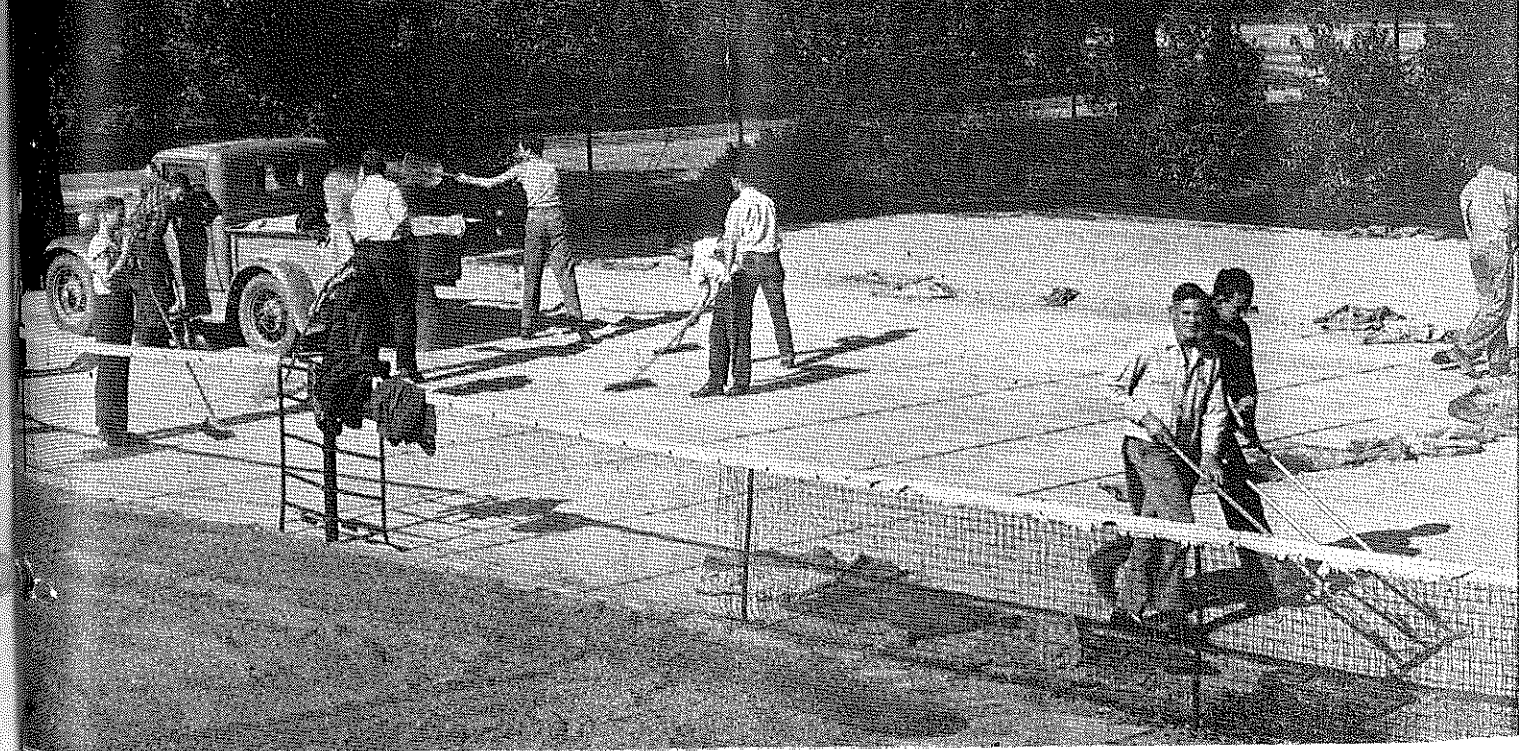
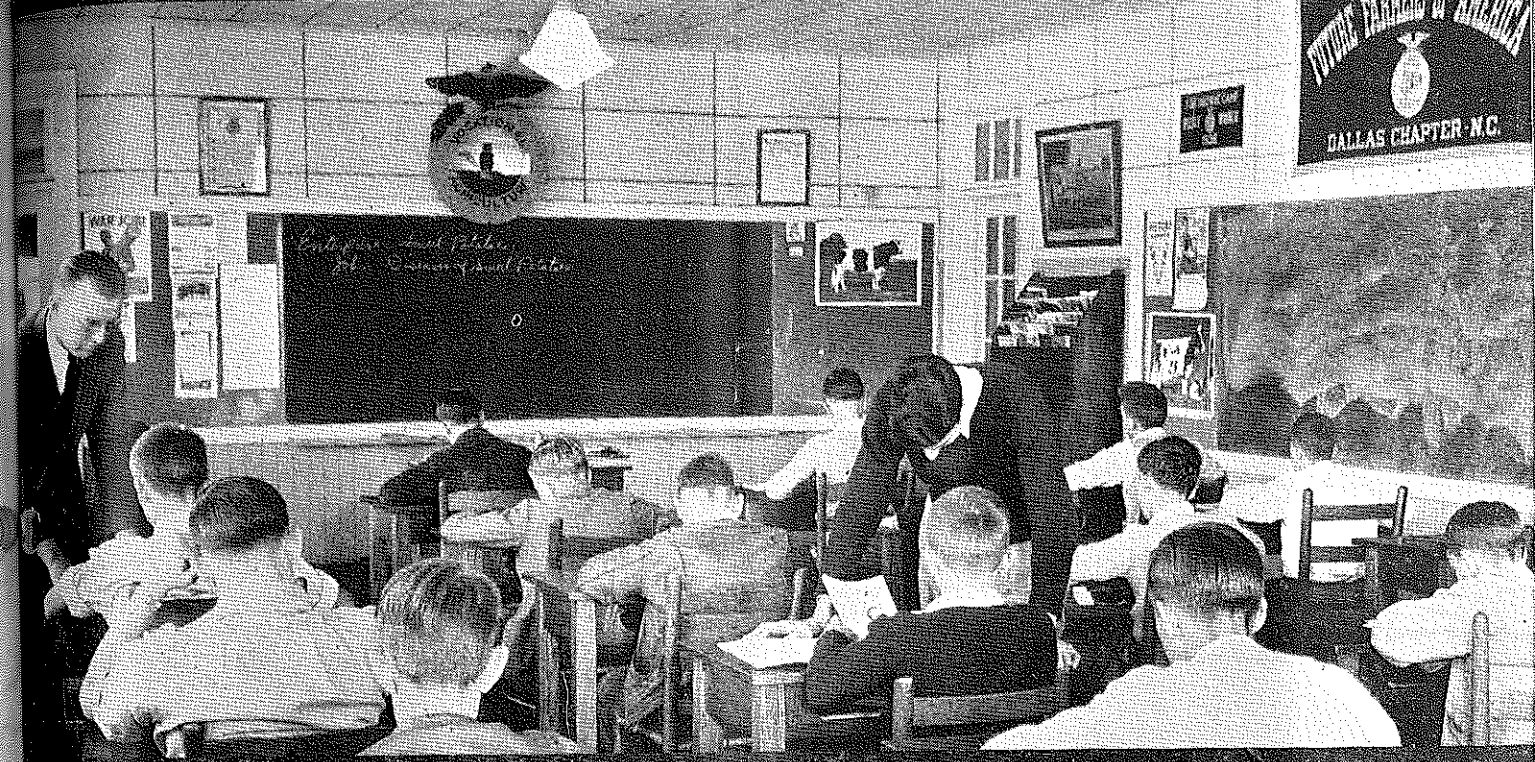


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MAGAZINE



School Days Are Here Again

SEPTEMBER, 1946

VOL. 19

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Editorial Comment

Methods and Materials Featured

THIS month we present several articles featuring *Methods and Materials*, which were planned with the assistance of G. P. Deyoe, special editor of the section. The contributions related to the topic being featured include: editorials by Mr. Deyoe and R. H. Palmer, and articles emphasizing subject matter by F. W. Lathrop, Ralph Canada, and A. E. Kehr; planning farming programs by W. R. Tabb, O. L. Claxton, and J. C. Miller; the viewpoint of a superintendent by P. C. Lapham; and the viewpoint of a teacher by T. R. Raine. Our readers should find in these contributions timely information and suggestions helpful in planning future school programs.

For our cover page we have drawn upon pictures submitted by G. P. Couper of the California Polytechnic School and by J. K. Coggin of North Carolina State College. The upper section shows a group of Future Farmers at Tulelake, California, learning to run the Babcock tester. The center part depicts a classroom at Dallas, North Carolina. In the lower section F.F.A. members at La Verne, California, are shown drying grain purchased after a warehouse fire.

Materials and Methods—A Constant Challenge

THE continuous development, revision, and refinement of materials and methods of instruction is a challenge to every teacher of vocational agriculture. The proper discharge of this responsibility is inescapable if instruction is to be geared to the needs and interests of learners, to new developments in the technology of farming and farm living, and to changing conditions beyond the confines of the individual farms which have profound effects on farm people.



G. P. Deyoe

Local Planning Essential

The problems of farming and farm life, as well as the ways of meeting them, differ from community to community, from group to group, and even from individual to individual. Consequently, standardized courses of study have never met with the approval of competent persons engaged in agricultural education. To reach objectives focused upon the development of proficiency in farming and improved farm living demands the use of materials and methods appropriate for the community and group being taught. In short, the course must be tailored to fit the needs and interests of the persons receiving instruction. These needs can be anticipated with reasonable accuracy by analyzing and interpreting various types of information available to the teacher, including agricultural census data by townships, recommendations formulated by community councils and local and county planning groups, opinions of leaders in the community, farm surveys, observations and conversations by the instructor during visits to farms, and data on levels of efficiency in farm enterprises as achieved by farmers in the community and by boys in their farming programs.

In formulating programs of instruction, ideas are available from several sources, and every instructor should be on the alert for suggestions and experiences from other persons in the field of agricultural education. Possible helps of this kind are highlighted in the current issue of this magazine, and many ideas may be gleaned from articles in past issues. Of course, the wise instructor will sift these ideas and carefully adapt any which seem suitable so that they fit operating conditions.

In accepting the philosophy of learning by doing, teachers of vocational agriculture recognize the importance of activities, or experiences, as a means for achieving the objectives in this

First Impressions Are Lasting

WHEN the bell rings for the first day of school, our farm boys will reconvert from the practical and real activities of the summer to the more or less artificial status of students. It is sad, but true, that many of them do not regard this change with pleasurable anticipation. What can we do to induce vocational agriculture students to return to school with the same eagerness with which they left the schoolroom for the farm last May?

Every teacher holds the answer to this within himself. He knows that he must challenge his students with real-life learning activities. New powers and abilities must be developed, in a way which will give students a sense of progress toward desired goals. We know that we need to teach less, and teach it better; to create understanding, rather than powers of imitation; to clinch new knowledges and skills on providing practice outside the schoolhouse walls.

Never before have young farmers needed systematic instruction so much—managerial training, leadership, farm skills. For many of our boys, these permanent learnings which we help them to gain will mean the difference between success and failure. But these learnings will not result unless our program appeals to boys strongly.

One suggestion is offered. Make the first school activities the most interesting ones of all the year. Interest, to quote Doctor Lancelot, will flow from such a high point into other, related activities. First impressions are likely to be most lasting. Let's make them good.—R. H. Palmer, Montana State College.

field. In fact, the selection and utilization of activities most appropriate for achieving the desired ends is an important part of instructional planning. In vocational agriculture, broad, well-selected programs of supervised farming provide the richest source of such experiences. More and more, instructors are finding it desirable to provide organized instruction and guidance directed toward the selection of high-quality programs of supervised farming, as well as toward carrying out these programs after they are selected. In planning an instructional program, additional activities merit consideration, such as group projects and certain other activities of the Future Farmers of America which require organized instruction for their success.

Pre-Planning Important

To carry on an effective program of instruction, it is important for every teacher to do some planning in advance of the school year. By so doing, the teacher avoids a "hit-or-miss" approach to his instruction and at the same time he prepares himself for planning cooperatively and effectively with his students when classes begin. Plans thus made in advance must be used flexibly, but their careful formulation is none-the-less important. These plans will be directly useful to the extent that the needs and interests of the students have been taken into account and to the degree that programs of supervised farming and other activities have been anticipated and utilized.

Obviously, planning in advance of the school year is doubly important for the teacher who is starting his first year in a community. In "getting set" for the year ahead, he must become familiar with the farming of the community and the special problems of farming and farm life which should be reflected in the programs of supervised farming and in the instructional program.

