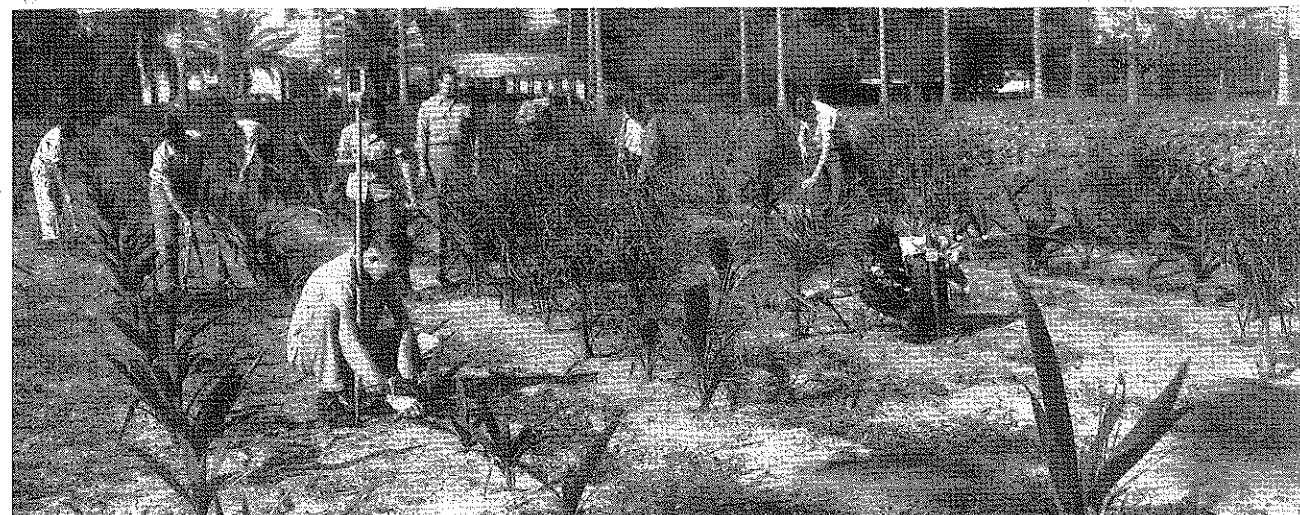


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WANTED: Entries in Photo Contest from Teachers



The AGRICULTURAL EDUCATION Magazine

VOLUME 24

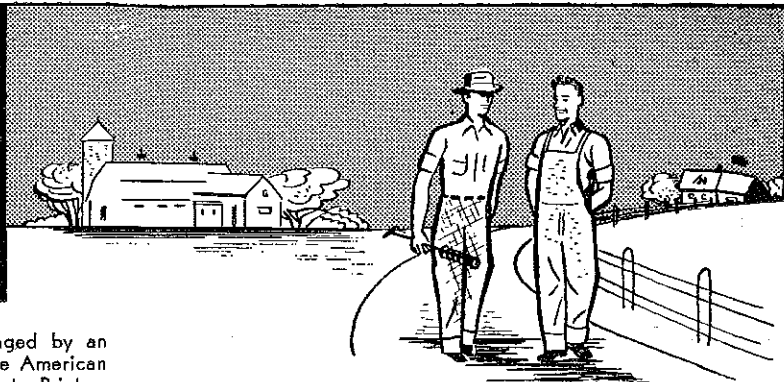
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PLAQUE ARTICLES ON
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GENERAL EDUCATION

The Agricultural Education Magazine



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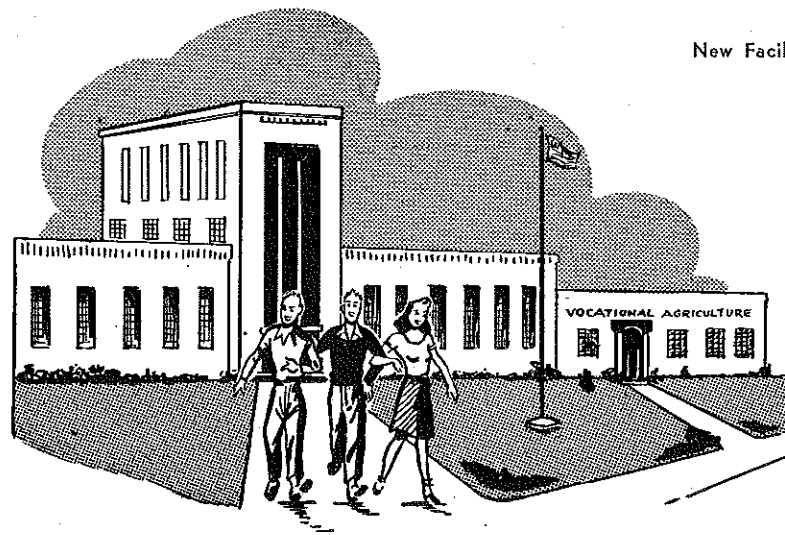
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Editorials

Strengthen our contributions

THE cloud of conflict threatens our way of life. To preserve the freedoms which we cherish requires strength. The strength of arms is an immediate essential to stop the spread of this ominous cloud. The strength of man and man's institutions other than the military is the greater power which is required to stay the darkening of the days for free peoples. For the full development of the second strength we look to the public schools.

As the new school year opens it is well to remind ourselves of the vital role played by public education. It is one of the great social inventions of a free people. We, the workers, in the field of vocational agriculture are in the larger sense participators in the total venture of public education. We are presently, with our co-teachers, shaping the destinies of free people everywhere as we contribute to the will and ability of youth and adults to resist—and eventually to dissipate the threat to government by consent. Education in vocational agriculture is but a single field with its own unique production and problems.

Some of our contributions are unique—some are made in cooperation with others, but all are aimed at protecting and reshaping for ourselves, and extending to others the privilege of choosing, those forms of social organization which we believe have provided the best condition of life that mankind has yet enjoyed.

Our unique contribution is the training of individuals for proficiency in farming. We need not mention the importance of utilizing our human and material resources efficiently in the production of food and fiber since we are well aware of the fact. However, some of our co-workers may overlook it. It is basic that the art, technology and science of agricultural production be developed as rapidly as possible. Education in agriculture is the means by which we can help individuals to rapidly develop the skill and understanding essential in farming. It is a unique assignment which has been given to us and as we drive for its accomplishment we make a unique contribution to the strength of free people. We contribute to the achievement of the purposes of public education. To be lead astray from the task assigned will eventually weaken our role in public education.

How can we best share in the larger contributions of public education? The ways are many and they need not conflict with, or reduce effectiveness in carrying out our unique contribution. A major opportunity exists within our own classes, not to take over responsibility for all citizenship education but, to use citizenship experiences growing out of the situation. For example, farmers pay relatively large property taxes for the support of public education—can we contribute to the development of a will to increase support for public education? Can we contribute to a willingness to participate in the active planning and evaluation of local programs of public education? As producers, farmers control a necessity of life—can we contribute to the development of attitudes of fair play in its distribution? Farmers have neighbors—can we contribute to the development of those qualities which make good farm neighbors? People work on farms in countries opposed to our way of life—can we promote understanding of the life of farmers there? Can we contribute to the development of individuals who prize the freedoms enjoyed by the American Farmer?

We could list other ways in which we help in the attainment of the larger ends of public education. In general we would relate all these to the job of training farmers. We would be reluctant to assume responsibility without reference to our *unique contribution*, training farmers.

To be effective will require (among other things) students with real interest in farming who are part of a setting in which real problems in farming exist. It is inconceivable that

Curtain Time

THE curtain is soon to be drawn for the opening of *School 1951*. It is a new show. The actors are veterans. Public support and patronage are assured.

We, the teachers, are concerned over the early lines. What kind of a setting will be structured in the early days and weeks? Will it be of a nature to inspire our pupils to their best performances? Will it be appreciated by our supporters? Will it set the pattern for a steady build-up of desired outcomes?

For most of us the outcomes of *School 1951* represent a combination of individual development and group growth. Our critics can see little good in any outcome except that of individual development. Generally they fail to realize that the individual can not develop fully except as he benefits from group stimulus and this natural interchange will be no better than the individual or group. Hence both outcomes are required for success. In the early weeks of *School 1951* we can build awareness that both outcomes are worth working for in the months ahead.

In the farming programs the opportunity to develop individual abilities to a functional level is unlimited. Can we get the idea across in the early weeks of *School 1951*? Can we build desires for quality performance? It will take time, to secure true expression of purpose, to develop skill in executing planning, to master the arts of execution, and to understand evaluation. Time and attention here will make for the full development of the individual abilities in farming.

Through activities of the F.F.A. and in other group activities we help individuals to become good members of the group. Over and beyond this point we practice the group in resolving difficulties which stand in the way of its goals. Is it not important to get set in the early weeks for top performances?

Careful and patient effort to develop these dual bases will be rewarding. Individual achievements are likely to be of superior quality, group progress will be successful. Best of all, this early work will make the future days of the teacher a delightful experience. It is worth the effort to get this opening just right and insure success for *School 1951*.

Our Cover

The cover for September shows Richard Niblett of Delaware reviewing with school officials his application for the American Farmer Degree. T. F. Long, teacher of agriculture, is shown on the left. Lyle Mowlds, supervisor of vocational agriculture, is standing. Superintendent of schools, C. W. Clements is shown on the right.

agricultural education as a part of public education can make a maximum contribution without such students.

Education in agriculture gained a favorable position in the public school because it built a program to meet needs of a particular group of students. It does not follow that this program would be good for other students who lack similar experiences and opportunities. The principles on which education in vocational agriculture is based are sound. They can and are being used to reshape other areas in secondary education. We can render some assistance in re-directing the program but making our unique contribution remains the major purpose.

With clear purposes and understanding of relationships in the system of public education there is every reason to believe that we can make valuable contributions to the strength of our people and institutions. We can do our part in helping the public schools serve a free people.

Vocational agriculture and general education*

F. W. STEMPLE, Dean of Education, West Virginia University

IT MIGHT be said that the theory of general education got its origin in the system advocating the principles of Plato, resulting in the seven liberal arts. Aristotle's challenge in his advocacy of the ideal state and education, involving the training of the citizen, the body, and the soul, with emphasis on gymnastics, music, and literature set the pace for all the controversies and theories of general education arising since that time.

The American secondary school from 1635, when the influence of Plato probably was the stronger, to the present time has evolved with many developing theories and practices. In 1751 Benjamin Franklin's influence brought about a decided innovation in the offerings of the new Academy, with its introduction of agriculture and other forms of vocational training. One would have expected the idea to take hold more readily. For some reason though, the inclusion of such subjects was very slow in developing so that it is not until 1881 that one can find the National Education Association, in its annual meeting, including as a chief item of discussion the topic of manual arts as a means of mental development, with one rabid objector then saying

The doctrine of vocational training saps the very foundation of the public school system, puts a magazine under it, and then lays a train out to fire it. The educator who does that cannot blame the outsider if he fires that train and the public school system, and some of its important departments, is blown up before his eyes.

Since 1890 America has been passing in rapid array a number of changing ideas and influences that tend to determine what shall be taught. Among these are:

1. The scientific movement in education with its surveys, statistical analyses, experiments on rate and transfer of training, and research in psychological factors affecting learning.
2. The promotion and criticism of new theories such as economy of time, efficient use of time, social efficiency, cardinal principles, and so on.
3. The depression with new educational agencies such as Civilian Conservation Corps, National Youth Administration, Distributive Education, and the work camps.
4. Surveys of youth needs, youth adjustment, youth movements and organizations.
5. Committee studies and recommendations such as that of the Committee on Orientation with its ten issues, and its ten functions.

*Address—West Virginia State Conference of Teachers of Vocational Agriculture.

6. The movement on "human growth and development," particularly physical, emotional, mental, and social, with resulting self-discipline and improved personality.
7. The evolving curriculum with emphasis on subject matter, correlated subjects, fused subjects, broad fields of learning, the core curriculum, the activity program, and the twelve-year program is more or less that order of time, and perhaps popularity.

Dual Aims

From Plato to now many minds thinking many things, with ideas more or less provoking and convincing, have influenced others until today the idea of general education has become, for the time being at least, a fairly commonly accepted concept which in general includes the composite and inclusive idea of an understanding of one's self and his obligation to society, how one develops, the rich heritage of culture handed down through the centuries, and the civilized code of ethics and social behavior. It is that education intended for each and everyone which is concerned with an appreciation of nature and its control for man's welfare, with man's relationship to other men, with a development of the common mental processes so as to cope with simple and complex situations, with health, play, recreation and personal control, and with ways of communication. Its realization depends on the many areas of a school program, not on just one subject or one course of activities. Each phase of school work contributes, vocational subjects supplying no small part.

From the preceding statement it is clear that the mere acquisition of knowledge or the type of content used is not the only concern of the educator. Method is just as important, in fact can easily be considered the most important concern of a teacher in the development of the young people entrusted to his care. The approach in general education must be one that tends to develop freedom and power. When a problem is faced in life the one facing wants to be unhampered by any lack of ability in going ahead. Such ability and freedom has come about through practice in inquiry, observation, experimentation, analysis, acceptance or rejection, synthesis, and expression. All these exclude or preclude any idea of acceptance of ideas as general formulas comprehended by intuition and stored for future use through mere memory. The teacher must be one with broad insights and accompanying skill in individual and group stimulation to bring about those activities that will result in development of qualities desired. Opportunity to practice those qualities is an essential phase of general education.

A careful investigation of the typical rural high school will reveal certain weakening tendencies not so likely to be observed in the large urban schools. These have a bearing on the general education of rural youth and are related to the topic under discussion:

1. Rural high schools have a disproportionate number of young teachers. In the whole school system, from elementary to the graduate school, the smaller schools are the "stepping stones" for beginning teachers. As vacancies occur in the larger schools, recruits are sought among experienced teachers who have made good, rather than from among the beginners.
2. The curriculum offerings of small schools are naturally limited.
3. There is a tendency in the small schools to stick to the old narrow subject matter curriculum, to those subjects that have gained distinction and respect because of long use, and to the material therein entrenched.
4. As a result there is not the tendency in small high schools to supply the needs of their pupils so well as is done in the larger schools.
5. Because of the inexperience of the young teacher, it will be expected that the use of the facilities of the community will be neglected.
6. Because of all weaknesses thus far enumerated it is quite possible to find that the rural high school is likely to have a tendency to make insufficient use of those things that help develop the individual.

The entire discussion up to this point has been a preliminary to bringing out two things, two considerations that might be thought of as conclusions:

1. Where in general education does the vocational agriculture teacher excel?
2. Where might the vocational agriculture teacher help in the development of general education?

In his method the average vocational agriculture teacher has experienced more and uses a method better adapted to general educational development than do other average teachers. The vocational agriculture teacher's method is that of the problem and project. Inquiry rather than acceptance is the rule. Discussions are frequent, spirited, and to the point. Observation, experimentation, and reading constitute the major source of information. Note taking and record keeping as well as the activities involved in performing the projects are systematic and orderly. Back of all this work for the student there is a purposeful motivation that insures a superior type of learning. The content is valuable because it is useful. For organizing and carrying on general development, expressed by the abstract terms—social, cultural, ethical, citizenship—no other teachers have been so well prepared as has the average vocational agriculture teacher in his education in the work of the Future Farmers of America. As a part of the education of the vocational

(Continued on Page 59)

Through educational psychology the agricultural educator can better understand farmers' attitudes toward recommended practices. Here grub control in cattle is being demonstrated.



