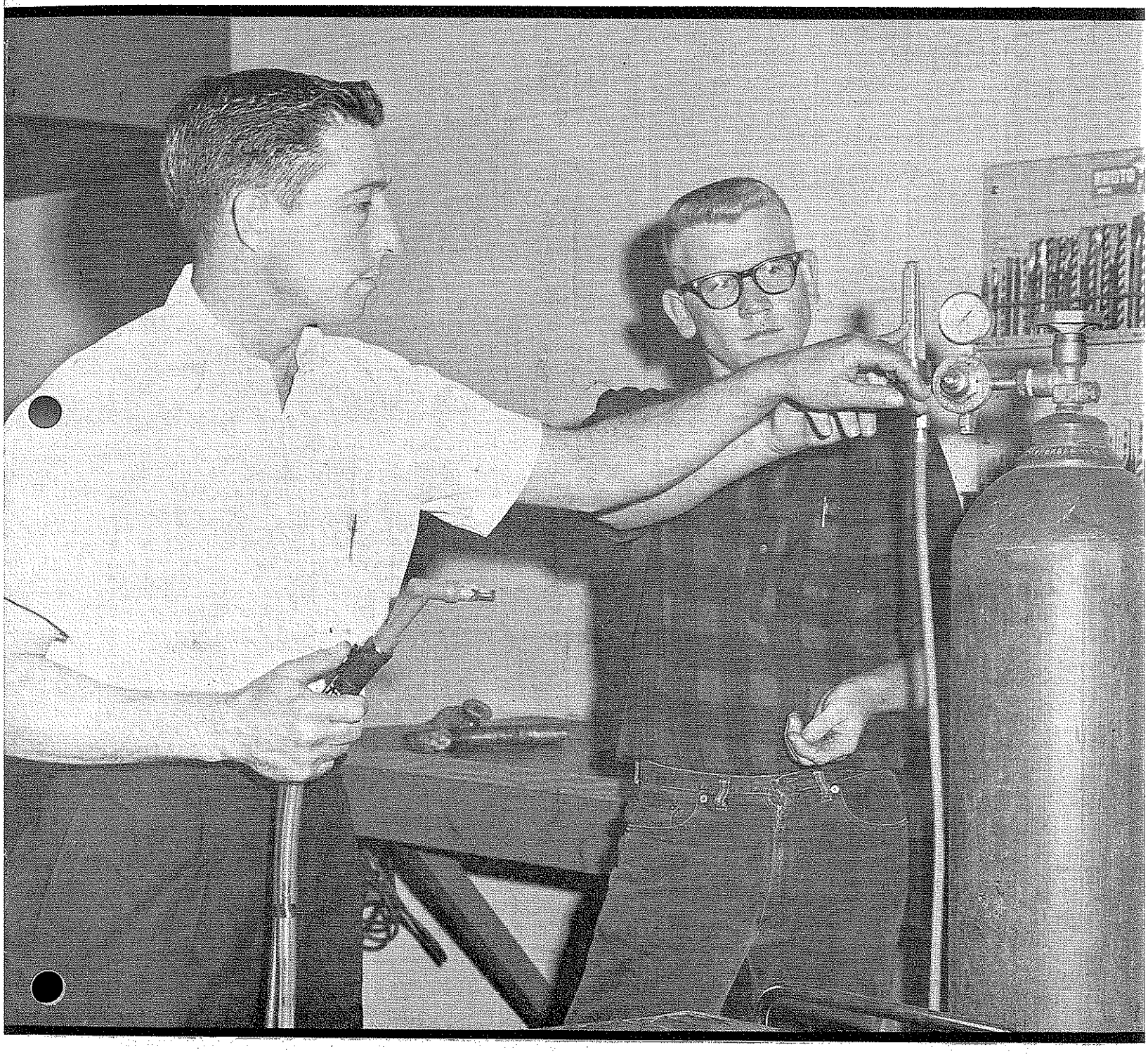
Agricultural Education

MARCH 1965



Featuring—New Courses of Study

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The Cover

Tungsten Inert Gas Welding is proving a popular shop skill being taught in Oklahoma Vocational shops. Many of the shops have recently installed the necessary equipment to teach this technique. Ed Perry, Jenks, Oklahoma, vocational agriculture instructor shows student George Reid some of the details of TIG welding.

Editorials

Publishing Truth For These Times

From the Editor's Desk . . .

Ralph J. Woodin

The major task of a professional magazine such as ours is publishing truth for these times for our people. The difficulty for our writers lies in identifying new truths as they are discovered and presenting them clearly as they apply to today's situations.

President John F. Kennedy stated it this way:

"The world of Calhoun, the world of Taft, had its own hard problems . . . But its problems are not our problems. Their age is not our age. As every past generation has had to disenthrall itself from an inheritance of truisms and stereotypes, so in our own time we must move on from the reassuring repetition of stale phrases to a new, difficult, but essential confrontation with reality . . . The great enemy of the truth is very often not the lie . . . but the myth . . ."

Substituting the names of our own leaders in the thirties and the forties for Calhoun and Taft makes this statement particularly appropriate to the problems of our profession and a guide to our professional publication.

Elsewhere in this issue is a brief report of a reader survey made last year. The comments of our readers indicate that they sense this need to discard time honored clichés, patterns and stereotypes and move to an "essential confrontation with reality."

This task of publishing new truths for today's times is not new. An examination of issues published in the thirties, the forties and the fifties presents an interesting review of our attempts to confront reality as we have faced problems of war and peace, depression and prosperity, public support and public apathy.

Here seem to me to be some of the more promising developments in our magazine, which may serve as a guide to those who write for it.

- Our writers are addressing themselves more to the solution of today's problems rather than to further refinements of yesterday's procedures.
- Differing points of view are being presented not only through professional articles and from writers in other fields but also through letters from our readers and in "Both Sides of the Issue."
- More research is being used in support of new ideas and more research, *per se*, is being reported.
- A fine balance between positive proposals and constructive criticism has been maintained to the degree that the magazine presents a responsible and respected voice for the profession.
- More and more teachers, supervisors and teacher educators are writing high quality professional articles, permitting us to be more selective in what we print.

It goes without saying that new and continuing efforts must be made to further improve *The Agricultural Education Magazine*. These improvements can and will be made if all who contribute to the magazine keep in mind that "The great enemy of the truth is very often not the lie but . . . the myth." □

Ralph J. Woodin

A Basis For New Courses of Study

Guest Editorial . . . A. W. TENNEY, Director of Organizational Relations, Division of Vocational Education, U. S. Office of Education, Washington, D. C.

A. W. Tenney

The Vocational Education Act of 1963 includes two basic changes for education in agriculture.

The Act provides that funds allotted for agriculture "may be used for vocational education in *any occupation involving knowledge and skills in agricultural subjects*, whether or not such occupation involves work of the farm or of the farm home, and such education may be *provided* without directed or supervised practice *on a farm*."

Providing this sort of education will require changes in program planning and curriculums. Giving specialized instruction in technical agricultural subjects at the post high school level opens a challenging new field.

There are four distinctive groups of students whose future occupation will require knowledge and skill in agricultural subjects:

- Those who plan to engage in production agriculture—farming, ranching, and horticulture
- Those who enter nonfarming agricultural occupations directly from high school
- Those who obtain further technical training after high school in preparation for specific agricultural occupations
- Those who continue their education beyond high school for entering the agricultural professions

We are challenged with designing curriculums to meet the varied needs and interests of these four groups of students and with providing genuine vocational instruction for students with widely differing occupational aims. This task will be difficult. The majority of schools offering vocational agriculture courses have one-teacher departments. The ability and ingenuity of the teacher will be taxed more than ever.

Fortunately, however, teachers and supervisors in vocational agriculture have stressed individual instruction for years. Moreover, these students with differing occupational aims have certain needs in common. On these common needs, we can plan programs and curriculum.

The first need our students have in common is the need for "knowledge and skills in agricultural subjects." We cannot begin too soon to teach the basic agricultural sciences and mechanical skills.

Another need is for occupational guidance. In the first

two years, the students' critical attention should be directed to agricultural careers, qualifications, and opportunities. In the last two years, their group study should be supplemented with individual consultations and planning with the guidance counselor.

All students need supervised practice and the responsibility for keeping records and making decisions. The practice must be carefully planned to provide worthwhile experiences in the student's occupational field.

All students need to participate in the activities of the Future Farmers of America as an integral part of the instructional program. Leadership and citizenship qualities thus gained are valuable assets regardless of students' future occupations. Participation in FFA functions helps the students to communicate more effectively, to cooperate with others, and to assume responsibility.

We face the challenge today. In most of the States teachers and supervisors are already at work on the development of programs and curriculums to meet the new requirements in vocational agriculture. Teachers are reviewing existing programs to make certain they meet the educational needs of *all* students. Mistakes will be made, but successful programs will be achieved—programs which will be copied, improved, and designed to fit students for employment in specialized agricultural occupations. □

L E T T E R S

Sir:

Recently I had an opportunity to examine the Agdex filing system in use by our local agricultural representative's office in Halton County.

As our work is in conservation extension, I was wondering if you had a similar index available for conservation extension in addition to the cultural one I observed. I would appreciate hearing from you if such a filing index is available for conservation extension and where I may obtain it and the probable cost.

C. R. LEUTY, P. Ag.
Project Engineer
Ontario, Canada

The Agdex filing system now in use in several states continues to grow in popularity. Unfortunately there is no similar index for conservation materials.—Editor.

Sir:

Dr. Hamlin's "View From the Outside," was certainly written by one with inside information. His lead comment, "Even agricultural educators do not always want what would be good for them . . ." is reminiscent of the Apostle Paul's confession, "We fail to do the things we should and we do things we should not." My question is, shall we merely pray, "Forgive them, for they know not what they do"?

Dr. Hamlin suggested that the job to be done "should command the interest of the best of the younger generation of agricultural educators . . ." I believe the younger generation needs and desires, from outsiders and experienced insiders, more meat on the philosophical skeleton. Most of us attest the accuracy of the general situation as depicted by Hamlin, regarding both a lack of public understanding of agriculture and developmental deficiencies for area schools. However, we hope his next section will start an "idea pool" of specific suggestions for implementation.

Hamlin can make a great contribution if he will outline some ways to "sell" administrators, boards and communities to the point of willingness to hire teachers for "general" agriculture for the populace.

There is little doubt that "area schools are developing much too haphazardly," and that, "one of the neglects is omission of agricultural education." Again, I hope Dr. Hamlin will provide some answers. What specifically would he suggest — informing ourselves, and in turn availing other educators, laymen and legislators with that knowledge of principles for establishing area school—How? What else?

JAMES T. HORNER
University of Nebraska

Sir:

In recent months you have attempted to evaluate the reader use and interest of the magazine. I have thought that the kind of use we make in teacher education is a little hard to evaluate. We use the magazine in teacher education almost 100 percent as a part of our organized instruction. This is especially true in the graduate courses. An article in a periodical is important when it helps to help solve a problem. The casual general reading of an article has limited value as concerned to its being used as a resource in systematic instruction. I am sure that you appreciate this point.

LEO L. KNUTI, Head
Agricultural Education Department
Montana State University

Sir:

J. C. Atherton brings to our attention a most important activity—evaluation. Needless to say, we are constantly being measured by our administrators, our community, and our students. The yardstick used in this process may or may not be the same one the teacher or his supervisor are using.

Perhaps at no other time in our history has it been as important as now that we take a look at the Vo Ag program. Changing agriculture—changes in public education—demands changes in our Vo Ag program; but not change solely for change's sake. It must be change based upon the needs of the community in which our programs serve.

The teacher, as always, is the key; however, he must use the resources present in his community. Joint and co-operative planning must be done. Mr. Atherton's twelve questions serve as a good outline of activity for community evaluation and program planning. Each teacher must "set his sights." The new era in Ag Education demands that we "be on target" as we set goals and objectives for our Vo Ag program.

