Agricultural ... Education

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Featuring— Agricultural Mechanics
Learning Lab or Project Production?

Through the year’s “shopwork” has been a major phase of vocational agriculture. In most states, a well-equipped shop with a minimum amount of floor space was available. The situation varied considerably in some states. Although steam and power equipment and tools were generally available, the amount of floor space varied greatly. In some states, the amount of floor space was limited by the presence of other equipment, such as machines, tractors, and tools. In other states, the amount of floor space was determined by the amount of space available for the shop.

The Agricultural Education Magazine, March, 1967

The theme for this month is Agriculture Education, as indicated by the title of the article. "The Need for Improved Shop Equipment" by J. A. Hendrickson, says in his article moving from "shop" to "mechanical" education because of the need for better teaching equipment and facilities. In trying to think about a 1967 Model program, a number of questions are being asked. What is the major characteristic of a modern program in agriculture education? What effect does the specialization of teaching and preparation of the special mechanization teacher (a special interest and preparation) have on the content and results of the program? Maybe you should answer the same and similar questions dealing with it and then continue dealing with it.

Experience in the past few months with three regional seminars indicates that there is much common ground and consensus for people in different areas of vocational education to work together for more effective programs. It is hoped that the high hopes embodied in the Vocational Education Act of 1965 will be realized, and we must develop programs involving more than one of the traditional areas. Also, in our own Association of Vocational Education, we have started a new letter or article clarifying this matter.

It is good to see teachers joining in the debate on issues facing us all of us in Agriculture Education. Problems of today, especially in matters dealing with the shop and the agriculture program in the agriculture mechanics area should be seen as a Learning Laboratory, rather than a repair shop for farm production. In fact, some modern vocational agriculture programs are using the shop, greenhouses and other facilities into specific teaching plans for specific courses, thus making up the Agricultural Laboratory, a continuing resource for effective teaching in vocational agriculture.

Caye Scarsbrook
Agricultural Mechanics
In 1967, An Opinion
DONALD KABER, Yo Ag Instructor, Halfway, Oregon

Is there a place for Farm Shop in the 1967 agriculture course of study and if there is, should it differ from those courses of 1927?

A good question for a variety of "It all depends"; or "How long has it been since he attended college"; or "How does this type of activity fit into the new conceptions of agriculture education?"

Any ramifications of answers and provoker can be given with statistical data prepared on a good basis of such a question.

It might be that the concept of farm mechanics of 1927 is just dressed up with a few more technical objectives but which essentially is built around specific basic skills of designing, fabricating, testing and repairing basic farm equipment. It matters not if it is a new design for a four cylinder tractor power plant or a design of a self-propelled baler plant.

While in 1927 we did not have first hand facilities to fabricate a baler picker, and if one had done so, he would have been a mechanic far ahead of his time. However, regardless of the year, it would seem that mechanical concepts will improve and someone along the line needs to be educated to assist in the unwisely outgrown knowledge of Farm Shop Technology.

The basics of farm shop can be in part or in whole to a part in the training of boys. It would seem that the rapid innovation of mechanical change in farm machinery would be an indication of things to come. It is foolish thinking that "farm shop" can give all of the basic information for a boy to choose any of the engineering fields, still, it is essential and although some might expect shifts and information to come from books. Learning to think as a still remains an important part.

With a long career in vocational agriculture and with a special emphasis on farm shop activities, I might be permitted to assume that any graduate level in an M and A atmosphere for the student towards which I have led with great enthusiasm and knowledge to work hand-in-hand with the engineering technology centered out daily to provide a young man, desired by many, and a credit to all concerned.

The basic skills of farm shop can be in part or in whole to a part in the training of boys. It would seem that the rapid innovation of mechanical change in farm machinery would be an indication of things to come. It is foolish thinking that "farm shop" can give all of the basic information for a boy to choose any of the engineering fields, still, it is essential and although some might expect shifts and information to come from books. Learning to think as a still remains an important part.

LONG RANGE OBJECTIVES

Safety instruction must be practical, not so much as an attitude but an individual to pass a course or to write mechanical competence at the level of the student to work safely in the farm, and in industry. It must teach him to recognize and respect dangerous conditions and to determine how to conduct himself under such conditions. It must be of a nature that will command respect and carry over into all situations after the course has been completed.

Talks on accidents and incident prevention, posting records of how such accidents, descriptive and illustrative pamphlets, competitions between departments, and school safety rules all have proven feasible and desirable. The surest way to prevent accidents, however, is to train students so that correct operations become automatic, and the worker, therefore, in the normal course of his work, will be able to achieve maximum safety.

Safety Practice

The time to train a student in the proper practice of safety precautions for any job is when the learning process begins. Otherwise it will take too long and will cause accidents and unsafe habits which might be "learned." It is important that students observe every safety precaution, take every safety measure, and use every safety device at all times. There can be no exaggeration for design. It is not possible to fit a habit of safe practice if safety measures are observed one day and disregarded the next and this tendency is even greater as the size of the school increases.