Planning in advance includes such things as formulating broad objectives in keeping with the problems and needs of farmers in the community, considering appropriate types of supervised farming, analyzing into jobs or units the enterprises so involved with due regard to goals and measures of efficiency, allocating units by years and seasons, making time allocations, and doing some detailed planning of the materials and methods of instruction.

In making detailed plans, some teachers are now adopting the "source unit" idea. For example, in planning for instruction for

(Continued on page 58)

P. C. LAPHAM, Superintendent of Schools, Charles City, Iowa

This article by Supt. Lapham is based on years of administrative experience with all phases of vocational education. The criticisms and suggestions which he offers are commended for consideration as final plans are being made for the year's work.—Editor

"THE only subject of real fundamental importance at the present time is the atomic bomb," states Chancellor Robert M. Hutchins of the University of Chicago.* Continuing, he suggests, "altho it is not a cheerful subject, we must consider it, for the issue is that of survival, to which all other issues are secondary."

What is the responsibility of the teacher in adjusting to a new world age? More particularly where does the teacher of vocational agriculture fit into this picture? To the writer, the responsibilities of teachers are clearer than ever before. Before World War II the isolationist based his argument on a national policy of aloofness from the rest of the world. He could argue that experience had proved that we were able to maintain our higher standards of national living, despite the disturbing experiences of the great depression, by a policy of noninterference and nonparticipation in world affairs. Today such arguments are futile. No longer are we protected by vast ocean expanses which might be covered by atom-bearing airplanes in a few hours. We must live in and be a part of a unified world. Today the changes which the experience of World War II have wrought are so apparent that the challenge to every teacher in the field of education is clean cut. Ours is the responsibility to participate in rearing a generation of citizens, who believe in and will accept and support world citizenship, and who will support leadership by our government in settling international problems.

What does this important responsibility imply for the teacher of the village high school and of the town and metropolitan student body? No community is entirely free from its prejudices and factions. The very fact that we have become the melting pot of the world means that every community has groups, growing out of racial ancestries, who still retain many of the ideals and many of the peculiar traits of groups that differ widely one from another. It is inevitable, therefore, that school rooms in the grades and in the high school are far from free from influences which tend to stratify and divide student bodies. Herein is the responsibility and the challenge of the teachers in the classrooms of 1946-1947. The teacher of vocational agriculture is confronted with the added responsibility of introducing farm youth into the life of the student body. Especially is this true with pupils entering from rural schools rather than from the grades of consolidated districts. A proper orientation of incoming rural pupils until they feel that they are a part of the student body should be the basis for building better town and country relations in the future. It is also the basis for the development of that type of cooperation that makes every

student in high school feel the importance of making his high school the type of democratic organization that may well become a picture of world democracy.

What a challenge for the teacher of vocational agriculture who has visited the homes of the rural pupils and who has gained their confidence! His is the responsibility of helping rural pupils to move happily thru whatever administrative detail may be involved and to find themselves in classes of pupils much larger than they have met with in the past. The task of the teacher of vocational agriculture is also that of guiding administrative officers and academic teachers to understand the needs and possibilities of rural pupils and to sympathize with their problems.

In addition the teacher of vocational agriculture is a missionary whose opportunity it is to go into the homes of all of the boys in his department and of the girls who come from rural homes. He is not only a missionary teaching the program of better farming, better farm and town relationships and better rural life, but he is also challenged with the opportunity of carrying the ideal of world citizenship.

Unit of Entire School

No teacher of vocational agriculture can well afford to look upon his department as a unit in itself. Unwise indeed would that teacher be, who would permit himself and his department to drift away from close contact with the faculty and with the rest of the student body. Not only is such a condition fundamentally unsound from the standpoint of the best interests of the department, but it is unwise from the point of view of the preparation of students for their adult life. It is important, therefore, at the beginning of the school year to make a drive to orient new pupils not only into the life of the department of vocational agriculture, but also to help them find their place in the multiple activities of a modern high school, so that they may feel that they are a part of the student body.

One of the valuable opportunities for training citizenship afforded the teacher of vocational agriculture is his chapter of the Future Farmers of America. No teacher of vocational agriculture should permit himself to neglect this important project. Properly guided, far from leading the students in the department away from the activities of the high school, it may well become one of the leading activities in the high school and a means of preparing boys for positions of leadership in the student body. An assembly devoted to the Future Farmers organization, newspaper articles on the accomplishment of the organization, or an exhibit of the work of the department, held under the auspices of the Future Farmers, will call the attention of the student body and of the community to the organization and help establish its place in the school community.

Adult Classes

Early in the fall the teacher of vocational agriculture will be arranging for the adult classes. Altho these classes are

primarily vocational in nature, no group of men or women get together today without the discussion either in informal or formal meetings sooner or later turning to national and international problems. Farmers, by background and experience individualists, have been challenged by a great national movement to help feed a famine-stricken world. What an opportunity for the teacher of vocational agriculture to use in building new ideals of citizenship as he conducts adult education classes, pointing to the raising of larger crops or better stock! Possibly the present reaction in our country to the idealism of a united nation gloriously fighting together to win a world war was inevitable. That reaction seems to have swept many of our citizenry into confusion and indifference. The teacher of vocational agriculture, as he is meeting the leaders in the farming community, has the opportunity of using this great challenge of a needy world to help crystallize the thinking of his adult groups. Such a challenge in no way takes away from the opportunity he has for a constructive contribution to scientific farming, but rather should enlarge and strengthen it.

In any field of endeavor, it is easier to follow the beaten pathway than to strike out on a course in part uncharted. The profession of teaching is no exception. As years come and go strong teachers find themselves doing the same thing in the same way, building for themselves no new program, hence stunting the possibility of their growth. A teacher who would grow must read widely, must plan thoughtfully and conscientiously, and above all must never lose a vision of service. For the teaching profession is founded upon a great American ideal, and he who would teach successfully must never lose sight of that ideal.

In my thinking the teacher of vocational agriculture has the challenge of being a missionary of a great cause. In the past we have thought of his challenge in terms of scientific farming, of better rural life and rural leadership, but today we must think of it in terms of more scientific farming to feed a hungry world, of better rural life to make rural America more world conscious, and to provide leadership capable of developing and maintaining world peace.

The Endeavor and Montello chapters in Wisconsin are cooperating in an outstanding conservation program. Over 2,000 trees and shrubs have been distributed to the boys for game food and cover planting; and the boys also plan to hatch and raise 750 pheasants. The program is under the direction of Jack Whirry, instructor of agriculture at Endeavor and Montello. He is working in cooperation with Warden Errol Evans of Westfield and the state conservation department.

The 1946 stock show for Future Farmers in Michigan will be held at the Detroit stockyards on Tuesday and Wednesday, October 8 and 9.

We cannot abandon our education at the schoolhouse door. We have to keep it up thru life.—Calvin Coolidge.

Only the man who can impose discipline on himself is fit to discipline others or can impose discipline on others.

T. R. Raine, Critic Teacher, Owatonna, Minnesota



T. R. Raine

IT IS generally recognized that instructors of vocational agriculture have an unusual opportunity to use an activity type of teaching procedure. Such a teaching procedure has been in operation at Owatonna for some time. This discussion is to report what these activities are and how they are initiated.

With the multiplicity of activities available in most communities, the problem of selecting those of most value to the student of agriculture is a real one. These principles are an aid in selecting the activities for the year:

1. The activity should be consistent with objectives of vocational education.
2. It should involve the active participation by students.
3. This participation must provide for teaching pupils the plan of action.
4. Class personnel should be used in developing and selecting activities for the year.
5. Each class organization should be charged with the responsibility of carrying out the activities which they have selected.

Procedure Followed

The agriculture course begins in the tenth grade, or the beginning of the senior high school at Owatonna. It is granted that previous contact should be made with those students, but the press of war responsibilities has made it difficult to do this. It is hoped that contact can be made this year in the Future Farmer activities. Accordingly, the procedure for the beginning class will follow this general outline:

1. In order to free the class, and help them to become better acquainted, ask each student to describe his home farm. Place an outline of suggestions on the blackboard for them to follow, but have class members suggest the things they would like to know about other farm homes.
2. Tell the class, in story form, a brief synopsis of the history and development of people and farming. This is an attempt to bring the group up to date in their thinking, and provide them with an end point and a springboard from which to project future class thinking. I would rather have the group do this as a class project, but lack necessary reference materials in brief-enough forms.
3. From this base, begin to project the concept of vocational education. Discuss and diagram the organization of state and federal Departments of Agriculture and experiment stations. With this, list the many methods by which farm people can get information. Stress the Smith-Hughes Act and Smith-Lever Act, but leave the idea implanted upon the class that we are going to use all of the facilities available to solve problems we hope to uncover.

4. So far we have dealt with ways of improving a farm business. At this point I like to introduce the idea that people must also learn to live and work together. Again one can go back to older history and describe how man has developed his social pattern thru the family, the community, the state, the nation, and now, we can add, he is trying to include the world. Ask the class for examples of these developments and have a volunteer write the examples on the blackboard. Among the examples will be Future Farmers of America. Explain the connection between Future Farmer activities and the agricultural department of the high school and how our interest will center upon it. This leads very naturally into an investigation of Future Farmer work.

Investigation of the F.F.A.

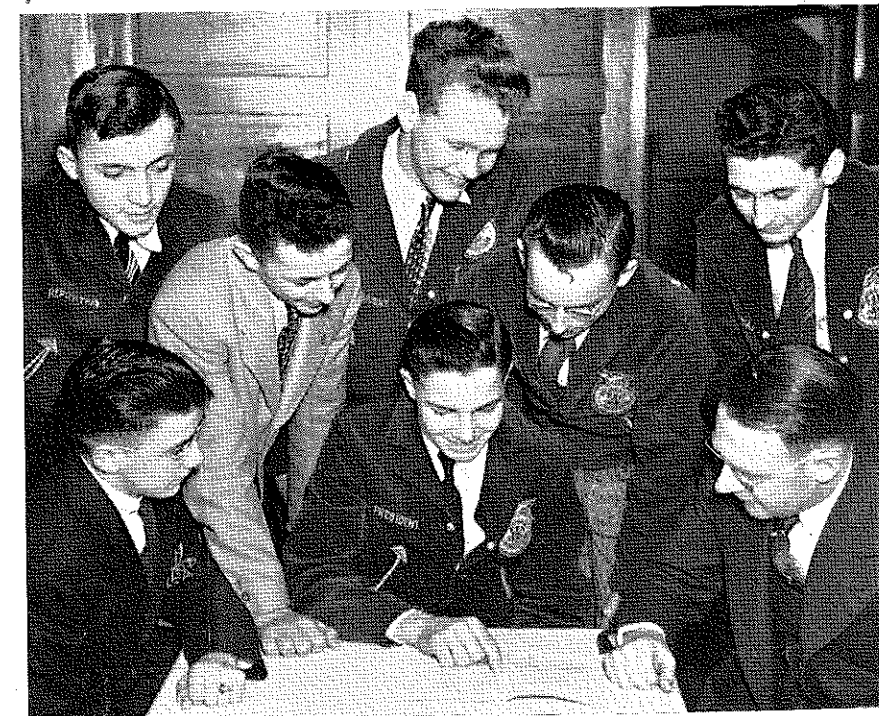
5. I like to begin our F.F.A. investigation thru the F.F.A. manual, and to start with the creed. Since I do not believe in rote learning, at this point I ask each member to translate into his own words, the meaning of each paragraph of the creed. Then other materials are added rapidly—State Farmer briefs, proceedings of national conventions, short descriptions of last year's activities by main committee chairman, or if he is graduated, by another member of the committee. By this time the question usually is, what can we do, and when do we get started. Once this point is reached the class is on its way; the teacher is a counselor and adviser, and not a taskmaster.
6. The next step is to have the class organize itself with a chairman, vice-chairman, and secretary-treasurer. According to the later wishes of the group, sometimes the officers function for the

period, since our school is organized on the quarter basis. This point is not too important, but the function of committees is. They carry on the main responsibilities of the class. Committees are named as suggested in the F.F.A. program of work. Each committee is elected by the class, but the selection is not permanent until all committees are appointed, so that any member may be moved to another committee during the process if it seems he will fit better in the new position. Each committee selects its own chairman, who then represents his class on the chapter program of work committee. This gives direct representation and responsibility to each class, as each representative is responsible for his class carrying out the provisions of his section of the chapter program of work.