R. A. MCKINNEY
State Supervisor
Indianapolis, Indiana

Sir:

I read "Research Studies of Past Two Years Are Listed" in the last issue. This compilation of research studies is very important to all vo-ag teachers and committees who are doing research. Such a list is bound to prevent time consuming duplication and it also provides the opportunity for a broader scope of information.

I would suggest, however, that the studies be divided into the various categories to make it easier for the reader and researcher to find what he is looking for.

HARRY E. PEIRCE
President, MVAIA
Winona, Minnesota

Sir:

I was impressed with your November, 1964, Agricultural Education Magazine featuring, "Aiding Young Farmers."

I am interested in promoting Young Farmer work in Kansas. What would be the cost of 25 additional copies to be sent to key individuals in promoting Young Farmer work?

HAROLD SHOAF
Exec. Secretary
Kansas Young Farmers Assn.

A good idea which others might use. Additional copies of current issues are always available from the publisher at Danville, Illinois at 35 cents per copy.—Editor.

Sir:

The title "What Parents Want" in the January issue immediately put me on the defensive, so I read it thoughtfully. Are we running a school for parents or for boys and girls? Granted, parents always want the best for their kids. Still, do they see the future from looking backward; from their experiences, successes, failures? Do they consider the shortcomings and strong points of themselves? These characteristics may carry over into the next generation.

The article was excellent. There is truth in the saying that "You can take the boy out of the country, but you can't take the country out of the boy." So, let's give our rural boys every chance we can make available to them to explore the job opportunities in agriculture. Some will be farmers; others will put their farm background and training to profitable use in occupations related to farming.

The work study or cooperative training program which is used effectively in teaching Business Education students will work in many high schools for getting boys acquainted with the job requirements and skills of ag. related occupations performing a service in their community. Work experience on these jobs develops responsibility and maturity of attitude not attained in purely academic training.

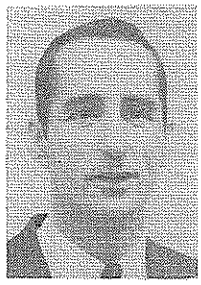
In conclusion, I would recommend that "What Parents Want" should be printed in *Reader's Digest* and *Life Magazine*.

Sincerely,
C. C. EUSTACE
State Supervisor
Topeka, Kansas

Floriculture students preparing Christmas decorations.

Teaching Floriculture to Girls

JOHN H. BALL, Teacher of Agriculture, Coventry High School,
Coventry, Rhode Island



John H. Ball

Educators in the public schools are giving hearty approval to the current emphasis upon broadening the program in Agricultural Education. Teachers of Agriculture in Rhode Island are those exploring new areas in which the program is in a strategic position to provide effective instruction.

One of these instructional areas is concerned with an important phase of agriculture in which many young ladies may be interested. Currently, at Coventry High School, Coventry, R. I., a group of senior girls wearing smocks is a familiar sight in the Agricultural Department greenhouse. In order to more adequately meet the needs of a greater number of high school students the Agricultural Education program has been expanded by adding a course in floriculture for girls. The 1964-65 school year is the second year for this pilot program and classes are again off to a highly successful start.

The students learn of the many opportunities for employment through this program and some are developing a vocational interest in the horticulture field. For some students, a four year University program or a two year Associate Degree Program in floriculture is becoming a reality. Some of these girls are planning to go into Nurse's Training and/or to become homemakers. These students are developing individual goals and the instructor designs the course to meet individual student needs.

Floral arrangement and the care of flowering plants is stressed for those planning further education in the field of nursing. Landscape design and ornamental horticulture is foremost for those who intend to become homemakers upon graduation. For those planning to pursue post-high school education in agriculture an understanding of basic plant science principles is very important.

The course of study, which has been developed is systematically revised as experience and use warrant, and among the large functional units currently includes: A Study of Plant Structure; How Plants Grow; Soil Types and Conditioners; Plant Identification; Landscape Design; and Floral Arrangement.

Each of these units is further subdivided into problem areas, i.e., the unit pertaining to floral arrangement consists of: Principles of Floral Arrangement; Making Centerpieces; Corsage Making; Thanksgiving Day Arrangements; Christmas Arrangements; Terrariums; Work with Artificial Fruit; and the Collection, Preservation and Arrangement of Wild Plants, Seeds and Fruit.

Students are given the opportunity to actively participate in "learning by doing" situations as much as possible. Many of the arrangements which they construct are placed on display in various school offices, corridors, the library, faculty rooms, and down town store windows. The students in this class prepare floral arrangements for honors day, PTA meetings, and other social events.

The major problem presently encountered at Coventry High is the lack of sufficient greenhouse space. One greenhouse is in use now and another is being constructed by the Agricultural Mechanics class. The girls are, naturally, anxious to have it completed so that they will be able to obtain a greater amount of practical experience in the growth and care of plants.

Students who were enrolled in the class during the last school year have voluntarily expressed comments such as the following, "We found the class to be educational, exciting, interesting, and highly rewarding." □

These senior girls are enrolled in a floriculture course taught by John H. Ball, Vo-Ag teacher of Coventry, Rhode Island.

Promising Patterns In High School Vocational Agriculture

RAYMOND GARNER, Teacher Education, Michigan State University

Raymond Garner

Workers in agricultural education seem to agree unanimously that high school vocational agriculture has a major contribution to make toward the preparation of students to enter the variety of jobs in off-farm agricultural occupations. In recent years programs of professional conferences at national, state and local levels have regularly focused on the role of vocational agriculture in the preparation of workers for the wide array of jobs in the broad field of agriculture.

Reams have been written on the subject. Often doubts and reservations have been expressed and some confusion has prevailed on the direction that should be taken to get the job accomplished. However, educators on the local level have been making adjustments to meet the need. From the many interesting and unique approaches that are being developed to modify the offerings at the high school level, certain curricular patterns seem to be emerging.

More Emphasis on "Why"

First of all, it appears that teachers are placing greater stress on teaching the *why* while teaching the *how*. From the beginning of the program, teachers of vocational agriculture have recognized the importance of carrying their instruction to the doing level. Rural people pride themselves in being practical men. No doubt this focus on practicality has been one of the features of vocational agriculture that has sold it to rural people. Yet in past years it appears that we have given far too little attention to teaching "why". In our anxiety to avoid being labeled theorists, we may not have helped our students as much as we should to gather adequate information and to acquire the necessary understandings needed to carry out the most intelligent application of learning on the doing level. High school students are receptive to the study of content and theory that has a close tie to the problems which confront them.

Agriculture as Applied Science

Closely related to greater efforts to teach the *why* of agriculture while continuing to teach the *how*, is the increased emphasis on teaching agriculture as an applied science. With agriculture becoming increasingly scientific this trend is to be expected. But it would be incorrect to leave the impression that the teaching of principles of science as applications of science to agriculture has been ignored. Even if he tried, a teacher would find it impossible to escape the inevitable question of "Why?", as it is raised by curious students: Why does the grass do better when the lawnmower is set at the proper height? Why does fruit keep better in controlled atmosphere storage? While a teacher may not always be able to help his students to track down satisfactory answers to the variety of questions which they raise, no doubt one of the real satisfactions in teaching comes from trying.

There seems to be a movement among some of our teachers not to depend upon such a more or less hit-or-miss approach for opportunities to introduce more applied science. Rather, they are planning their instruction in such a way that situations will arise when they will be able to teach and apply important science concepts and principles. This trend to incorporate more science will probably continue, not only in the natural and the physical sciences but also in the social sciences. It is doubtful if we have fully explored the possibilities for drawing upon the social sciences to strengthen our program of instruction in vocational agriculture.

Preparation for OFAO

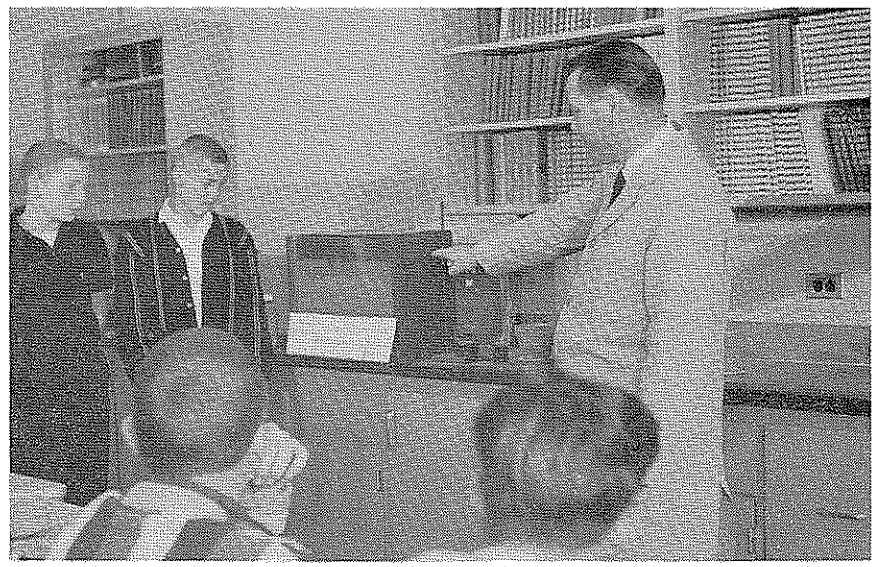
Other adaptations and adjustments in the curricular offering are being made that contribute more specifically to the preparation of students to enter off-farm agricultural occupations.

a. *Providing more complete occupational information and assisting students to make occupational choices.*

Over the years teachers of vocational agriculture have made positive contributions toward helping rural youth find their places in the world of work. The close association of teacher and students has made it rather natural for rural boys to seek the counsel and guidance of their teachers of vocational agriculture. Even though effective at times, much of this vocational guidance has been carried out rather informally and somewhat unsystematically. Often it has been concentrated near the time that students are graduating from high school.

In recent years teachers, rather generally, are providing occupational information for students from the beginning of their study of vocational agriculture. Early in high school the emphasis is on the scope and nature of agricultural occupations. The goal is to show the extensiveness and variety of agricultural jobs. Later, a detailed study of selected occupations and occupational families is provided. The aim at this stage is to help students begin to narrow their occupational choices.

By the time that the student enters his junior year, he should have suffi-



A Michigan teacher points out the application of a scientific principle in agriculture.

Supervised learning experiences are provided in an off-farm agricultural occupation.

cient occupational information to begin an intensive study of selected occupations in which he has a special interest. Eventually, this should permit each student to develop an individual career plan. During the last year in high school the focus is on helping students implement their career plans. By this time many occupational decisions will have been made and teachers are able to work with students to help them as they put their plans into action.

b. *Providing off-farm experience in agricultural occupations for older high school students.*

Occupational experience in farming for students has long been an integral part of instruction in vocational agriculture. Teachers are just beginning to develop the possibilities for occupational experience for individual students in off-farm agricultural work. Two patterns seem to be evident: (1) Providing observational experience in agricultural business and (2) providing placement for occupational experience in agricultural business. Both of these experience programs require close cooperation between the school and local community.

Observational experience is designed primarily to provide vocational exploration. It allows the student to study an occupation at close range, to become aware of its opportunities and limitations, and to gain a better appreciation of the world of work. Ordinarily the amount of observational experience is somewhat limited. It is highly flexible and is scheduled at the convenience of the student and the local community cooperator. Frequently, the student carries out his observations after classes, on Saturdays or on days when school is not in session. One Michigan teacher arranges six hours of observational experience for each of his junior and senior students. He has received excellent cooperation from local business and service people such as the veterinarian, nurseryman, banker, or hatcheryman.

It is doubtful if highly specific training for most off-farm agricultural employment will ever be offered to any great extent in high school classes of vocational agriculture. In most rural communities the non-farm agricultural jobs are so varied, even though several persons may be employed in them, that it becomes impractical to organize classes for specific training. Furthermore, it seems unrealistic to expect teachers to secure the technical preparation needed to offer instruction for the many different, off-farm jobs. Consequently, it is questionable whether highly specific training can be made available for most off-farm agricultural occupations. Post-high school education in an area vocational school appears to be a more feasible method for expanding such education.