It just what is the teacher's responsibility for safety? The following points will act as a guide.

1. To maintain safe working conditions and safe practices in his department, both in the shop and in the local laboratory.

2. To provide adequate safety inspection for his students and foster student cooperation in the shop and on the local laboratory.

3. To make recommendations to his school administrators for improving safety conditions.

4. To carry out all recommendations from his administrators for improving safe working conditions or giving safety instructions.

5. To keep up-to-date on the most modern and accepted safety materials.

6. To follow all safety rules and practices personally in order to set an example for his students.

Who is Responsible?

In this matter of safety, let's not forget that supervisors and teachers as well as their students and operators also have some responsibilities. First they should promote the proper attitude toward safety at all levels. Secondly, they should help establish and enforce a safety program in all agricultural education departments. Third, they should help implement safe work practices at all conditions in all properly safeguarded equipment and elimination of all health hazards. Fourth, they should follow all local and state regulations governing safety in school shops and foster a closer relationship between the school and the local, state, and national agencies which provide safety services to schools.

SPECIAL EDUCATION

The program to be established the first day a student is in the department. He should be acquainted with special safety rules governing the department and the proper use of tools. He should be given a copy of the safety rules with the instruction and sign, stating that he has read them and understands them. Then he should take the set of rules home and be responsible to the teacher and also sign, stating that he has read them. The copy should be returned and filed in the teacher's files.

Another copy should be given to the student for his notebook.

Instruction in safety should be started immediately and get into practice. One good way of involving students in safety is to appoint a student each day to act as safety engineer for the class. This could also be done on a weekly basis. He should have a check list of safety rules governing the class which he will fill out as he circulates among the class and watches for safety violations. For example, he will work to see that the teacher will have his safety engineer 100%.

SAFETY CHECK

If you really want to know if your department is carrying out a good safety program, get a copy of the Standard Safety Inspection Check List for Vocational Agriculture, and give yourself an inspection. This is a very thorough list and would be a good guide in planning your programs.

As stated before there are many ways of teaching and stressing safety, but the surest way to prevent accidents is to train students so that correct operation becomes automatic. In this way the teacher will have his classroom and his judgment, will achieve maximum safety.

Filling Informational Voids

G. E. Henderson, Coordinator
American Association for Agricultural Engineering and Vocational Agriculture

There is an old saying that a chain is only as strong as its weakest link. When vocational agriculture expanded from farm shop into agricultural education, many teachers and administrators realized how much of a subject matter weakness already existed. Frequently there is much information on such subjects, but it is widely scattered and difficult to organize into effective teaching material. Some of the information is in language that a teacher cannot interpret without expert help. There is some evidence that key leaders in vocational agriculture are gradually becoming aware of the seriousness of this situation. This may be due to recent research findings. Several have reported the great need for well-prepared agricultural-mechanics subject matter.

(Photostat #1) During the “farm shop” era, well-developed subject matter was a weak link in the overall program.

(Photostat #2) As vocational agriculture entered the broad agricultural-mechanics field, stress on the subject matter link intensified.

Adding further to our difficulties is the rapid expansion of knowledge. Some authorities estimate that new knowledge in the science of agriculture doubles every 8 years. At the same time knowledge in one subject is declining in another substantial portion of existing information is becoming obsolete. Recently, a scientist stated, “A physicist’s knowledge and competence acquired by 1920 has a half-life of 10 years, meaning that in 10 years half of what he knows at graduation will be obsolete.”

If new information and obsolescence are major problems now, it is fairly safe to estimate that these problems will become worse before they become better.

PRIOR TO 1963

Ag Mech

NOW

FINANCIAL SUPPORT
WELL-DEVELOPED CURRICULUM
WELL-TRAINED TEACHERS
ADEQUATE FACILITIES
SUBJECT MATTER?

The next logical question is, what can be done to meet this situation?

A Joint Effort to Meet a Need

Perhaps the most complete experience that exists anywhere is that of the American Association for Agricultural Engineering and Vocational Agriculture. The Association was organized for the purpose of preparing subject-matter for vocational agriculture in the agricultural mechanics field. When established in 1948, an estimate was made as to how fast a central office of this type could prepare material. It was believed that this could be accomplished in two years. The association has been successful in this, and is now producing a complete course in agriculture at the subject-matter level. The association is working to extend this work to other areas of agriculture.

1. An orderly presentation of facts that teachers would have little difficulty in arranging to do before teaching.
2. Complete information, even though it may not be complete, is better than no information at all. The average teacher has little difficulty in developing the text for any subject that he understands.
3. Adequate illustrations. Few existing illustrations meet the yardstick of adequacy in supporting the written text. Consequently, new illustrations were developed.
4. Checking by experts throughout the country to make sure the information is accurate and factual.

Three conditions slowed the flow of these materials from the anticipated one publication per month to an average of about 80 pages per year. This kind of subject-matter development pays?