Teaching Democracy

7. The teacher at this point is able to teach a great deal about true democracy and cooperation. Before this job is finished the class as a whole and each individual must have reached a compromise at some point. Here is a splendid opportunity to compare the process with the functions of a community, the executive committee to county commissioners, the members of the program of work committee to township officers, the recreation committee to different community recreational officials and so on. It does much to build faith and purpose to the work of the class. Here also is an opportunity to point out to the class the advantages of good habits of responsibility, promptness, honesty, fair play, leadership and followership, and the necessity of giving the other fellow a break if you have the opportunity. Establishing these standards early in the class gives a standard with which to compare future individual and class conduct.

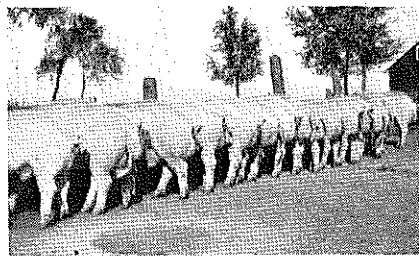
8. From here on the teacher is running a nine-ring circus, his main problem being able to keep up with developments and being able to do some restraining



The committee technique is used at Owatonna. This committee was designated to plan the annual parent-and-son's banquet

*NEA Journal, March, 1946.

Ralph Johnson, an Owatonna student raises Chester White hogs



here, and some prodding there. But he has his main teaching problem solved—that of motivation.

9. Several needs become apparent to the group about this time, one of them being the formulation of a calendar of activities for the year. We have so many field days and field trips available that we must choose those most effective in order for students not to miss too many other classes. We try to schedule all events for the year by November.

Supervised Farming

10. I try to get the report of the supervised farming committee before the class as soon as possible. Usually some purchases are best done in the fall. Thru this committee a summary of the supervised farming activities of last year's State Farmers is made; a report of the Star Farmer's farming activities; and a description of American Farmers' programs. We like to single out the national F.F.A. president for a special report. Then representatives from advanced classes are asked to describe their farming programs. If possible, a recent graduate is included in this group. Then we study the objectives of supervised farming activities as outlined in the Minnesota Farm Practice Planning and Record Book. In order that the activities finally chosen will be in line with the long-time objectives of the Owatonna Agricultural Department, I next present copies of my Annual Program of Work and Long-Time Plan for the Owatonna Agricultural Department. This provides the students with additional ideas. Annual outlook reports are next considered, and from this background production projects are selected for study. In order to impress business-like methods upon the minds of the students as well as help them determine their likelihood of making a profit on their venture, each student next makes out a budget for the project selected. If the deal still looks good, the project is selected for the coming year. If it appears that costs may be too high, we try to find a way of cutting them down. If the outlook is such that no profit can be expected from the venture, I would rather have the student drop the idea unless foundation stock is involved with expense which can be charged to more than one year's operation.

11. Usually we progress this far quite easily. It is more difficult to establish the concept of "the farm as a whole" as taught by Dr. A. M. Field. Our calendar of activities has provided for visits to the farms of class members about this time. From this beginning surveys are made which cover the farmstead, farm home, farm buildings, and each enterprise on the boy's home farm. These are prepared surveys in mimeographed form, which are given to the class, as their formula-

tion and subsequent mimeographing are too time-consuming to make feasible their preparation by the class. Another field trip is made to a successful farmer in the community, being careful not to select one which has too elaborate equipment, and the same survey forms used to get a picture of his farm and farming operations. Other farms may be visited if the need arises in special enterprises. From this comparison a study is made as outlined in Agriculture II, American Farming, by Boss, Wilson and Petersen, of the home farm. From these results and comparisons improvement farming plans are made. The next step which has not been done in Owatonna, but will be attempted this year, is to arrange a meeting with the student, his parents, and instructor to go over the findings and lay out the total suggested farming program for the year. Previously the student has taken the material home and tried to explain it to his parents. A big point in parent education has been missed in this way.

Another milestone has now been reached, the development and establishment of the supervised farming program of the student. The basis for future courses has been made, and is much enhanced if the keeping of home farm accounts can be established. For this we use the Minnesota Farm Record book, as excellent summaries are available for direct comparison. This record book also gives us one of the best bases we have for future study of farm management.

The remaining sections of the program of work are developed in the same manner as the supervised farming. Naturally one of the early committees to function is the recreation committee, and usually the scholarship committee needs some prodding. But the total job gets done in an orderly and pleasant manner.

We now have the class organization to give direction, and the supervised farming program to give purpose to the activities selected for the year. Classroom activities now can follow individual and small-group teaching to good advantage. The method used for doing this has been outlined in the May, June, and July, 1939, issues of the *Agricultural Education Magazine*. Some modifications have been made, but the general outline is the same.

Method Makes for Motivation

There are still many rough spots in this method of teaching, but I have received more satisfaction thru its use than with any other method. I have felt that boys have developed more fully and completely; that they are able to organize and assume responsibility; and some well-balanced farming programs have been developed. I feel that it puts the responsibility for learning and developing where it belongs—with the student. In order to follow this plan, however, a teacher must be willing to relinquish some of his authority and prominence. Not all of us are willing to do this, and I have known situations to arise that were hard on my ego. Using this plan, the teacher becomes merged with the class, and at times loses his identity. But the compensation of having boys organize and develop their abilities far outbalances this minor point.

A hotbed has made money for our chapter each year.—Harrison, Nebraska.

Colorado Has Guide for Course Construction

R. W. CANADA, Teacher Education, Colorado A & M College

THE Guide in Course Construction for Vocational Agriculture in Colorado high schools was prepared by Dr. G. A. Schmidt, now Professor Emeritus of Agricultural Education, Colorado A & M College, Ft. Collins.



R. W. Canada

The arrangement of material in the bulletin allows a wide choice on the part of agricultural teachers in formulating programs that will best meet the needs of local conditions. Emphasis is placed on the fact that any course in vocational agriculture is a cooperative activity in which the schools use the home farms of the boys enrolled as the laboratory where the boys are taught how to farm and how to put into practice that which is taught in the classroom.

The guide recognizes the many types of farm enterprises in Colorado and endeavors to set forth principles and the necessary mechanics by which each instructor in vocational agriculture can construct a course of study specifically suited to the farming needs of the community in which he works.

The sections of this bulletin dealing with animal and crop enterprises, major units of instruction, farm mechanics and F.F.A. instructions have proved to be very helpful to teachers of vocational agriculture in planning functional courses of study.

As explained by Dr. G. A. Schmidt, the approach to setting up the animal and crop enterprises was first an appraisal of the publication, "Annual Report of Colorado Bureau of Markets" in order to arrive at the relative importance of each enterprise in relation to the total agricultural production and income within the state. These enterprises were then analyzed and broken down into the respective teaching jobs of importance. These jobs were arranged in as logical a sequence as possible in relation to progressive learning and doing activities and seasonal sequence.

Cross-sectional Plan

The cross-sectional plan of teaching was provided for thruout the bulletin. The major units of instruction were developed in much the same manner. The enterprise with subject matter specialists at the college or with specialists of the Soil Conservation Service, Range and Forestry Management Service, and Agricultural Engineering Services. This work was then checked by Mr. A. R. Bunker, state supervisor.

The most popular references and teaching aids were carefully selected to accompany each enterprise or major unit of construction. Colorado Extension and Experiment Station bulletins are listed most frequently with farmers' bulletins and tests appearing next in importance. Provision was made to direct each in-

(Continued on page 47)

The Department of Vocational Agriculture As a Source of Information

F. W. LATHROP, U. S. Office of Education

WHEN I began to teach vocational agriculture in 1914 as a recent agricultural college graduate, I was expected to serve as an encyclopedia on all questions related to farming. Farmers of today have been disillusioned as to the omniscience of agricultural college graduates; often the dean of the college can answer detailed questions only in his field of specialization. However, my first years of teaching convinced me that a local department of vocational agriculture should have within its files and bookcases such authoritative information as will adequately deal with the important farm enterprises and farming and rural problems both from the standpoint of students enrolled in all-day, young farmer, and adult classes and of the general public.

The National Committee on Standards for Vocational Education in Agriculture revised its "Evaluative Criteria" in 1942 and on page 27 has included a section for the purpose of assisting teachers of agriculture to evaluate and strengthen their subject matter.

Textbooks and Reference Books

Textbooks and reference books are one of the more common forms of subject matter. These books should cover the important crop and livestock enterprises of the community (the service area of the school) and such problems of farming and rural life as soils, farm management, agricultural economics, marketing, farm mechanics, rural sociology, entomology, plant pathology, and youth organizations (Future Farmer bookshelf). More than one copy of the more frequently used books should be available. Some departments have rather complete texts and references, but are lacking in the more recently published books. This is a serious weakness if the students and the public are to be kept up to date. The Minnesota Visitor for May 1946, published by the Agricultural Education Division, University of Minnesota, University Farm, St. Paul, Minnesota, and the Vermont Agricultural Teachers Association Cooperator for October, 1945 published by the Agricultural Education Department, University of Vermont, Burlington, Vermont, have both published lists of texts and references.

Gaps in bulletin coverage of important enterprises and problems are inexcusable because bulletins are so easily obtained at no cost. Each state has published a wide variety of bulletins, circulars, and the like. Sometimes it is possible to get bulletins from surrounding states. The bulletins published by the U. S. Department of Agriculture cannot usually be as specific as state bulletins but are well worth having. Each teacher should have a copy of Popular Publications for the Farmer and Homemaker, List No. 5,



F. W. Lathrop

Revised January 1946, U. S. Department of Agriculture, which lists available publications. The U. S. Department of Agriculture also issues a "Monthly List of Publications and Motion Pictures." Teachers of agriculture should get on the mailing list for this publication. Many commercial companies issue valuable bulletins and circular materials. The Agricultural Leaders' Digest, 139 N. Clark Street, Chicago 2, Illinois, under the heading of "Useful Educational Booklets" contains an up-to-date list of such publications.

The writer has found thru experience that subject matter derived from a systematic study of certain phases of farming in the community has special value. This is particularly true when the teacher studies a phase with which he is not familiar or a phase about which there is little in print. When the teachers used the survey method of teaching, they studied phases of farming cooperatively with their students. Of course, teachers use well subject matter which they have created. The writer has found important by-products of these local studies in a thoro acquaintance with the people and the farming of the community.

The teacher should not overlook farm periodicals as a source of subject matter. Important farm enterprises and problems should be the basis of selection. Periodicals may be bound or articles of special value may be clipped. The Farmer's Digest published in Ambler, Pennsylvania, which is a selection of articles in farm periodicals, makes a good supplement to the periodical collection. As a sequel to the book list published in May, the Minnesota Visitor for July 1946, includes a list of periodicals useful to teachers of vocational agriculture.

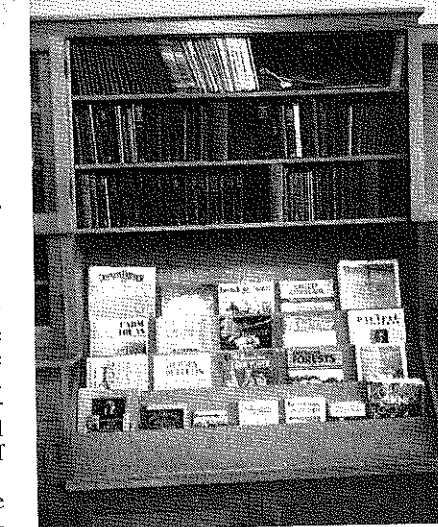
There are sources of information in addition to the above. I will mention a few. U.S.D.A. Yearbooks can be obtained from members of Congress. If a soil survey has been made of the county, the publication should be available. Census material, and especially the photostated township tabulations which cover the community is valuable. The teachers should have appropriate market reports. Other materials of this nature are available from federal, state, and local sources.

Visual Materials

Visual and specimen materials constitute another type of subject matter. Under this heading are included motion-picture films, slides, film strips, charts, samples, locally collected specimens. It is proposed to cover this subject in a separate article in a later issue.

The following seven statements summarize this discussion, and should serve the teacher as measuring sticks to determine whether or not the subject matter in his department is adequate to the needs of the community.

- The teacher has made and is utilizing a study of farming in the community.
- The teacher has obtained and is utilizing all other available information related to farming and rural life in this community.