A possibility for providing some specific training at the high school level exists in the placement of students for occupational experience in agricultural business and service jobs of the local community. A carefully developed training program affords an excellent opportunity for students to learn and earn on the job. While the number of placement stations may be rather limited in the average rural community, even if no more than four or five students in a department of vocational agriculture benefitted each year, over a period of time it could represent a significant contribution to the vocational preparation of the youth of a community.

c. *Providing basic knowledge of farming which will be helpful to students who decide to work in off-farm agricultural occupations.*

Many workers in agricultural education would contend that an extensive understanding and appreciation of farming and farm living represents one of the finest assets that a prospective worker could offer for employment in any agricultural job. Certainly, a person with thorough training and experience in agriculture is much better prepared to serve the needs of farmers and other rural people than one without such preparation.

Aside from the technical training acquired, a good program of instruction in vocational agriculture affords the student numerous opportunities to develop ability in critical thinking as well as to acquire desirable habits of work and helpful leadership skills.

d. *Utilizing the contributions of all vocational teachers.*

A curricular adjustment to prepare students to work in off-farm agricultural occupations, and one that has been ignored too often, is the contribution that other vocational teachers are able to make to the career preparation of workers for non-farm agricultural jobs. It should be recognized that training for non-farm agricultural occupations is not the sole con-

cern of teachers of vocational agriculture. Even in those jobs for which the need for agricultural training has been definitely established, we should not conclude that training for these jobs is exclusively, or necessarily the primary responsibility of workers in agricultural education. Who knows for sure, essential as it is, that the training offered by the teacher of agriculture in preparing a person to work in an elevator or a nursery is more essential than the training offered by the teacher of business?

So many of the studies of the educational needs of workers in agricultural occupations reveal that they have as great or even greater need for training in business as they have for agriculture. The curricular offering should be organized so that each teacher in the school can make his unique contribution to the vocational training of that student.

In summary, a teacher of vocational agriculture is obviously able to make positive contributions to the occupational preparation of high school students for off-farm agricultural work. When he accepts youth into his classes who have an interest in agriculture, even though their opportunities for establishment in farming are limited, when he assists them in making occupational choices and in developing and implementing individual career plans, when he provides them a basic knowledge of scientific agriculture, helps them develop leadership abilities, offers them opportunities to extend their learning by such means as individual farming programs, land laboratories, school farms, group projects, placement on local farms and placement for occupational experience in local business or service occupations, when he assists them to find regular employment or encourages them to seek appropriate high school training, it becomes apparent that the teacher of vocational agriculture has performed a man-sized educational service. □


W. Howard Martin

Guidelines for Curricula for OFAO

W. HOWARD MARTIN, University of Connecticut

At the present time the major problem in vocational agriculture centers on the developing curricula in non-farm agricultural occupations. This involves the processes of selecting instructional areas in terms of employment opportunities and interest of prospective students. The task is to explore alternative ways in which the curriculum may be modified to provide the desired education.

The current high school course in agriculture, essentially, is a single-spur track headed in the direction of competency in agricultural production. Through offering of elective units, self study, and farming activities, each pupil develops individualized loops along the main track. The narrow focus on production agriculture and the emphasis on a 3 or 4 year high school course unduly restricts the development of curricula. Teachers, in general, have placed too high a value on efforts to further improve this single track system. In terms of members served, needs met, variety of courses, groups served and other criteria their efforts, valiant though they may be, are inadequate responses for the challenge of our times. A number of bold hypotheses or alternatives need to be suggested for consideration and trial.

A new look in curricula and courses is needed; first, to provide improved patterns of experience; and, second, to increase the attractiveness of the Agricultural Education package.

Curricula Alternatives

The parent stock for all curricula in vocational agriculture is the farmer-training curriculum. Many alternatives may be viewed as grafts to this parent stock to eventually produce a new specimen. These grafts may utilize only the life giving root system, or sound upper portions of the tree of vocational agriculture. Whatever alternatives are selected, in keeping with the analogy, it is expected that strong, symmetrical, and fruitful trees will result. These grafts can be made upon root stock, stem, or limbs, but it can only be made by cutting. Cutting may require removal of much of the material from the parent tree which creates a stress situation in terms of immediate response.

Those seeking to avoid stress of grafting may choose an alternative comparable to that of setting new trees while retaining the old. In the case of vocational agriculture, as with trees, this may eventually lead to competition which is detrimental to both the established and new curricula.

A simplified version of alternatives as to curricula functions, design and dimensions of agricultural education in secondary schools is presented in chart form in TABLE I. These terms are defined as follows:

(1) The term *functions* refers to purposes served or intended accomplishments.
(2) *Design*, involves arrangement and organization of teaching-learning groups.
(3) *Dimension* is concerned with the character and treatment of learning experiences.

A three or four year sequence need not be the general pattern. It may well be that offering several two year curricula for Juniors and Seniors would be desirable in some instances. These offerings may, in fact, be open to high school graduates and dropouts. There may or may not be any work offered in the freshman and sophomore years. There are many possibilities of content to be considered in this area; some of which are indicated in the following list:

1. Forestry and Conservation
2. Landscape and Park Maintenance
3. Food Processing
4. Food Marketing and Distribution
5. Selling Agricultural Supplies
6. Agricultural Power and Equipment Applications and Services
7. Agricultural and Biological Research Aides
8. Rural Recreational Development

TABLE I.
THE ALTERNATIVES IN AGRICULTURAL CURRICULUM

A. FUNCTIONS	B. DESIGN (Secondary and post high school)[1]	C. DIMENSIONS
Provide education for individuals designed to contribute to successful employment in:	1. A single curriculum	1. *Length*—in terms of years and/or total hours of instruction
1. Agricultural production	2. A branching curriculum with branches for selected clusters of agricultural occupations (a probable branching at the junior year)	2. *Breadth*—in terms of scope of experiences both agricultural and general education
2. Agricultural marketing	3. Multi-curricula—several curricula offered, largely independent, in a number of agricultural occupations	3. *Depth*—in terms of individual and group opportunities for pressing inquiry to the heart of knowledge
3. Agricultural supplies and service	4. Other	4. *Symmetry*—balance in other dimensions appropriate to learner's needs and interests.
4. Agricultural power and equipment		
5. Processing agricultural products		
6. Other		

It may be useful to consider, in broad outline, the range in curriculum possibilities represented. Even a cursory examination helps to reveal the opportunity for ingenious innovations in agricultural curricula for secondary schools.

[1] Design also varies in terms of curricula provided for adults and out-of-school youth.

9. Florist Shops and Garden Center Operations
10. Suburban Agricultural Service and Sales

The instructor's role in advanced classes (pupils over 16) may become more like that of a coordinator. The pupils would have regular part-time jobs in a number of agricultural occupations including production. To a considerable extent the class time would be used to deal with problems arising from employment.

Varied time schedules are likely to be the rule rather than the exception. Some groups may meet one period per day or less, while it is possible that three periods would be scheduled each day in a one-year farm equipment and power curriculum. The use of correspondence courses, programed texts and other self-teaching materials may be increased to provide a broad range coverage and at the same time increase individual learning in depth.

A Proposed Pattern

A projected pattern of curriculum in agriculture for Connecticut's multiple teacher departments is shown in Figure I. Each department, it is expected, would offer various options adapted to local conditions. However, it is evident that some inter-departmental coordination of offerings is likely to be needed.

This pattern of curriculum appears to offer the following strengths:

1. Courses are *named*—this should foster more clearly defined content and aid in presenting opportunities to prospective students.
2. There is a greater variety of offerings in the upper years. This should better meet the needs of persons 16 years of age and over who evidence interest in agriculture. It should result in large enrollments in agriculture courses.
3. There is flexibility in the schedule which permits planning one to four years of instruction. This should facilitate educational and vocational planning for varied careers in agriculture.
4. The increased flexibility and enrollment in agriculture should lead to more efficient use of resources.
5. There is some evidence in support of the idea that this pattern could lead to an improved teaching-learning situation.

Local Development

The projected pattern is *not solidly based on research.* It is more properly in the form of a hypothesis—(if you prefer, it is speculative). As a hypothesis it may serve as a framework for local response to the challenge of new curricula in agriculture. In general, local action most probably involves a judgemental approach to initial curriculum development. This can be, and eventually will be, supplemented with community and area studies.

Teachers who find it necessary to depend upon the judgemental approach may develop a worksheet like that shown. Using this worksheet with consulting committee members and others may help in improving the judgemental processes. It is suggested that the teacher identify a number of possible areas in which agricultural instruction appears needed. Others might be added by the committee. The ranking factors, it should be noted, function as criteria.

These criteria would incline the group to assign high priority to an area of instruction given the more favorable ratings. It is therefore important for the group to rethink these criteria and reach agreement on changes desired.

Detailed professional planning is involved once a consensus is reached as to the order for adding new elements to the agricultural curriculum. Again, it should be stressed, that judgement plays an important part

WORK PLAN FOR CURRICULUM CHOICE

In developing a preliminary curricula plan (hypothesis) the teacher may find this a useful tool in choosing alternatives. It is designed for use by staff with citizens' groups in setting tentative priorities for new curricula.

Rank[1] the identified clusters of agricultural employment opportunities in the area served.

	Ranking Factors *Agricultural Areas* *a.*	*b.*	*c.*	*d.*	*e.*
A. Employment Potential					
B. Capabilities of Present Staff and Facilities					
C. Enrollment Prospects					
D. Estimated length of training, pre-service and in-service years and hours					
E. Prospects of obtaining occupational experience for pupils					
F. Estimated school and community support					
FINAL RANK					

[1] Assign separate rankings for in-school and out-of-school groups by using different color pencils or use separate sheets. Rank from 1-5 (one as the most favorable) except for item D which should be reported in hours and years.

even though considerable objective evidence may be gathered in the course of this planning.

In the *guidelines* suggested in this article, types of evidence are indicated which should be useful in planning and carrying through the first stages of curriculum developments.

These *Guidelines* for developing courses of study in non-farm agricultural occupations may serve to summarize a suggested judgemental approach to curriculum development.

Guidelines

A. Selection of Area

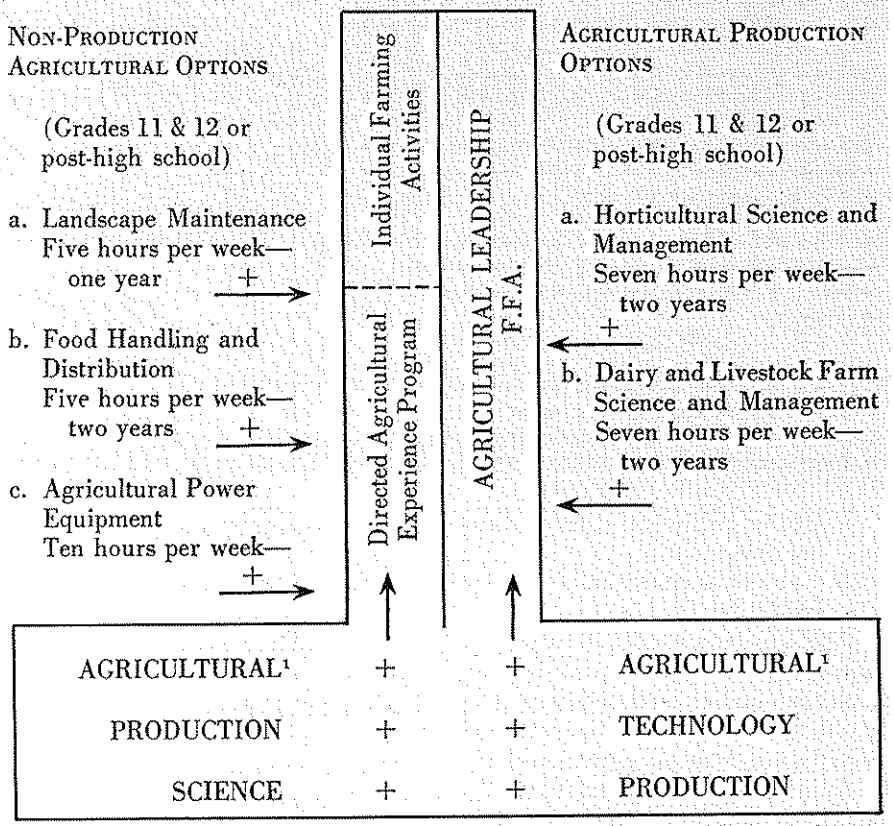
1. On the basis of local data establish a priority listing of possible new courses of instruction in non-farm occupations.
2. *Indicate* the probable gains of adding one or more of them on such factors as enrollment, and placement.
3. Evaluate the "risk" involved in adding each of these to the present program in terms of F.F.A., regular day and adult enrollment, relationships, occupational experience, and autonomy.
4. Show in plan and budget the estimated resources of teacher time (qualifications), money, and facilities required to insure the probable success of the new development. (Do not overlook the need to provide supervised occupational experience).
5. List the possible new courses in order of priority, and review this list with advisory and administrative groups.
6. Indicate the probable group or groups of students and length of courses in years or hours.