There is no accurate quantitative answer to this question, but there are several favorable indications. For example:

1. There is ample evidence that teachers have less fear of teaching a new subject if they feel their task is well prepared.
2. Qualitative checks on comprehension have indicated substantial increases in speed of comprehension on the part of students.
3. Sales of teaching materials are expanding rapidly to states that are not participants in the Association and to states and foreign countries are also increasing.
4. The assumptions of concern that the preparative work is not being developed faster and on a much wider variety of subjects.

One Way to Speed Up

The latter point has been of concern to the Association Board of Directors and the subject-matter link is being subjected to greater stress. If publications are to be issued faster, quality would have to be sacrificed. After considerable thought, action was taken recently in hopes that it would help realize the system. It was decided to work with industry and others to make available existing information in the form of reference files. It is recognized that these do not meet our standards of development, but we hope they will help to partially meet the subject-matter link until there is time to completely develop them. “Reference” is now being offered under this arrangement. It is now being offered under this arrangement and is proving to be a valuable resource to teachers.

From Regional to National

It was with these conditions in mind that the 12-state regional association called the "Seminole Association for Agricultural Engineering and Vocational Agriculture," in 1960, became the "American Association for Agricultural Engineering and Vocational Agriculture." That providing an opportunity for 16 states to participate in helping meet this increasingly difficult subject matter assignment.

Publications as well as photos are presently available from the Association. If you are interested in more information regarding these teaching materials, write to the Coordinator’s Office, National Agricultural Engineering Center, University of Georgia, Athens, Georgia 30601.
Farm Mechanics Exhibits — Aid for the Teacher

ROBERT H. WHITE, Retrieval Specialist
THOMAS R. STITT, Research Assistant
Center for Vocational and Technical Education
Ohio State University, Columbus, Ohio

A good farm mechanics project attractively displayed in an exhibit can provide several valuable benefits to the teacher and students. Regardless of whether the display is at the local, county, or state level, the benefits from this type of activity include:

1. Students are stimulated by the opportunity to compare their projects with others.
2. Students are afforded an opportunity to receive awards for quality projects.
3. Tangible examples of a student’s skill, knowledge, and ability acquired as a result of quality teaching can be presented to the parents, school teachers, school administration, and the public.
4. Favorable attention can be attracted to this phase of the educational program and thus administrators and school patrons can see justification for maintaining or increasing facilities and support.
5. Potential vocational students may develop interest in vocational agriculture through observation of farm mechanics shop projects.
6. Students are motivated to learn the necessary basic skills so they can advance in individual projects.

As technological advances demand increased knowledge, skill and ability of the students and as competition in farm mechanics increases, there will be a continuing need to improve the quality of shop projects. The number and quality of exhibits are increasing at many state fairs and county fairs and even at the state and national level. The exhibit section of the state and national contests is a testing ground for the quality of exhibits. As the contest section is expanded, so is the need for quality exhibits.

The writer has participated in farm mechanics as a teacher, student, and exhibitor at the Ohio State Fair. From this experience it appears that a checklist or set of guidelines could be developed which would aid in improving the quality of student’s individual shop projects, and thereby increase the value of the educational experience. The following suggestions are offered for consideration by teachers planning to exhibit shop projects in any display:

1. Enter appropriate articles in an exhibit. If the contest is a farm mechanics contest, then the student should construct an article that is truly functional and useful on the farm. Farm machinery, shop tools, and livestock equipment are types of projects that would be appropriate. Projects such as decorative furniture, while they may be excellent for teaching certain skills, could be misunderstood by viewers of a farm mechanics display.
2. Enter projects that display skilled craftsmanship. Although the educational viewpoints is true that almost any shop project involves several skills, the items selected should present a variety of skills. The educational value of the entry may be enhanced by incorporating as many skills as possible, especially when competing with other exhibits. On a metal project, for example, it may be possible to incorporate welding, turning, milling, appropriate finishing, and perhaps painting.
3. Consider designs prior to beginning construction of the project. A sketch or drawing of the item will allow the student to visualize the entire project and assist in the elimination of errors while they still can be corrected without an error. Good plans can be included in the exhibit with the project, as they are in some states, and by means of photoduplication these plans can be made available if requested by farmers or others interested. A drawing will allow the teacher an opportunity to identify and help the student prevent such mistakes as using nails where bolts would be more appropriate, welding on a part that may need to be replaced, or omitting an essential part. These mistakes can drastically reduce the educational value of a project.
4. Use proper materials for the project. Careful attention to detail in plans including a bill of materials and cost before the project is started also contributes to the desired learning experience. The student should select materials that are neither too heavy in quality or strength, nor too high in quality and thus too expensive to be practical. Although inappropriate materials may not be as acceptable to the casual observer as to a critical observer or judge, sound economic principles should be employed in the selection of materials. Examples of appropriate materials would be to use black pipe rather than galvanized pipe for a welded project, or to use nominal dimension lumber rather than expensive special order dimension lumber for a woodworking project. Each situation requires a unique and valuable educational opportunity for the student.
5. Each project should display careful craftsmanship. Unfortunately, a single mistake is often more noticeable than all of the other good work of the project. Each project entered in an exhibit represents the student, the FFA, the school, and the teacher, and careless work should be avoided at all stages of construction. A time schedule may help the student avoid being rushed to finish the project. Careless use of a countersink, an electric sander, or any other sign of haste will do more damage to the project which will overshadow the fine craftsmanship that has been displayed. The teacher should be particularly careful during the final stages of construction and then select for exhibit only projects which reflect quality teaching and high quality work throughout.