Factors in improving learning

The relationship of educational psychology to agricultural education

CHARLES O. NEIDT, Department of Educational Psychology and Measurements, University of Nebraska

SINCE agricultural education involves teaching, it is naturally concerned with improving the learning which takes place and providing the most satisfactory conditions for learning. Educational psychology, roughly defined as the study of behavior in educational situations, is designed to serve all fields of education by assisting with the solution of these problems.

The importance of each teacher having a thorough knowledge of his subject matter, whether in agricultural education or in any other field, cannot be denied. Familiarity with subject matter being taught depends upon the training and experience of the teacher in the technical aspects of his field.

Thorough technical knowledge of the subject matter, however, does not guarantee successful teaching. In addition to such knowledge, the successful teacher must possess an *understanding of learning, the ability to assist others to learn, an understanding of pupil adjustment, and the ability to adjust to the teaching situation.* Educational psychology can be of service to agricultural education by providing information concerning these abilities and understandings.

Learning

Learning involves the modification of behavior through experience and training. Learning does not occur, however, unless the learner is motivated. Motivation often requires a change in attitude or values. The agricultural educator should be able to recognize the needs and motives which are important to his students so as to demonstrate to them why they should "modify their behavior." Very often one of the agricultural education teacher's problems is that of getting farmers of a community to adopt

new practices in farming. Analyzing the motives involved and the present state of motivation can suggest to the educator the point at which he can most effectively demonstrate the usefulness of such practices. When the new practice has been justified to the farmer in terms of his own motives, the stage is prepared for him to "modify his behavior."

Educational psychology can assist the agricultural educator in recognizing the types of learning involved in different learning situations and providing ways of determining the appropriate organization and sequence for presenting different materials. An understanding of the causes of plateaus, or periods of no improvement, can suggest reorganization of course materials or change in techniques to the agricultural educator.

Educational psychology can also offer evidence for bringing about maximum applicational transfer of training and retention. For example, it has been found that recommended practices were more often applied when a specific, current problem originating with some members of the class was discussed than when hypothetical illustrations only were used.

Learners differ greatly in their rate of progress in learning. Recognizing and accommodating these individual differences increase total effectiveness in a group learning situation. If the agricultural educator understands these differences he can adjust his learning experiences, such as the scope of individual projects, to the capability of each student.

Ability to Assist Others to Learn

The age range of students of the vocational agriculture teacher is probably the greatest of any teacher in a

school system. This is also probably true of the variety of material taught. This wide variety in ages and material means that he must have a large number of teaching methods at his command. For example, the technique of considering all immediate practical problems of a class may be more appropriate with adult evening classes than with high school freshmen.

By its very nature educational psychology concerns itself with the determination of those techniques which can best be utilized to assist individuals in the learning of different types of materials. However, these techniques and principles cannot be applied *ad hoc* in the classroom of every agricultural educator. It is necessary to fit the technique to the kinds of material and kinds of students involved in each teaching situation.

Pupil Adjustment

Effectiveness of learning is reduced and total personality development is hampered whenever an individual is experiencing severe emotional tension. Agricultural educators can more nearly achieve the objectives of effective learning and personal adjustment if they have an understanding of the adjustment process and can aid their students in learning to make their own personal adjustments satisfactorily.

Adapting to the Teaching Situation

Just as learning is handicapped by severe emotional tension, so also is teaching. Criticisms from some elements in a community, excessive demands for time, restriction on personal activities, and insecurity regarding the future represent pressures which can create emotional tension in an educator. Educational psychology is particularly concerned with providing understandings and techniques for tension reduction in problems of this type.

The Contribution of Agricultural Education
Agricultural education represents one of the most versatile laboratories in the

(Continued on Page 54)

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State film library helps veterans' teachers

700 films on 300 subjects available to institutional on-farm program

GRADY TURNER, Publications, State Department of Education, Baton Rouge, Louisiana

ONE OF THE best-known and most-used of auxiliary facilities for the Louisiana Institutional On-Farm Training program for veterans is the Institutional On-Farm Film Library. But even the 3,000 veteran farm trainees who see 100 showings of library films in an average month don't know too much about the rather complicated film library and how it works.

The library, which also distributes many circulars and educational aids for farm trainees, is located in the Agricultural Center just southeast of the Louisiana State University. Four employees, two full-time and two part-time, comprise its staff. In addition there is a subject matter specialist who is responsible for the library program.

It appears that the most important person attached to this library program is the library secretary. This young lady files film orders, files and answers requests for information. The other full-time employee is an artist for the veterans' program. He prepares drawings, charts, graphs, and exhibits which are utilized in the veterans program.

Two LSU students fill the part-time jobs in the library and aid in packaging and unpacking films, compiling circulars, and the routine work of the library.

A film catalogue, listing the library offerings, was issued in August, 1949. It listed 203 16-millimeter films (most of them with sound) 150 film strips and five sets of 35-millimeter slides. Since that time, the contents of the library have expanded until there are now 700 films on 300-odd farm and related subjects in the library. Some 40 films have been obtained and previewed since January 1, 1951. Fifty or more films will be added before the end of 1951.

Servicing Films

Previewing new films in the library is one of the most important functions of the library staff. This is true because they need to know as much as possible about the films, so that they can give advice and assistance to veterans' instructors and supervisors who write in for "a film on dairying," or "raising hogs," or some other special subject. The previewing is done in a 10-by-20 equipment room set off from the main section of the film library. Here the film library secretary and her fellow workers run through every film added to the library before it is issued for a showing in the veterans' program. Generally, they consider the film as an educational aid, consider its relationship to the subject matter taught in the course, and decide whether it should be added to the library.

Incidentally, a sort of thumbnail guide to the tastes of farm trainees in educational films is provided by the record of requests for certain films in the library.

Top ranking in this informal poll of farm trainees' tastes in educational films goes to "Curing Pork Country Style." A close second is "Pork on the Farm,"

and nearly as high on the request list are two films on preparation of beef; "Cutting and Boning a Fore-quarter of Beef," and "Cutting and Boning a Hind-quarter of Beef." It should be noted, however, that these films reach the peak of their popularity in the fall, around hog-killing and beef-slaughtering time.

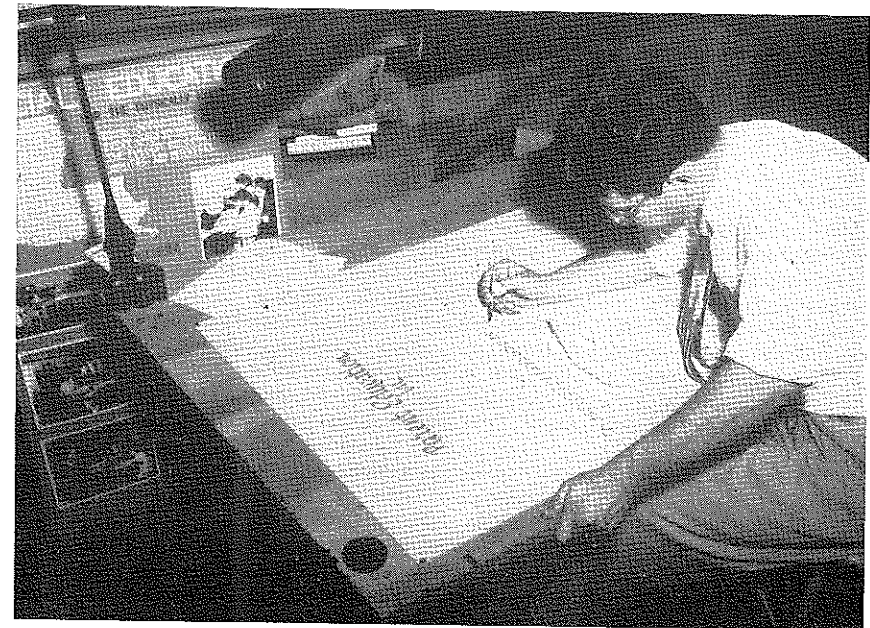
Another seasonal favorite is "Farm Garden," a film on the planting of garden plots, which is requested most often in the spring.

Favorites in all seasons are a soil conservation film, "On the Other Side of the Fence," "Science of Milk Production," "Care of a Tractor," and "The ABC of Hand Tools."

Parish supervisors of the Veterans' Institutional On-Farm Training Program praise the film library as one of the greatest aids ever devised for an agricultural education program. No teacher, they say, could ever get as much information of educational value into a half-hour period as most of the films convey to veteran trainees.



Checking and repairing of films, preparation of charts, graphs, and other materials are valuable services rendered by the State Film Library.



Factors in improving learning

(Continued from Page 53)

entire field of education. The principles and suggestions originating with educational psychologists will be no more effective than the extent to which they are used and the severity of the tests to which they are put by those who use them. It is by actively using and evaluating principles and suggestions and by submitting further specific problems to educational psychology that agricultural education completes the relationship between these fields. The relationship is therefore not a unilateral relationship but a reciprocal relationship.

Men often bear little grievances with less courage than they do large misfortunes.

* * *

Success usually is a plant of slow growth although its flowering may seem sudden.

Education sets sights on problems within the community



Reba Burnham

REBA BURNHAM, Director Resource-Use Education, College of Education, University of Georgia

MANY teachers in Georgia are concerned with developing school programs that will improve and enrich living for all the people of the community. The program of the school day consists of activities that contribute to the solution of some community problems. These community problems may be soil erosion on school, church, home or other non-farm lands; forest depletion and waste; inadequate diet; unsanitary school and home facilities; inadequate housing; water problems or many other problems faced by individuals in earning a living.

In the past, these problems have usually been considered as areas in which special teachers, such as, vocational agriculture teachers, home economics or health or science teachers would work. It was an exception, rather than the rule, to find elementary teachers or high school teachers of science, mathematics and English giving consideration to these kinds of problems. It is now the belief of most teachers that a good school program should be based upon (1) the needs of the individual and (2) the needs of the local community, and that it is the responsibility of every teacher from primary grades through the secondary schools to provide experiences to meet these needs.

Action and Results

The action of a group of teachers and other citizens in a three-teacher, rural elementary school in southeast Georgia is one example of a school program based upon existing community problems. During the pre-school conference, the teachers became concerned about the badly eroded campus. The teachers recognized that it would be relatively easy to employ a person to make the needed improvements but they were also interested in using this opportunity as rich learning experience for pupils and community people. The teachers believed that as parents helped with the campus problems that they would learn much about erosion control that could be applied at home. This experience would also afford many good opportunities for meaningful use of the skill subjects for pupils.

The pupils had recognized the need for an improved campus due to the fact that the playground was very rough. Pupils and teachers began to make plans to do something about the problem.

On November 10, the attendance at the school included many people other than the usual three teachers and the eighty pupils. Parents, representatives from Soil Conservation Service, County Agent, Home Agent, agriculture teacher from

the County High School were on the scene to help make some major changes on the campus. The goal for the day was to reclaim the land on the badly eroded campus and to make it useful and attractive for the pupils and the community.

During the day groups of pupils, parents, teachers and resource people worked together in making improvements on the campus and in making the school building clean and attractive. At noon a barbecue lunch was served. At the close of the work session, the campus had been plowed, fertilized, terraced and Bermuda grass roots harrowed under with tractors. The fence had been repaired. A space had been designated beside the fence for a wildlife border. Trees had been pruned and some underbrush removed from the wooded area. Pupils had recorded data for classroom work. A committee of P.T.A. members had cleaned windows inside the building. The committee charged with the responsibility of sowing rye grass for a winter lawn came to school the next week and completed its task.

Usual Skill Learning Achieved

Much teaching and learning resulted from the campus improvement project. Pupils wrote stories concerning the activities of the day. They also wrote letters expressing their appreciation to resource people who had contributed to the improvements. Arithmetic problems were solved concerning the cost of the materials and value of the labor involved in the project. Creative art experiences were centered around the improvement project. Many spelling lessons were based on new and interesting words which pupils had been able to add to their vocabulary. Health lessons involved a study of school safety as related to the improved school environment. Geography and science were no longer a study of broad regions alone. Facts in textbooks were compared or contrasted with local environment of the pupils. Time was devoted to the study of community problems related to soil erosion. Groups visited near-by farms to see examples of erosion control by the use of terracing, contour plowing, and cover crops, such as Kudzu. One group observed the planting of coastal Bermuda for a farm pasture. They measured the area and figured the number of acres planted.

As a result of the campus improvement project, other problems were attacked. These problems included the planting of new shrubbery and constructing concrete walkways on school campus.

Since the pine forest of this community provide a portion of the income of a number of families represented within the school, teachers and pupils felt that some time should be devoted to the study of this resource. Chief among the existing problems in this area was proper reforestation and prevention of forest fires. Through planning with pupils, parents and resource persons, such as, vocational agriculture teacher in the county high school, local soil technician, county agent, local forester, a two-acre tract of land was acquired for a school forest. Two thousand slash pine seedlings were made available to the school. A day was set aside for the planting and each pupil helped in planting the seedlings under the guidance of the conservation forester, county agent and the agriculture teacher. In addition to specific instructions on the planting process, an explanation was given by the forester on the care, protection and economic value of pine forests. At the close of the day, each student was given several pines to plant at home.

The study of forestry continued after the pines were planted. Field trips were made by various groups. Identification of trees was the purpose of one of the trips. A return visit was made to the forestry project and the percentage of loss was determined.

At the end of the school year, many changes were noted. Teachers observed that pupils had an increased interest in their school work. Pupils exhibited more pride in the appearance of the school building and grounds. One mother said, "My son often comes home from school and explains to his father how gullies can be filled and erosion stopped on the farm."

Evidences of Change

During the past years, only a few of the boys in this elementary school had gone to high school. In order to help these boys to know about the kind of experiences that are provided for high school people, the vocational agriculture teacher planned for the boys to visit the county high school. The purpose of this visit was not only to help the boys to become better acquainted with the program in the agriculture department but to know about all the activities in the school program. All the boys participated in the visitation day and were very enthusiastic over this experience. The teachers felt that this experience would encourage boys to continue their education beyond the elementary school.

Evidences of changes in the community
(Continued on Page 65)

Specialization is not enough

JAMES H. PEARSON, U. S. Office of Education



J. H. Pearson

There are three important ideas or influences that should be affecting the program of vocational education in agriculture "designed to meet the needs of persons over 14 years of age who have entered upon or who are preparing to enter upon the work of the farm or of the farm home": First, the statement in the Smith-Hughes Act: "The cost of instruction supplementary to the instruction in agriculture . . . necessary to build a well-rounded course of training, shall be borne by the State and local communities . . ."; second, the Future Farmers of America organization which has as its purpose, "education and training in agricultural leadership, cooperation, and citizenship"; and third, Life Adjustment Education with the following concept: "Life adjustment education is designed to equip all American youth to live democratically with satisfaction to themselves and profit to society as workers, home members, and citizens. It is concerned especially with a sizeable proportion of youth of high school age (both in school and out) whose objectives are less well served by our schools than the objectives of preparation for either skilled occupations or higher education." There is a consistency in the three ideas in recognizing that the individual should have education and training with a degree of breadth.

