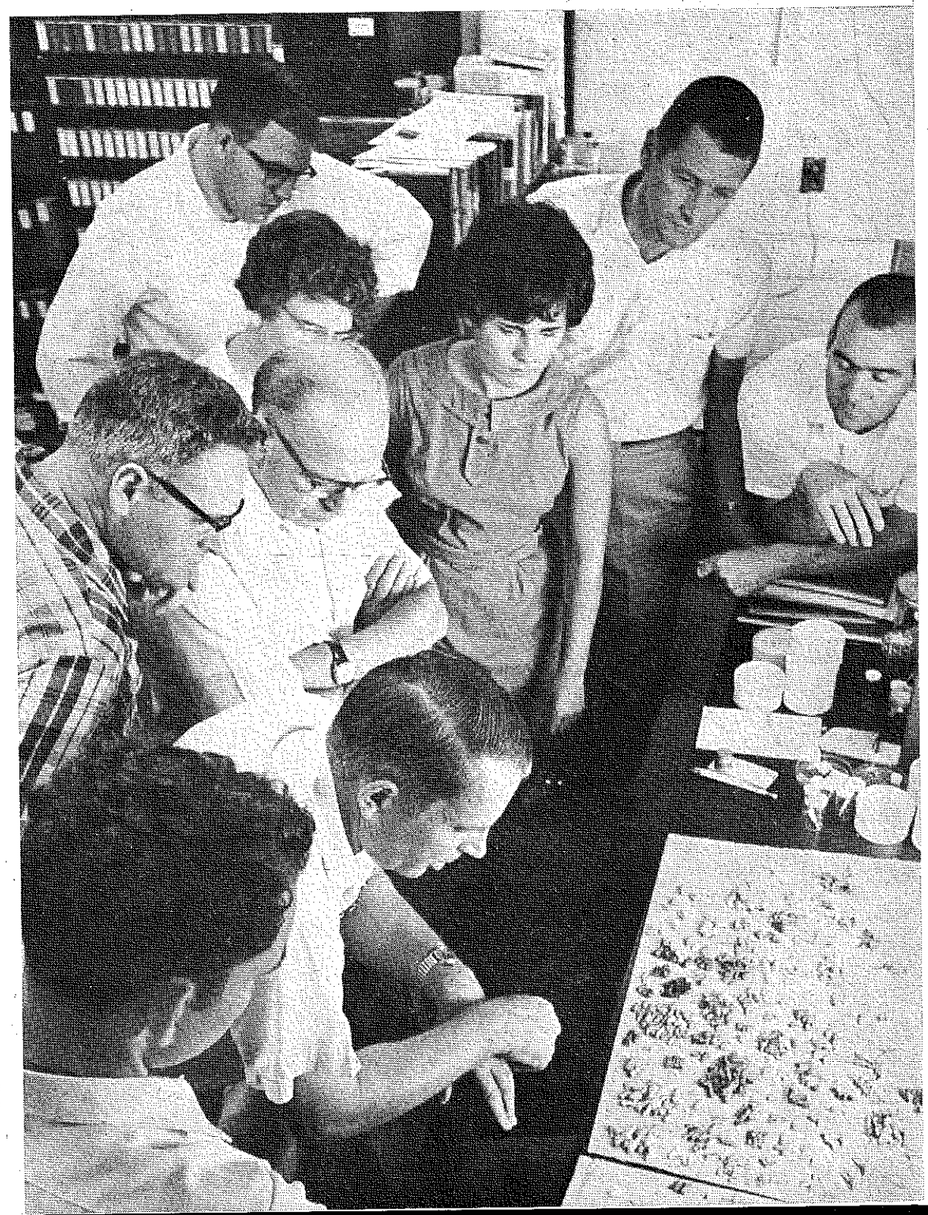
Vocational Education Act



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