6. Enter appropriate finish for each article constructed. Some departments use the same type and color of paint for all projects completed in that shop. While this certainly simplifies the problems of paint storage and cleanup in the shop, the finish should also be a desirable educational experience. The instructor should help the students determine the proper type of paint or finish for each item, considering that item’s intended use. Every project that is subject to outdoor use should certainly be finished to increase the life of that item. Attractive colors will help give the finished project an aesthetically pleasing appearance. Items that are appropriate finish properly applied to a project will improve in appearance and be judged which the item was carefully constructed and completed.

Summary

These points should help students improve the quality of shop projects and thereby help them to strengthen their total farm mechanics program. The primary purpose for individual shop projects is to develop the student’s knowledge, skills, and ability in farm mechanics. The well planned, constructed, and finished project adds a unique dimension to the educational experience in farm mechanics and is being fully utilized.

Even the best shop programs may occasionally have difficulty in creating sufficient recognition and support to be maintained in the school or as other high school programs have done, and display programs claim for facilities and financial support. This competition for resources is the same competition referred to by Cook, who stated, “The time that is allotted for vocational education instruction is inversely, variously proportional to the explosion of new knowledge and industrial and technical progress.” It is a well accepted principle in the business world that to sell your product you must display your wares. We could borrow a page from the businessman’s book, as some other high school programs have done, and display our wares. This will increase public recognition and facilitate public support. Public support may manifest itself in terms of financial support, greater security and the desire in teaching, or in any other manner. Certainly this means of obtaining public support will help maintain an improved shop program which in turn will help you to continue to reach your teaching objectives.

Fire Proves —
A Complete Inventory Is Important

JOHN W. DRISKILL, Va Ag Instructor, Buffalo, Wyoming

I was suddenly awakened from a deep, deep sleep at 1:00 A.M. on that spring morning of 1961. My wife shouted "Get up, the High School is on fire!" At first I thought it was a student prank. School would be out in two weeks and students are pretty much what they call "the kids" of the town. We were very surprised, however. Two weeks later, school was opened and we had a complete fire alarm system installed.

Letters to the Editor

Dear Editor:

I have thoroughly enjoyed your editorial in the Agricultural Education magazine, "Fire Department of the Future." The thought of a completely automated fire department is very interesting. I am not sure if you have ever considered the implications of this innovation. I would like to know your thoughts on the implications of this innovation. Is it possible that this innovation could be extended to other areas of agriculture?

Sincerely,

Frank E. Johnston, Jr., 123 Agriculture Association, FFA

Frank, this is too nice, but I accept a few suggestions. Thanks, OSC

Dear Dr. Sashoung:

Seldom do I write letters to editors, but the "new look in the professionalposition for agricultural educators that you manage prompts this brief note.

As an agricultural educator of some stature and an early subscriber to the "AI" Agricultural Education Magazine, I feel myself stimulated by not only the new format but also the evident change in content that I see in the current volume. That this evidence of new vitality in our profession exceeds me as much, is in my judgment. My congratulations to all of us who are making this professional publication a productive contribution to agricultural education.

Sincerely yours,

Walter P. Smith, State Director of Vocational Education

Thanks for taking time to write and offer encouragement. We are glad you use our agricultural journal.

We do not make a profit from our work. Glad that your interest in our continuing work, I take on more responsibilities.

Suggestions

We never know, regardless of the precautions taken, when a fire may strike. From my own experience, I would suggest you take the following precautions immediately:

1. Make certain that your shop and classroom inventory is complete and up to date. I would suggest that the equipment be taken in the fall to take care of new equipment purchased during the summer. Show the purchase price of each item. Place a value on every item as you might have to do this someday. Check the inventory and bring it up to date every year. Make two copies and store one of them in a fireproof vault.

2. Talk the Insurance Program over with your superintendent. Convince all concerned that it would be wise to have a policy for equipment and insurance.

3. Check to see if your insurance covers your policy. The boy's projects that are in the shop. Only one does not quite add up to some of the boys.

And by the way, HAVE YOU CHECKED YOUR ROOF FOR FIRE HAZARDS LATELY?

The Agricultural Education Magazine, March, 1967

Portable Power Chain Saw Skills

PETER SKRCH, Va Ag Instructor, Oconto Falls, Wisconsin

"In these a place for teaching a unit on skills of operating and maintenance of power chain saws to agricultural students?" This and other similar questions have been confronting vocational agricultural instructors teaching agricultural mechanics to meet the needs of the future farmer.