Teachers Concern for Additional Instruction

The first idea is rather specific in the implication that the instruction in vocational agriculture designed for the work of the farm is not sufficient but that it should be supplemented by other education and training. Assuming that this is sound and that there will be a well-rounded course of training, workers in agricultural education must maintain an interest in and concern for this additional instruction. These educators, with their rich background of experience in the activities of farm communities and their special preparation for working with the family, in the school, and in the community, are in a position to help with the planning and evaluation of the total secondary education program for students who pursue a course of education for living and for training in vocational agriculture. It is not to be expected that they will assume responsibility for the training which supplements the specific training for farming but that they should help recognize needs with regard to such training and make constructive suggestions regarding the character and content of the supplementary education and training.

F.F.A. An Integral Feature of Training

The second idea, the development of the F.F.A., recognizes that there are needs of the student of vocational agriculture, very specifically associated with the instruction in agriculture that can be met by having the activities of the organizations so closely identified with the training for the work of the farm that they become an integral part of this vocational education program. Even though the scope of the program is broadly concerned and activities are well chosen, there remains a need for the student of vocational agriculture to participate in the activities of the school that are designed to meet the needs of all students. It is important for this to be considered in developing the F.F.A. activity program in order that there will be a coordinated program and the student of vocational agriculture will receive the benefits of participation in other student activities of the school that have purposes that are similar to and supplement those of the F.F.A.

A Third Need

The third idea more specifically indicates that there is a need for something more than the specialized training in agriculture. It recognizes the need for education and training for work but also for home and family life and for citizenship. There is no other occupation where the business and home and family are as closely associated as they are in farming and no occupation where success is more dependent on all members of the family. Life adjustment education has as one of its major aims the equipping of youth for home and family life. It is helping to focus attention and action on this broad area. Secondary schools are providing education for home and family living through different schemes of organization. Such instruction is being offered through separate courses; units and parts of units within courses; core curricula or common learnings offerings; total school programs of family life education; other total school programs, such as, guidance and health education; school projects; special school programs, such as, assembly programs; and programs of youth organizations. Many of these educational programs are offered for boys or girls or mixed groups.

Other areas, such as, citizenship, guidance, ethical and moral living, health and safety, consumer education, self realization, and use of leisure time, are important emphases in life adjustment education. Workers in specialized education programs should be aware of these developments in their respective states and communities and recognize that they are designed to assist in meeting the total needs of the individual. These developments should mean an educational program to more adequately meet the needs of the youth, whether in school or out and whether his educational program is for a specific occupa-

tional objective or more general in nature.

Specialized education, as it is designed to meet specific vocational needs of the individual who is preparing for or who has entered upon a given occupation, must not only recognize the needs of the individual for living and making a living but also the needs of society. The needs of society are both immediate and long time. There is, for example, in agriculture, a need for the production of food to meet current needs and for the conservation of soil resources to make it possible to meet the food requirements of our present population and also the needs of future generations. Many of the conservation practices in agriculture will pay dividends to the individual farmer during his productive life. Others will pay dividends to farmers and to society in future years.

In education for life adjustment, there must be consideration of the total needs of the individual and society. Specialized training programs may meet only parts of the total needs. There should not be an attempt to broaden the specialized training content and try to have it meet the total educational needs of the individual, but recognition should be given to other educational programs and activities and their contributions in meeting total needs. In meeting the total needs, there should be coordination and improvement in the school program to the end that the individual student receives the best program of instruction designed to meet his total needs.

Nature of Special Training

Preparation for a specific occupation which requires an investment of time may prove great frustration to the individual if he is unable to find remunerative employment in the occupation. There are two alternatives in such a situation—one, generalize the specialized training and have it designed to meet some general needs without regard to employment; the other, assume that the specialized training may more adequately meet the needs of the individual than some other type of training. Both have their dangers. Generalizing the training in an attempt to have it meet the needs of those individuals who do not plan to enter the occupation or who do not have opportunities for employment in the occupation will generalize the training to the extent that it leaves those who do find employment in the occupation with reduced specific abilities and skills that they need to make progress in the occupation. Also, it may retard the development and improvements of other school offerings that should be designed to meet the needs of youth who do not have the specific job objectives.

Youth in secondary schools, whether in school or out, who enroll for training in courses designed to prepare them for the work of the farm, may not be occupationally adjusted if they find, after they have completed the training, that employment opportunities are so limited or have such limitations that the individual does not enter the occupation or make progress in it. It is not enough to state that they may find employment

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Procedures and methods

CARSIE HAMMONDS, Teacher Education, University of Kentucky



Carsie Hammonds

THIS review of studies in agricultural education includes those on methods, procedures, and materials of instruction, but does not include studies on curriculum and courses of study, supervised farming, or measurement.

Dr. J. A. Starak, in the June issue of this magazine, says that the basic problems in education are two: What should we teach? and—How should we teach it? All other questions and problems are subordinate to these two. This review is concerned with studies bearing on *how to teach*.

To date there have been reported to the National Research Committee approximately 1,300 research studies in agricultural education. Only 160 or so of the studies, have been primarily on procedures and methods, including about 40 studies on materials of instruction. Many of the other studies, of course, deal to some extent with how to teach. The writer of this article has read the summaries of the 160 studies.

From the summaries of studies in agricultural education, usually one is unable to determine when the conclusions have been "proved" and when they represent only opinions. Sometimes opinions are labeled as such, and sometimes not. A statement similar to this one is fairly common: "The data presented in this study are not sufficient to warrant a general conclusion, but the author believes . . ."

Significant statements of general interest, gleaned from the findings and interpretations in the 160 studies, follow, grouped under appropriate headings.

Individual Instruction

More individual instruction and planning are necessary in teaching vocational agriculture. A satisfactory compromise can be made between group instruction and individual instruction. As individual instruction and planning increase, demands on teacher time increase. There seems to be more actual learning by pupils with individual instruction than with all group instruction. A system of individual instruction and group instruction presents a more formidable challenge to the teacher than all group instruction. (Cornell University thesis study, 1948, by Donald V. MacDonald.)

The most effective teaching procedure includes both group and individual studies as a major part of class instruction. (Montana thesis study, 1942, by Herbert E. Rodeburg.)

Supervised Farming (as related to method in teaching)

Of problems encountered by teachers, that of supervision presented the great-

est difficulty. (Pennsylvania thesis study, 1930, by John Frazier Howe.)

Supervised farming should be an integral part of the classroom work and instruction. (Illinois thesis study, 1924, by J. E. Hill.)

The ten teaching units or jobs recognized in planning farming programs included surveying the home farm, estimating prospective returns, financing the program, making final selection of enterprises and other parts of the program, setting up standards, securing the agreement, analyzing the enterprises to be planned in detail, and planning the jobs. (Virginia special study, 1932, by H. W. Sanders.)

It is recommended that lists of approved practices be used as (1) a partial course of study, (2) an aid in planning projects, (3) a guide for checking plans, and (4) an aid to purposeful supervision of farming programs. (Pennsylvania thesis study, 1940, by Glenn O. Bressler.)

What do studies show?

This contribution is one in a series of twelve planned for the current volume. Each will review and interpret studies in a phase of the program in agricultural education. Each will provide the reader with an overview of the research and point up applications in a particular phase. The phases to be covered and the selection of possible contributors were planned with the A.V.A. Research Committee for Agriculture.

Agriculture pupils are not only ready and willing to accept help, but definitely desire help from their teachers in planning and carrying on their farming programs in connection with their classroom instruction. (Pennsylvania thesis study, by Robert Earl Evans.)

Superior instructors conducted more organized instruction on supervised farming than did inferior instructors. (Montana thesis study, 1942, by Herbert E. Rodeburg.)

Materials of Instruction

All teachers, regardless of the time they have taught, desired additional teaching aids. The most sought-for aid was a current news bulletin covering all phases of agriculture in the state. Bulletins were not available for use with pupils and with adults having a high-school education. Teachers would be more valuable to the community if they were supplied with new information regularly. (Texas thesis study, 1945, by Herbert Davis.)

Information published as a unified body of knowledge on a single subject is more thoroughly understood and more easily applied than when published as separate articles. Research information must be organized into a body of unified knowledge by someone other than the teacher. The gap (time-lag) between research and farm practice is primarily a lack of understanding because of faulty

presentation of information. (Pennsylvania dissertation, 1949, by Murray Carpenter McJunkin.)

After four years tenure of the present teacher, or 6 years existence of the department, there is no increase in the number of publications on hand for teaching agriculture. Many of the publications are old, 40 per cent of them over 41 years old. (Georgia thesis study, 1944, by Amon O. Duncan.)

By no means all of the needs of the agriculture teacher for subject-matter materials are supplied from agricultural experiment stations. Some of the greatest needs are in the areas of orientation and guidance. (Minnesota special study, 1938, by L. H. Harden.)

Principles for the selection of materials of instruction are recognized and stated in a University of Illinois thesis study, 1927, by R. S. Lundin.

A study of the library and library methods used in vocational agriculture departments in states of the Southern Region could well be repeated as a special problem in many states. (Made by Horace Newton Parks, as George Peabody College thesis, 1930.)

General

Teachers are often lacking in the ability to do many of the farm jobs or skills. Due to this lack, students in the class discuss skills but do not actually participate to develop them. In general, teachers use the "pick up" method in their learning of farm skills. (Montana special study, 1938, by Donald Lean MacDonald.)

Students (all levels), when using the results of an agricultural experiment as the foundation for a decision, preferred to have the results in tabular form, and then, a clear explanation of the more important conditions under which the experiment was conducted. (Mississippi thesis study, 1939, by Clyde Farrel Clark.)

Young men (in young-farmer work most effective in establishment in farming) considered that factors in the success of the teacher were ability in the classroom, personality, ability as a community leader and organizer, and willingness to follow up class instruction with visits to the farm. (Ohio thesis study, 1942, by Willard Henry Wolf.)

Activities in which IOFT teachers needed assistance: securing adequate subject-matter material, making lesson plans, conducting demonstrations, maintaining student interest, conducting field trips, and evaluating the teaching. (Alabama thesis study, 1948, by H. T. Pruett.)

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Using the local situation in teaching

C. E. RICHARD, Teacher Education, V. P. I., Blacksburg, Virginia



C. E. Richard

IF WE are to do our best job of assisting students to solve their farm problems we must first assist them in recognizing and analyzing conditions already existing on their home farms. Much too often we teach in general terms and fail to tie our teaching to the problems confronting our students. This is particularly true with many new teachers who are not familiar with the farming conditions on the farms of the students.

What do we mean by local situation? To me it means the recognition and analysis of the conditions existing on the farms in the community, especially on the farms of our students. More specifically we may say it is the farm practices or lack of approved practices being followed by our students on which the job or problem being studied in class is based. What are the purposes for knowing these conditions? If we, as teachers, are to take a student from where he is to where he ought to be, then it is important for both the teacher and student to know the exact conditions on the students' home farms. The teacher should be thoroughly familiar with these conditions before he attempts to teach the job and should direct the student in making an analysis either before the lesson is taught or during the first part of the teaching procedure. A thorough knowledge of these conditions will bring out many problems to discuss, will help the teacher in knowing what to teach, and will help both the student and teacher in arriving at a desirable job plan to improve the farming program.

Gathering Data

Members of young farmer and adult classes would, no doubt, be familiar with the practices being followed and the general conditions on their home farms, and can easily be directed into making a satisfactory analysis of them. On the other hand many high school students will not know all the practices being followed on their home farms and will have more difficulty in analyzing them. In this situation it would be wise to inform the students in advance of studying a particular job so they can learn more definitely the practices being followed and the results obtained on the home farm. This may be accomplished by making a class assignment for students to find out certain desirable information pertaining to the job to be studied. This should be brought to class and turned in and the students in turn

should be given class credit or a grade for their work. This will help in developing an analytical mind on the part of students and will help them to learn to study, analyze, and solve many of their own problems.

As an illustration of the above point let us assume that the teacher saw a need for and planned to teach the job "Care of Sow and Litter During Farrowing Period." He and the class should discuss and determine the information that each student should bring from his home farm relating to this job. This information may be as follows:

The number of brood sows, number pigs farrowed during the past year, number died, the cause of the losses, how the sows have been fed, how the sows had been cleaned before farrowing, how the pen had been cleaned and bedded before putting the sow in it, the use of guard rails, and others. Unless the students had previous notice of

Student Name	Variety used 1950	Fertilizer Analysis	Amount of Fertilizer Per Acre	Kind of Side Dressing	Amount of Side Dressing Per Acre	Yield in Lbs. Per Acre	Dollar Value Per Acre
1. Wayne Ashworth	Harrison Special & Silk Leaf Crossed	3-9-6	1200	5-5-20	200	1530	\$1045.08
2. Elton Pruitt	Virginia Gold	3-9-6	1500	Nitrate of soda	50	1686	1027.56
3. Donald Meadors	Virginia Gold	3-9-6	1400	Nitrate of soda	100	1960	960.32
4. John Robertson	Virginia Gold	3-9-6	1300	5-5-20	100	1677	942.50
5. Billy Robertson	Virginia Gold	3-9-6	1300	5-5-20	100	1677	942.50
6. James Rigney	Virginia Gold	3-9-6	1400	Nitrate of soda	50	1300	920.00
7. Frank Petty	White Stem Orinoco	3-9-6	1600	Nitrate of soda	60	1485	914.83
8. Frank Emmerson	Mixed Varieties	3-9-6	1200	None	None	1637	895.00
9. Carroll Collins	Yellow Special	3-9-6	1200	5-5-20	150	1568	868.00
10. Wilbur Sheffield	Gold Dollar	3-9-6	1200	None	None	1290	748.20
11. J. W. Davis	Golden Harvest	3-9-6	1200	5-5-20	100	1308	724.95
12. Jimmy Edwards	Virginia Gold	3-9-6	1200	5-5-20	100	1224	681.62
13. H. B. Satterfield	Yellow Special	3-9-6	1300	5-5-20	100	1200	656.10

the need for this information many of them would not have it and much lost motion would result. During the class this information should be studied, analyzed, and recorded in the students' notebooks for use when studying the job and as a basis for needed correctional practices in job planning.

As a specific illustration of pertinent home farm data and how it may be used, I refer to an actual case which I observed during the month of February. Donald A. Phillips, teacher of agriculture in the Whitmell Farm Life School, Whitmell, Virginia, in a class of juniors and seniors in vocational agriculture was using the following data in teaching the jobs of "Fertilizing Tobacco" and "Selecting the Variety of Tobacco."

These data show the practices used by the class members in producing their tobacco enterprises the previous year. This is only a part of the data used in planning this year's tobacco enterprise programs. Other factors considered were spacing of plants, height of topping, time of planting, damage from insects and diseases, type of soil, quality of tobacco, and similar items.

The main objectives in teaching these two units were:

1. To increase the quality of tobacco.
2. To increase the production with a minimum increase in cost.

In order to reach these objectives the teacher was making an effort to get each student who should to follow the recommendations of the local experiment station which were: (1) to use Virginia Gold variety, and (2) to apply 3-9-6 fertilizer at the rate of 1000 to 1300 pounds per acre and to side dress with 100 pounds per acre of 5-5-20 fertilizer. It was recognized that in some cases these recommendations may not apply.

A thorough discussion of the above data and other known factors resulted in a detailed analysis, a part of which is included here as an example:

1. Seven class members (over 1/2 the students with tobacco enterprises) made more than \$900.00 return per

acre which is considered above average for the community.