Bookcase and magazine rack, Valley Junction, Oregon. Warren E. Crabtree instructor Good equipment, properly arranged, adds to the interest in keeping production records for dairy cows. A work space of convenient height and length, with facilities arranged in proper sequence, is provided in this laboratory at St. Louis, Michigan

- There is adequate coverage of the important *farm enterprises* in this community by textbooks, reference books, and bulletins.
- There is adequate coverage of the important *problems of farming and rural life* in this community by textbooks, reference books, and bulletins.
- There is adequate coverage of the important *farm enterprises* in this community by visual and specimen materials.
- There is adequate coverage of the important *problems of farming and rural life* in this community by visual and specimen materials.
- There is coverage of the major farming enterprises and problems of the community by *farm periodicals* including one or more general-farming periodicals.

Colorado Guide

(Continued from page 46)

structor in the right philosophy underlying the use of this guide. Sample programs such as the two-year, three-year, and four-year programs were defined and illustrated. A brief discussion was given relative to the type of program to follow under various school conditions.

Samples of long-time job or lesson outlines for an enterprise were illustrated. A yearly job or lesson outline and a yearly teaching plan was also carefully illustrated in order that the mechanics in setting up and organizing the work would be clearly presented. The analysis of the respective farm jobs and problems is exceptionally well done and presented from a practical viewpoint. This manual should have considerable value and application outside of Colorado, as well as within the state.

We have an exhibit day each year for project books and pictures.—Freemont, Nebraska.

This year our chapter conducted a fire hazard survey.—Neligh, Nebraska.

Improving Efficiency in Testing Milk in Departments of Vocational Agriculture*

G. P. DEYOE, Teacher Education, Michigan State College

IN THE departments of vocational agriculture in many states, improvement projects in dairying are being conducted by increasing numbers of boys. In many departments, in connection with these projects, the boys are testing a large number of samples of milk per month. Since testing is more or less routine work after the boys have done it a few times, it is important that this job be done in the least possible time consistent with accuracy of results.

After observing the testing work in a large number of departments, it is quite evident that the interest of boys is best maintained if good equipment is provided and if this equipment is kept in good condition. As another feature in maintaining interest, teachers are finding that improvements in the arrangement of the testing facilities often lead to marked decreases in time and effort on the part of the boys in performing the monthly tests. Some teachers in cooperation with the boys in their classes have studied their testing facilities and as a result have made a number of improvements.

In the materials which follow, suggestions are provided which should be helpful to teachers and their students in (1) analyzing the present procedures and facilities for testing and (2) securing ideas for improvements. Some of the suggestions presented have grown out of observations in departments where improvements of promise have been made.

Applying Job-Simplification Techniques to Milk Testing

Job-simplification techniques are helpful in any approach to improving the setup and procedures for testing milk. The steps to follow in bringing about improvements are:

1. Break down the job, as now done, into all the steps and operations which are performed. In other words, "take the job apart." This is done by studying the movements of the boys and the operations involved as they actually perform the job of testing. (The significant steps and processes in testing milk are given later.)

2. Analyze the details of the steps and processes involved, as the job is now done. Observe carefully to note wasted movements, "bottlenecks" which slow up the job at certain points, confusion from boys getting in each other's way, and anything else which seems to increase the time or effort in doing the job.

3. Find a better method or system for doing the job. This will be accomplished by finding ways to eliminate bottlenecks, unnecessary movements, places where there is confusion, and the other weaknesses in the job as now performed. Possible remedies may include rearranging the equipment into a different sequence, increasing the working space, providing a larger centrifuge and other equipment of larger capacity, getting more glassware, developing various timesaving devices, and making minor improvements

which result in saving time and energy. (Suggestions for these types of improvements are given on the following pages.) Any method which is devised should be based on conditions as they exist in a given department, as explained later.

4. Apply the improved system. After working out an improved method or system, it should be put into operation as rapidly as conditions permit. It may be necessary to make a few improvements at a time, but these should finally fit together into the system worked out ahead of time.

Suggestions for Improving the Job of Testing

In bringing about improvements in testing facilities, suggestions of various kinds should be helpful. Of course, it is important to adapt suggestions to conditions which exist in a given situation.

Two important measures of efficiency in performing the job of testing are (1) the "output" or number of samples tested in a given time, and (2) the accuracy with which testing is done. While no very definite figures on output are available, some departments with a 24-bottle centrifuge and other suitable equipment arranged reasonably well, and with a careful organization of the students doing the testing, are able to run at least 48 samples per hour. This includes the time required for cleanup. It is entirely possible that this output can be increased considerably if job-simplification methods are fully utilized.

Some common causes of wasted time are (1) insufficient glassware, (2) centrifuge too small, (3) inadequate facilities for heating water and adding water to the test bottles, (4) water bath too small,



Good equipment, properly arranged, adds to the interest in keeping production records for dairy cows. A work space of convenient height and length, with facilities arranged in proper sequence, is provided in this laboratory at St. Louis, Michigan

and (5) insufficient facilities for cleaning glassware. The remedies for most of these are fairly obvious. In adding water to the test bottles, for example, much time can be saved by having a water container which has a hose connection fitted with a pinch clamp. In one department in Michigan, an ingenious teacher has developed several timesaving devices. In addition to providing an acid dispenser, these include a mechanical shaking device, special devices for timing the centrifuging, a water flask set above the tester with a Bunsen burner for heat and a hose attachment and pinch clamp such that warm water can be added quickly to the test bottles in the centrifuge, a dispenser containing the cleaning solution set on a shelf and equipped with hose and pinch clamp, and a jet system for rinsing test bottles. Some departments have secured

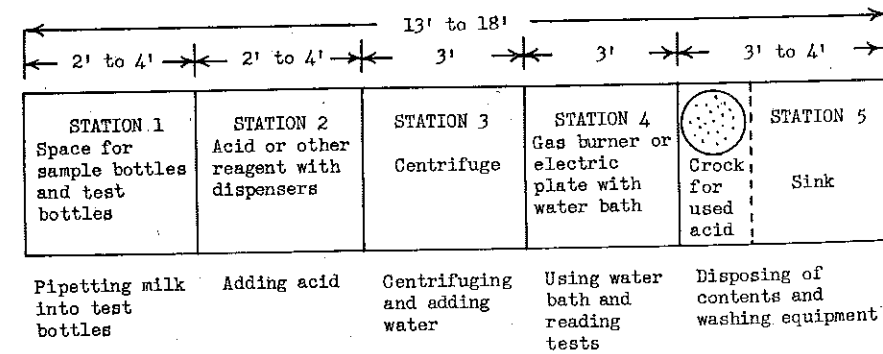
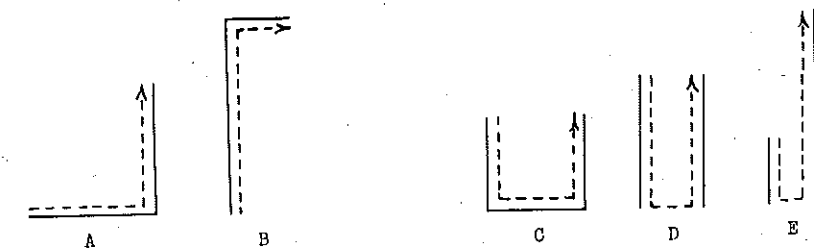


Figure 1. A suggested arrangement of stations for a testing layout.



(Note: Solid line indicates arrangement of stations, dotted line shows direction of travel in performing the test.)

Figure 2. Some modified arrangements for the testing layout.

a special computer for speeding up the calculations. Special manuals or tables are used as short cuts for computations in many departments.

Important steps and processes in the job of testing. Before making any changes in the testing setup, it is desirable to list the important steps and processes in the job of testing and to arrange these in the normal sequence with which they are done. By so doing, some helpful suggestions are provided for rearranging the equipment to save motions and to avoid crowding and interference on the part of the boys doing the testing. These steps are listed below. No attempt is made to indicate the technical details of testing, as this information is available in many places. If the Minnesota reagent is used, only slight modifications are necessary in the basic steps.

The steps are:

1. Pipetting milk from sample bottles to test bottles
2. Adding acid and mixing
3. Centrifuging and adding water
4. Using water bath
5. Reading the tests
6. Disposing of contents and washing equipment

Rearranging the equipment and providing space for the job of testing. Before rearranging the testing equipment in a department, a plan should be developed which takes into account the space available and the facilities already provided. In most departments, the sink is already installed and it would be difficult or expensive to move it, altho this is not always the case. Electrical outlets available for attaching a hot plate and for the "plug-in" for the motor of the centrifuge should also be considered. However, if necessary, the locations of these can frequently be changed at little expense. The amount of floor and wall space available and the shape of this space must also be considered.

Good System Important

As a basic consideration in arranging equipment, it appears desirable to provide "stations" for the important steps previously enumerated and to have these stations arranged in sequence to correspond with the order in which the steps are taken. By such a plan, it is possible for one person or a team of two or three persons to move along step by step in preparing the test bottles which comprise one batch for the centrifuge. It is also possible to have the process so timed that another person or team of persons can move along in sequence a short time later, and thus use the equipment to capacity during the periods devoted to testing. By an efficient co-ordination of testing activities, it is frequently possible in each class for all the boys who are conducting this kind of project to get the testing done in their class periods during a span of two or three days each month. While some boys are testing the milk for their home herds, others with this kind of project can be making computations. (Boys in the class with no projects of this kind may be doing other special work in vocational agriculture during the testing days.)

One type of arrangement possible in some departments is to have all stations required for testing in one straight line as shown in Figure 1. A long table or shelf of convenient height and substantial design, with the sink at one end, is a pos-

The Science Needs of the Boy on the Farm*

E. R. HOSKINS, Teacher Education, Cornell University



E. R. Hoskins

IN CONSIDERING where to locate, it would seem that the young man who remains on the farm should have a basic understanding of the formation and disintegration of rocks, including the effects of weathering and erosion upon soil formation and soil types which will vary in both productivity and drainage. He should understand the importance of elevation, rainfall, growing season, air drainage, and the proximity of large bodies of water. In addition, his knowledge of the presence or absence of elements necessary for plant growth, the acidity or alkalinity of the soil, the amount of organic matter and the presence of bacteria in the soil are all pertinent to an understanding of crop and animal adaptations and to the classification of the soil as to its future use and permanency.

Next, I would have the young man aware of the many mechanical operations of modern farming that depend primarily upon applied physics. He should be prepared to use farm power machinery and to reach his markets by use of the farm truck or other means of rapid transportation. It has been said that his first machine should be a truck. In addition, he must be prepared to use electrical devices, modern plumbing, heating, and refrigeration. He would be expected to preserve much of his own food, thru refrigeration, as a contribution to his living. He should be prepared to repair and preserve (by paint or otherwise) his own farm and home structures, as well as his

*Reproduction of article which was published in The Science Teachers News Bulletin, Vol. V, Number 2.

sibility in some cases. This working space should be about 24 inches wide and about 34 to 38 inches from the floor. Suggested lengths of stations are indicated in Figure 1. These stations correspond to the steps previously indicated. Some modifications of this arrangement are possible. Where the herds are small, fairly long spaces should be provided for Stations 1 and 2 so that two or three boys can work at once at each station. (In some cases, it may be desirable to consider Stations 1 and 2 as one combined station.) The entire working space should be covered with acidproof paint. For Station 2, a covering of plate glass or sheet lead is desirable. If the Minnesota method of testing is used, Stations 3 and 4 might be reversed. For the Babcock method, water-bath capacity should equal that of the centrifuge; for the Minnesota method, this capacity should be doubled. Drain racks should be provided for test bottles and sample bottles after washing. These racks may be part of a continuous shelf about 8 inches wide and located along the wall about 20 to 24 inches above the working surface. Space

own working equipment. It seems obvious that this young farmer would be using many of the basic principles of physics, involving friction, lubrication, levers, and pulleys as they are found or discovered in his modern machinery and equipment.

After our young man has become located and equipped with the necessary devices to carry on the operation of the farm and home, he must be prepared to recognize, regulate, or control certain biological forces in his environment. He should be able to classify certain forms of plant and animal life. He should understand the function of such life processes as respiration, digestion, and reproduction. We would also want him to understand photosynthesis, osmosis, the nitrogen cycle, life cycles of insects and fungi, forms of bacteria, and many other biological phenomena. As an outgrowth of such understanding, we would expect him to be able to apply the laws of heredity for the improvement of both his plants and animals; to develop hybrids; to use artificial breeding; to supply the correct amounts and kinds of nutrition for both plants and animals; and to protect his home, stock, and crops from the ravages of insects and diseases.