A recent study on power tools and equipment used in agricultural mechanics instruction in Wisconsin was conducted by the writer in cooperation with Dr. Marvin Thompson, Agriculture Education Department, College of Agriculture, University of Wisconsin State Extension, University of Wisconsin. The study showed that 12% of the vocational agriculture departments were equipped with portable power chain saws. This instruction is a part of the state's instructors indicated, in their opinion, that the chain saw is a desirable tool for teaching farm mechanics.

Chain Saws Popular

The popularity of chain saws may vary throughout the state depending on the needs of the farm in a given area. Within the Oconto Falls school district, plywood harvest has been a common enterprise which, in turn, has led to a large number of chain saw users. A local survey made within the vocational agricultural program, 15% indicated 55% of the students are on farms equipped with chain saws. Approximately 75% of the vocational agriculture students enrolled had chain saw experience without formal training in the use and maintenance of this equipment.

Safety Precautions

The portable power chain saw, like many other farm power tools, is a dangerous machine. It is necessary to operate without proper knowledge of its danger to others. The National Safety Council calculates a unit on safe handling and instruction on use of the tools.

"Portable Power Chain Saws," Data Sheet 330, is an excellent means for teaching saw handling and safety.

These units are distributed as follows:

1. Framer maintenance and operation of saws.
2. Electric saws.

The small engine unit is subdivided into four areas as follows:

a. Safely handling and operation of saws.
b. Small engine maintenance of saws.

Chainsaw manufacturers provide operators manual with each machine on safe handling and operating instructions, a primary source. Film and charts are available through these firms and their dealers.

This is a partial list of excellent film and their source:

2. "Chain Saw Maintenance" by McCulloch Chain Saw.

Took up an Unit Basis

Farms are taught at Oconto Falls on a unit basis during the fall year to vocational agricultural students.
As Seen in These Pages —

Five Years of Agricultural Mechanics

RAYMOND HOLT, Graduate Student, University of Tennessee

Agricultural mechanics, like other areas of instruction in vocational agriculture, undergoes significant changes to meet the occupational needs of the vocational agriculture students and graduates. While there has been an increased interest in certain instructional areas, such as welding and small gas engines, the fact should not be overlooked that these areas alone do not constitute a complete agricultural mechanics program. It should not be assumed that welding and small gas engine instruction are of little importance, because these areas are justifiable in most cases. The point is that vocational agriculture instructors should take a long, hard look at their present programs (or lack of programs) and evaluate its effectiveness in terms of being up to date and providing well-rounded mechanics instruction in depth.

All articles on agricultural mechanics appearing in the Agricultural Education Magazine for the past five years have been studied by the writer. The purpose of such a review was to glean ideas concerning the total program of agricultural mechanics instruction. The remainder of this article points out some of the outstanding articles that should be of considerable benefit to all vocational agriculture teachers in Tennessee.

Curriculum Construction and Course Planning

Guidelines for planning and content were presented in several of the articles. Chaluitner (Mar., 1964) suggested that the majority of vocational agriculture teachers need to review their entire curriculum in agricultural mechanics. Smith (Apr., 1965) gave details for setting up a block system in teaching agricultural mechanics. Examples of units, along with desirable skills to be acquired, were included in the article. Woolley (Mar., 1964) in an editorial also provided information concerning the planning of an agricultural mechanics program.

One method for determining what skills to teach is to develop checklists of skills to be acquired in each instructional area and then distribute these lists to people employed in related occupations, according to Mouton (June, 1964). Examples of such checklists were given in the article.

Amis (July, 1962) advocated the use of job operation sheets in teaching agricultural mechanics. The sheets consist of the areas to be studied, the procedures in teaching the area, safety precautions, supplemental information, and references. A dual purpose is served by each job sheet in that the teacher and the student can utilize the material as a guide in performing the job.

Articles Pertinent to Specific Instructional Areas

A. Small Gas Engines

Quite a widespread interest has been shown in the instruction of small gasoline engine principles and repair. Cleaves (Mar., 1964) advocated instruction in small gas engines as a logical method of introducing the area of farm power and machinery. He also included a suggested teaching outline for the unit. A more extensive article, however, by Layne and Janes (July, 1964) pointed out the need for additional instructional units to be considered and the equipment needed for the units.

B. Electricity

Two articles—Todd (Sept., 1963) and Frazier and Holt (July, 1964)—described a suggested topical outline and how materials were obtained for an adult education course. A discussion on how one vocational teacher incorporated a four-year unit on electricity into the total program.

C. Farm Building Construction

Henderson (Mar., 1964) presented a helpful article on a suggested topical outline and suggested principles and objectives in farm building construction. An additional article by Oden (Jan., 1963) described how vo-ag classes were given practical experience in farm building construction.