B. Selecting and Ordering Content

1. Develop clearly defined objectives for the selected courses *with the assistance of selected personnel in agricultural business or industry*. These objectives should indicate the career-centered character of the instruction to be given.
2. Identify the knowledge, skills and work attitudes commonly associated with those occupations or jobs for which the course is preparatory. Confer with employers.
   CHECK:
   Correctness and completeness
   Coverage in other courses
3. In a general way distribute the learning activities among the following:
   a. Class—Study—Discussion
   b. Laboratory—Field Work
   c. Occupational experience under supervision
   d. Shop
   e. On-the-job (Out-of-school)
4. Considering difficulty, season and other factors, prepare a course calendar—to show unit titles, monthly teaching schedule, laboratory, and shop time and the like.
5. Check schedules of other classes for use of facilities and teachers and make needed adjustments to "fit" the new courses into the general schedule.

FIGURE I.

AMCONN HIGH SCHOOL
CURRICULA OFFERINGS IN
AGRICULTURAL SCIENCE AND TECHNOLOGY
1964 - 1966



[1] These courses may be offered in either or both the 9th and 10th year where size of staff and student population justify it. Students may be grouped in terms of ability and interest. Science and Technology may be combined as well as offered as distinct options. It is expected that students interested in the production options would be required to take 1 or 2 years in agricultural science or technology in the 9th and 10th grade. Directed agricultural experience and leadership training through the F.F.A. are common for all students.

Summary

Major changes in curricula for vocational agriculture involve instruction in non-farm agricultural education. These changes are likely to be instituted locally on the basis of a judgemental approach.

A curricula pattern of named courses and options suggested provides a flexible program of studies and requires local discussion and action for development. The processes involved in developing local curricula stress democratic action in pooling judgements on the basis of limited data. □

Future conventions of the American Vocational Association are planned for 1965 at Miami, Florida, 1966 at Denver, Colorado, 1967 at Cleveland, Ohio, 1968 at Dallas, Texas, and 1969 at Boston, Massachusetts.

H. E. Wood, State Supervisor of Agricultural Education in Florida, was named President of the American Association of Supervisors of Agricultural Education at this year's AVA meeting.

Which Power Tools for Agricultural Mechanics?

W. FORREST BEAR, Department of Agricultural Engineering, Iowa State University

W. Forrest Bear

How many electric powered tools are needed to properly equip the agricultural mechanics laboratory (Farm Mechanics Shop)? Your response might be—equipped for what?

Would the problem areas taught influence the tools owned or do the quality and quantity of tools dictate the problem areas that will be taught? There are other factors that could influence tool ownership such as: (1) instructor interest and ability, (2) community requirements, (3) available funds and (4) student interest.

Fourteen Iowa vocational agriculture teachers enrolled in an off-campus class, Advanced Organization and Teaching of Farm Mechanics, during spring quarter 1964 provided the data in Tables 1 and 2. As indicated in Table 1, 86 percent of the departments owned one-fourth inch capacity electric drills and only one department owned two of these drills. All departments except one had a one-half inch capacity drill and one department had two of these drills. The three-eighths and five-eighths inch capacity drills were less popular. The impact tool that can be used as a drill was listed by only one department. The orbital sander was more popular than the belt sander and the percentages of departments with these tools were 50 and 36 percent, respectively. Ten departments (71%) had circular hand saws.

The numbers of stationary electric powered tools are listed in Table 2. Seventy-nine percent of the departments had table saws, whereas only 29 percent had radial arm saws. Two departments had both types of wood saws. There were ten departments (71%) with wood band saws and six (43%) had jig saws. Five departments had saws for cutting metal; four were the reciprocating type and one was the band type.

The largest shop had 3956 square feet of floor area, the smallest had 800 square feet with 2007 square feet being average. Ten departments had an official shop storage room with an average of 175 square feet. The average day school enrollment was 38, average adult farmer enrollment was 69 and four departments had an average enrollment of 23 young farmers.

In Bulletin Number 284, OE-81003, Buildings, Equipment and Facilities for Vocational Agriculture Education, U. S. Department of Health, Education and Welfare, 1960, the following electric powered tools were recommended as the basic minimum requirement for a vocational agriculture shop:

Tool	*Number*
Bench grinders	2
Floor grinders	1
Portable electric grinders	1
Jointers (wood)	1
Portable hand saw	1
Saber saw	1
Table or radial arm	1

Tool	*Number*
Metal hack saw	1
Drill press	1
Impact tool	1
½″ capacity drill	1
¼″ capacity drill	2

This list would have been considered inadequate by many teachers in 1960. Data in Tables 1 & 2 were compiled in 1964 and the tools listed do not

Table 1. Portable Electric Powered Hand Tools

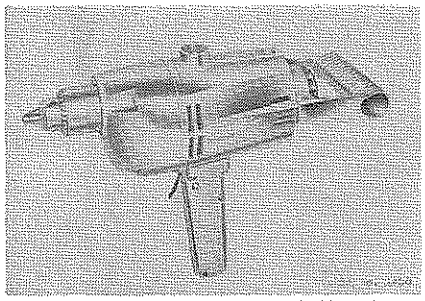
Tool	*No. of Tools Reported*	*No. of Departments With the Tool*[1]	*Percentage of Departments With the Tool*
Drills:			
¼″ capacity	13	12	86
⅜″ capacity	7	6	43
½″ capacity	14	13	93
⅝″ capacity	2	2	14
Sanders:			
wood, orbital	9	7	50
wood, belt	5	5	36
metal, disk	1	1	7
Saws:			
circular hand—8″	4	3	21
circular hand—6½″	5	5	36
circular hand—7″	3	2	14
saber	4	4	29
Impact tool	1	1	7
Metal shear	1	1	7
Metal grinder	6	6	43

[1] 14 departments were included in the survey.

Table 2. Stationary Electric Powered Tools

Tool	*No. of Tools Reported*	*No. of Departments With the Tool*[1]	*Percentage of Departments With the Tool*
Saws:			
wood, table	11	11	79
wood radial arm	4	4	29
wood, band[2]	10	10	71
wood, jig	6	6	43
metal, reciprocating hack	4	4	29
metal, band	1	1	7
Grinders:			
bench	14	11	70
floor	13	11	79
Drill Press	15	13	93
Disk Sander, wood	4	4	29
Jointer	6	6	43
Planer	6	5	36

[1] 14 departments were included in the survey.
[2] Two of the saws could be adapted to metal blades.



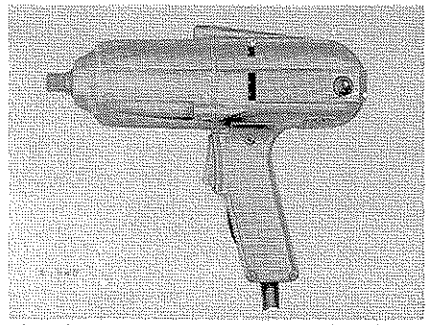
Most departments had a one-half inch capacity electric drill.

meet minimum standards recommended in 1960. No attempt will be made to fix the blame for such inadequately equipped shops. This survey did involve a small sample, however, the author considers it a representative sample based upon knowledge of the departments within the State of Iowa.

The following observations and opinions are offered for consideration:

(1) Pride of workmanship and craftsmanship can be developed with the use of electric powered tools.
(2) Industry uses power tools whenever possible.
(3) Well-equipped farm shops presently have many of these tools.
(4) The school educational programs should adequately prepare the students.
(5) The school should be the educational leader in the community.
(6) School laboratory time is a premium, therefore adequate facilities and equipment should be provided.

Adequate facilities and tools will not guarantee a superior program in the agricultural mechanics laboratory, however, teachers that are handicapped by deficiencies in these areas can not be expected to develop with the students a maximum number of understandings and abilities that are essential for entry into our highly technical and competitive society. □



The electric impact tool was seldom listed on the tool inventory.

Glenn Z. Stevens

Improving In-Service Classes for Teachers*

GENE M. LOVE and GLENN Z. STEVENS
Teacher Education, The Pennsylvania State University

Gene M. Love

Anticipated changes in vocational education stimulated by the *National Vocational Education Act of 1963* have focused attention of administrators and educators on in-service education. Many curriculum improvements will be made in vocational education. It is also apparent that many of these improvements will occur quite rapidly.

In-service education classes offer the most direct means of informing vocational teachers of curriculum changes and improvements. In-service education probably is the best way to influence teacher attitudes and win approval for needed curriculum revisions. In short, in-service teacher education classes offer the best available approach to the promotion of new or improved programs in vocational education.

At least two important questions arise when administrators plan in-service courses for teachers. How and when should such classes be scheduled? Who should teach the classes? The need for answers to these questions provided the impetus for an experimental study conducted by the Department of Agricultural Education at The Pennsylvania State University.

The objectives of the study were to compare the educational effectiveness of (1) three sequences of scheduling classes and (2) three patterns of supervision and instruction in an off-campus, in-service teacher education course on Quality Milk Production. The three sequences of scheduling classes were:

1. *Workshop*—six 2½ hour class sessions conducted during the mornings and afternoons of three consecutive days.
2. *Weekly*—six 2½ hour class sessions conducted at weekly intervals.
3. *Monthly*—six 2½ hour class sessions conducted at monthly intervals.

The three patterns of supervision and instruction were:

1. *Qualified Teacher*—a teacher of agriculture selected for his interest in and knowledge of dairying and given extensive training in a unit of instruction on quality milk production.
2. *Educational Specialist*—an in-service teacher education specialist from the staff of the Department of Agricultural Education with special training in a unit of instruction on quality milk production.
3. *Technical Specialists*—members of the Department of Dairy Science with highly specialized training in the field of dairy science selected for their special qualifications to teach certain problem areas in a unit of instruction on quality milk production.

A course on quality milk production was taught nine times to teachers of agriculture in the state. Each pattern of supervision and instruction was repeated three times, once with each of the three sequences of scheduling classes. Using a modified Latin square design, the effect of order of teaching each sequence of scheduling classes was controlled for each pattern of supervision and instruction as shown here.

*Authorized for publication on December 4, 1964, as paper No. 2962 in the journal series of the Pennsylvania Agricultural Experiment Station.

Order of Teaching by Pattern of Supervision and Instruction			
Scheduling Sequence	Technical Specialists	Educational Specialist	Qualified Teacher
Workshop	First	Second	Third
Weekly	Second	Third	First
Monthly	Third	First	Second

Procedure

At the beginning of each course, teachers enrolled were asked to take a sixty question multiple-choice achievement test on quality milk production. The same test was given again at the end of the course.

Educational effectiveness was measured in terms of the test scores of teachers enrolled in each treatment group. Specifically, test scores were compared by analysis of covariance using attendance figures and pre-test scores as covariates.

Results

Results of the statistical comparisons made between treatment groups are reported in Table 1.

TABLE 1

Mean Test Scores of Ninety Teachers in Three Sequences of Scheduling Classes, Three Patterns of Supervision and Instruction and Three Orders of Teaching Classes Adjusted for Attendance and Pretest.