An understanding of the basic principles of biology would not be complete without a knowledge of certain control measures, depending upon the use of chemicals. Insects, fungi, and bacteria are controlled in many cases by sprays, special treatment, or fumigation, tho it may be necessary to rogue in order to control a virus. Feeds, seeds, and fertilizers must be analyzed to determine their composition, digestibility, purity, or availability. Milk must be tested for its fat and mineral content, and milking utensils must be sterilized or washed in chemical solutions. Poultry houses and maternity pens must be made sanitary in order to prevent the spread of disease or infection. Wounds must be treated and cared for. Residual values of feeds and fertilizers must be figured. All of these phases of scientific farming depend primarily upon applied chemistry as a fourth science to be put to work for the benefit of our young man.

beneath the working surface may be utilized as storage cupboards for carrying cases, scales, surplus equipment, and the like.

Modification of Design

In some departments, instead of a straight-line arrangement along one side or the rear of the main classroom (or testing laboratory in some cases), it may be necessary to modify the design. However, wherever possible, the stations should be kept in approximately the sequence suggested. Several possible designs are indicated in the sketches in Figure 2. For example, as shown in A and B, it may be desirable in some departments to arrange the equipment in a corner of the room. In small testing laboratories, arrangements such as C, D, or E may be worked out.

The total length of the layout in each case should approximate that shown in Figure 1 on which dimensions are indicated. Where it seems desirable, the stations may be reversed with the line of travel opposite from that indicated.

*Members of the Dairy Department, Michigan State College, provided suggestions for portions of these materials.

Farming Programs

C. L. ANGERER

How Two Oklahoma Teachers Help Pupils Plan Farming Programs

Procedure Followed at Broken Arrow
O. L. CLAXTON, Teacher

IN OCTOBER, 1943, I came to Broken Arrow from Missouri to assume the duties as instructor of vocational agriculture in one of the oldest departments in Oklahoma. The records on file in the department were of little value in providing sufficient information with which to assist boys to plan their farming programs. Therefore, it was necessary to secure all the information possible pertaining to the area served by this school.

The first step was to secure and evaluate the township data from the 1940 Census. The enterprises were then grouped, that is, listed as major, minor and contributory, based on the percent of farms having the enterprise, average animal units per farm, average acres of cropland harvested per farm, and productive man-work units.

A set of charts was then prepared showing the trends of all enterprises in the county. At this point the advisory committee chosen by the Board of Education, assisted in determining the relative importance of the enterprises that should be included in our long-time program. A map of the community was then made, showing soil types and types of farming.

Each student made out a complete survey and inventory of his home farm to decide which were the major, minor, and contributory enterprises thereon. He then determined the factors such as soil, size of farm, location, market, roads, that were affecting the enterprises on his farm. This was done so he might make wise selections of his productive projects.

Guided by the success factors used by leading farmers in the community, the students worked out, during supervised study periods, long-time programs to fit their individual cases, assuming that they would be permitted to do what they wanted to do. This was done for the purpose of getting them to plan a sound comprehensive program. After the programs were planned and thoroly analyzed, each student listed benefits he would receive from such a program.

Committee on Supervised Practice

The Supervised Practice Committee of the F.F.A. set up goals for the chapter on numbers of productive projects, improvement projects and supplementary farm practices for each of the four years, as well as a dollar goal for each year, with ways and means of attaining the goals. One of these ways was to have a parent-mixer early in the year, the purpose of which was to sell the parents on good farming programs. At this meeting, the members of the chapter discussed farming programs from all angles and the local banker enthusiastically made

known his willingness to support such a program, without additional collateral, with low rates of interest, and two-year loans when needed.

After the parent-mixer, each student took his long-time plan home and asked his parents' cooperation in approving or reorganizing the plan to meet home conditions. Farm visits were started at this point to help the boy and his parents make decisions and formulate a plan acceptable to all three parties—student, parents, and teacher. In my opinion the parent-mixer promoted by the F.F.A. Chapter did much, in fact more, to secure parent cooperation than any other steps I have ever taken. In addition, cooperative buying, selling, breeding, insuring, borrowing money, and showing, have stimulated action in carrying out the planned farming program.

Problems and Methods Used at Chouteau

J. C. MILLER, Teacher

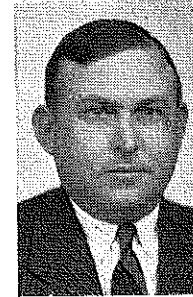
FROM my teaching experience, I have come to the conclusion that not enough emphasis has been placed on assisting my students in planning comprehensive farming programs. Many teachers with whom I have discussed this subject, agree with me on this lack.

Since our chief aim in vocational agriculture is that of training boys to become established and advanced in farming, the planning of long-time farming programs should come early in the course of study and include both subject matter and methods which are not distinct but complementary elements in the educative process.

In Agriculture I, 50 to 60 periods are set aside for supervised practice with approximately 25 periods used in orientation, leading to and assisting boys to plan their individual farming programs. Following is a job-problem layout for this phase of the Agriculture I course together with approved methods used for teaching.

Jobs to be Taught	Problems	Methods
1. Orientation to the program of vocational agriculture	a. Reference library b. Future Farmers of America c. Supervised practice programs d. Benefits of other school subjects in becoming a successful farmer c. Opportunities in the farm shop	Conference Supervised study Visual aids (past project records) Talk by superintendent or principal Survey
2. Determining the importance of agriculture in the United States and in my state		Conference Supervised study
3. Determining the importance of agriculture in the county and on my farm		Conference Supervised study
4. Surveying my home farm and listing the enterprises according to their importance	a. Determining the major enterprises b. Determining the contributory enterprises c. Determining the minor enterprises	Supervised study Survey Conference
5. Deciding on the benefits of the Future Farmer program to me		Conference
6. Determining the purpose of supervised practice and benefits to me	a. Deciding the value of supervised practice programs in becoming established in farming b. Understanding the value of supervised practice programs in gaining experience by doing the job	Conference Visual aids (Records of past students) Field trip (Boys who have become established) Conference
7. Deciding on the qualifications necessary for a successful farmer		Conference Supervised study
8. Deciding on the enterprises suited for my supervised farming program	a. Deciding on projects that are in keeping with enterprises on the home farm b. Deciding on projects that I will be able to finance c. Planning on projects that are continuous and lead to establishment	Conference Supervised study Map showing types of farming in the community
9. Planning my long-time farming program	a. Determining productive enterprise projects to carry b. Deciding upon improvement projects	Conference Supervised study Field trip

W. R. TABB, Teacher Education, University of Kentucky



W. R. Tabb

SEVERAL obstacles stand in the way of getting good supervised farming carried on by high-school students in vocational agriculture. We are prevented from having the kind of supervised farming we think we should have because of boy difficulties, teacher difficulties, and supervisory-teacher-training difficulties.

As I see it, the biggest obstacle in the way of high-school boys having good farming programs at the present time is the fact that they are not going immediately into farming. This situation has existed since the passage of the Selective Service Act and will continue as long as young boys are conscripted.

During the war, and at present, boys from full-time farms have had the opportunity for good farming programs. But with most boys, that farming has been interrupted when they reached 18. As they were not to continue in farming, their interests were in the immediate present. Interest in establishing breeding herds or flocks fell off, but interest in cash crops and feeder livestock picked up, at least until the boy approached the age of 18.

A large number of boys have been quitting the farm and high school to take jobs in industry before they were 18 years old. But the attraction into industry has definitely slackened this year, so that fewer boys may be expected to quit high school and the farm to seek other employment.

There is a considerable increase in the number of part-time farms, especially in communities near industrial employment. Tho many boys from such farms want to take vocational agriculture in high school, they usually have limited opportunity to carry on good farming programs.

It is impossible to have supervised farming without someone having a farming program and someone to supervise it. Several things stand in the way of having good supervision of farming programs. One of these is the demands on the teacher's time. It takes time to give good supervision. We have thought that a teacher should work with a boy on his home farm at least six times during the year. We haven't been getting an average of more than two or three times.

The decline in the average quality of teachers is another obstacle. Quality of teachers should show some improvement soon, but we have lost a lot of good men permanently. For the most part, these good men have been replaced by men who are neither so capable nor so well trained.

For the past few years, teachers have found less opportunity to attend summer classes and to do self-improving study in either the professional aspects of vocational agriculture or in technical agriculture. Agricultural science and practices are undergoing phenomenal changes. Teachers say that one of their biggest problems is keeping up on their agricul-

ture. Teachers cannot give good supervision to farming programs unless they are up on their agriculture.

A fourth difficulty that stands in the way of many teachers is their limited concept of the significance of supervised farming in vocational agriculture. The decline in the average quality of teachers and the difficulty of continuing training have not helped this situation. I have yet to find a good supervised-farming-program in a department where the teacher considered supervised farming unimportant.

Another difficulty encountered by many teachers is finding time to assist their students in locating and getting things needed to do a good job with their farming programs, especially the securing of livestock. A few years back the teacher could take one or more boys across a half-dozen counties to find some good dairy heifers, a few good gilts, a boar, or some good feeder steers. This assistance permitted the boys to secure animals capable of good production. Hauling boys around in the search of good foundation or feeding animals is a prewar luxury not engaged in very heavily today.

With respect to the teacher-training and supervisory staffs, as staff members in teacher education we have some difficulties that affect supervised farming. We have been spending less total time with teachers on their supervised farming problems because we have had fewer people available to work with teachers on this part of their program. We, in Kentucky at least, have been placing less emphasis on supervised farming in our conferences, teacher helps, and teaching materials.

Developments

There are several current developments that bid fair to contribute much to supervised farming. One of the most notable is our evolving concept of what constitutes a good farming program for a boy in vocational agriculture. We started out to meet the project-for-six-months requirement in the Smith-Hughes Act. After a few years we evolved the idea of more than one project. Then came *farm practice*, consisting of as many production projects as a boy could well have, whether related or not, perhaps an improvement project, and some supplementary practice.

It seems that now we are getting around to the idea that a boy should have a farming program consisting of such things as will give him the most valuable training in the kind of farming he is likely to engage in. Kentucky teachers thru their planning-committee work thought it desirable to set up farming-program specifications. Every boy enrolled in vocational agriculture should have the best farming program he can evolve, consisting of:

- (1) A cash-crop project of good scope.
- (2) Feed-crop projects to produce the home-grown feeds that ought to be produced by the boy.
- (3) One or more main livestock projects, such as:
 - Poultry—in spring of freshman year.

Beef cattle—by the fall of the sophomore year.

Sheep—in the summer between the freshman and sophomore years.

Hogs—gilt bred to farrow in the spring of sophomore year.

(4) At least one improvement project each year, including farm shop work, home improvement, and pasture improvement.

(5) Supplementary practice—50 hours or more each year. Included also in the recommendations is that the cash crop, feed crops, and livestock projects, if wisely chosen, should be continued thru-out the training period.

This pattern closely resembles good farming on the majority of Kentucky farms. The program makes sense to the boys when they have a chance to work with a teacher who believes in good supervised farming.

Use of Standards

A second important development is the expanded use of standards in planning and evaluating supervised farming. In addition to such standards as average number of projects per boy, productive man-work hours per boy, and labor earnings per boy, some departments are setting up additional standards including,

(1) Percentage of boys having standard programs.

(2) Number of improved practices to be used in each project. For example, one department requires for freshmen at least three of the most significant practices; for sophomores at least five of the most significant practices; and for juniors-seniors all of the most significant practices.

These standards are used as guides to the individual boys in planning their programs and as a means of evaluating accomplishments of the group. Last fall a chapter newsletter carried the statement that the classes had set a standard of three productive-enterprise projects and one improvement project per boy. When the programs were in, it was found that the group averaged 3.8 productive enterprise projects and 1.3 improvement projects per boy. In addition, 28 of the 36 boys had *standard* programs, consisting of a cash crop, livestock, a feed crop, and an improvement project. "End reports" of groups of projects permit the checking up on group average attainment of production standards and the use of improved practices.

There is, also, expansion in the use of production standards. In addition to the yield or production standards set up by the group, such things as these are being included:

(1) Quality factors as—Selling price in relation to the general market, for example, the tobacco averaging 5 percent above the general market.

Marketing weights and time such as having 90 percent of the lambs weighing at least 85 pounds and sold before July 1.