2. Six members of the class who made less than \$900.00 gross return per acre should examine their methods carefully in an attempt to improve their yield another year.
3. Five of the seven members making over \$900.00 per acre used Virginia Gold, the recommended variety. Only one member (No. 12) making less than \$900.00 used Virginia Gold variety and this low yield was attributed to serve damage by hail.
4. Class member (No. 1) who made the highest income of the class used more side dressing than any

Vocational agriculture and general education

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agriculture high school pupil no other school activity is done better.

Because of his superior methods, his specific education, the purposefulness of his field, and his own general all-around experiences the vocational agriculture teacher can improve the general education of his school, usually the small rural school, much more than perhaps he thinks:

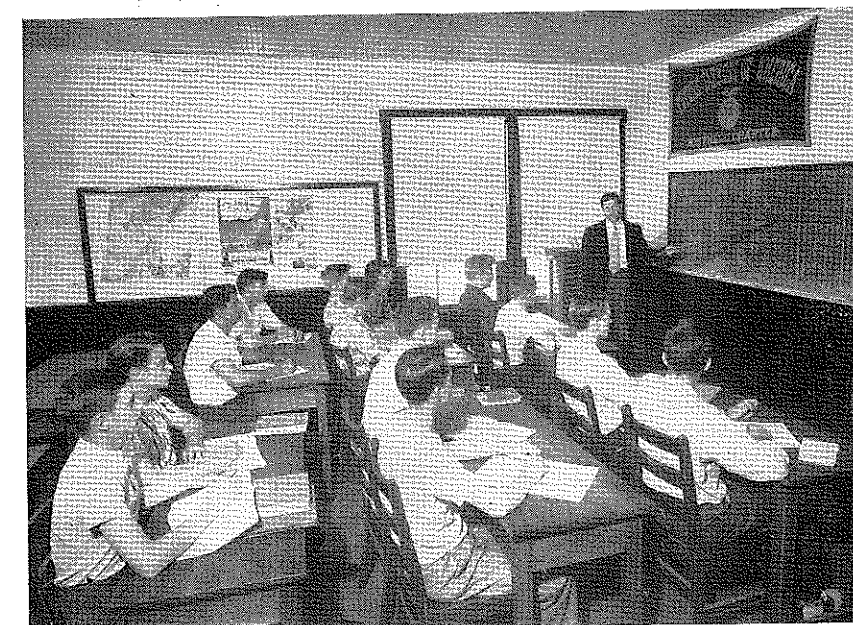
1. He can see that more pupils in the school get the benefit of the vocational way of doing things.
 - a. Not enough pupils in rural high schools are taking agriculture.

General conclusion drawn:

1. On the average it appears that students using Virginia Gold variety, 3-9-6 analysis fertilizer at the rate of about 1300 pounds per acre and 5-5-20 side dressing at the rate of 100 pounds per acre received the most money per acre for their tobacco.

Results of the class:

1. All members of the class decided to use 3-9-6 fertilizer at the rate of not less than 1300 pounds per acre and 5-5-20 side dressing at the rate of 100 to 150 pounds per acre.
 2. All members except 1 and 8 decided to use Virginia Gold variety.
 3. No. 8 was forced to use a variety resistant to black shank.
 4. No. 1 thought that his record with the old variety was so good that he wanted to try it another year.
- It is the definite opinion of Mr. Phillips that some of the class would not have decided on the better practices had not these data been studied by the class.



Class analysis of tobacco enterprise records under leadership of Donald Phillips proved helpful in securing adoption of improved practices.

Then classes should be open to both boys and girls and should be available to more pupils on a scale lower than actual farm conditions.

- b. He can help develop in the rest of the school through teachers' meetings, in "bull sessions," in talks with the principal, a better understanding of his methods and activities and their possible application to other types of school work.
2. While being vocational in his point of view, his efforts, and his requirements of his pupils can also be general: Give attention to individual pupil needs and development; be concerned for the community welfare in such matters as homes, forests, electrification, improvement of working conditions, and others; help in the improvement of pupils' social activities; attend to such fundamentals as language usage; participate in play and recreation.
 3. Being an older teacher, of longer tenure, let him help the principal and faculty in developing those things essential for general education. Encourage social activities, promote community efforts, participate in intellectual pursuits, survey the needs of youth, work on committees, study the growth and development of pupils, help and guide pupils in understanding themselves, in all these and others let him help as much as he can.
 4. There is some accusation that the vocational agriculture teachers with their special supervisors, their state meetings, their summer periods of work, and their federal connections tend to become an isolated group somewhat jealous of their rights and privileges. There is a tendency for other teachers to look with more or less envious eye on this state of affairs. A good faculty for any high school is a family-like faculty. If the vocational teacher would promote general education, he will make every effort to have all feel that he belongs and all belong together.

There is no way of telling just where a high school student will take his education nor, regardless of his curriculum, what his occupation will be. It has been disappointing to many a vocational agriculture teacher to find his star pupil turning his attention to a way of making a living quite strange to that of agriculture. The only real sure use anyone can predict for a high school education is that of its general effect on the life and way of thinking of a boy or girl. Let no vocational agriculture teacher then feel too bad, for if he has taught well, he can rest assured that in contributing to the pupil's life's welfare he has done his part for that pupil to at least as great an extent as any other teacher. He has had a very influential part in the boy's general education.

Nature does nothing in vain.—Addison

Objectives and problem solving

LLOYD J. PHIPPS, Teacher Education, University of Illinois



L. J. Phipps

not have problems in farming unless they have objectives or goals. Neither do many pupils have concise, definite, and meaningful objectives concerning farming unless they have guidance in defining these objectives.

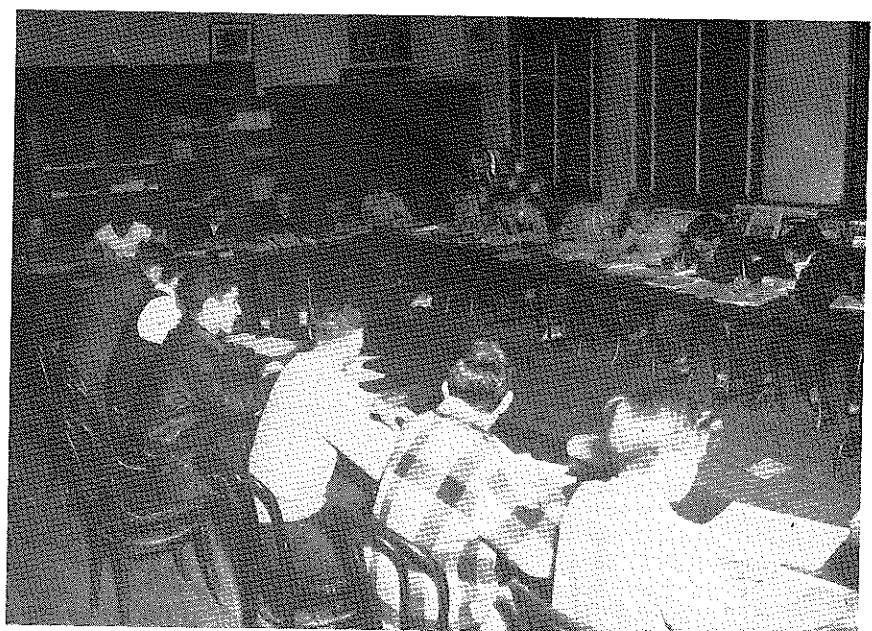
Many times the so called problems presented to pupils in vocational agriculture are dignified by that name by only the teacher. They are problems to the pupils only in the sense that they are annoying and frustrating difficulties forced upon them by the teacher. They do not present a challenge to the pupils as the teacher hoped, and the pupils do not learn to solve the problems of farming that the teacher has presented. Instead they learn how to outsmart the teacher and incidentally they learn something about agriculture. Instead of concentrating their attention on good problems solving procedure, they learn to eliminate the difficulty by any means possible. This is the case because the motivation is extrinsic rather than intrinsic.

The literature on problem solving advises the teacher to present problems to pupils that are real and lifelike. A problem to be real and lifelike must be recognized by the pupils as an outgrowth of his striving for worthwhile objectives. If a teacher wants to functionalize and vitalize his teaching and have worthwhile problems for solution in the classroom and on the farm, he must through teacher-pupil planning develop with the pupils worthwhile objectives and means of evaluating progress toward these objectives. When you find a really successful teacher, you usually find that this is what he has done. The successful teacher is not the one who puts out the most information. He is the teacher who develops goals among his pupils and helps them to evaluate progress toward these goals. If the pupils have caught the vision and can measure his progress, he will learn the subject matter of agriculture.

Developing Objectives

Objectives are developed through teacher-pupil planning. They do not spring "fully-blossomed" from the pupils. One way of helping pupils define their

objectives is to start with their present interests. Let's assume for purposes of illustration that a class of freshmen are interested in farming and especially in swine. The next logical step is to see if the parents and pupils cannot agree on the establishment of swine production projects for each boy interested in swine. Too often the teacher feels his job is accomplished when he has the swine projects underway, and he goes back to presenting problems to the pupils about swine which are drawn from the figments of his imagination. Worse yet he may go back to a question-answer,



Tying classroom work to actual problems of the farm is an ever challenging responsibility. The above photograph of classroom situation supplied by George Couper of California. Lower photograph shows instructor assisting the student and his father in analyzing the problem in its natural setting.

subject centered procedure. He assumes that the objectives of his pupils regarding swine production are crystallized and that they will be able to transfer the knowledge being poured at them in their agriculture class into approved practices with their swine project. This is wishful thinking.

The establishment of a project in a boy's farming program merely sets the stage for some real teacher-pupil planning of objectives. Pupils need to develop and think through overall objectives regarding swine production such as the number of pounds of pork they should produce per gilt or sow, the pounds of feed per hundred pounds of pork produced, and so forth.

Analyzing Objectives

Somewhere early in the process of teacher-pupil planning of objectives, perhaps at the time projects are being selected, the teacher should lead his pupils in a discussion of how to validate their objectives. For a detailed objective

to be fully meaningful, the pupil needs to know about the basic human values of the objectives he selects. He needs to think through why he wants to obtain an objective and what it will mean to him personally if he is successful in reaching the objective.

Knuti worked with pupils in validating their objectives, and he found that high school pupils understood and responded to the reasoning that an objective should not be in conflict with any of the following criteria and that success in reaching an objective should help them accomplish several of the following criteria.

The criteria suggested by Knuti were approximately as follows:¹

1. An objective should help a pupil achieve his psychological needs.
 - a. Secure the approval and affection of friends and family.
 - b. Provide for social and economic security.

- c. Develop self-confidence and independence.
- d. Acquire the recognition and confidence of other persons in his group, class, and community.

¹Knuti, Leo L. "Procedures for Determining Objectives and Evaluating Outcomes in Agricultural Education." Agricultural Education Office, College of Education, University of Illinois, Urbana. P. 13 (Mimeograph).

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A chart for studying supervised farming programs and home-farm businesses in Tennessee*

HENRY L. TAYLOR, Teacher Education, Tennessee A. and I. State College

BEFORE pupils can effectively plan their supervised farming programs, they must study and analyze their home-farm businesses. One phase of this study and analysis should be made in relation to the size of the parents' home-farm businesses and the anticipated size of the pupils' productive projects as measured by productive man work units.

Not too much emphasis has been given to the study and analysis of the parents' home-farm businesses in relation to the size of pupils' productive projects from this farm management point of view. Yet, there appears to be a positive relationship between the size of the parents' home-farm businesses and the size of the pupils' productive projects when measured by productive man work units. On some occasions, pupils have attempted to carry larger productive projects than the parents' home-farms could afford. On the other hand, some pupils have conducted smaller productive projects when they could have had larger ones.

As teachers and advisers of these pupils, how far can we go in advising and guiding them in determining the scope of productive projects that they should conduct on their home-farms without some definite or relative measure from which to start? We say that pupils' productive projects should increase in scope as the pupils advance in years of enrollment in vocational agriculture. How much should this increase be by years of enrollment in vocational agriculture? What would you as a teacher, accept as a normal increase in scope of productive projects?

In analyzing productive projects from a standpoint of productive man work units, it is easy to determine the specific amount of increase or decrease in the size of productive projects as the pupils advance in years of enrollment in vocational agriculture. It makes the pupils, parents, and teacher more cognizant of increasing and improving supervised farming programs of pupils as they advance in vocational agriculture.

In order to study and analyze the size of the parents' home-farm businesses in relation to the size of productive projects of pupils by years in high school, a chart was developed by the writer.

The steps followed in constructing the chart were:

1. Discovered the productive man work units on the parents' farms. Calculations of productive man work units must be based upon the crops and livestock requirements for your area or state.
2. Made an array of the productive

- man work units in order of magnitude.
3. Constructed a frequency distribution table from the array.
4. Discovered the productive man work units in pupils' productive projects. Pupils were selected from the same farms used in construction of chart.
5. Placed the number of productive man work units in pupils' productive projects parallel to that of their parents. Also placed the year

A Suggestive Chart that may be Used for Studying Supervised Farming Programs and Home-Farm Businesses in Tennessee

Name of Pupil.....Grade.....Year.....
Name of Teacher.....School.....County.....

Purpose of and Instructions for Using Chart:

The purpose of this chart is to assist you in studying productive project programs in vocational agriculture, also to help in studying and analyzing the home-farm businesses. The figures below are based on an analysis of the home-farm business of parents and the size of productive projects carried on by a group of high school pupils in Tennessee.

The figures in the left column "Total Productive Man Work Units on Parents' Farms" are the range of "Work units" on parents farms in that category. The figures under the heading of "Years in High School" represent the size of productive projects carried on by the pupils in that year in school. Half of the pupils had projects larger than that figure and half had projects smaller than that figure. For example when the range of "work units" on the parents' farms was between 200 and 299, the median size of productive project for the pupils on those farms in the first year was 12. Fourth year pupils on farms in the same size range was 24. (See table below.)

To use this chart, figure the total productive man work units on your parents' farm. Write in the exact number calculated above the "range" in which the farm would be included. Figure the total "work units" in your productive projects. Draw a line through (beneath or above the number closest to yours if your number does not appear on the chart) the number on the chart representing the size of your productive project.

Total Productive Man Work Units on Parents' Farms	Productive Man Work Units in Productive Projects Years in High School			
	First	Second	Third	Fourth
Range	Median No.	Median No.	Median No.	Median No.
0.....99	7	7	5	6
100.....199	10	11	15	17
200.....299	12	16	15	24
300.....399	14	27	28	36
400.....499	24	31	20	37
Over.....499	26	38	40	44

level in school opposite the number of "work units" in pupils' programs. This was necessary for classification purposes.

6. Using the class range in the frequency distribution of productive man work units in the parents' farms as major headings, arrayed in order of magnitude and by years in school, the productive man work units in the pupils programs of supervised farming.
7. Located the median and calculated the average by size of programs and years in school.
8. Arranged in a table, the range in productive man work units on parents' farm, and the median productive man work units in the pupils' program by years in school,

Used the median instead of the average because it represents a specific number of which 50 per cent in that group is above and below.

9. Set up purposes and directions for using the chart.

This chart may be used to assist pupils in becoming acquainted with:

- a. Studying and analyzing the home-farm businesses and productive projects from a standpoint of productive man work units.
- b. Gaining experience in calculating productive man work units.
- c. Getting a better knowledge of the size of farm businesses in terms of productive man work units.
- d. Stimulating parents and pupils to increase, if possible, the productive man work units in their

home-farm businesses in productive projects.