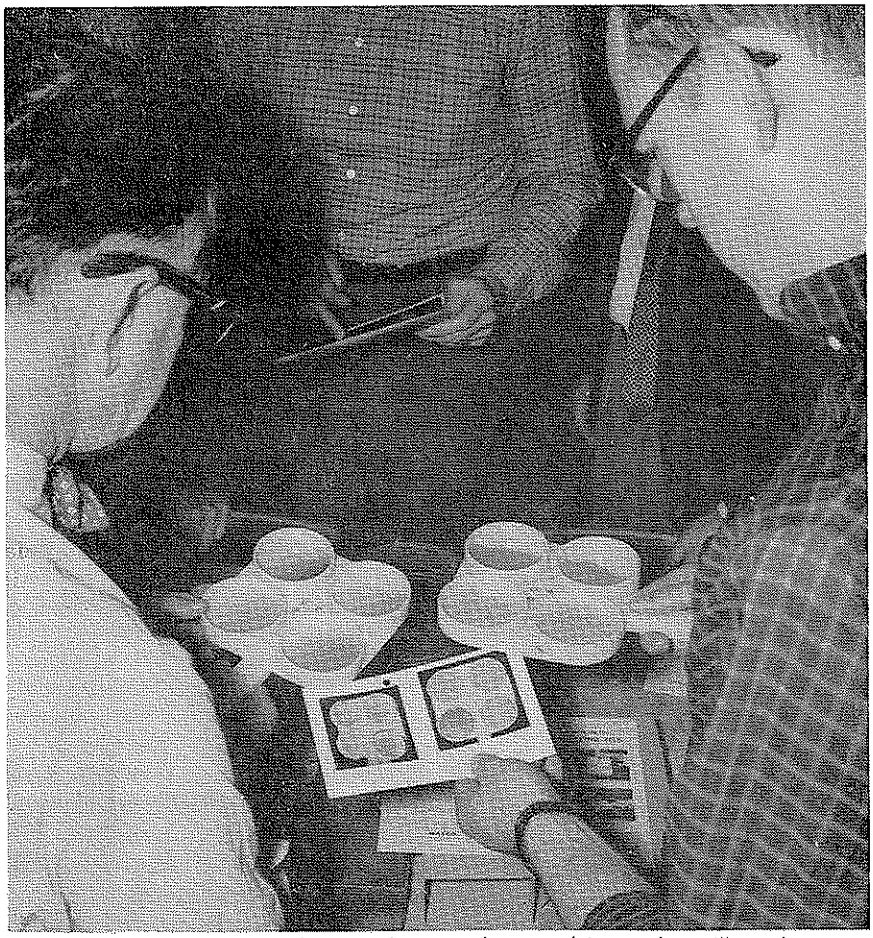
Treatment	*Mean Attendance*	*Mean Pretest Score*	*Mean Test Score*	*Mean Adjusted Test Score*
Sequence of Scheduling Classes				
Workshop	5.7	38.9	50.1	49.8*
Weekly	5.7	38.5	48.1	48.1
Monthly	5.4	38.9	47.4	47.6
Pattern of Supervision and Instruction				
Qualified Teacher	5.7	39.6	50.9	50.4**
Educational Specialist	5.6	39.8	50.2	49.8**
Technical Specialists	5.6	37.0	44.4	45.3
Order of Teaching Courses				
First	5.5	38.6	48.9	49.1
Second	5.6	38.9	47.3	47.3
Third	5.7	38.9	49.3	49.1

*Workshop significantly higher than Monthly at the .05 level by analysis of covariance.
**Qualified Teacher and Educational Specialist significantly higher than Technical Specialists at the .01 level by analysis of covariance.

The Workshop sequence of scheduling classes was found to be a significantly better choice for scheduling in-service classes when compared with the Monthly sequence. Both the Qualified Teacher and the Educational Specialist patterns of supervision and instruction proved to be significantly better alternatives for providing supervision and instruction than the Technical Specialists pattern.

Conclusions

It may be concluded that three-day Workshops taught either by a Qualified Teacher or an Educational Specialist resulted in the greatest amount of subject matter learning. The results of this study indicate that technical competency of the instructors in a unit of instruction such as the quality milk production unit is a qualification which can be gained through careful preparation by relatively inexperienced (technical) teachers. Furthermore, using instructors with greater technical competence with regard to quality milk production did not guarantee students acquiring more knowledge. The frequently used practice of utilizing several different specialists, resource persons, or teachers to teach the class sessions in an in-service education course is a questionable educational procedure. It would seem from the data in this study that effective learning is an outgrowth of teacher interest and teacher organization; that teachers who by teaching all sessions of a course develop interest in their students individually and are thereby identified with the problems of each student are better qualified to organize and direct the learning activities of their students. □



Pennsylvania Vocational Agriculture teachers are shown studying quality milk production in an off-campus inservice teacher education credit course. The course was taught by a member of the Department of Agricultural Education staff who had received intensive subject matter training.

Lowery H. Davis of South Carolina was re-elected secretary of the Agricultural Education Section of the AVA for a new 3-year term.

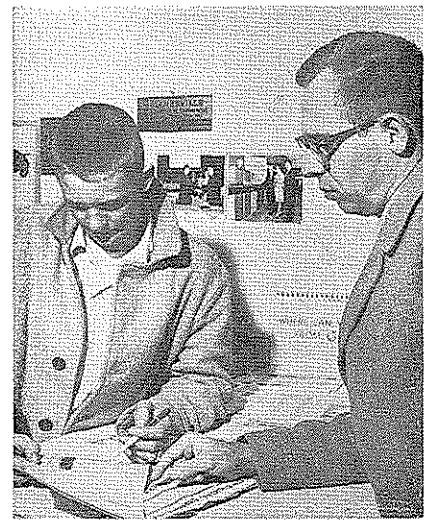
Gordon B. Swanson of the Department of Agricultural Education, University of Minnesota, will be the new editor of the AATEA Journal succeeding Dr. R. W. Cline of the University of Arizona.

Alfred H. Krebs of the University of Illinois is the President Elect of the American Association of Teacher Educators in Agriculture.

One Teacher—Four Semesters—Sixteen Agricultural Courses

James W. Hensel

JAMES W. HENSEL, Teacher Education, University of Wisconsin



William Becker, Janesville Vo-Ag teacher, helps a member of his soils course to figure out a fertilizer recommendation.

Why buy an entire side of beef when all you want is one steak? Why buy a barrel of crackers when you need just enough for one bowl of soup? Why take four years of vocational agriculture to get one semester of conservation?

Have we been guilty of forcing boys to take the entire side of beef or the barrel of crackers in order to get the small portion of agriculture that they really want?

In the fall of 1963, William Becker, vocational agriculture instructor in the Janesville, Wisconsin Senior High School initiated an experimental curriculum which has attempted to sell a quality program in smaller and more attractively wrapped packages.

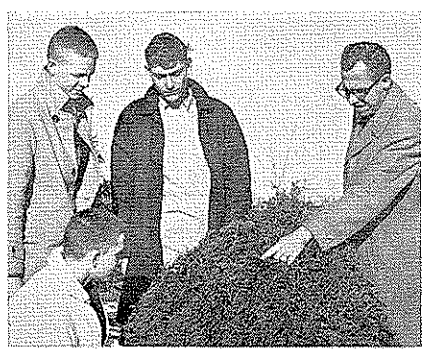
The curriculum was organized around sixteen different agricultural subjects which lasted for one semester. The classes were one hour in length and the instructor taught five agricultural subjects each day. The subjects were offered on a two-year rotation plan thereby affording the student with an opportunity to enroll in a particular course every other year. Thus, by offering five subjects per semester over a two year period, it would be possible to offer twenty different agricultural subjects. In the Janesville experiment, only sixteen subjects were offered as two subjects were carried into the second semester and repeated each year. These were the Agricultural Survey course for freshmen and the two semesters of agricultural engineering.

A Wide Range of Choices

The experimental curriculum was planned to permit students, regardless of their home background, to take one to eight or more semesters of agricultural subjects and concentrate on those areas which interested them. A city student interested in conservation, for example, may study soils, crops, and conservation and avoid the livestock and marketing units. A non-farm student interested in feeds, fertilizers or mechanics and planned to enter a related occupation could take the semester units he felt he needed. He was not forced by the structure of the curriculum to sit through phases of agriculture which were not appropriate to his occupational goal.

It should be noted that within each subject, an attempt was made to cover considerably more than the usual production techniques. The subject matter ranged from a study of scientific agricultural concepts to the economics of marketing. Since the subject covered an entire semester, it was possible to study each area more thoroughly and cover material which had previously been thought to be too difficult for high school agriculture students.

As illustrated in Table 1, the student had a wide choice of subjects from which to choose after completing the freshman year. Again it was emphasized that there were no required sequences from one semester to the next. For example, a student might take beef science the first semester and crop science the second, depending upon his class schedule for the remainder of his high school classes. There was no set pattern for a student, except that it was hoped he would select courses which would meet his needs and interests.

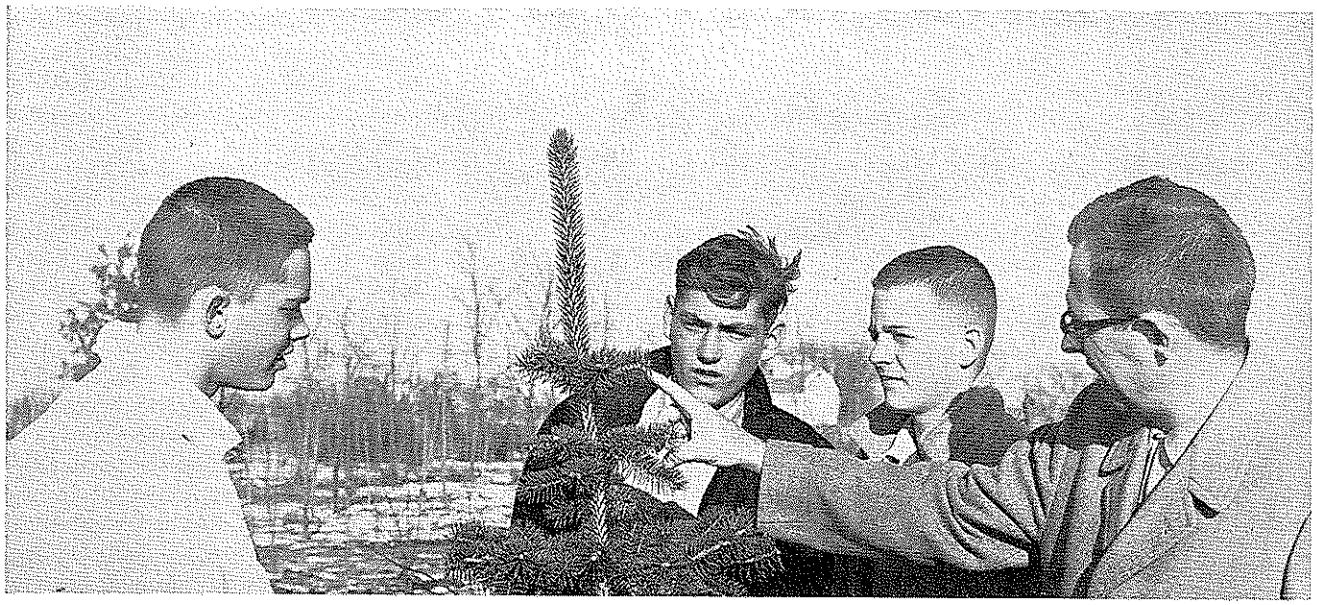


William Becker, Janesville, Wisconsin, Vo-Ag teacher helps members of his horticulture class to identify winter burn on arborvitae.

After One Year

Following an analysis of the pilot program, the following observations were made:

1. Eighteen of nineteen students who elected agriculture for the first time were from city or rural non-farm homes.
2. Nearly forty percent of the total departmental enrollment was made up from city and rural non-farm students.
3. Dairy science and horticulture were the two most popular subjects for students enrolling for the first time under the experimental curriculum.
4. The curriculum attracted very few students of below average ability. Of the seventy-four students enrolled during the first semester and seventy students in the second semester, only nine students fell in the below average category.
5. Only two students of below average ability enrolled in agricultural engineering II and none were attracted to agricultural engineering I.
6. There were no students from the city or from the below average ability category enrolled in farm management.