D. Welding—Arc and Oxyacetylene

For the teacher who is considering what to teach, Noftle (May, 1962) and Eddy (Jan., 1966) gave pertinent ideas on how to decide what to include in a welding course. In addition, Eddy pointed out suggested instructional units to be considered and the equipment needed for the units.

Teaching Information in Welding may be located in Hollander's articles (Jan., 1962 and Mar., 1964). The first article was concerned with instructions for making lap joints, fillet joints, edge and corner joints, and butt joints, and the latter article concerned with a general treatment on hard surfacing.

E. Farm Power and Machinery

An excellent article by Mann (Aug., 1965) gives the objectives and instructional units in an eight weeks course. Comments for farm power and machinery may also be found in Friesen (Mar., 1964), Bacher (Dec., 1965), and Kolber (Apr., 1965). An extensive listing of unit operations for farm machinery can be located in Martin's article (Mar., 1964). (Continued next page)
Agricultural Mechanics for Students
Who Enter Non-Farming Occupations
DENVER B. HUTSON, Teacher Education University of Arkansas

How effective is instruction in agricultural mechanics in meeting the needs of students who enter non-farming occupations? A recent study conducted in Arkansas focused on this question and related questions.

In recent years considerable emphasis has been placed upon agricultural mechanics in Arkansas education. Teachers have been involved in in-service education activities of various types designed to assist them in developing and implementing a comprehensive program of basic instruction in agricultural mechanics since a large number of students enter occupations other than farming. Reports in Arkansas indicate that about 25 percent of the students in vocational agriculture, who are available for employment after graduation from high school, enter farming, 25 percent enter occupations related to farming, and the remaining 40 percent enter occupations not related to farming.

What instruction is needed? This study was concerned with the extent to which instruction in agricultural mechanics provides knowledge and skills for non-farming occupations. Data for the study were obtained from 202 farmer students in Arkansas who had completed at least two years of rural and urban schools and who entered non-farming occupations after high school. The sample represented 15 percent of the total enrollment in vocational agriculture of students in the state. The largest number of students, 37 percent, who entered non-farming occupations, were employed in manufacturing industries, especially tobacco and lumber. Other industrial groups included construction, with 30 percent, and automotive, with 15 percent of the employed students. These three groups included about two-thirds of the non-farming students. Fewer former students were employed in public utilities, printing, sales, and service occupations.

Most of the former students were employed as semi-skilled and skilled workmen. The number of semi-skilled and skilled workmen was relatively high in manufacturing than in other occupational groups. These students were relatively more skilled workers than those engaged in the automotive and construction trades.

What mechanical skills and knowledge do students acquire in non-farming occupations? A study of the former students who entered non-farming occupations indicated that they acquired skills and knowledge in a number of areas. A study of the former students' education and work experience showed that they had acquired mechanical skills and knowledge while in high school. The students were employed in manufacturing industries, food processing, construction, and service occupations. Skills learned less frequently in carpentry, metal, and electrical work.

Summary
The findings of this study indicated that students in vocational agriculture acquire knowledge and skills in agriculture and related subjects. The study also indicated that students who enter non-farming occupations do acquire mechanical skills and knowledge in agriculture and related subjects. The results of the study showed that the students who entered non-farming occupations had a greater understanding of the importance of the various occupations in agriculture and related subjects.

Happiness Is the Annual Advisory Council Banquet
FRANK WESTFALL, Yo Ag Instructor, Deer Lodge, Montana

Agricultural Advisory Council banquet was not a last ceremonial affair. The Deer Lodge, Montana, Vocational Agriculture Department made a special occasion each year by a report on the chapter operated farm, FFA budget for the year, and an up-to-date inventory of chapter owned property. Copies of material pertinent to the meeting, such as results of student survey, which could be useful in program planning, are also ordered, as well as a list of invited guests, generally limited to six, representing the school board, State Agricultural Education Department, and local civic clubs. With all this material on hand, the meeting proceeds with a minimum of wasted time.

Pre-planning
At least two weeks before the meeting occurs, all members of the advisory council have been provided, by mail, a complete program with an attached regular announcement. FFA members generally leave at this time, usually about 9:00 p.m., unless they desire to stay and the chairman of the advisory council calls his meeting to order with a good understanding of about two hours who.

Having already accomplished the goals of stimulating interest and effect in the minds of the FFA members by appointing their program, the committee then settles down to review the department's total curriculum for the year. Reports on resource materials, all-day and adult classes, expanded facilities, or other pertinent items are discussed and recommendations made to be presented to the school board for further study.