There are some limitations to this device which should be mentioned namely:

1. It is a relative measure and should not be used as an absolute value or number of productive man work units a pupil must carry in his program.
2. The value of the median which is given is the mid-value of the productive man work units in that group. There were 50 per cent above and below that value. They should not be considered as absolute standards. They are relative values and should be used as a means of encouraging those below that figure to strive to get above it.

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*Based on Doctoral Dissertation, Cornell University, 1951.

Toward quality farming programs

Practices of teachers of varying proficiency in conducting programs of supervised farming in vocational agriculture in Michigan*

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THE experience provided rural boys enrolled in public secondary schools while they engage in farming activities under the guidance and supervision of their teachers, has been recognized from the beginning of the program as an essential phase of vocational agriculture.

Still, workers in the field probably would be the first to admit that programs of supervised farming conducted by teachers of vocational agriculture have not always measured up to the fullest expectations.

Purposes

An examination of the literature reveals numerous references to the serious inadequacies of supervised farming programs as they have existed down through the years. Perhaps, no other phase of vocational agriculture has commanded quite so much attention of research workers as the area of supervised farming. It was with the hope that a further contribution might be made to the solution of some of the problems associated with the effective development and operation of programs of supervised farming that this study was attempted.

The major effort in this study has been directed toward finding answers to two principal questions: (1) Do two selected groups of teachers of vocational agriculture in Michigan use practices in conducting programs of supervised farming that are recommended by teacher trainers and supervisors in agricultural education? (2) If the two groups of teachers do not use recommended practices in conducting programs of supervised farming, what are the reasons?

Eighty-four Michigan teachers of vocational agriculture, who had held their positions for three years or longer, were placed in rank order by applying nine measures* of effectiveness to recorded data of their local programs of supervised farming. These measures were developed with the assistance of a jury of experts. Thirteen teachers determined to have the more effective programs and thirteen teachers found to have the less effective programs were interviewed. In addition representative students and/or one or both of the students' parents were interviewed. Altogether, contacts were made with 187 homes.

*Based on Doctoral Dissertation, Michigan State College, 1951.

Preliminary to the interviews, ten statements of working principles in conducting supervised farming were developed by an examination of the literature to determine practices recommended by leaders in agricultural education. The questions asked during the interviews were designed to reveal the extent that the teachers were using these recommended practices. Data collected have been used in the strictest confidence and in no instance has a teacher or a school been identified in the treatment of the data.

Some Conclusions with Regard to Practices

On the basis of an analysis of the data compiled when the nine measures of effectiveness were applied to annual reports of supervised farming from eighty-four departments of vocational agriculture in Michigan in which the teachers had been employed three years or longer, the following conclusions seem warranted:

1. Approximately two-thirds of the students enrolled completed one or more productive enterprise project and other forms of supervised farming.

2. About one-fifth of the students enrolled completed individual programs of supervised farming which included both livestock and crop productive enterprise projects.

3. On an average, the students enrolled completed slightly over one productive enterprise project, one improvement project, and five and one-half supplementary farm practices.

4. About one out of four of the students enrolled showed at least one continuous productive enterprise project; only one out of ten showed increasing scope in productive enterprise projects repeated for two or more years.

5. About eighty-five per cent of the students enrolled completed a farming program although it seems well to point out that completion of a program might have involved no more than a student carrying and reporting a single productive enterprise project, a single improvement project, a single supplementary farm practice or placement for farm experience.

6. Somewhat over half of the students completed productive projects in enterprises judged important in the county where their departments of vocational agriculture were located.

Thirteen teachers found to have the more effective programs of supervised farming were designated as Group I. The thirteen teachers determined to have the less effective programs were referred to as Group II. A significantly greater number of the teachers in Group

I than in Group II followed the practices listed below. Few or none of the teachers in Group II observed the following practices.

1. Visited beginning students preceding their enrollment in vocational agriculture for purposes of guidance and counseling.

2. Required students who enroll in classes in vocational agriculture to live on a farm or have the use of farm facilities for conducting individual programs of supervised farming.

3. Informed beginning students that supervised farming is a required part of the program in vocational agriculture prior to enrollment in the work.

4. Used ten or more days of class time to give instruction in supervised farming to beginning students.

5. Used fifteen or more days of class time to review individual programs of supervised farming of the previous year and consider revisions for the coming year.

6. Took beginning students to visit the supervised farming programs of older students.

7. Required each student to make a written plan of his program of supervised farming.

8. Held annual tours of supervised farming to which parents were invited.

9. Took pictures of students and phases of their farming programs and showed them at meetings of parents.

10. Encouraged their students to set goals of production for each of their productive projects.

11. Developed average records of production to be used for purposes of comparison.

12. Organized instruction in both livestock and crop enterprises in a given year according to the individual needs of the students in supervised farming.

13. Followed a plan of teaching which provided instruction at a time when the student needed it most in conducting his supervised farming.

14. Visited individual programs of supervised farming when or soon after the classroom instruction was provided to insure that it would be put to use.

15. Made farm visits regularly after school.

16. Had a part of the regular school day set aside for farm visits.

17. Made farm visits regularly on Saturdays.

Since these practices were used by a majority of the teachers who conducted the more effective programs of supervised farming but by few or none of the teachers who had the less effective programs, it seems reasonable to conclude, within the limitations of this study, that there is an association between the use of these practices and the development of successful programs of supervised farming.

Practices Which Are Little Used

Some of the practices were used by relatively few, if any, of the teachers in both groups. Practices which were used very little, if at all, by teachers in the two groups were:

1. Holding meetings of parents of beginning students which have as one of their purposes the development of an understanding of supervised farming.

2. Requiring each student to make a written farm survey.

3. Notifying students previous to making home visits.

4. Having students make project budgets.

The fact that teachers in Group I as well as Group II generally failed to use these four practices casts doubt on their value and practicability. At the same time the possibility must be recognized that the teachers did not use these practices because they had never been taught how to use them. Actually, the pattern under which participating experiences were provided these teachers in their pre-service program, may have been such that it was difficult to offer first-hand contact with all the recommended activities in carrying out programs of supervised farming.

Responses of students and parents were used to get an indication of the extent that the teachers were carrying out recommended practices in the areas of helping students to become established in farming and of developing favorable parent and son relationships in farming. This study revealed that a significantly higher proportion of the students of teachers in Group I than in Group II planned to farm. More of the students from the former group owned productive projects and had ownership from previous productive projects. Students from Group I were found to have a greater part in deciding how their productive projects were to be carried out. Moreover, they had developed business agreements with their parents and made plans for father-son partnerships to a greater extent than students from Group II.

Why Are Tested Practices Not Used More Widely?

Categories of reasons for failure of the teachers to use recommended practices often reflected certain beliefs or philosophies held, or at least expressed, by the teachers. Specifically, these were apparent when teachers indicated no need for visits to prospective students; extolled the benefits of vocational agriculture to town boys; contended that beginning vocational agriculture was largely exploratory; declared that planning for supervised farming should be conducted entirely on an individual basis apart from the classroom situation; held that parents' meetings were unnecessary; maintained that instruction including both livestock and crop enterprises in a given year lacked system and continuity and led to disorganization and the omission of important subject matter; regarded the keeping of records of home visits as unnecessary and a task.

Many of the reasons for failure to use certain recommended practices revealed concern over the possible unfavorable reactions of parents and students. These were evidenced particularly when instructors hesitated to have their students make written plans of supervised farming, conduct written farm

surveys, set goals of production, or prepare project budgets.

Problems of conflicting activities represented another category of reasons which was offered rather frequently by teachers for failure to use recommended practices. Considerations relating to the use of the teachers' time showed up especially when instructors explained why they did not make home visits regularly.

Reasons relating to school administrative relationships, patterns, and policies were in evidence as the teachers offered explanations for failure to interview prospective students, to require students to live on a farm, or have the use of farm facilities in order to enroll in vocational agriculture, to consult with prospective students at the time of registration for classes, or to have a part of the school day set aside for making farm visits.

To some degree teachers recognized their own inadequacies as reasons for failure to use certain recommended practices. This was apparent when the teachers presented reasons for failure to take pictures of students and phases of their farming programs, to encourage students to set goals and to develop standards of production, or to offer instruction in both livestock and crop enterprises in a given year according to the individual needs of the students in their supervised farming.

From a consideration of the categories of reasons presented certain needs are indicated. Conceivably, the implications which follow might point in the direction of bringing about improvements in the quality of supervised farming programs.

1. *Appraising Current Recommendations in Supervised Farming.* Major differences in the ideas and concepts of supervised farming held by the teachers in Group I and in Group II were apparent. These differences were particularly noticeable in regard to the teachers' attitudes toward (1) the requirements that should be set for enrollment in supervised farming; (2) the amount of classroom instruction that should be offered in supervised farming; and (3) the organization and relationship of classroom instruction to supervised farming.

Too, there was some evidence to indicate that differences existed between recommendations and the practices which teachers in Group I actually used conducting supervised farming. While the practices employed by teachers in Group I tended to be those recommended by leaders in agricultural education, there were a few discrepancies, notably in the use of written farm surveys, in the use of written project agreements, in the making of project budgets, in the matter of the extent that students were notified by their teachers previous to home visits, and in the use of parents' meetings.

From a consideration of these discrepancies it appears desirable to re-examine some of the current recommendations relating to matters of conducting programs of supervised farming to determine if these recommenda-

tions are practical. Perhaps, it might not be out of order to have an appraisal of all of the beliefs and concepts on supervised farming which seem to be currently accepted by leaders in vocational agriculture. Currently accepted philosophies which are sound could then be disseminated with renewed vigor. Beliefs and concepts which are found wanting could be modified or discarded.

2. *Improving Human Relationships in Supervised Farming.* Throughout this study there were indications of problems which developed as people associated and worked with one another. These became apparent in the conflicts which seemingly developed between some of the teachers and the principals as well as with other teachers when the question of registration of farm boys for classes was considered. It may be possible that the failure of teachers to make regular contacts with students and parents, and to solicit their cooperation in worthy projects such as holding of parent meetings could be traced to certain inadequacies which the teachers recognized in their abilities to work effectively with other people. It would appear that this study has revealed clues of additional needs which are required by teachers of vocational agriculture in the area of human relationships.

3. *Using Time Effectively.* Teachers of vocational agriculture seem to be constantly faced with the problem of making the most effective use of their time. A study to determine the priority of activities of the teacher and the relative amount of time that should be given to each, including supervision of farming programs, seems in order. In this connection it should be revealing to study the relationship of the teacher's work load to his ability to conduct effective programs of supervised farming. What is the influence on supervised farming of such factors as size of classes taught, the number of classes taught, and other work assignments? Answers to these questions should also shed some light on the proper amount and use of time in conducting supervised farming.

4. *Improving the Pre-Service Preparation of Students in Training to be Teachers of Vocational Agriculture.* No attempt has been made in this study to evaluate the effectiveness of the specific training which teachers have received to prepare them to become capable instructors in supervised farming. Here again, however, there seem to be clues of needs that might deserve attention. For instance, teachers interviewed were unanimous in recognizing the value of skills in photography, yet there were several of them who reported that they did not take pictures of students and phases of their farming programs because they lacked certain basic skills in photography.

Another area of possible inadequacy was indicated in the analysis of data associated with the efforts of teachers to set goals of production and to develop standards of production. Here the teachers readily acknowledged lack of abilities to do an effective job of instruction. Another aspect of supervised farming

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Objectives and problem solving

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2. An objective should help a pupil achieve his biological needs.
 - a. Provide wholesome activity and recreation.
 - b. Maintain body health.
 - c. Develop desirable health habits and practices.
 - d. Develop wholesome relationships with the opposite sex.
3. An objective should help a pupil carry out his responsibilities for democratic citizenship.
 - a. Practice critical judgment in economic and social issues.
 - b. Recognition of the need for implementation and change.
 - c. Accept the democratic principles of economic and social equality.
 - d. Accept civic responsibilities and participation in group activities.
 - e. Acquire skill in group work and group planning.
4. An objective should be in keeping with the principles of learning.
 - a. The objective is appropriate for the ability of the pupil.
 - b. The objective is in keeping with present and possible future interests.
 - c. The objective is in keeping with facilities, equipment, opportunities for farm practice work, F.F.A. programs, class and shop instruction available.
 - d. The objective provides a learning experience that will be of value in other situations.

Developing Evaluation Devices

In the analysis of objectives, pupils need to have information regarding standards of performance or production. If pupils are going to develop an objective regarding the amount of pork that should be produced per sow or gilt, they will need to know what is good production, average production, poor production, and past or present production on their farms. When teacher-pupil planning reaches this stage of development, attention should be concentrated on developing means of evaluation. In swine we have some measures of production that are fairly objective and accurate such as 56-day litter weights. Fifty-six-day litter weights may be one measure of a boy's ability to produce swine efficiently; but when objectives are developed regarding a boy's attitude or ability to use approved practices, the development of means of evaluation is more difficult.

The principle that must be observed, however, is that the development of evaluation devices is a teacher-pupil process. Attention must be focused on measuring present status or progress toward the objective and not on the development of devices for determining a grade for the pupils. If attention is focused on measuring progress toward an objective, rather than a grade, pupils may even suggest pencil and paper tests as a short term evaluation device.

Developing the Problem

After the teacher has helped his pupils develop and analyze their objectives,

Specialization is not enough

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in a related or non-related occupation in which some of the learnings might be useful to them or contribute to their happiness. This is a rather weak justification for the training and far too frequently provides an excuse for not meeting the real needs of the student. When specific occupational training is provided, there can be no separation between interest and opportunities, abilities and limitations, and training and placement. They become so interdependent and intermingled that they lose their identity as units. These units must be analyzed and finally synthesized in a training program to meet the needs of the youth.

There is nothing inherent in any one subject that if mastered would guarantee that the individual is adjusted to meet his individual needs and the needs of society. His needs and the needs of present day society are too complicated and intricate. It is even difficult to meet basic needs of individuals through a broad education with participation in many activities. The offerings available for students in secondary schools are such that choices must be made. Sometimes the decisions with regard to choices are made by the pupil, parent, and teachers without an evaluation of interests, limitations, and employment opportunities. Often an attempt is made to determine the soundness of the choice that is made by asking the student if he is glad he took one course instead of another. There cannot be much validity in the reply because there are too many variables. It is merely a matter of his satisfaction and he is in no position to really know unless he had taken both courses, for example, with equally interesting and competent teachers in equally desirable or undesirable teaching and learning situations. Educators who have a primary responsibility to develop a specialized training program must constantly recognize that there is a total need that must be met if the individual receives education and training for life adjustment. To do this effectively, they must be familiar with the purposes, content, and offerings in subject matter fields other than their own specialization and relate the instructional program for which they have primary responsibility to other programs in helping to achieve the over-all objectives of life adjustment education.

develop standards, and consider ways and means of evaluating present status and progress, he should assist his pupils in recognizing or anticipating their problems.

One method of doing this is to inquire: *What do we need to do or know to reach our objectives?* For example, if the agreed upon objective is the efficient production of 400-pound litters at 56 days, a class might agree that one thing they needed to know would be how to select gilts that would produce large litters. Thus the problem originates from the pupils and not from the teacher. If the objectives developed through teacher-pupil planning pertain to the

Toward quality farming programs

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in which the teachers readily admitted inadequacies pertained to developing effective abilities in their students to keep good records.