Horticulture class members study Christmas tree production.

7. Traditional supervised farming programs were carried by the majority of the students but about twenty-five students were placed on farms for experience or participated in supervised work experience programs.

8. No serious administrative difficulties were noted which would have lessened the effectiveness of the pilot curriculum.

Perhaps one of the most significant features of the pilot program was the large percentage of city and rural non-farm students who enrolled in vocational agriculture. The curriculum attracted a student who had not been reached in the past. In addition, the specialized curriculum did not attract the poorer student who in many instances, has been a difficult problem for vocational agriculture departments. Each agricultural subject course was designed as a quality program which dealt with agriculture as a science.

The agricultural subjects covered all aspects of the particular field and moved away from the traditional emphasis on production. Economics, marketing and some of the basic sciences within each subject were included as well as discussions concerning various occupational opportunities in each of the fields.

More Teacher Time Needed

One of the basic limitations of the specialization curriculum was found to be the time needed for preparation by the instructor. In order to be prepared to teach the wide range of subjects offered, the instructor found it necessary to spend a great deal of additional time in preparation. Time has always been a limiting factor for the average instructor of vocational agriculture and with the added subject matter required under the specialization curriculum, some instructors might find the load too heavy. A possible solution to the time problem would be the addition of a second man within the department. The courses could be divided and each man could capitalize on his own subject matter interests and have time to adequately prepare his teaching material.

From general discussions with parents, school officials and community members, it was felt that the specialization curriculum in vocational agriculture offered the kind of program which was needed in the Janesville school district. On the basis of these and other evaluations, the experimental program will be continued in Janesville. □

A committee will study and make recommendations concerning the FFA name, creed, constitution, bylaws, and activities. The committee will meet in Washington, D. C. on March 29, 31. Walter Bomeli will represent the NVATA.

Joseph Tuma, Manpower Training Specialist of United Auto Workers, Detroit, Michigan, and Dr. Duane Nielsen of the U. S. Office of Education, were two of the speakers at a special vocational conference held at the New Mexico State University in January. The meeting was attended by teachers, administrators, school board members, and supervisors.

TABLE I.
JANESVILLE HIGH SCHOOL VOCATIONAL AGRICULTURE CURRICULUM

Even Numbered Years (1964, 1966, 1968)

Class Period	*Grade*	*1st Semester*	*2nd Semester*
1	9	Agricultural Survey I	Agricultural Survey II
2	10-11-12	Dairy Science I	Dairy Science II
3	10-11-12	Sheep Science	Poultry Science
4	10-11-12	Ag. Engineering I	Ag. Engineering II
5	-11-12	Farm Management	Horticulture

Odd Numbered Years (1965, 1967, 1969)

Class Period	*Grade*	*1st Semester*	*2nd Semester*
1	9	Agricultural Survey I	Agricultural Survey II
2	10-11-12	Beef Science	Swine Science
3	10-11-12	Soil Science	Crop Science
4	10-11-12	Ag. Engineering I	Ag. Engineering II
5	-11-12	Ag. Economics	Conservation

NOTE: Assume you are a freshman in the fall of 1964. You would be required to take Agricultural Survey both semesters the first year. The next year, you would select from courses offered for the odd numbered years (1965). Then as a junior in 1966, you would select courses offered for the even numbered years. Finally, as a senior, in 1967, you would be allowed to select from the wide range offered under the odd numbered year schedule.

Vocational Agriculture students gaining experience in nursery practices.

What Employers in Ornamental Horticulture Want

GEORGE E. YETMAN, Head, Landscape Gardening Department,
Norfolk County Agricultural High School, Walpole, Massachusetts

George E. Yetman

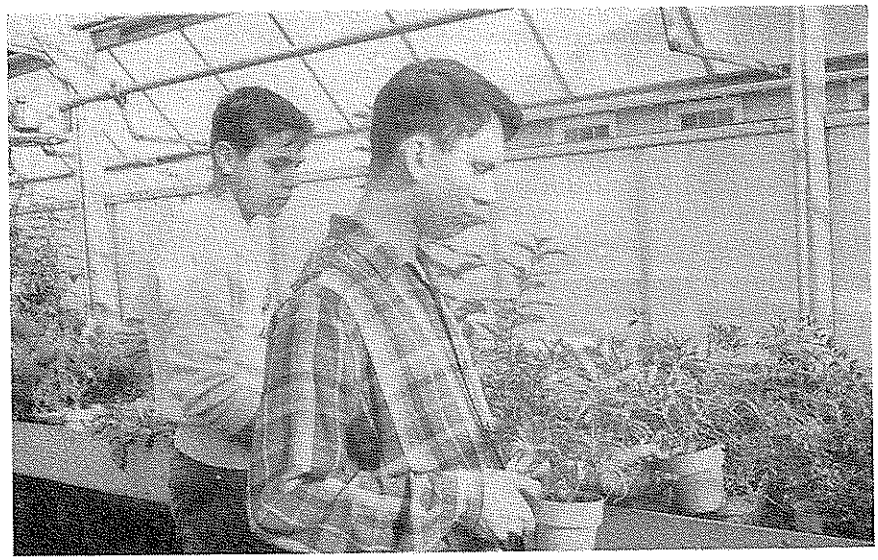
Traditionally, the curriculum of the vocational agriculture school and high school vocational agriculture department has been oriented toward more emphasis in the animal sciences. Our Future Farmer Program has not, for example, provided incentives on the national level for recognition of achievements by worthy students in nursery culture or landscape gardening. Production agriculture in many areas of our country in animal husbandry and crop farming has decreased considerably in regards to the number of farms and positions available for vocational agriculture trained workers in these fields. On the other hand, ornamental horticultural enterprises and related businesses have increased greatly. This is a natural result of our population growth; the large movement of people from the city to the suburban areas; the increased per capita income of families and the fact that more leisure time is being enjoyed by American workers so that more time can be spent working on the home grounds. To satisfy the demand for materials for this kind of home improvement and the services to have the work done, many garden centers and landscape nurseries have been developed. A need for trained help to work in these growing businesses naturally developed. Many people in vocational education and out of it believe the agency best equipped to prepare students for this work on the high school and post high school level is the Department of Vocational Agricultural Education.

We in Vocational Agricultural Education specifically concerned with the organization of the curriculum of ornamental horticulture should be guided by the degree of competence in knowledge and skills those in the horticultural industry deem is important in student employees. Starting with this basic issue, I planned a study to, among other things, determine the opportunities for employment in this type of work for vocational agriculture students, and the competencies employers deemed important for the student to bring with him. It was decided that a questionnaire would best serve the purpose of the study. The data gathering instrument was designed after several other instruments were examined. The questionnaire was designed with a format of four sections. Identification of the business, characteristics of employee desired by firms, employment status and competencies the employer considered as important for job. Fifty questionnaires were mailed to nurserymen, landscape gardeners, and garden center operators. Forty replies were received by the end of the four week goal set.

Thirty-six of the respondents answered they would hire students of vocational agriculture. Concerning the number of students the firm might employ, 60 per cent said they would employ one or two; 25 per cent stated three or four; 5 per cent said five or six; and 10 per cent were uncertain as to how many, if any, they might employ. Four of the forty respondents stated they would not hire a vocational agriculture student. Thirty of the firms had previously hired vocational agriculture trained students.

Employer Ideas on Competencies

Sixteen competencies were listed,



Landscape gardening plant material also involves training in greenhouse management.

including nursery culture operations such as pruning and shearing, identification of plants, and retail salesmanship. The respondents to the questionnaire were asked to check the degree of competency desired as to whether the student should have no skill, some skill, or a high degree. Item number seventeen on the questionnaire was OTHER, allowing respondents to write in comments and other competencies they might consider important in this study. Twenty-two of the firms took the time to comment on items not included. Most of the comments included courteousness, good personality traits, willingness to learn, and interest as most important qualities in student employees.

Principal Findings

There are many opportunities for students of vocational agriculture to receive training on the job through placement in landscape gardening, garden center and nursery firms in eastern Massachusetts. The trend is for employers to hire students seventeen years of age and older. This will cause a serious problem in finding jobs for placement for experience for Freshmen and Sophomores of vocational agricultural schools. Physical strength in doing work was considered a needed characteristic by a large number of firms. Students with a farm background were preferred in this sampling. If employees are required to sell, students are preferred with a good background in plant materials over those with more training in salesmanship. A large majority desire part-time student help. The competencies most needed by student employees were, identification of plants and care of tools, while the operation of power cultivators and propagation of plants were considered least important in preparation for a position in the firms. Many vocational agriculture instructors teaching an ornamental horticulture unit or full course have been offering more plant propagation than is justified by this study, at least further research is suggested by this study. There is a definite trend toward the hiring of older students and child labor laws may be a factor resulting in this trend.

This type of study is of particular value in shaping course material of ornamental horticulture courses in vocational agriculture schools, particularly in providing in-school skills which will enable the student to be a more valuable employee. □

Teaching Basic Principles-*A Definition*

L. F. MICHELSON, University of Massachusetts

L. F. Michelson

Sooner or later, during this process which we call living, the educated person becomes aware of the fact that many disagreements disappear when agreement is reached on definition of words and/or principles; or we might say that many conflicts of thought are based on lack of adequate definition or on arguments over definitions.

In the evolution of this broad field called education, there probably have been as many if not more conflicts of viewpoints as there have been among the many sects within each of the several world religions where more basic agreement actually exists than would be admitted to by the vested interests. Again, many apparently conflicting philosophies of education are resolved once adequate definitions are established.

As an example, review in your mind the confusion which developed during the early twentieth century between the advocates of vocational training and of academic education. To be consistent we should define the two terms just used, i.e., training-education, for this will help us to arrive at the definition proposed by the above title.

Training. The armed services speak in terms of training programs and of training schools and their avowed purpose is to instruct in *what* to do and *how* to do it. Training then implies skill development and suggests the idea of conditioned responses. Although the emphasis as interpreted here is in the "what and how" of definite skills there is still the underlying "Why"!

Education. From the Latin educere —to lead out, comes the concept of leading from darkness into light; of breadth of understanding; of greater awareness and of fullness of life— not meant to be restricted to formal schooling! Questions into the *why* of things are paramount and the expected result is a change of behavior of the educated individual; that is, a different response to the environment by the educated person than by the savage!

In Albert North Whitehead's essay "The Aims of Education," so ably supported by his disciple James B. Conant, we find a blending of the what, how and why. Today it is expected that the educated person have a relatively high degree of specialization in a given area for in today's society, where all are expected to work, the vast majority of students are job oriented. This demands a certain emphasis on the *how* of things. If carried to the *why* by teachers of the right philosophy, this answers the basic aims of education.

With this brief discussion for a concentrated background let us now consider a revived "cry in the wilderness" of education, i.e. "teach basic principles." Actually, as indicated above, this is exactly what has been going on in the so-called academic institutions for ages. The end result of all education should be to get at the basic principles and it matters little by which road one travels provided one arrives at these basic principles. The strictly academic approach is to understand laws and principles. The educated person should have the ability to recognize these and transfer them to situations of *usefulness*. The vocational approach has been from the skill job to the principle. Unfortunately, in the first instance, too many times the principles are learned but never transferred and in the second instance, the principles are all too rarely arrived at!

That person who learns the simple *what* and *how* of a skill situation without the basic principle of *why* is extremely limited educationally and that person who knows few unrelated *whys* and can't relate them to *what* and *how* is equally deficient.

We have now defined what is meant by basic principles—the *why* of situations. How then can we deter-

mine the orientation of a particular educational course? By its title? Sometimes this may be possible but often not so.