(2) Efficiency factors as—Pigs saved per litter. Weight of pigs at 56 days. Pounds of lamb and of wool sold per ewe. Weight of lambs at 30, 60, and 90 days. Weight of chickens at two-week intervals. Number of eggs produced per hen, by months. The use of running or "progress" charts that show how well each boy's

(Continued on page 56)

Studies and Investigations

E. B. KNIGHT

Assisting Pupils in Their Election of the Curriculum in Vocational Agriculture

A. E. KEHR, Teacher, Hudson, New York

THERE is evidence of a growing movement among high schools with full-time classes in vocational agriculture to extend agricultural instruction down to the junior-high-school level, where the stress is not on agriculture of a vocational nature such as found in high school, but more on guidance and orientation in agriculture. In fact, the course is often referred to as the Guidance and Orientation Unit in Agriculture.



A. E. Kehr

Guidance Needed in Junior High School

It may be pertinent to point out why guidance and orientation should be taught in junior high schools. The main objectives of guidance in agriculture in the pre-high-school levels is to help boys decide wisely whether or not to enter agriculture in their tenth year. Few boys even from farms, are able to decide upon an agricultural career without assistance. It is definitely an incorrect practice to guide students into agriculture only because they come from farm families, or to discourage other boys simply because they do not come from farm families. It is highly important in the guidance program that pupils develop an understanding and appreciation of agriculture so they may avoid the error made by many high-school boys—of reaching the senior year before they recognize their agricultural leanings, at which time their senior studies may prevent an election of vocational agriculture.

The present practice is to rely pretty much upon social-studies classes, in high school as well as junior high, to guide pupils in proper channels. Probably in the main this has been somewhat satisfactory, but how well it works in agriculture is very hard to say.

There is no doubt that some upper-class students have discovered in their junior and senior years that they should have elected agriculture. A survey of the Hudson High School revealed that this was the case for two seniors. One senior was able to make some amends by taking two years of agriculture before leaving school. The other could get his agricultural training only in college. Also, this year, there were two junior boys, along with three sophomore boys, who elected agriculture for the first time. It is reasonably certain that such a sudden change in pupil programs could have been

avoided if guidance on the junior-high school level had been given. In some cases these mistakes can be traced to the unfamiliarity of junior high-school students with the agricultural course. Many have had no opportunity, previous to the ninth grade, to know the possibilities available thru instruction in vocational agriculture. One could only imagine what would happen if these pre-high-school students were equally unfamiliar with other elective opportunities.

Since subsequent reference will be made to the Hudson school system, it might be well at this point to describe it briefly. It is strictly a city system in a rich agricultural region of the Hudson River Valley. The junior high school is located in a separate building one-half mile south of the high school. The outlying districts are not centralized and only contract to have students sent into the Hudson system. There are four districts, only, that operate schools with Grades 1 thru 8. The primary agricultural guidance problem in this system is to orient students in the agricultural course.

In placing a guidance and orientation unit in the junior high school, such problems are certain to arise as how often shall classes meet, how shall pupils be credited, what material shall be given, what grades shall be served, and what relation shall this unit have to the agricultural curriculum. A study was made of these problems in Hudson and is described here briefly. Solution was sought thru answers to five major questions:

How many boys are there in the area, who are they, and from what home environment do they come?

What is the nature and extent of the guidance provided pupils before entering the senior high school?

What is the present program of studies for classes in the schools from which the boys come?

What is the attitude existing on the part of the present administration toward guidance of pupils for agriculture?

How can the guidance and orientation unit be fitted into the present system?

Survey of Boys in Junior High

Experience has shown that information on farm or urban home situations must come directly from each boy, since most classroom teachers are not sufficiently familiar with the boys' home conditions to give very accurate replies. This information may be obtained with little effort by enlisting the aid of home-room teachers in getting responses to individual questionnaires. Care must be taken to have the four possible home situations so clear and understandable that all students can easily check the right category.

Of course, definitions of part-time and rural nonfarm situations might vary. In the study at Hudson, the following questions were asked:

Questionnaire for Grades 7, 8, and 9

Name.....Address.....
Last First

Grade.....

Please check (X) only one of the following to show where you live.

- () I live in the city or in the village.
- () I live on a farm where my parents devote their full time to farming and make their living from the farm.
- () I live on a farm, but one or both of my parents work at some other occupation and earn more than half of their income from that source.
- () I live in the country but not on a farm. My parents make no effort to carry on farming except for home use such as a garden, chickens, etc.

In summarizing this information, some very significant facts were discovered. Of the 280 boys in the Hudson area in Grades 7 to 9 it was found that 70.4 percent came from urban or village homes, 16.4 percent came from rural nonfarm homes, 4.2 percent came from part-time farms, and 8.9 percent from full-time farms. Table I shows a summary of the boys studied in grades 7, 8, and 9 in the designated schools.

Comparison With Agricultural Classes

It is interesting to make a comparison of the data in the above table with the data for boys who are enrolled in agricultural classes in the Hudson Senior High School at the present time, as shown in Table II on the next page.

Table I

Name of School	Rural farm	Part-time farm	Rural non-farm	Urban	Total
Stottville	4	0	5	12	21
Rossman	3	0	10	0	13
Claverack	2	0	5	0	7
Greenport	0	0	3	13	16
Hudson Junior High	14	7	9	127	157
Hudson Senior High	2	5	14	45	66
Total	25	12	46	197	280
Percent of total	8.9	4.2	16.4	70.4	100

	Rural farm	Part-time farm	Rural nonfarm	Urban	Total
Agriculture 1 (Guidance)	2	3	2	4	11
Agriculture 2 (Vocational)	7	0	3	3	13
Agriculture 4 (Vocational)	5	0	2	2	9
Total	14	3	7	9	33
Percent of total	42.6	9.0	21.2	27.3	100

It can be seen that, altho the majority of the students are farm boys, other boys may be expected to be served thru vocational agriculture. It may be significant to point out that 27.3 percent are urban boys. Might not guidance in junior high school bring in boys of this grouping, who are sometimes the better students of vocational agriculture? Likewise might not proper guidance during junior high school cause some to recognize the lack of advantage to them of going into vocational agriculture?

Extent of Guidance Before Senior High School

Guidance may be provided pupils either in school or out of school. An effort must be made to discover what this guidance has been and its extent. This information can be supplied in part by a questionnaire to the school administrators and selected teachers. The following form worked very well in Hudson:

Name of School.....

1. Do you have a 4-H Club in the school-activities system?.....
2. Do you have Rural Scouts in the school activities?.....
3. Do you have any agricultural-club activity?..... If so, what is it called?.....
4. Do you have instruction in industrial arts?.....
5. How well do social-studies classes in your school do the following:

Very Little Some Much

- a. Develop an appreciation of agriculture.....
- b. Develop an understanding of the personal characteristics necessary for farming.....
- c. Develop an appreciation of the extent and importance of farming occupations.....
- d. Develop a study of the advantages and disadvantages of farming occupations.....
- e. Enable the student to choose an agricultural occupation for a career.....
6. Are any courses taught in the seventh or eighth grades that:
 - a. Are of an agricultural nature.....
 - b. Enable a student to prepare for agriculture.....
 - c. Act as a guidance course to enable the student to choose his life work.....
 If any of the above answers are yes, please give more explanation below:
7. How does the graduate of Grade 8 arrive at his Grade 9 schedule of classes?.....
8. On what basis (if any) are students advised to elect agriculture in their ninth grade schedule?.....
9. Are pupils placed in classes at any time without their knowledge or consent?.....

10. Is anything done in your school that especially guides the pupil into an agricultural career?..... If so, please explain.....

11. If it were possible for you to do so in your school, and you had ample time and facilities, would you consider it wise or practical to guide qualified pupils into an agricultural career by giving elementary classes in agriculture?.....

This questionnaire was filled in by the principals of the six schools in the area having Grades 7, 8, or 9. Question 5 was answered by an additional three social-studies teachers. The survey revealed that none of the schools, except the Hudson Senior High, had any type of agricultural club or organization, altho the junior high school did have industrial arts which might be considered to offer some agricultural guidance. Three schools felt that various experiments and exercises in science, industrial arts, and social studies "touched" on agricultural topics. Most schools felt that little work was given that would enable a student to prepare for agriculture, or even to choose a life work in any field. Most schools encouraged students who had had previous agricultural experience or a liking for agriculture, to elect an agricultural course. One school frankly indicated that if the boys were below norm in algebra and Latin prognostic tests, they were advised to elect agriculture or industrial arts. No school replied that anything specific was done that especially guided students into agriculture. It is evident from the survey that in most schools guidance is thought to be provided thru social studies classes.

Table III presents a summary of answers to the question if anything specific is done to guide students into agriculture. The opinions of six school administrators and three social-studies teachers are given.

Table III

How well do social-studies classes in your school do the following:

	Very Little	Some	Very Much
(a) Develop an appreciation of agriculture?	2	6	1
(b) Develop an understanding of personal characteristics necessary for farming?	4	5	0
(c) Develop an appreciation of the extent and importance of farming occupations?	1	5	3
(d) Provide a study of the advantages of farming occupations	1	7	1
(e) Enable the student to choose an agricultural occupation for a career	5	4	0
Total	13	27	5

It is evident that the opinions of those who responded place the agricultural guidance value of social-studies classes somewhere on the "very little" side of the chart. This seems to indicate a marked need for increase in agricultural guidance in Grades 7, 8, and 9.

There are valuable sources of agricultural guidance outside the school. Organizations providing valuable experiences for these young people are the 4-H clubs, Rural Scouts, Juvenile Grange, and similar groups.

Most students in Grades 7, 8, and 9 have little opportunity for electing classes. Most pupil schedules are arranged by the principal or guidance teacher. A guidance and orientation unit might replace one or more periods of social studies or periods of study hall. (This appeals to most administrators.) A definite class in guidance of all kinds might include units in commercial studies, industrial arts, homemaking, and agriculture. (This also appeals to many administrators.) Other plans would be to organize 4-H clubs as part of the regular school activities and to divide the boys between classes of industrial arts and pre-vocational agriculture.

Fitting Unit on Guidance Into School

In attempting to fit the unit on guidance and orientation into the present system, consideration must be given to grades to be served, frequency of class meetings, method of crediting pupils, distribution of content, use of other departments of the school system, and relation to the curriculum in vocational agriculture.

Since each particular school has its own methods of meeting the above problems, no one single conclusion would fit all cases. The example below is only one solution.

- (1) Grades to be served and (2) Number of meetings

Seventh grades	72	periods per year
Eighth grades	72	" " "
Ninth grades	108	" " "
- (3) Method of crediting pupils

High-school credit for the course to be given at the rate of 1/2 unit for 144 periods in Grades 7 and 8, and 1/2 unit for 108 periods in Grade 9. Special classes should be set up for those pupils in Grade 9 wishing a full unit in pre-vocational agriculture to be given entirely in the ninth year and offering a full unit of credit.

- (4) Use of other departments of the school system

A special unit or part of a unit to be worked out between the teacher of agriculture and teachers of social studies to include guidance material especially pertaining to agriculture. Furthermore, 4-H clubs may be established with seventh, eighth, and ninth grade boys enrolled. The teacher of agriculture may be responsible for part of the leadership and supervision.

- (5) Relation to the curriculum in vocational agriculture

The unit on guidance and orientation in agriculture should be considered pre-vocational or pre-avocational in nature; vocational agriculture should begin with the second year in high school. This is in harmony with a growing tendency toward starting actual vocational instruction later in the school program than has been the practice in the past.

Responsibilities of Teacher-Trainers in Agricultural Education*

THE effectiveness of a training program in vocational agriculture, including the upgrading of in-service teachers, is in no small measure dependent upon the completeness to which the responsibilities of teacher-trainers are satisfactorily met. Sound, timely, and adequate training of teachers in all phases of a complete program is essential to the ultimate success of local programs of agricultural education. It would be well for teacher-trainers to devote their time and attention to the several functions under each heading in a manner which will insure the strongest possible over-all state programs of practical instruction. The following is the report under eight headings covering "The Responsibilities of Teacher-Trainers in Agricultural Education":



S. S. Sutherland

In the preparation of a list of responsibilities of teacher-trainers in agricultural education, the six accepted functions of a complete teacher-training program provide a basis for the major classifications. As stated in Vocational Bulletin 219, "The State and Pre-Service Training of Teachers of Vocational Agriculture" these functions are:

1. Provide pre-employment facilities for training teachers of vocational agriculture which will result in:
 - (a) Securing an adequate supply of capable well-trained, beginning teachers.
 - (b) Providing training (technical and professional) based primarily upon participating experiences and carried to the point of developing "doing" ability.
 - (c) Placing these teachers satisfactorily upon the completion of their training program.
2. Develop teaching aids for teachers in service.
3. Provide continuing education for teachers in service.
4. Provide for follow-up resident teacher-training thru field contacts for the purpose of checking the effectiveness of all units of instruction, thus leading to the improvement of the teacher-training program.
5. Encourage improvement of college teaching (professional and technical)

* During the Regional Conference for Vocational Agriculture held at Boise, Idaho, in August, 1945, a committee was designated to develop a list of responsibilities of teacher-trainers in agricultural education. The report of the committee is presented herewith. The committee consisted of S. S. Sutherland, California, Chairman; H. H. Gibson, Oregon; L. R. Humphrey, Utah; C. G. Howard, New Mexico; H. A. Winner, Idaho; R. W. Canada, Colorado; and R. W. Cline, Arizona.

affecting the learning of prospective teachers.