It would seem that the cases cited should point up the desirability for staff members of colleges engaged in teacher education to be constantly on the alert for curriculum changes which would bring about an improved program.

5. *Providing Extended Participating Experiences in Supervised Farming for Men Preparing to be Teachers of Vocational Agriculture.* Perhaps, it would be in order to give consideration to the possibility of extending still further the participating experiences in supervised farming received by men preparing to be teachers of vocational agriculture. While the findings of this study can not be interpreted as an evaluation of the training experiences which are presently available to prospective teachers, there were indications that greater opportunities for association and experience during the pre-service training program in conducting selected phase of supervised farming would have been appreciated by some of the teachers. It may be that present opportunities for the student to gain extensive experiences in supervised farming during his pre-service training are somewhat limited. Possibly an extension of these experiences in supervised farming by providing an opportunity for a student to engage in summer activities under the supervision of a capable teacher of vocational agriculture before they enroll for student teaching and a fifth-year training program would be justified for prospective teachers of vocational agriculture.

6. *Improving the Program of In-Service Education in Supervised Farming.* Findings of this study should afford some standards by which teachers of vocational agriculture, particularly in Michigan, should be able to judge the effectiveness of the practices which they are using to conduct programs of supervised farming. Conceivably, many teachers will see fit to adopt many of the practices which teachers with the more effective programs of supervised farming have been using. Possibly, school administrators will welcome an opportunity to familiarize themselves with these practices and thereby become better prepared to plan more effectively with teachers of vocational agriculture as these instructors carry out their local programs of supervised farming.

Expenditures for all education, public and private, for the school year 1948-49 in the United States are estimated at \$5½ billion, compared with slightly more than \$5 billion for the previous year.

pupils' supervised farming programs or F.F.A. activities and are objectives that may be validated, problems develop naturally through the process of planning for their accomplishment.

Education sets sights

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can be noted too. The county agent reported that as a result of the school-community program, the attendance at the Farm Bureau Meetings had tripled. The membership of the Parent-Teacher Association increased from twelve to sixty-six members.

During the last months of school through the use of questionnaires, it was discovered that many improvements had been made in the sixty-four homes of the community. Twelve homes had been painted. Sixteen families had done additional building on homes. Twenty-six families had made repairs on the homes. Fifteen families had planted shrubbery. Eleven families had planted cover crops. Ten families had improved pastures and ten families had planted pine seedlings. Community groups had also made many improvements on the church grounds.

No longer does the school attempt to carry on its program without the help of lay people. Community organizations likewise have included the faculty and pupils in their activities. The fact that the school is used for all community meetings has probably helped to promote these relationships.

This story is an example of a program in resource-use education. Resource-Use Education is a relatively new term in education and is aimed at the improvement of living. It emphasizes "education for the improvement of living through the wise use of resources."

General Guides

Some of the principles of resource-use education found in this story are:

1. The program of the school should be based upon the real life problems of the community.
2. The school should apply what is learned to conditions within the community.
3. The school should utilize community agencies, such as, Farm Bureau, Home Demonstration Clubs, Parent - Teacher Association to bring about the needed improvements. The teachers in the elementary school should utilize the technical skill and knowledge of such persons as the vocational agriculture teacher, soil technician, county agent and local forester.
4. The school should work with all the people in the community, adults as well as children.
5. The school should utilize a variety of resourceful techniques in improving instruction and in improving living conditions.

Other schools in Georgia are carrying on promising programs. The vocational agriculture teacher in these schools has been a valuable resource to teachers and pupils in the elementary grades and to other special teachers and pupils in high school.

As other teachers in your school accept this way of teaching, you can help, too, in the development of a school program that will promote more effective learning and improve the quality of living in the community.

Procedures and methods

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It is desirable to incorporate more scientific knowledge into teaching programs. (North Carolina thesis study of teaching procedures in sweet potatoes, 1949, by Philip Wynne Taylor.)

The primary purpose of all community services of vocational agriculture (in the North Central and Western regions) is to provide opportunity for the participants to become more proficient in farming through actual practice, rather than merely to provide service. (Dissertation 1949, Iowa State College, by Norval J. Wardle.)

Appraisal of Contributions

Much good research has been done in procedures and methods. To estimate its contribution to agricultural education, and to other education, is not possible. Neither is it often possible to evaluate fairly or adequately a research study by reading a brief summary of it. No attempt will be made here to appraise the worthwhileness of the contributions. Rather, a few observations will be made and points of view stated that may bear on research in procedures and methods in teaching agriculture.

Instruction, as such, has been neglected in agricultural education, just as it has been neglected in American education as a whole, in the last quarter of a century. The past 25 years has been marked by educational contributions concerned with the curriculum, the content of education. Of the 373 studies in the original *Summaries of Studies in Agricultural Education* (published in 1935), 168 or almost half the number deal specifically with curriculum or course of study, in whole or in part. (The present writer does not know whether the proportion holds for studies since that time.) As would be expected, many of the course-of-study or curriculum researches have significant implications for instructional procedures.

There are some reasons why the content of education has received more emphasis in research than has instruction as such. *How to teach* (method in teaching) presents several difficulties in research work. *How* is process. A process is nearly always more complex and admits of less-objective measurement or description than does a product or the tools and materials used in producing the product. Even a contemplated product is usually easier to describe clearly than is the manner of producing it. These facts exist in realms outside education. Take a product, hammer handles, for example. Hammer handles can be measured very objectively and can be described quite definitely and easily, contrasted with the process of making hammer handles.

While a product of education is usually less tangible than such products as hammer handles, the educational process is infinitely more complex than that of producing material products. In the educational process, the learners learn through their own activity, not through outside force or external stimuli as such brought to bear on them. Always, the response complex is inherent

in the learner; the teacher cannot supply it. Also, at almost any point in the educational process, the learner may take charge of his own learning (become his own teacher).

The complexity of instruction (and therefore the research on it) is in part due to the fact that learning is multi-objective. Seldom, if ever, does the teacher have only a single teaching objective. Nor is the change in behavior sought by the teacher limited to physical overt activity, which is relatively easy to describe or measure.

A method in teaching, by name, is not the same when used by different teachers (even if the students were the same). Some teachers use a procedure or "method" or technique skillfully and some do not. Some teachers use one technique skillfully, but not another technique. Thus it may not be easy in research to "control" the factor of teaching procedure.

Research in procedures and methods is likely to be fruitful only when it is done in keeping with a sound philosophy of instruction. If effective instruction is regarded as economically (in time and effort, etc.) producing in students the most significant and relatively permanent desired changes in behavior, that philosophy will govern the research done. Apparently, vocational education in agriculture accepts this point of view, and thus has a common basis for research.

Needs for Additional Studies

These can be no end to needs for additional research studies in agricultural education. Almost every study made suggests a need for other studies.

Apparently, and on the whole, we in agricultural education have done a rather poor job in following up our studies by succeeding studies. Too often, we have discontinued our studies when the conclusions were arrived at. Neither we nor others have picked up where we left off. There is need for more studies that are continuous. We have had a few excellent continuous or follow-up studies.

The job of formulating instruction in terms of the psychology of learning is far short of complete. Much research needs to be done to clear up our thinking on this matter. The important task of agricultural education is to select and organize learning experiences so that appropriate behavior will be assured. We need to know more about when our educational objectives in agriculture are capable of attainment (that is, when the learnings are possible), what learnings can be counted on to take place without the school (without formally organized education), and how the various aspects of behavior are learned. In the latter category, we need answers to such questions as these when directed to specific behavior: How are certain attitudes acquired? How are certain abilities acquired (specific managerial abilities, or the effective ability to keep records, for example)? What is the relation of certain attitudes to the acquiring of certain abilities? What "information" contributes to what behavior? How does the method or time of acquiring the information influence the behavior?

Working with farmers

Some relationships of the development of programs for adults to general education

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Harry Kitts

THE main objective of the school in our early frontier society was to teach the three R's. If a person could read passably well, write a letter, and compute figures well enough to check on those with whom he traded, he was considered to have had adequate learning. Before the advent of our technological age distinguished by the use of machines and scientific ferment, the demand for comprehensive formal education was slight.

The modern technical age imposes many new responsibilities and problems upon the farmer. To be aware of and to deal with the problems, often of world wide scope, demands an education

the state, and the world. The school must serve as an integrating agency for those leaders who strive to create citizenry socially cooperative, politically informed, civically conscious and vocationally trained. As stated in the Minnesota Plan for Vocational Agriculture, the complete program of vocational agriculture in the secondary school has as one part, educational activities to meet the needs of adult farm men and women. The major purpose of this phase of the program would be to increase the effectiveness of farming operations and raise the standard of living of farm families of the school community.

Objectives:

More specifically, the objectives would be:

1. To increase the technical knowledge.
2. To increase the number and quality of farm skills.
3. To promote cooperative effort.

4. To foster community interest and increase civic participation.
5. To develop a greater love and appreciation for rural living.
6. To increase ability to think individually and as a member of a group.
7. To increase ability to use the agencies which serve rural population.
8. To develop the ability to adapt the farming operations to anticipated changes.

Identifying the Group:

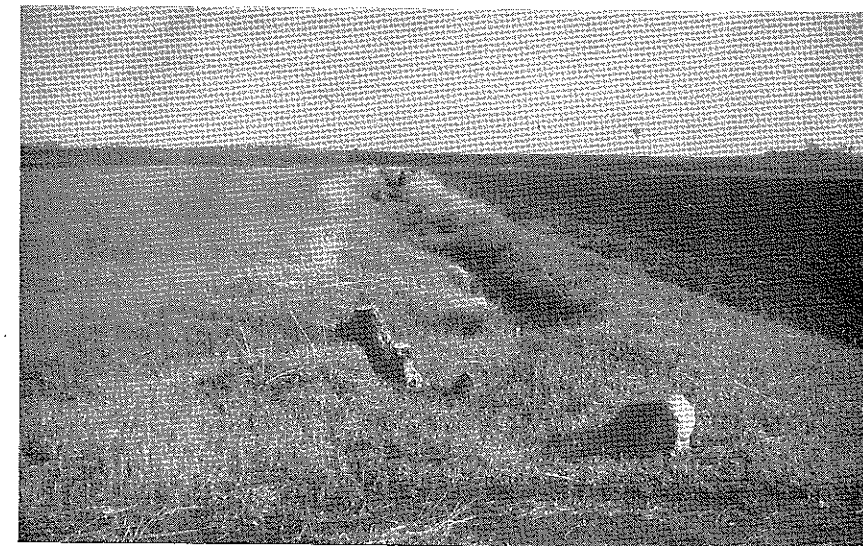
Those individuals most readily served by this phase of a program of a department of vocational agriculture in the secondary school are generally:

1. Individuals who have decided upon farming as an occupation and have established themselves in farming situations.
2. Individuals with family responsibilities and community obligations.
3. Individuals, who because of their commitments, cannot make major shifts of adjustments readily.
4. Individuals with farm managerial responsibilities who can make management decisions.

Age is not a satisfactory criteria for selection. Many men today are farm owners and operators at a comparatively young age. Other men, with grown sons, may be just establishing themselves as farm owners. The responsibility as a farm operator and the position for making vital managerial decisions is much more important in designating this group than any age classification.

Organization of the Program

With the development of the program under the Smith-Hughes Act, most instruction for adults was offered in the evening. Consequently, the program was referred to as "evening classes or evening school instruction." Early programs included concentrated periods of instruction. Some plans considered ten two-hour periods of instruction offered once or twice a week as adequate. Now, a program must be developed on a year-around basis. Such planned instruction offers opportunity for discussing prob-



Education makes a difference. The ditch above has many faults. Sides are too steep for movement of machinery and its banks are higher than adjacent fields. The ditch on the right is in a field directly across the highway from the one above. The improvement of this ditch was carried out as a result of instruction of the farmer who was enrolled in an adult class and his son, a former all day student.

based on understanding broad economic and social processes. Education consisting of the three R's is no longer adequate. Scientific knowledge, learned in the previous decade, may now be superseded with new technical advances.

The modern school does not confine itself to purely academic training; it does not limit itself to serving youth from kindergarten through high school. The school must concern itself with the activities of the family, the community,



lems in seasonal sequence and more closely correlated with real farm situations. It provides for continuity of instruction although the intensity of instruction might vary.

During the winter months when labor demands slacken on the farm, meetings might be held weekly or bi-monthly. During summer and fall, formal instruction might be replaced by less frequent meetings and more informal gatherings. Excellent experiences and instruction may be offered by observation of pasture improvement or soil fertilization work on a member's farm. A trip to a soil conservation demonstration plot, combined with a family picnic, could well serve as a mid-summer meeting. Such meetings naturally would not be held at night. They might be twilight meetings, or mid-day events. Some teachers have conducted successful meetings in afternoons during the winter. Members were much more in favor of attending meetings in the afternoon than in coming out on the cold, stormy winter nights. So, some programs, although still spoken of as "evening classes," do not necessarily refer to the time of the meeting.

Likewise, the place of instruction has shifted. Vocational teachers recognize the value of instruction in situations as nearly approaching normal as possible. Much of the instruction is given on the farm, either in the barn, the shop or the field. Those people who dislike the restraining atmosphere of a school are more apt to attend meetings held in rooms in a community building. Others attend meetings held in their community school house but would not travel the greater distance to the high school. For that reason teachers have found it advantageous to conduct instruction in various centers or outlying communities away from the school. Such arrangements, at times, may be inconvenient or impractical for instruction dependent upon scientific or technical tools, equipment, or charts stored in the agriculture classroom. The location of the instruction should depend upon the convenience to the class members and type of instruction offered as well as meeting a desire of the teacher of vocational agriculture.

Starting a Program

A teacher should ask himself several questions before he decides to organize an adult program.

1. Does a survey of the human and agricultural resources of the area reveal a need for such a program? A desire for it?
2. What is the immediate program of work for the department? The longtime program?
3. Is the school administration favorable toward such a program?
4. What is the status of vocational agriculture in the community?
5. What is the teacher's daily teaching load? Does it allow time to devote to the adult program?
6. What are the recommendations of the agricultural advisory committee?

The teacher should contact his superintendent of schools and determine his

attitude toward a program. Many times, through lack of understanding of the philosophy of vocational agriculture, school administrators do not approve a program which permits the vocational agriculture instructor the freedom needed to meet the educational needs of farm families of the school patronage area. It is hard to visualize the school, supported by local taxes, serving any but those youth in daily attendance. In those Minnesota communities where the teacher's program was scheduled so he could work with the adult and young farmers of the community in the afternoons instead of being confined to the school with such duties as science classes, coaching athletic teams or sponsoring other school activities, the services of the vocational agriculture department were greatly expanded. There is but one answer regarding the place for a program for adults in vocational agriculture. The farmers are constantly confronted with problems. True, there are other agencies—the Soil Conservation Service, the County Extension Agent, the Grange, Farmers Union, magazines, commercial concerns and others—all with programs to educate the farmer. These organizations are gigantic, they operate over large areas and lose the close, personal contact which enables the local teacher of agriculture to work so effectively with the farmers of his school area. If he has a program which meets their needs, and if he has the confidence as well as the interest of these farmers, the demand for his services will far exceed his ability to meet them. The teacher of vocational agriculture should confer with the other agricultural representatives in the community and coordinate his activities with their efforts. He should explain to them his observations of farm conditions and the goals he has established in his annual, and his long time, program of work to provide service to this adult farmer group. This assumes that his program was developed on a sound basis and has been thoroughly discussed and recommended by his advisory council for approval by the school administration.