Although this annual meeting takes up a full evening, council members make every effort to attend, and almost always do. Other meetings during the year are called as needed with committees carrying the burden of most activities.
Markesan Pilot Training Program

ARLYN W. HOLANDER, Vocational Agriculture Teacher
Markesan, Wisconsin

Background

During the past four years our enrollment has been between 70 and 75 students in four Agriculture classes. In addition, I teach at least one Young Farmers Club class each year. The class is scheduled in the field for the first two weeks in the classroom and the lead-up period in the afternoon, a double 55 minute period. All students programs are chosen so the double period of welding has priority. Students receive two credits for this course. Last year, 14 of the 36 students were enrolled in both Agriculture 12 and Welding. This year 16 of the 36 students are so enrolled. All Vo-Ag students carry a regular farming program in addition to the job occupational experience under the Pilot Program.

During the first three months of this year, the entire double period is spent learning the basic skills and techniques associated with welding. We rotate our groups between oxy-acetylene, arc, Tig and Mig welding. Last year all students received instruction in fusion welding, but this year all of the various kinds of joints with oxy-acetylene, arc and regular welds are taught (stick electrodes), in the flat and vertical up position. Ten students received instruction in Tig welding and five students were trained in welding stainless steel on Tig in all positions. This year we expect all 36 students to receive basic instruction in Tig welding in addition to oxy-acetylene and stick electrodes in welding in flat and vertical up position. Approximately ten students will receive basic instruction in Tig welding of stainless steel in all position. Tig welding on aluminum will also be taught. If I can satisfy the following students to practice fusion welding with oxy-acetylene, chances are excellent that he will choose (arc) Tig welding. If he has problems on fusion welding with oxy-acetylene, he will have many more problems on Tig welding.

Construction and Repair Projects

Items constructed by students include the following: (1) Steel saw horse varying in height from 13 to 56 inches; (2) Steel pans, mostly five and ten gallon capacity to drain tractor couplers and transmissions, (SEE PICTURES), but in last year's class, each student made a pan 30" wide, 54" long, and 6½" high. His dad is in the gravel cranking business; (3) Steel malleys varying in weight from 2½ lb. to 25 lb.; (4) Special cup which attache to or is a bushing (35, 50, and 55 gallon size) and serve as watering units for pigs and chicken, (See 1966 July-June Items of National Future Farmer Magazine, Pg. 48); (5) Steel tines to do wheel bearing work on a tractor type tractor, (See 1966 October-November issue of National Future Farmer Magazine, Pg. 70); (6) Food mixers to do wheel bearing work on a tractor type tractor, (See 1966 October-November issue of National Future Farmer Magazine, Pg. 70); (7) Food mixers to do wheel bearing work on a tractor type tractor, (See 1966 October-November issue of National Future Farmer Magazine, Pg. 70); (8) Large aluminum boat and two aluminum gin-eel elevators were repaired, plus a number of aluminum chromosome, Students he would be used for supplies actually used. Steel is sold by weight at our school wholesale cost, special electrodes and hard facing rods for special jobs are paid for by the amount according to what he uses and at our school cost basis.

Conclusion

I am very enthusiastic about the program. About 85% of the students who graduated in 1966 are either employed in a welding or welding past time—being employed by farm machinery dealers, or at Vocational, Technical and Adult Schools receiving additional training. The present world situation is dragging the normal employment situation. The number which will actually choose welding as a career remains to be seen. This program does cramp an already busy program for me, but I would rather touch a student who is interested in than sit in a study hall.
Planning: A Systematic Process

DAVID G. CRAIG, Teacher Education, University of Tennessee

Many educators are familiar with the ominous sign that reads Plan Ahead. When discussed in the context of our own planning efforts there may be more truth than humor in the sign. Many people do some kind of planning each day—in business, at school, and elsewhere—but it is generally at the level of the nature, import, and the process of effective planning.

Nature of Planning

Planning may be defined as a method or series of methods of thinking out purposes and operations before taking action. Thinking out implies a quiet and serious consideration or study of events in the past, present or future. The term process suggests a series of steps ordered to produce a particular result. Thus, planning is a process requiring a series of thinking steps prior to taking any action.

Planning takes on additional meaning when some assumptions are made. In the first place, we must assume that the social, economic, political, and religious and technological environment is relatively free so that individuals have a choice in thinking and acting. Secondly, it is assumed that people and schools want to improve. Although this is not true everywhere, the desire to change is a potential element of effective planning. Therefore, planning becomes more meaningful when individuals have relative freedom to act and the interest to improve themselves.

Need for Planning

The agricultural education situation at the regional, state, and local levels is one of relative freedom to devise and conduct new programs. State level and other educators have indicated many training needs in all agricultural occupations. A substantial number of research and developmental proposals have been accepted and are now being operative. In this light, the concept of the need for context of opportunity planning is essential.

Planning is also needed from the standpoint of the size and complexity of the field of agricultural education. New programs, involvement of students, parents, more and different kinds of students, and the expanding research demands are examples of this complexity.

The 1963 National Vocational Education Act is one of opportunity and freedom, not one of limitation and narrowness. Many schools are not taking advantage of the benefits of this new law. Hence, systematic thinking and planning must take place throughout agricultural education in terms of the general and the specific to ensure the program potential that exists.