6. Conduct research and studies making direct contributions to the development of the program in vocational agriculture of the state.

Specific Responsibilities

The specific responsibilities and duties of teacher-trainers in agricultural education in a complete teacher-training program are as follows:

- A. Pre-Service or Pre-Employment Training
 1. To recruit, select, and counsel prospective trainees in high school and college.
 2. To counsel college students enrolled in agricultural education.
 3. To organize and maintain a curriculum in agricultural education with the cooperation of the state supervisor, major departments of the college, and agricultural agencies.
 4. To provide orientation instruction in agricultural education.
 5. To prepare and provide teaching materials and aids for professional courses.
 6. To plan and teach pre-service professional courses in vocational education in agriculture, including the selection and use of advisory councils.
 7. To plan, organize, and conduct young-farmer and adult classes with trainees and apprentice teachers.
 8. To select and maintain directed teaching centers for apprentice teaching.
 9. To supervise apprentice teachers in vocational agriculture.
 10. To select, train, and assist supervising (critic) teachers.
 11. To prepare and maintain personal records of teachers of vocational agriculture for certification, placement, and professional improvement.
 12. To assist in the placement of teachers upon the completion of the training program.
 13. To advise and assist in the organization and functioning of a collegiate F.F.A. Chapter.
 14. To cooperate with college departments in determining purpose and content of all courses required for prospective teachers.
 15. To maintain cumulative records, in-service reports and evaluation reports of all former trainees.
- B. In-Service Training Program
 1. To visit and assist new teachers in a "follow-up" service.
 2. To visit and assist experienced teachers upon the request or invitation of state supervisor.
 3. To organize and teach graduate professional courses in agricultural education, and direct graduate programs of candidates.
 4. To organize and conduct short and intensive course work—technical.
 - a. On college campus.
 - b. Off college campus.
 5. To assist in relocating experienced teachers in terms of their possibilities.
 - a. Returning war veterans.

- b. Returning war workers and others.
6. To cooperate with state supervisor in:
 - a. State and district conferences.
 - b. Visiting agricultural departments.
 - c. Planning contests and programs.
 - d. Holding F.F.A. meetings and contests.
7. To edit monthly publications for in-service teachers, and F.F.A. publications.
8. To check on qualifications of teacher candidates from other states.
- C. Improving College Educational Procedures
 1. To serve on local, state, and national committees appointed to study and recommend improvements and adjustments in teacher-training curricula.
 2. To serve on committees whose aim is the improvement of college training.
 3. To cooperate in the improvement of student personnel programs.
 4. To assist in building and revising the curriculum for training teachers of vocational agriculture.
 5. To collect data from former students as a basis for the improvement of content and methods of instruction in college courses.
 6. To provide individual assistance and advice to instructors of subject matter or technical courses.
- D. Research
 1. To make and initiate studies of problems in agricultural education.
 2. To direct graduate students in worthy studies in the field of vocational education in agriculture.
 3. To build up and maintain a library of research studies in agricultural education.
 4. To collaborate with U. S. Office of Education and with other states in research, and an exchange of studies.
 5. To cooperate with the state department of education in developing and maintaining a research program designed for growth and improvement.
 6. To supervise the publication and distribution of research studies.
- E. Public Relations
 1. To contribute news, feature, and research items for local, state, and national publications and professional journals.
 2. To exchange professional papers and publications with fellow workers in the field.
 3. To meet with state supervisory staff to discuss common problems, develop desirable working relations, and plan cooperative activities.
 4. To meet with educational, civic, and agricultural groups to discuss objectives and problems in vocational education.
 5. To cooperate with teacher-trainers in the other fields of vocational education in developing and providing basic courses in the philosophy and administration of vocational education.
- F. Professional Improvement
 1. To attend local, state, regional, and national professional meetings.
 2. To take sabbatical leave for professional improvement.
 3. To keep up with literature, research, and new developments in vocational and general education.
 4. To serve as a visiting faculty member for summer sessions and as an exchange faculty member.
- G. Preparation of Teaching Aids—(Professional)
 - a. Returning war veterans.

(Continued on page 58)

Social Values of Vocational Education in North Carolina High Schools

W. N. GINN, Teacher, Woodland, North Carolina

WHILE almost everyone realizes that each public school in North Carolina plays an important role in the social life of its community, not many people realize that there are special unique influences involved in the agriculture teacher's job.

The social aspects of vocational education were recognized even before any federal grants were made for the program. The reports of the House Commission on Vocational Education in 1914 stressed the democratizing influence of vocational education for the masses. However, only recently has it been demonstrated that the teacher of agriculture can be a positive and direct force in taking an active part in developing the social life of the community in which he works.

Since the teacher of agriculture is required to visit students' homes, he has an excellent opportunity to observe and learn the habits, customs, and financial condition of the school patrons. Other teachers do not have an equal opportunity to get this information firsthand. What are the possibilities of using this information for the good of the community and what are the teachers of agriculture doing with it?

Social Values Thru the F.F.A.

The last paragraph of the Future Farmers of America creed is: "I believe that rural America can and will hold true to the best traditions in our national life and that I can exert an influence in my home and community which will stand solid for my part in that inspiring task."

The F.F.A. chapters meet regularly, and the boys learn to conduct their meetings by the official rules, take part in various competitive events, including public speaking, shop-skills demonstrations, livestock judging, seed judging, and many athletic contests. They prepare their own programs and often invite successful businessmen or farmers in to talk to them. By these means they learn to be a part of the social life of their community. To stimulate in young people these attitudes and characteristics that precede greater social participation, various booklets are used. Two of the better ones are: "Young Folks—Do Something, Be Somebody," published and furnished free by the International Harvester Company, and "I Dare You," published and furnished by the Purina Company.

Each year F.F.A. boys hold what they call the father-son banquet. They invite their fathers, in for an evening of food, entertainment, education, and recreation. The banquet not only brings the father and son to a common understanding and closer relationship, but the various families of the community are brought together.

Many of the F.F.A. chapters buy farm machinery and supplies cooperatively for themselves and for the farmers of the community. They also perform other functions of community interest such as seed testing for the farmers, beautifying public grounds, and conducting forestry demonstrations.

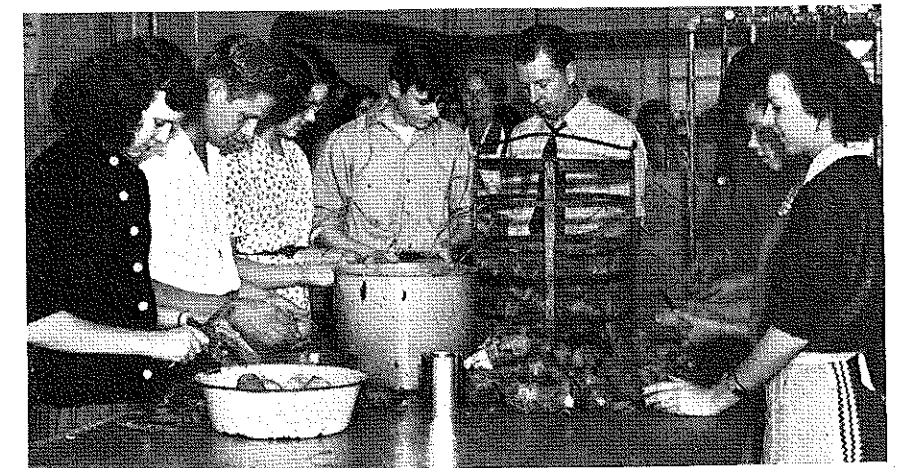
During the 1944-45 school year the Woodland, North Carolina, Chapter of

the F.F.A. invited the district representative of the North Carolina Cotton Growers Association to talk to them on cooperative marketing and the county health officer to discuss with them community sanitation and venereal diseases. That year the boys themselves designed and constructed an educational exhibit in a store window, wrote news articles for local papers, held a father-son banquet, gave a wiener roast, took second place in the seed-judging contest of the Roanoke-Chowan district, took third place in the shop-skills contest, fifth place in the public-speaking contest, and fifth place in the livestock-judging contest. They purchased some fruit trees at wholesale prices for farmers, landscaped the schoolgrounds and kept the shrubbery pruned, gave an Arbor Day program, put arbors under two scuppernong vines for two widows, made speeches to clubs on soil erosion and on the values of pastures, and helped install the plumbing in the community cannery. Almost all of the activities have had an influence on the present community and will most certainly help those boys in molding the community life in which they will live in the future.

Sociability Thru Adult Classes

In addition to working with day students, the teacher of agriculture holds evening classes with adults. The main purpose of these evening classes is educational, they also serve as social gatherings at which the farmers discuss problems of mutual concern and interest. Often they mix a lot of socializing into these meetings. T. E. Browne, state director of vocational education, came to Woodland for the final of a series of meetings of food production. The people of the village and community got together and put on a reception for Mr. and Mrs. Browne that would do credit to any city.

The night classes in farm-machinery repair have brought the men together from every area of the school district. These farmers compete to see who can make the best woodwork or who can forge the best metal staple puller or some other item. Refreshments are often served at these night meetings.



North Carolina canneries have socializing influence. Photo of cannery at Fuguy Springs by J. K. Coggin

in clubs of various kinds. D. E. Lindstrom of the University of Illinois says, "The functions most often reported as performed by these local groups were: the development of interest in farm organization, the stimulation of group spirit, the procuring of outside information and dissemination of it, the improvement of acquaintanceship, the performance, as a group, of work, chiefly of an occupational character, and the satisfying of social and recreational wants." He further stated that "Most of those studied having experience in voluntary organization held favorable attitudes toward them. This group in general coincided with the group that had attended the higher grades in school, had stayed on the same farm for a period of years, and had acquired ownership of their farms."

Community Relationships

The Woodland teacher of agriculture served a year as president of the Woodland Men's Club. After the member families serve the food, the business meeting is held, followed by an educational and recreational program. This club has sponsored the community cannery, a Girl Scout organization, a new community house, and clean-up-week. The teacher of agriculture helped organize the Ashley Grove Community Club, of which both men and women are members. The club grew out of a series of educational meetings held there two nights a week during the winter months. These meetings were for the purpose of stimulating proper food production during the food emergency, but the gatherings were also used to get the families together socially. The organization has a log cabin hut where the club meets each month. In August they have a Brunswick stew, in July a chicken fry, in May a herring fry, and in December a Christmas party. They mix education, recreation, and entertainment. In addition to their regular socializing at the meetings, they have promoted and sponsored a Rural Electrification Administration line.

The school community cannery which was constructed and operates under the supervision of the department of vocational agriculture, has more socializing influence on the women of the community than any other activity of the agricultural department. The women grow the food, take it to the cannery on canning day, prepare the food for canning,

canning days and help each other. In the fall of 1944, Mr. and Mrs. Dave Brown found that after they had harvested and stored all the sweet potatoes they needed there were a large number of over-sized and broken ones left in the field. On the other hand, there were several families living in the village who did not farm and did not have sweet potatoes. The Browns picked up about 15 bushels of these potatoes the day before the cannery was to open. They went to those families who had no potatoes and told them to be at the cannery the next morning to help can potatoes. That was a very busy day for several women who worked together on those potatoes. Even some of the male members of the families came and helped. All enjoyed the social gathering and none will ever forget the cooperative spirit in which it was all done. Each family finished the day with about 50 No. 3 cans of very good potatoes for winter use.

There is hardly any limit to the number of things a teacher of agriculture can do to help a community educationally, culturally, and socially. He may put on many different types of exhibits, shows, and contests.