There are those who consider nothing as basic unless a molecular approach is used! Perhaps the love-life of a neutrino is even more basic. For a criterion of a course's value as to its fundamental quality may I submit that any course which digs to the depth of the most possible ultimate *why* is dealing with basic principles and should lead to the education of the individual. □

Duane L. Blake

Content for Today's Farm Machinery Instruction

NORMAN N. ROBINSON, Teacher of Vocational Agriculture, Knoxville, Iowa, and DUANE L. BLAKE, Teacher Education, Iowa State University, Ames, Iowa

Norman N. Robinson

More and better instruction in farm machinery maintenance, repair and adjustment is needed in vocational agriculture as we continue to have fewer farmers using more machinery that is more complex in nature. Realizing the need for such training, the authors completed a study to determine "Competencies in Farm Machinery Maintenance Needed by Farmers."

Competencies were prepared for 12 farm machines. Two separate groups of farmers responded to a questionnaire by indicating the degree of competence needed in order to perform abilities with farm machinery and also the degree they actually possessed. Two hundred of the respondents consisted of farmers who graduated from high school from 1950-54 and another 200 were recommended as outstanding machinery using farmers well scattered throughout Iowa.

Both groups of farmers indicated they needed the most competency in tractor overhaul, adjusting tractor hydraulic systems and adjusting and overhauling tractor carburetors, in that order.

Rated lowest by the outstanding farmers on the basis of competence needed in order to properly perform the ability were lubricating the mower, cleaning the tractor air cleaner and replacing the tractor oil filter. Competencies rated lowest by the graduates were cleaning the tractor air cleaner, replacing the tractor oil filter and replacing plow shares. There was a high correlation observed between the ratings given by the outstanding farmers and the 1950-54 graduates on all of the competencies studied. The graduates, however, did tend to indicate a lower degree of competence needed in order to effectively perform the maintenance jobs.

The outstanding farmers indicated they possessed the most competence in replacing tractor oil filters, adjusting corn planting rates and providing tractor battery maintenance. The 1950-54 graduates reported the most competence possessed in replacing the tractor oil filter, cleaning the tractor air cleaner and providing battery maintenance.

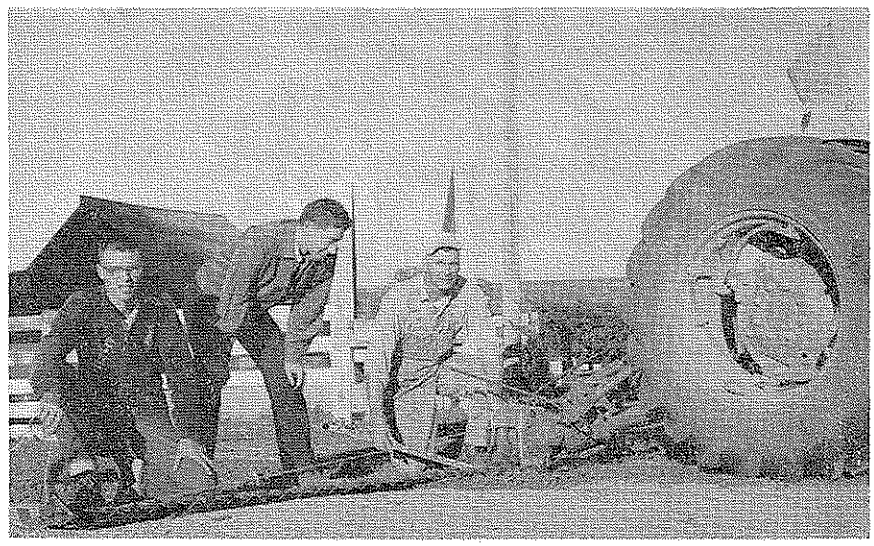
The outstanding farmers indicated they possessed the least competence for hammering out worn plow shares, hardsurfacing plow shares and completely overhauling a tractor.

As a group, the 1950-54 graduates indicated they needed less competence, but possessed more competence. Favorable results of the machinery training in vocational agriculture were evident in this study, as 51 per cent more of the graduates had had vocational agriculture and the machinery maintenance instruction that it offers. The graduates were selected from schools that offered vocational agriculture sometime while they were in high school. Ninety per cent of them had studied vocational agriculture.

A need for more competence than they possessed was indicated by the outstanding farmers for 16 of the 47 competencies, and for 14 of the 47 by the 1950-54 graduates. It was noted, however, that training is necessary in all the competencies since 3.05 was the lowest mean needed score and any rating over one indicated some need.

In the areas where the outstanding farmers felt a need for more competence than they possessed the two cases showing the greatest differences between competence needed and possessed were performing a complete tractor overhaul and hammering out worn plow shares. The most difference for the 1950-54 graduates occurred for hammering out worn plow shares and hardsurfacing plow shares.

Many of the competencies that were revealed by this study should be included in educational programs in agriculture for high school students and young and adult farmers. We seriously doubt if vocational agriculture instructors as a group have given adequate consideration to a sizeable number of the competencies rated as



Trouble-shooting on the farm can be reduced by better teaching of farm machinery.

quite important, from the standpoint of need for additional training, by the farmers included in the study. Because machines and methods are changing so rapidly some of us may not even be aware of some very important machinery abilities. They may not have been necessary when we were on the farm or going to school.

The need for training in farm machinery maintenance competencies has been demonstrated. The competencies themselves have been located. Now the problem becomes one of who will offer the training for our present and prospective farmers. If it is to be the vocational agriculture teacher, he will need training. If it is to be specialists they must be located, scheduled and paid. □

250 crates of strawberries per acre were produced by this boy to win an FFA production award.

Making F.F.A. Production Contests Work

JUNIOR POLING, Teacher of Vocational Agriculture, Grayson, Kentucky

Junior Poling

Does the boy enroll in vocational agriculture or FFA? In many communities it is difficult to tell, or in many cases the boy will tell you he's taking FFA. It's like asking a boy what he had for lunch when the menu read liver, spinach, beans, potatoes and ice cream. He'll no doubt tell you he had ice cream before mentioning the others. Maybe vocational agriculture is the beans and potatoes and the FFA the ice cream.

If this is true, then perhaps the FFA is the enjoyable part of our program and since it is, perhaps it will stimulate the necessary vocational agriculture.

How can the FFA cause a boy to perk up like a beagle hound when he hears the hunter's whistle? Let's take only one way, through production contests.

Teaching of raising crops and livestock is often interesting and absorbing to the teacher, but it can be just plain dull to the boy. Especially is this true when we are teaching corn growing in spring. The weather is balmy and the boy pictures the fish biting. The boy often is a Freshman or Sophomore and not ready to grasp the concept of margin of profit. To him economics is only interesting on Saturday night when he wants to go to the movie and doesn't have the money. Some boys will be interested in properly fertilizing the corn, or feeding the calf, but many are still going to depend on dad for the needed information at the proper time. We know how dad feeds and fertilizes in many cases. That is why we are teaching this particular phase of livestock or crop production.

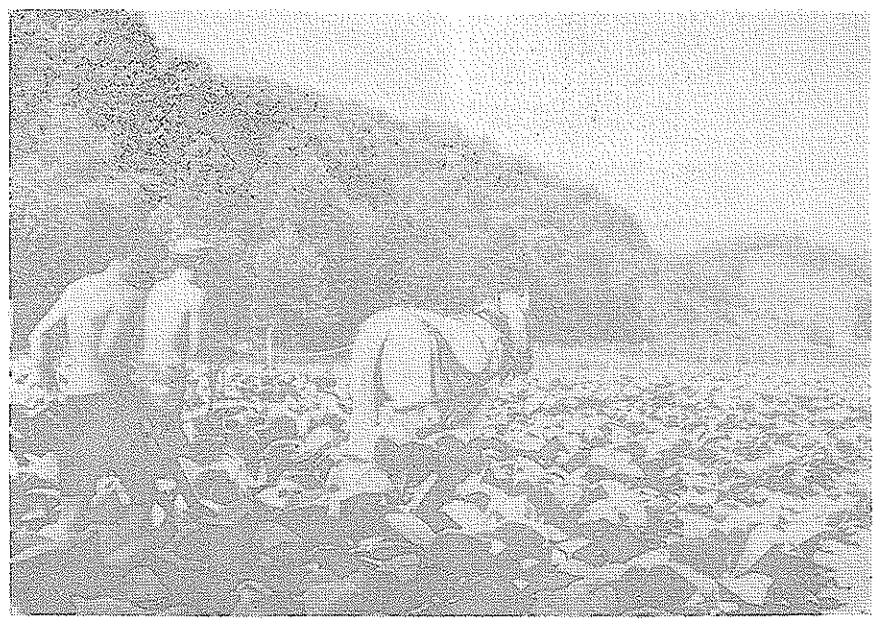
The FFA chapter can establish production contests. This will require a minimum of convincing on the teacher's part but a great deal of guidance in setting up the contests. In the contest, goals that will cause the boys to use better practices should be stressed and a method of rewarding boys who reach these high goals. Once the boy is made aware of the contest, its goals, and its reward, he will be ready to listen to your methods of getting 100 bushels of corn as you teach corn production. He will be interested in how much fertilizer to use, what plant population he will need.

Awards serve as a goal. It is usually better to order the awards at the beginning of the contest and let the boys see what they are working for. Money is a poor incentive. Usually, boys want something they can show off, and money doesn't last that long. Pins or plaques are often more effective. Many chapters get local business men, feed dealers and such to buy small trophies. A contest in which a boy knows that he may win one of the awards and no one stands in his way of getting it, is very appealing even to grown-ups.

Often the life is taken out of production contests by giving a prize of some kind only to the boy who did the best. Many boys will feel at the outset that they cannot win, so no effort is put forth, but if there is a prize for every boy who reaches a given goal, then interest picks up.

Let's summarize the requirements for a good production contest:

1. The contest is set up early in the year before any effort toward



The Grayson, Kentucky FFA has a tobacco production contest with goals of 2600 pounds per acre. Here is a 1964 winner.

producing that particular product has been made. The contest should fit in with the course of study.

2. See that each contest is thoroughly understood by all the people concerned.

3. Set goals that will stimulate interest in class work and make the average boy increase his production.

4. Obtain awards at the beginning of the contest. Let the boy see what he is working for.

5. Remind the boys of the goals of the contest as you teach. This gets your job and the FFA's done.

All that glitters is not gold, and there are pitfalls. Here are some to watch for:

1. *Goals are set too high for the first year.* If it becomes obvious that a boy cannot reach them, your contest is dead. Past annual reports are a good guide line to use in setting up contests.

2. *Rewards not specific.* Get the awards at the beginning. It will be embarrassing if when the contest ends, the chapter cannot afford awards for the contests.

Everything is not done in the FFA through production contests, but they are a good starting place to stimulate interest in classes. Small prizes that boys can work toward are better than one big prize that only one boy can win.

We should make the FFA the ice cream that supplements the vocational agriculture beans and potatoes. □

Labor Savers for Fair Booths

WESLEY NORTON, Teacher of Vocational Agriculture,
Anderson Union High School, Anderson, California

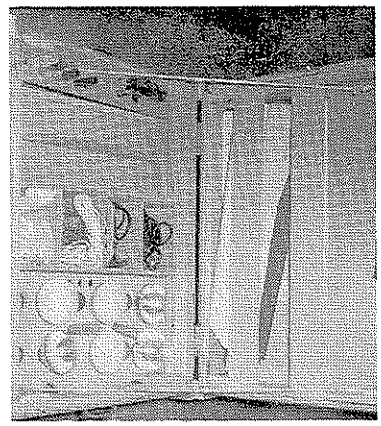
Wesley Norton

Down through the years I have developed a few tricks which I have found helpful in the construction of FFA fair booths.

One of them is the use of slip pin or break away hinges. By using various sizes and shapes of ⅜" plywood panels for background, then assembling them with slip pin or break away hinges I found that this increases the portability of the fair booths. The booths can be knocked down for easy transport and then quickly re-assembled at their destination. In cases where a long distance has been involved in travelling, we have built racks to hold these panels. The racks prevent damage to the panels and keeps the paint from being scratched or marred.