The Planning Process

What steps are to be used if planning is to be systematic and useful? The Ex-Extended Educational Process" developed by Leasue provides an analogy to the problem of planning.

The first phase of planning involves a thorough study of the situation. This requires gathering a wide variety of related facts and information. Facts are needed about students, i.e., numbers, ages, aptitudes, interests, and cultural background. Facts are needed about curricular requirements and trends. Facts are needed about labor market, physical and monetary resources. One must seek these facts beyond the community boundaries to areas at national levels. One should visit pilot programs and gain insights into applicable to the local situation. Once these facts and information are gathered, there is need for analysis and synthesis as to what is and what should be.

The second phase involves developing meaningful objectives. Objectives are educational ends to be achieved and problems to be solved. It is helpful to state long-range and short-range objectives so that the program will progress steadily. General objectives should indicate the overall ends to be achieved or direction of the program. Specific objectives should be characterized by the following: 1) who is involved, 2) the specific terminal behavior expected, 3) criteria for acceptable behavior, and 4) the conditions under which the behavior is to be performed.

The third phase is teaching. Effective teaching is based upon the following: 1) a qualified instructor, 2) interested and capable students, 3) meaningful instructional subject matter, 4) useful instructional materials, and 5) functional facilities. It is essential that methods of teaching, including the use of remedial educational experiences, be integrated with content presentation.

The fourth phase is evaluation of teaching. Evaluation includes placing value on skills, knowledge, and attitudes achieved as well as analyzing these objectives and specific objectives established earlier. The analysis assists one in determining how well the objectives were met and to what extent each was accomplished. Evaluation should be continuous and involve lay as well as professional people.

The fifth phase is reconsideration. Reconsideration is necessary after evaluation because the situation is different. Planning processes have been modified by new needs, interests, and program opportunities. As indicated above, all persons involved in the program should be a part of this important planning step.

What significance do the changes have for education and more especially those facets which deal with preparation for occupations in the broad field of agriculture?

In response to the question, what does mean success? Alfred North Whitehead stated, "Man wants to live, Man wants to live better. Man wants to live even better." We in vocational education are especially dedicated to helping men, all men if you please, live better in those changing times.

In this rapidly changing society, complex social and economic structure basic information or knowledge is rapidly becoming a "must" for all who wish to live "even better." The development of new scientific and related information is overwhelming the human capacity to use it effectively. Just as automation has served to multiply man's power to produce goods and services, and the computer and other devices have been developed to direct the flood of knowledge to beneficial use.

More than ever before patterns in education are designed to recognize individual differences and to promote excellence at all levels for all people. Roger E. Trygstad and J. Willis, a noted educator, have pointed out there any better habits for promoting our freedom than by understanding the difference between me and you?

Due to the foregrowing conditions along with rapidly changing occupational conditions and more kinds, types, education is already a lifetime process, geared to vocational competency that is a part of the way of life, especially the retirement years.

There seems to be rather general agreement among educators and laymen that more teachers are needed. More often than not, the root of our most critical problems as we plan for the future.

Although computers and teaching machines coupled with the growth of Euclidean education, will bring new learning dimensions to the classroom, these devices may increase rather than decrease the importance of the teacher's role. The machine can perform only that which is willed by the mind of man.

R. W. Clamp

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As supervising teachers you are the most vital segment in hierarchy of teacher education. Through your widely discussed book The Education of American Teachers Dr. James B. Conant has created a new image concerning the value of the pre-service teacher and those who direct it. This concept has had at least some influence on the thought of those concerned with college teaching. In their recent book The College of Agriculture Kellogg and Knapp state "anyone of the arguments for practice teaching set forth by Dr. Conant in his book The Education of American Teachers apply to college teaching." College that have adopted a policy for all newly appointed teaching assistants, instructors and assistant professors have had some real staff appetites.

Walter V. Paul, teacher of vocational agriculture at the Franklin, Tennessee High School, explains how to use the drill press to test all students. These are the same kind that are made in the same kind. Larry England and Danny Glaze.

Wallace E. Downs, teacher of vocational agriculture at the Franklin, Tennessee High School, explains how to use the drill press to test all students. These are the same kind that are made in the same kind. Larry England and Danny Glaze.
Stories in Pictures

GILBERT GUILER
Ohio State University

Concentration and care with proper tools which will result in a level and secure building career as stressed in Minnesota Agricultural Mechanics shops. Photo by J. Sarr.

Walter V. Potts, teacher of vocational agriculture at the Franklin, Tennessee High School, explains the electrical entrance switch to two of his students. They are from left: Carl Vanneman and Danny Webb. Photo by K. Mitchell.

Reminiscences of early farm days when hand-drawn wagons pulled produce or produce on the farm in this view of an old wagon wheel sitting in the sun. Weeds growing up around it attest to its retirement from active duty. Bureau of Reclamation photo by Neil Dukes.

Dr. A. A. Bollensperger, head of Department of Agriculture, New Mexico State University, discussing cotton research with Vocational Agriculture Teachers.

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