Characteristics of Desirable Programs

If one considered the characteristics of the more successful programs as those of a desirable program, they would include:

1. The program was an important part of a community program of adult education in all phases.
2. Instruction was organized and extended over the entire 12 months and over several years.
3. Key individuals (farmers, businessmen, students) were active in securing class members and planning the instruction.
4. The location of the school, the type and time of instruction was determined by the class members.
5. There was an active, functioning advisory council or committee planning and guiding the program.
6. The teaching units were approached through the farming problems of the community and the members of the group.

7. Teaching was largely on conference basis with members relating their experiences. Many of the points of discussion were illustrated by local problems, charts, graphs, films or other visual aids.
8. Farmers adapted the programs advocated for their home situations. The teacher gave excellent assistance by home visitation and discussion of the problems in individual conference.
9. Regularly organized instruction extended over a series of meetings at frequent intervals as a conservative series of lessons in an agricultural topic.

When instruction is first instituted, it may be necessary to publicize the program to acquaint the public with the purpose, the value and the function of this extension of the school's services to the community. The most useful means is through personal contact made with the farm families at the time of the human and agricultural resources survey. Explanation of the program might be given before local service organizations such as the Kiwanis or Rotary Club. News articles, radio interviews, public displays would be other media. The public has a right to be informed because (1) public funds are used to pay the salary of the teacher as well as provide facilities (2) a well planned public relations program maintains interest, builds morale and helps develop a permanent program.

After the preliminary arrangements for physical facilities such as room lighting, heating, equipment and supplies have been completed, most planning should proceed on a democratic basis. The group should determine the time of instruction, taking into consideration the schedule of the agricultural teacher, the frequency and duration of meetings, the nature of instruction and complete their own arrangements. Elaborate organizational details are not necessary. However, a chairman should be selected to preside over all class sessions. A program committee should confer with the teacher and outline the topics to be discussed, arrange for outside speakers, tours, and similar details. There might be an additional committee to provide refreshments after each formal class session.

The more successful teachers minimize the lecture method. The class members can contribute much to discussions or presentations from their own experiences as farm operators. The teacher, if he has had opportunity to make farm visitations can draw from the class members facts regarding practices which have proven successful for people in that community. This personal touch adds to the effectiveness of the instruction. A pitfall to avoid is the excessive use of outside assistance. If a program of instruction is developed with a preponderance of outside speakers or tours, much of the effectiveness of the instruction is lost. First, the identity of the role of the local teacher of vocational agriculture and his service to the farmer is lost, and, secondly, the value

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Working with farmers

(Continued from Page 67)

of the teacher having intimate knowledge of each farmer's particular situation is often overlooked with speakers. This does not preclude the use of outstanding authorities, or specialists in certain fields. It merely points out the desire to minimize their use.

The effectiveness of group instruction can be increased markedly by individual contacts or home visitations by the teacher of agriculture. This service necessitates arrangement of his time so he can make the service calls and sufficient funds should be provided to meet necessary mileage and other travel expenses in this phase of the work. These individual contacts should be of service in assisting the farmer with his problems, including those discussed by the group and problems of an individual nature. The teacher can render a valuable service on this individual basis; he cannot justify the time utilized nor funds expended for salary and travel if mere social visits are made.

Evaluating Progress

The instruction should be carried to the doing level. Good instruction should result in the adaption of more approved practices on the farms of members and a higher level of farm living.

One means of evaluation, and common though not too practical, is on the basis of meeting minimum requirements for the state program. This evaluation usually is in terms of average attendance, number of meetings held, and duration of meetings. The success can be measured relative to the minimum or changes from one year to another.

A teacher might evaluate his success on the basis of achieving desired goals. Every teacher should put in writing the objectives for his program. These objectives should be stated in terms which could be analyzed and the teacher self-evaluate his program on the basis of the objectives achieved.

A harder, yet probably more satisfactory, means of evaluating progress is in terms of the number of approved practices adopted on farms for the first time, or in the progress made by farmers toward a higher and more satisfying level of farm living. Adults resent check sheets, progress charts and other motivating means readily accepted by teenagers. However, an alert teacher will center his instruction on basic farm problems. He will be alert on his farm visits for evidence of adopting the classroom recommendations as actual farm practices. His informal record of the practices adopted plus other evidence of progress such as increased butterfat yields, lower cost per 100 pounds gain in weight, changed status in farm ownership such as reduced mortgages or increased net worth as shown on credit statements all are evidence of how effective the instruction for adults is in the community.

Working with adults is challenging as well as satisfying. It tends to keep a teacher of agriculture closer to reality in his dealing with the younger groups;

Teaching adult groups

HOWARD CHRISTENSEN, Teacher, Bunkerville, Nevada



Howard Christensen

taking a standard textbook and saying, "Fellows, read pages 99 to 120 and then later we'll discuss it."

This procedure in most cases is unjustifiable for many reasons:

1. It is almost impossible to find a text applicable to the farming area.
2. No challenge is offered to the student to think out his own problems.
3. It is also fundamental that any group will want to "get into the act." The older people become, the more they like to be heard. Any adult class which doesn't provide an opportunity for self-expression will probably fail by degrees. The problem is primarily to direct these experiences in a logical, meaningful course so all may benefit from other's experience.

Experience With Veterans

In a veterans' class this writer taught about three years ago, these fundamentals of teaching were taken into consideration and a plan was worked out to develop the approved practices of farming in our local area. The class was divided into three groups, namely, livestock production, field crops production, and commercial vegetable crops production. The veterans selected the field of study in which they were primarily interested. These groups worked out factors for success in farming for their division, prepared statements to show how each enterprise fitted into the locality, set up a budget for each productive unit and, developed production aims. Specific jobs were then completed for each enterprise. Ideals were listed and definite steps were developed to reach the objectives. These efforts resulted in a 75 page mimeographed book that lists approved practices, essential information in farming to serve as a guide to the farmer, beginner and professional agriculturalist in our area.

no successful teacher has ever lamented the time spent or the satisfaction received from working with this group. The usual regret was that tradition and other academic mores prevented one from devoting as much time as desired to this phase of the total program for vocational agriculture in the secondary schools.

These groups also developed a "calendar of work" that showed when certain jobs should be completed in order to have an efficient working plan for the entire year. Each individual in the class worked out a five year plan for his home farm; including rotations, livestock improvement, farm construction, repair and many others. When each individual had completed his he had specific plans to go ahead on his own farm, including the best methods and procedures to follow in each productive enterprise.

This procedure brings out the most important problems first. The reference books were used only to get specific information. Field trips were taken to farms of successful farmers. The veterans then used this information, combined with their own experience to assemble the information into definite facts that could be included in the approved practice book and be used on their own farms.

The value of this procedure of teaching made it necessary that the entire class concur on information and approved methods and also that they try things out on their own farms to check for accuracy.

A Tested Technique

The final checking of practices to be included in the book brought out some of the most interesting, thought provoking and challenging discussion of the problems. The teacher, at this point, acted as mediator and kept the discussion and conclusions arrived at in a specific and understandable form.

After the material was finally accepted, the instructor placed the veteran in a position where he could make his on-farm instruction worthwhile. As an example, the teacher would notice that the veteran may not have planted his alfalfa by the time listed in the field crops planting chart. The instructor could then say, "Joe, I notice you haven't planted your alfalfa by the time we agreed it should be done in class, what is the matter?" If you can get any person to agree that a certain thing is right then you have a good chance of getting the job done.

This writer is convinced that any teacher who will follow the procedure suggested in his teaching of adult groups will find his teaching more worthwhile and easier. Better farming methods will be adopted by those enrolled in the class.

A "Farming Information and Approved Practices" book developed from a veterans' or young farmer class will serve as a valuable guide for teaching high school vocational agriculture, young farmer and adult farmer classes and will help the teacher know the real problems of the area. Teaching can then be placed on the actual farming level.

Cheerfulness aids work as well as digestion.

Evening school approach

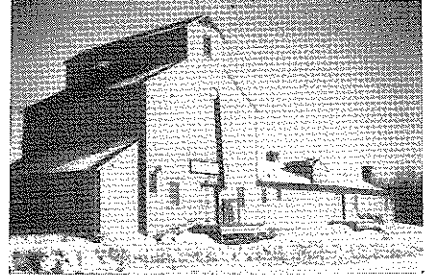
GEORGE A. PETERSON, County Supervisor, Virginia, Minnesota

Our evening school with adult farmers has placed an agricultural touch to our young community in the cut-over region of Northeastern Minnesota. The change has been accelerated because of the activities the member of our evening school have instigated.

The classes were originally concerned with the use of purebred bull rings and many rings were organized which have served the territory well. Then came the advent of artificial insemination as a means to improve local dairy cattle. The farmers began with purebred sires in their artificial insemination work but have now advanced to the use of proven sires. The local Artificial Insemination Association, which is one of the earliest in the country, began as a result of the evening school classes in the agricultural department of the Cook High School.

A cow testing association also is working hand in hand with the artificial insemination work. The importance of cow testing was pointed out in the evening school classes and the testing association originated as a result of class work carried on in school.

Another big factor in the community's progress, and an outgrowth of the evening school work, is the establishment of the Arrowhead Seed Growers Cooperative. This organization was started by members of the evening schools and from a small beginning has developed into an organization now doing over \$150,000.00 business annually.



Arrowhead Seed Growers Cooperative.

The marketing organization is engaged in the cleaning and marketing of legume seeds. It has now become engaged in mixing and selling of high quality feeds. This has improved the feeding of dairy cattle in the community. The use of commercial fertilizers is another item that has progressed rapidly because of the establishment of the cooperative. Before the evening school members established the marketing organization, local farm products outside of butterfat, had no local market prices. The man who had some, traded his wares with a store keeper who in turn sold it to the consumer in sack lots. It was a common sight to see a sack of grain coming to town on the running board of an automobile. Feed was also carted home from the grocery store

Book Reviews

FUNDAMENTALS OF HORTICULTURE, by J. B. Edmond, A. M. Musser and F. S. Andrews, pp. 502, illustrated, published by the Blakiston Company, list price \$5.50. The text is divided into three parts: Part I, a study of the fundamental processes; Part II, the application of the fundamental processes to horticultural practices; and Part III, a discussion of the principal horticultural crops. The book is well balanced, written in a readable and interesting style, and is designed for the college freshman and sophomore level. Each part of the text is concluded with an extensive bibliography and thought-provoking questions. —APD

FORAGE AND PASTURE CROPS, by W. A. Wheeler, pp. 752, illustrated, published by Van Nostrand Company, list price \$6.00.



A. P. Davidson

This text consists of four parts: Part I considers forage crops; Part II treats of legumes as special crops; Part III covers the grasses as special crops; and Part IV consists of tables of data on seed and adaptation of grasses and legumes. Included in Part IV is a comprehensive list of reference readings by State, Federal and miscellaneous agricultural sources in a form convenient for farmers, students, teachers and research workers. This text is a veritable storehouse of valuable information pertaining to grasses and legumes grown for forage in the United States — their culture, special characteristics, extensive climate and soil adaptations, their uses as forage and soil conservation crops. This book will prove of inestimable value to farmers and to teachers in the field of agriculture. —APD

APPROVED PRACTICES IN BEEF PRODUCTION, by E. M. Juergenson, pp. 248, illustrated, published by Interstate, list price \$1.85. The text furnishes a comprehensive list of activities which involve approved practices with information as to how the practices should be performed. Carefully selected and condensed information relative to the best methods of performing practices which are common in beef production add value to the publication. This paper backed booklet with its carefully selected illustrations should prove of interest and value to vocational agricultural teachers, to veterans-on-farm instructors and their students. —APD

FORAGES—The Science of Grassland Agriculture, edited by H. D. Hughes, Maurice E. Heath and Darrel S. Metcalfe, with 52 contributing authors, pp. 724, profusely illustrated, published by the Iowa State College Press, Ames, Iowa. List price \$6.75. The authors were selected for their recognized leadership in the field of Grassland Agriculture. The 60 chapters are grouped into four large areas, namely: Part I, Forages and a Productive Agriculture; Part II, Forage Grasses and Legumes; Part III, Forage Production Practices; Part IV, Forage Utilization. Equal care has been given to the selection of data and other kinds of information of interest and concern to those in the Northeast, in the Deep South and in the Southwest and West, as to those in the Corn Belt and in the Eastern Great Plains. The coverage is broad permitting considerable selection in order to emphasize production factors most applicable to a given environment. The text is interestingly written and easily read. The four page glossary will prove helpful to teachers of vocational agriculture and to veterans-on-farm instructors. All workers in the broad field of agricultural education as well as farm managers and operators will find Forages—The Science of Grassland Agriculture of great value. —APD

A chart for studying

(Continued from Page 61)

3. These values or medians were based on one year's program and farm business analysis, consequently the reliability of the table has not been determined. It will be necessary to revise this table for several years before confidence limits can be established.

not fitted to cultivation will be developed into managed woodlots.

The soil in the area which is mainly of the Nebish-Taylor type lacks organic matter. The evening school is now concerned with this major problem. Everything will be done to improve our grasses to increase the community's livestock to increase the organic matter content of our soil.

During 1948-49 nearly 27,000 foreign students were admitted to institutions of higher education in the United States compared with approximately 21,000 in 1947-48 and 16,000 in 1946-47.

School farms in Maryland

H. M. McDONALD, Supervisor, Maryland



H. M. McDonald

IN MARYLAND there is a widespread interest in the school farm, garden, and testing plots as a supplement and auxiliary to the program offered by vocational agricultural departments. In the seventy-odd departments in Maryland there exists today a variety of small farms, school gardens, hot beds and cold frames, greenhouses, feed lots, strawberry patches, shrubbery beds, and poultry houses which have an integral part in the department's instructional program. During the past 30 months at least twelve small school farms of between 3 and 10 acres and 11 larger farms of 10 to 40 acres have been started or land has been acquired for them. Mr. E. J. Johnson, Program Planning Specialist, Agricultural Education Service, U. S. Office of Education, estimates that nearly one-half of the vocational agricultural departments in the Pacific region operate and manage some land or farming equipment. These agencies and auxiliaries are not regarded as substitutes for the supervised farming programs of individual pupils, but rather as aids and supplements to supervised farming programs and to effective teaching.

Conditions Govern Need for School-Farm

It is worth noting that in the original Vocational Act the thought was expressed that land could be provided by the school for carrying on agricultural practices and experiences. Generally, it is assumed that the boys who are enrolled in all day classes will be full time farm boys who have facilities at home for more or less standardized large scale projects or supervised farming programs. This is an ideal situation and one which enables vocational agriculture to develop to its maximum. Unfortunately, however, a number of situations exist where boys do not have home environment favorable to large scale projects or supervised farming programs. In Maryland there is an increasing number of boys from part-time and subsistence farming situations who enroll in our high schools. Many excellent

boys come from just such a background. For these boys, as well as for the bonafide farm boys, school farms can be of great value. Some contributions which can be made to the total agricultural program as a result of the school farms and auxiliaries mentioned above might be listed as follows:

1. To provide worthwhile work experiences for all boys, but particularly for those who have limited facilities at home.
2. To demonstrate the practicability and use of sound farming practices, procedures, and skills.
3. To serve as a testing plot for such things as fertilizers, new strains and varieties, pest control, procedures, etc. Such work could in most cases be done or planned cooperatively with State or Federal Experiment Stations.
4. To make money for the F.F.A. chapter under certain circumstances.
5. To create an active vital interest in agriculture on the part of the student body as a whole and of the agriculture group in particular.
6. To provide opportunity for supervised farming programs for some pupils.
7. To provide breeding service, livestock, plants, seed, etc. for pupils' projects.
8. To provide opportunity for cooperative effort in a wide range of producing, processing, and marketing activities.
9. To provide a natural setting where the teaching of agricultural theory and practice, the "why" and the "how" take place at the proper season and in the proper sequence, under the direct supervision of the teacher. The end result should be an enriched agricultural instructional program for all pupils.