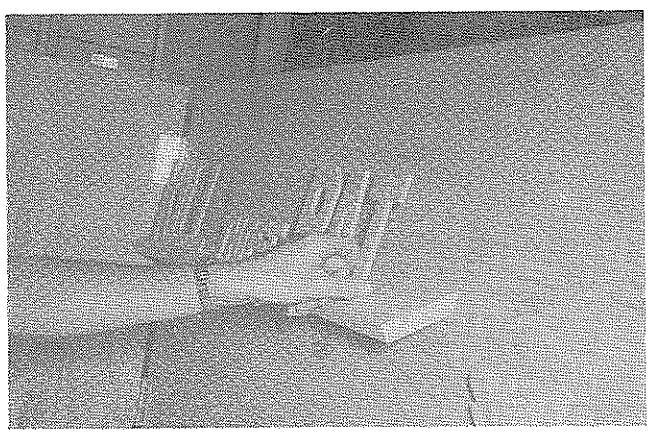
Another little trick is a supply of cut out ¼" plywood letters. The letters can be used year after year. Mounted at a 40 degree angle in a 40 degree dadoed groove they can be spaced just by placing the letters in the groove. When a different color combination is desired the letters can be re-painted and the groove widened a bit more to accept them. By getting the art department to make stencils for several different sizes and shapes of letters and then cutting them out our FFA chapter has quite a number of these letters on hand. We find that this cuts down considerably in the time required to assemble our fair booths.

The third trick that we have found most helpful is our fair booth supplies box. This beats the old cardboard boxes we used to carry around for booth assembly. A place for everything and everything in its place. When our FFA boys arrive at a fair we carry along our fair booth supplies box. In it we have extension cords, lights, spare nuts, bolts, washers, screws, stapler, tools, cut out letters, and whatever other items we feel that are necessary for the quick erection of fair booths. I might state a word of caution here. If you borrow from this box make sure you replace the borrowed item before the fair season starts or you may find yourself at a fair ready to set up a booth without the necessary equipment.

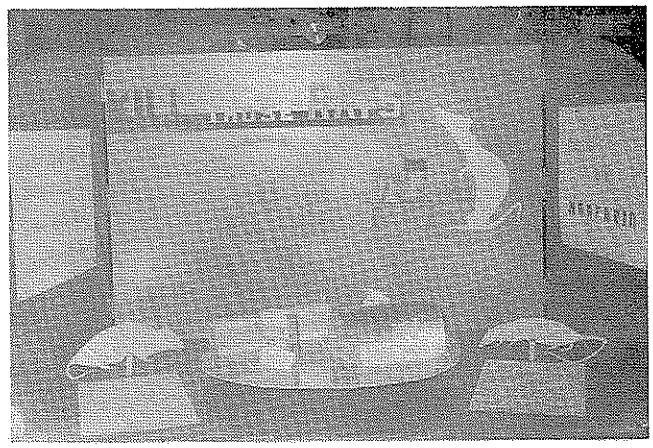


This cabinet carries all equipment needed for setting up the portable exhibit.

Our FFA chapter is allowed to exhibit at six different county and district fairs as well as the California State Fair. This means that we travel in many cases up to a distance of two hundred miles one way in order to set up a booth. By using the tricks I have mentioned we can leave home



Putting cut out letters in place in the exhibit.



The completed booth exhibit on rat control.

in the morning, set up our booth in a minimum of time, and be home the same evening.

Although our booths may not be as professional or commercial looking as many they get the job done and serve as the main source of income for our FFA chapter. Using the tricks that I have mentioned we get the job done a little easier and a little quicker than we used to be able to do it before I hit upon these tricks. □

Virginia Study Reveals Need for New Type of Vocational Training

DR. B. C. BASS*

Dr. B. C. Bass

A great need exists for trained career persons in agriculturally related-distributive businesses in the area served by the George Wythe High School, Wytheville, Virginia, according to results of a survey made during September, 1963.

Sixty-one agriculturally related-distributive businesses in the Wytheville, Virginia, area were surveyed by members of the Agricultural Education and Distributive Education staffs of Virginia Polytechnic Institute, Blacksburg, Virginia, in cooperation with the administrative and teaching staffs of the Wytheville High School. These 61 firms employed 1,708 persons and needed 128 additional employees at the time the survey was made. Officials of these firms expect to increase the employees by about 7½ per cent within the next several years besides filling vacancies as they occur.

The need for training for workers in these businesses was indicated by the fact that officials of the 61 firms reported they experienced difficulty in filling more than one-third (36.4 per cent) of the jobs in their firms.

The employers also stated that nine-tenths of their employees need training in both agriculture and distributive education. It is logical to assume that firms in the Wytheville, Virginia, area will employ persons living in the locality as needed if such persons have received the necessary training. Therefore, it was concluded that a great need exists for training in agriculture and distributive education at the George Wythe High School.

The researchers also found that opportunities are abundant in Wytheville for providing practical training for career workers in agriculturally related-distributive businesses through part-time and cooperative jobs.

At present, agriculture and distributive education courses are offered at George Wythe High School, but individuals have not been encouraged to take courses in both of these fields. Steps are now being taken to offer a combination course which will provide training in special phases of both agriculture and distributive education. The purpose of such a course is to qualify interested individuals for performing specific jobs in agriculturally related distributive businesses. □

*Dr. Bass is Associate Professor of Agricultural Education at Virginia Polytechnic Institute, Blacksburg.

News and Views of the Profession

What Our Readers Want

A survey of readers of the *Agricultural Education Magazine*, which was undertaken this year, should give direction to editors and the Editing-Managing Board in improving the publication. Readers would increase the size of the magazine from 24 to 32 pages and would use color on inside pages. They are against paid advertising and a heavier weight cover. Contrary to general impressions, they rate articles on research quite highly and the second highest rating of any feature of the magazine is the back page entitled, "Stories and Pictures."

The survey was undertaken in August of 1964. The August issue contained a survey sheet which went to all subscribers. A total of 150 were completed and returned. To supplement these returns, additional subscribers were selected at random by the publisher and were mailed copies of the survey. A total of 116 additional returns were received making a total of 266. Of all the responses to the survey, 78 per cent were from teachers, 13 per cent from teacher educators, six per cent from supervisors, and three per cent from others.

Most Articles Read

One question dealt with the proportion of each issue ordinarily read by respondents. 42 per cent read 75 per cent or more of each issue. Only 27 per cent said they read less than 25 per cent of each issue. Evidence of readers support for the magazine was also indicated by the fact that 84 per cent of the respondents said they filed back copies and that 90 per cent said they would subscribe to the magazine even though it were not included in their "state dues package."

When the *Agricultural Education Magazine* was compared with other professional publications read by the respondents, it headed the list in terms of over all value to readers. Comparative ratings are shown in Table 1. Second and third highest professional publications were state vocational agriculture news letters and the *American Vocational Journal.*

Table 2 shows a comparison of the respondents' ratings of the various sections of the magazine. According to this table, key articles relating to the theme, Stories and Pictures, Editorials, Both Sides of the Issue, articles on research, and News and Views of the Profession, all received ratings of good or excellent.

When We Get Paid as Professionals . . .

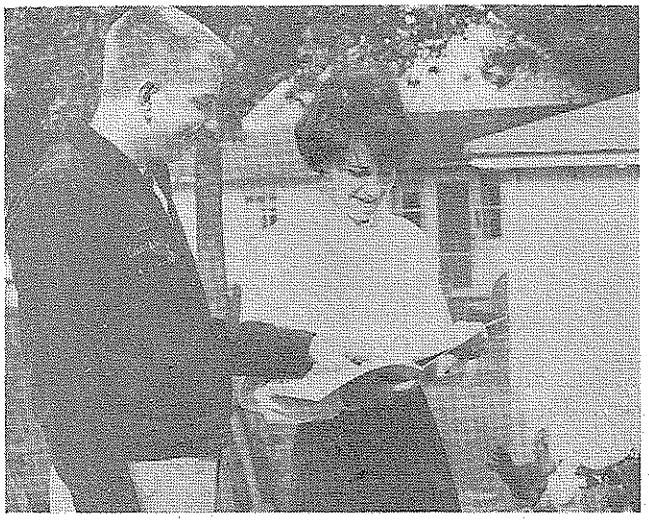
As might be expected, some interesting free response comments were received. Here are some samples:

TABLE 1
Rating of Professional Publications Read by Respondents

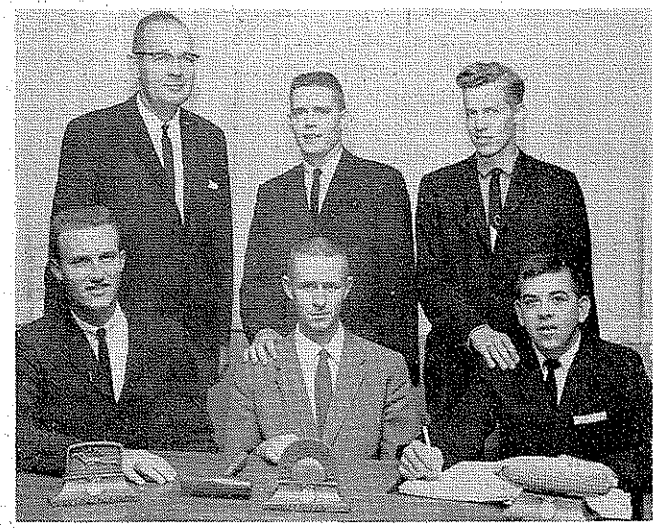
Publication	Numbers Rating A Excellent	B Good	C Fair	D Poor	Index*
Agricultural Education Magazine	176	80	11	7	3.6
State Vo-Ag News Letter	125	70	31	10	3.3
American Vocational Journal	48	118	78	19	2.7
Education Digest	11	43	25	6	2.7
N.E.A. Journal	31	81	72	28	2.5

*To obtain the index, values were assigned A of 4, B of 3, C of 2, and D of 1. Numbers of respondents indicating each grade were multiplied by those values and the sums divided by the numbers checking each category.

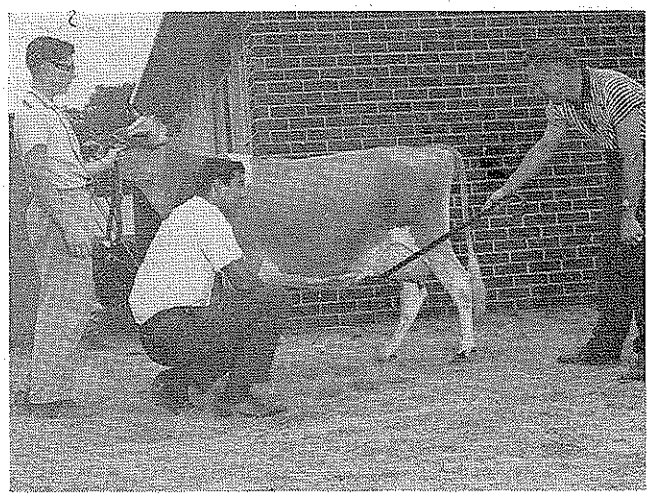
Stories in Pictures



Jill Osborne, daughter of Supt. R. L. Osborne of the Milton Union Schools, is the second girl to graduate in Agricultural Education at The Ohio State University. Here as a student teacher she is shown checking the records of Bill Campbell's poultry project. Bill is president of the Milton Union FFA and plans to teach Vo-Ag. after graduating from college.



New officers of the Southern Illinois University Collegiate Chapter of Future Farmers of America meet to plan special activities. They are, from left, seated: Donald Kloth, Sparta, vice president; Lindell Whitlock, Karnak, president; and Richard Jesse, Palmyra, secretary; standing: Eugene Wood, faculty adviser; Keith Washburn, Brownstown, treasurer; and James Bond, Galatia, representative to the Agricultural Student Advisory Council.



L. E. Tolley, Supervising Teacher at Damascus, Maryland points out a "strong fore udder attachment" for student teacher, Marshall Dauberman. This activity took place during the student teacher's Summer Experience Program.

Wild life counselor, Ben Widrick demonstrates trap placement to group of Future Farmers as a part of the conservation training program conducted at Oswegatchie Camp each summer by the New York Future Farmer Leadership Training Foundation, Inc.

Arkie and Max Kiehne, F.F.A. members of Reserve, N. Mex., check range grass on their leased ranch where they run 100 Angus cows