School farms, which are of considerable size and which include a combination of crop and livestock enterprises, would make a greater contribution to the above than could be made by the other agencies and auxiliaries listed in the first paragraph.

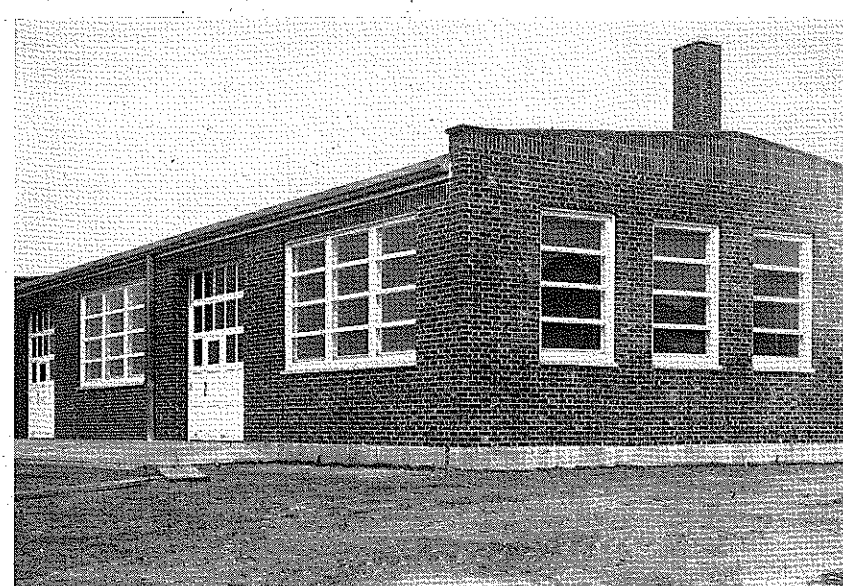
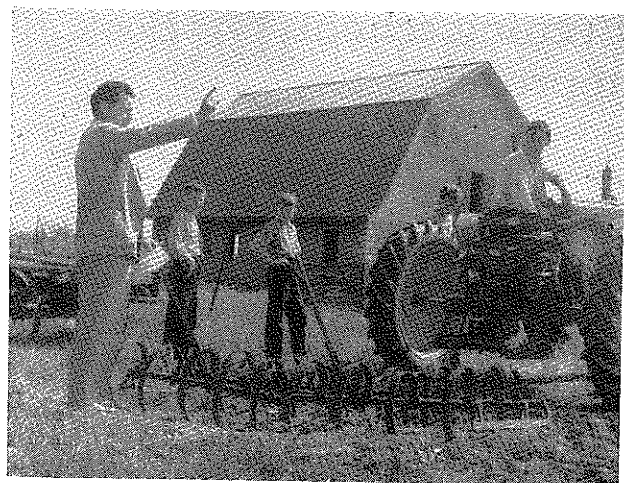
While many school people look with favor on the school farm in general, no one is of the opinion that it is to be recommended for all vocational agri-

culture departments. Many departments will render their best service without such farms, but undoubtedly other departments will become more effective and functional when school farms or major auxiliaries have been added.

Listed below are the commonly accepted essentials for success in operating school farms or other major auxiliaries and agencies of considerable size and value:

1. Must be a general agreement that the aim and basic objective of the farm is education and training rather than profit.
2. Must be approved, supported and financed by the School Board.
3. Must be on or adjoining the school campus.
4. Must be on land owned or on a long term lease by the school.
5. Some one connected with the school—teacher, janitor, bus driver—should live on school farm.
6. Large school farms should be connected with a two-or-more-teacher department, or a full or part time manager or tenant should be provided.
7. Land should be average or better in quality, or of an improvable nature.
8. Accurate and detailed records should be kept.
9. All enterprises attempted should give at least average yields and returns.
10. Enterprises should be selected with due regard to such things as labor distribution, educational value, market, soil adaptation, power, etc.
11. Boy labor should not be exploited to the extent that boys lose their enthusiasm or parents become annoyed at continued operation on the same job. This means considerable labor will be paid for, particularly during school vacations and week ends.
12. Regular farm equipment common to the region should be available for the school farm.
13. Work and jobs should be assigned with a view to greatest educational value and benefit rather than with a view to greatest labor efficiency.
14. Manual work should be closely

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New facilities . . . a challenge to a better job

B. X. HORNER, Teacher, Lewes, Delaware



B. X. Horner

THE Lewes Department of Agriculture started from scratch in September, 1947. A previous agricultural program in the high school had been discontinued during World War II for lack of instructors. We began with entirely new members in a single classroom. Later on during the first year we had part-time access to the facilities of the manual arts shop of our school for a bit of farm shop training.

At the beginning of the second year, July, 1948, we had obtained a lease on a cement block building 20'x100'. This building had four rooms with four framed sheet rock partitions in each room. The lease allowed us to remove the partitions. We arranged to fix up one room 20'x50' as a shop, and one 20'x25' as a classroom. Each 20'x25' space had a winged chimney with a coal stove in the middle. The boys constructed a drive-in door. Using, for the most part, surplus military government tools and equipment we built up a fairly satisfactory temporary quarters for our enthusiastic group.

During all this time we were given encouragement that in the near future a new agricultural department building would be recommended for construction as a part of the new building program to meet the expanding enrollment. Before the close of the third year, 1949, a local referendum vote and a generous state appropriation gave the green light to go ahead. The students cheerfully assisted me in planning a tentative layout, equipment placement, and a listing of tools and equipment needed for the new building.

With mixed emotions of satisfaction, we could observe the builders breaking ground for the new building located between the temporary block building and the main school building. This was March, 1950.

We moved into the new building the latter part of September. Although it was not completed inside, we were not discouraged for one moment by the lack of a classroom ceiling, a heating system not ready to operate, and the failure of the water supply. We proceeded to get busy. Our relationship with the construction men until the completion of the building was consistently wholesome. In December the construction men installed our power equipment. We were then able to reduce the amount of class work and were free to use all of the shop and other department equipment.

The new building is an L-shaped structure of concrete block with brick facing. Overall it is 30'x100'. A 23'x28' classroom features a 4'x6' built-in show case having two sliding glass doors. Off the classroom is a class-laboratory storage room. Between the classroom and the shop are an instructor's office-student conference room combination, a student locker room, the main boy's lavatory, and a smaller guest lavatory. The boy's section also contains an eight-man circular industrial crock basin having an automatic water temperature mixer. The lavatories, all tiled to the ceiling, are separated from the conference room by the passageway which connects the classroom to the shop.

The shop is 30'x50'. Power equipment includes two saws, two grinders, two drills, an automatic parts washer, wood and metal lathes, electrically driven forge, and electric and gas welders. Ten 220-volt power boxes provide overhead power to the machines. Twelve double 110-volt outlets are placed on the walls

School farms in Maryland

(Continued from page 70)

correlated and balanced with classroom teaching in a comprehensive course of study and teaching calendar. One should not be participated in for a long period of time to the exclusion of the other, except in emergency situations.

15. In planning and beginning a school farm, start in a small way with limited enterprises.
16. Advice should be available on the legal responsibility of teacher and the School Board in all phases of the school farm operations.

The benefits and advantages claimed for school farms are primarily for vocational pupils and the F.F.A. School farms, however, have secondary benefits for the entire student body. In discussing such benefits, Douglas Bivens, Principal of Boonsboro High School, says—

"Our school farm is becoming a comprehensive laboratory for all departments from grades 1 to 12. At the present time we are fortunate in having a 50-acre farm adjacent to our school grounds. Practically any time during the day one may find groups of pupils visiting the farm for many purposes. Examples, first grade pupils learning about animals; upper grade pupils observing conservation projects; Junior High pupils studying the diet of animals; Senior High pupils butchering and safe ways to store food.

Not only are out-pupils receiving many benefits from our farm, but our graduates and many adults in the community have discovered that a real service may be obtained from the school.

During the past three years the Agriculture Department has grown by nearly 250 per cent, and our holding power has been greatly strengthened throughout our school.

A good high school located in a rural area can be made a better high school when it undertakes to evolve a comprehensive farm laboratory adapted to meet the needs of the community."

for operating portable and small electric equipment. In all, 20 automatic breaker circuits are connected to one central switch panel which controls the entire building. This is in addition to the 220-volt overhead shop supply. At the far end of the shop is a machine room, 16'x30', used to store paint, lumber, metal, and the school tractor.

The building is heated by its own oil-fired boiler which is housed in a fire-proof room to which access can be gained from the outside only. Even distribution of heat is achieved by a series of circulators appropriately located in all areas of the building.

The actual setting-up procedure by the boys is being done in committees of two each. The boys assist in detailing the many jobs to be done. They volunteer freely for the tasks of their choice. Such jobs include assembling lockers, erecting tables and cupboards, constructing tool cabinets, arranging tools, and conditioning the power equipment.

PICTURES of the month . . .

A contest open to all teachers of Vocational Agriculture and farm veterans

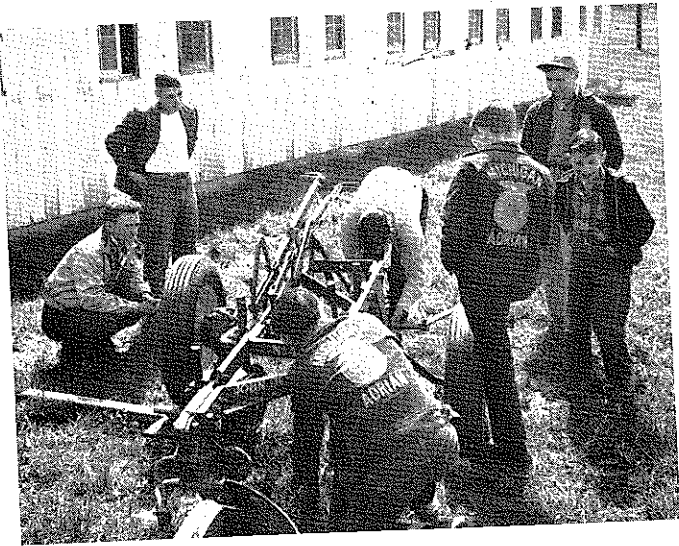


Photo by Forrest Strand, Teacher, Adrian, Michigan

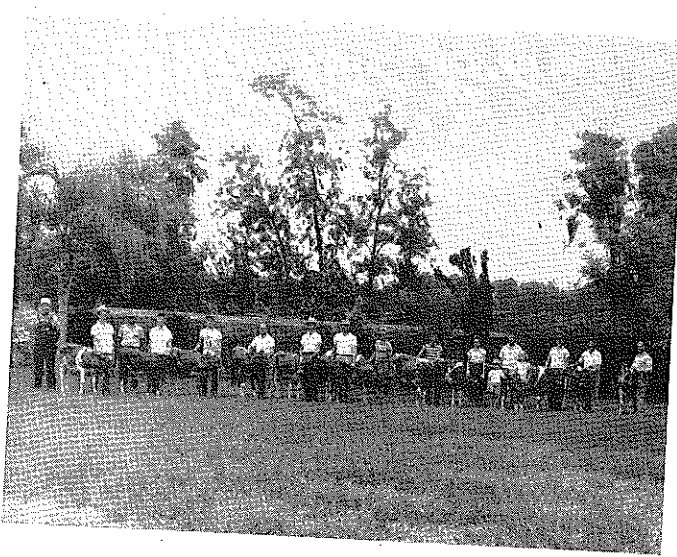


Photo by D. A. Storms, Teacher, Plant City, Florida

FIRST PRIZE:

W. T. Smith, Teacher, Madera, California.

Camera: B & J. Press

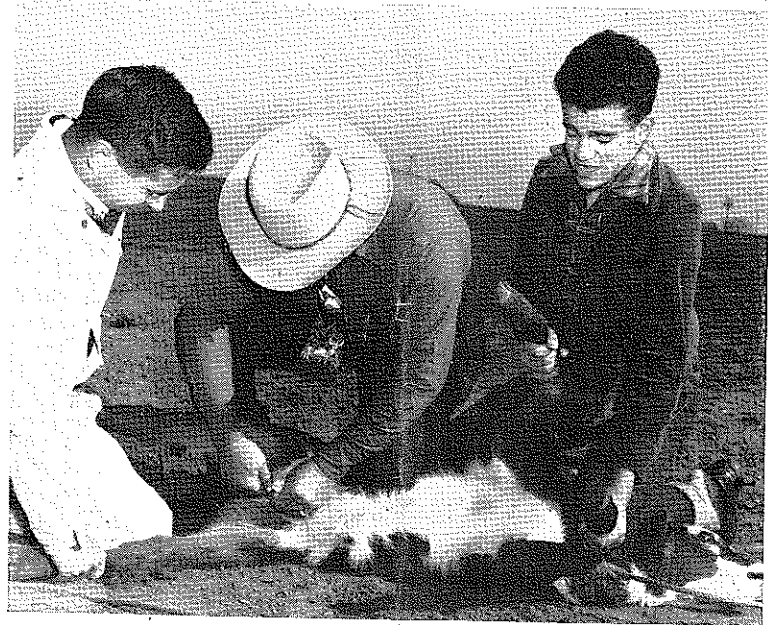


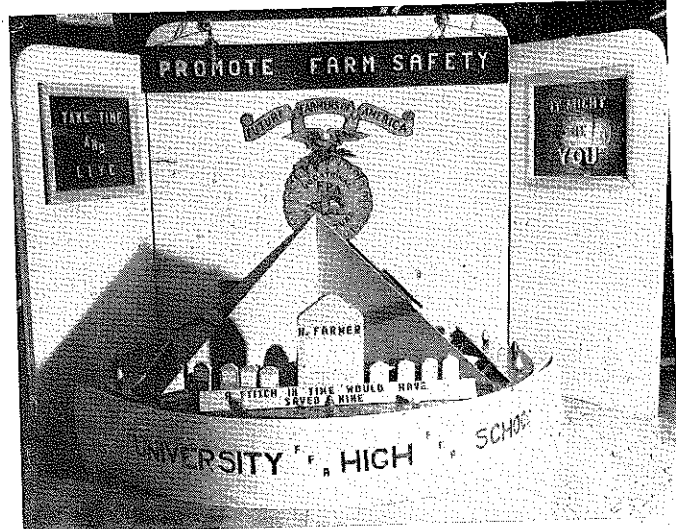
Photo by D. A. Storms, Teacher, Plant City, Florida

Film: Super Pachro—Press Type B

Exposure: Lens opening: 16
Shutter speed: 1/200

Title: Teamwork

Photo by Bond L. Bible, Teacher, Morgantown, West Virginia



The AGRICULTURAL EDUCATION Magazine