Educational Pictures Used

Take as an illustration what was done in Woodland in the spring of 1945. The agricultural teacher borrowed a moving-picture machine to show some educational pictures to the students. The pictures were secured from the State Agricultural College and covered such subjects as pastures, hybrid seed, canning, soil erosion, and war production. Some of the pictures were so good that their reputation spread. Showings were requested by many groups and individuals. Then other pictures were secured on health, plumbing, child care, tuberculosis, etc. All of them were educational; some were entertaining. Before school was over in the spring those pictures had been shown to school classes, to Girl Scout groups, to parent-teacher organizations, to Sunday School classes, to community clubs, in private homes, on the lawns, and on the town's streets. The last mentioned place of showing was probably the most unique and secured the greatest response.

Woodland is located in the state with the highest draft rejections of any state in the Union and in the county that has had the highest rejections of any county in North Carolina. More than 50 percent of the people in the area are Negroes. Many of them cannot read and write and have very little opportunity to learn anything about scientific farming or the modern methods of farmers. Their comments after looking at these educational films revealed appreciation, respect, and desire for knowledge. Those farmers who had a moderate amount of education showed a great deal of respect for the value of the pictures. After looking at the picture on hybrid seed corn, one of the most progressive farmers in the district said he would not complain again about the cost or price of the hybrid corn he had been buying. Many of those who saw the pictures on the street never go to the school for any purpose. Before the pictures were shown on the street they were shown at the schoolhouse, but the attendance was very poor. This contact of the school with those who always seem to be "antisocial by neutrality" is about the only way they

the schoolhouse or to other public functions. But they did stop on the street Saturday night and looked at the picture and probably stayed and looked longer than others because they had no other place to spend the evening.

When teachers of agriculture adopt the concept that schools can be taken to the people even if the people will not come to school, and when school officials realize that a broad liberalization of their programs to meet the real needs of their communities is the best way to make education function, then programs of vocational agriculture in North Carolina, and the country over, will fulfill their responsibilities for social improvement.

Farming Programs

(Continued from page 51)

lambs, pigs, or chickens are gaining, or how well the hens are laying, have a stimulating effect on the use of improved practices.

(3) Individual Standards.

It is desirable that each boy set for himself his own standards. Some of the individual standards of the older boys will far exceed average standards for the group. Some of these standards are for the present year and some are projected into the future. Frequently one hears a boy say, "I am going to produce 2,000 pounds of tobacco to the acre before I get out of high school." When standards become goals to be reached by the boy himself, the use of improved practices takes on a significant meaning. They become necessary means to reaching the goal.

Still another important development in boys' supervised farming is our changing concept of the business arrangements a boy should make for his program. These include:

a. A rental or trade agreement, with the parents or landlord covering the entire program rather than project by project. Many teachers insist on fair-trade agreements based on the value of the contribution each party makes or the customary trade in the community.

b. A financing program worked out to cover the entire farming program, rather than financing item by item or the financing of one big item such as the purchase of livestock. The financing program worked out so that the boy will have adequate finances to permit the use of improved practices in all of his program so that the entire program has a good chance to succeed. Many far-sighted teachers insist that every boy have at least one experience in getting, using, and repaying a loan.

c. Partnership project in enterprises that do not lend themselves well to being divided on a farm, or where only a partnership can result in good scope of the enterprise. It doesn't make sense to have two poultry flocks or two flocks of sheep on most farms. It is better for a boy to have one fifth ownership in a flock of 50 sheep than complete ownership of 10 not a part of a larger flock. Partnership in enterprises tends to evolve into a partnership in the farm business when the boy gets out of school.

Relationship to Courses

A fourth significant development is in the relationship of supervised farming to classwork. We have long philosophized

the expanding use of Future Farmer activities to motivate good farming programs. Boys like to get recognition for work well done. The farming-program requirement for degree advancement has helped. Fairs have given recognition to those boys who were getting into the purebred business. Not until recently has there been much done to give recognition to the boys who did a good job of farming. For the past three years the Kentucky Association has had a program of Farming Achievement Awards on both a district and state basis. Each of the nine districts and the state as a whole now recognizes the boys who have achieved the most outstanding success in the various farming enterprises including corn, hay crops, tobacco, farm shop, beef cattle, dairy, hogs, poultry, and sheep. By the aid of the National F.F.A. Foundation we were able to include pasture improvement and home improvement this year. Most teachers in Kentucky would probably place this activity first among those carried on by the state association.

Many boys now talk in terms of producing a ton of tobacco or 100 bushels of corn to the acre. These awards are putting emphasis on good production, and we are learning one of the basic economic facts—that good production pays. The most significant development in supervised farming is just breaking upon us with the "Farmer-Training Programs for Veterans." We will be engaging for the first time in a full-time training program in farming. We have had high-school boys on about one-fourth-time training, young farmers about one-tenth-time, and adult farmers in about one-fifteenth-time training in vocational agriculture. Now we are coming face to face with men who are enrolling in vocational agriculture for full-time training. We have wondered what we could do if we had a chance to work with a man closely enough. Now we have the opportunity.

Each veteran must have a farming program that we approve and must make satisfactory progress with his program. Because he draws an income in addition to what he makes in farming, the economic pressure is not great on him, and he can afford to take some time to learn. We will have 75 percent of these veterans for more than three years.

The awarding of an F.F.A. letter to all boys meeting certain qualifications and making the required number of points has been a motivation to our chapter members.—McCook, Nebraska.

Each year our chapter conducts an F.F.A. spelling contest.—Crete, Nebr.

I used to think I knew I knew
But now I must confess
The more I know I know I know,
I know I know the less.

W. HOWARD MARTIN

Farmer Classes

J. N. WEISS

A Suggested Course Outline for Young Farmer Classes in Vocational Agriculture

E. W. GARRIS, Teacher Education, University of Florida

ACCORDING to the 1940 federal census, there are approximately 74,000,000 urban and 57,000,000 rural people in the United States. At the same time, the rural population has more children of school age (5 to 17 years) than the urban population. From the same source it can be found that 56.8 percent of the rural and 75.6 percent of the urban youth of the 16-17 age group were in school in 1940. It is an easy matter to determine that the rural youth in Florida leave our schools in large numbers before completing the high school. Society is confronted with this important problem.



E. W. Garriss

The Smith-Hughes Act of Congress provides for the teaching of farmers as well as boys who desire to become farmers. "... that such education shall be of less than college grade and be designed to meet the needs of persons who have entered upon or who are preparing to enter upon the work of the farm. . . ." In order to meet this legal requirement, based on a great educational and a great economic need, of providing instruction for people who have already entered the business of farming, two types of classes have been organized—part-time classes for out-of-school youth and evening classes for adult farmers.

Part-time classes, as a rule, are organized and taught for out-of-school farm boys. The ages for the students usually range from 14 to 25 years. Teachers of agriculture have found it best to enroll only single boys in part-time classes. Young married men are available for evening classes.

Florida Plans

According to the State Plans for Vocational Education in Florida, a part-time class in vocational agriculture must meet a minimum of 20 times of 90 minutes each, or 15 times of 2 hours each.

The Vocational Division of the U. S. Office of Education has ruled that part-time classes in vocational agriculture, like Section II of the Act for part-time classes for the trades, may include any subject, in addition to agriculture, that will enlarge the civic or vocational intelligence of the worker. This regulation permits the inclusion of practically any subject the teacher may decide is needed.

There are many results to expect from the teaching of a part-time class in voca-

tional agriculture. Teachers usually have three main objectives in mind:

- To teach needed skills and technical production facts
- To aid out-of-school youth to become established in farming
- To increase the civic and vocational intelligence of each class member.

The Course of Study in Agriculture

In order to meet the objective for needed skills and production facts, the teacher may proceed in the same way he does in organizing a course of study for all-day classes. After the class is organized he may determine what skills the boys need to learn, and what enterprises he needs to teach. Enterprises are analyzed into jobs similar to the outline for all-day boys. The dairy enterprise is analyzed here for an example.

Dairy Enterprise

- Determining how to make money out of the dairy business and how to finance it
- Selecting a dairy breed
- Selecting foundation animals
- Breeding dairy animals
- Feeding dairy cattle
- Controlling diseases and insects
- Planning and equipping the dairy barn and milkhouse
- Managing the dairy herd
- Fitting and showing animals
- Milking cows
- Preparing milk and milk products for the market
- Marketing milk products
- Keeping dairy records

The teacher selects only one or two enterprises for the course of study, correlating farm-shop skills with the farm enterprises. The supervised farming program for each boy should follow the course of study, or, in other words, the enterprises taught should be the ones included in the supervised farming programs.

To meet the objective of helping boys to become established in farming, the teacher will need to include many management jobs and a minimum of production jobs and skills. The following suggested outline contains far more jobs than can be used for any given class. The teacher may want to continue the class for several years. At any rate, he will have to make his own selection for the first year.

Suggested Jobs

- Securing a farm (buying or renting)
- Securing farm equipment and supplies
- Balancing a farm business

- Financing the farm business
- Understanding the legal phases of notes, leases, liens, contracts, mortgages, rental agreements, etc.
- Conserving the resources of the farm
- Producing and marketing cash enterprises
- Producing, conserving, and storing food enterprises
- Producing, conserving, and storing feed enterprises
- Hiring and managing farm labor
- Using various types of insurance on the farm
- Laying out the farmstead
- Landscaping the home grounds
- Planning and constructing the farm home
- Planning and constructing farm and home conveniences
- Constructing, operating, and repairing farm machinery
- Marketing farm products
- Keeping cost-account records on the farm

In teaching the jobs to establish boys in farming the teacher will need to use the classroom, the farm shop, and the community. For example, probably the best way to teach cooperation of farmers is to give the young men some active participation. They may learn this lesson by:

- Purchasing farm equipment and supplies on a cooperative basis
 - Farm machinery
 - Purebred animals
 - Feed for livestock
 - Commercial fertilizers
 - Farm seeds or plants
 - Fencing or building materials
 - Insurance
 - Many others
- Marketing farm products cooperatively
 - Livestock sales (auctions)
 - Cooperative associations for marketing vegetables, fruits, etc.
- Organizing and maintaining a cooperative association for:
 - Purebred livestock sires
 - The control of insects or diseases
 - The use of expensive farm machinery such as tractors, feed mills, sawmills, mowing machines, etc.

Related Subjects

To meet the third objective the teacher may include units in many related subjects. As a general rule, 25 to 50 percent of the teaching time can be profitably used for related subjects. The teacher of agriculture will have to be able to determine the most important problems for his specific group and select units from the following suggestions:

- Citizenship
 - Understanding the duties and qualifications of national, state, and local officials
 - Making, enforcing, and obeying laws
 - Levying, collecting, and spending taxes
 - Registering and voting
 - Understanding the duties of a citizen in a democratic society
 - Participating in community institutional activities of schools, churches, service clubs, fraternal organizations,

- farm organizations, etc.
- B. Mathematics**
1. Measuring the area of a field
 2. Computing a ration for livestock
 3. Computing fertilizer materials for a given formula
 4. Measuring the cubic capacity of a barn or a tank
 5. Computing interest on money
 6. Computing materials needed for a given farm building
 7. Production records on a farm
 8. Running terrace lines or drainage ditches
 9. Leveling a building
 10. Computing the cost of marketing farm products

- C. English**
1. Writing a business letter, a check, a telegram, a receipt, and an advertisement
 2. Speaking before a group of people
 3. Developing reading and spelling skills
 4. Conducting a meeting according to parliamentary procedure
 5. Selecting and using reading materials and reference books

- D. Health**
1. Providing the proper nutritional program
 2. Controlling contagious diseases
 3. Giving first-aid treatments
 4. Providing for community control of malaria, hookworm, etc.
 5. Maintaining a county health unit
 6. Participating in a recreational program
 7. Providing for regular medical and dental inspection
 8. Providing for a safe water supply and a proper sewage disposal system

- E. Related Science**
1. Using the principles of inheritance in a livestock breeding program
 2. Understanding the principles of centrifugal force used for a cream separator
 3. Understanding the structure and life history of insects
 4. Pollinating plants on the farm
 5. Correcting the pH of soils
 6. Feeding animals according to their biological requirements
 7. Understanding the chemistry of soils, fertilizers, feeds, and spray materials
 8. Understanding the science principles of plant pathology in order to control plant diseases
 9. Using the knowledge of bacteriology in producing milk, and in conserving foods
 10. Understanding the principles of physics in the construction and operation of farm machinery

- F. Social Customs**
1. Acting as an escort
 2. Introducing people to other individuals
 3. Extending or accepting social invitations
 4. Dressing for various social functions
 5. Making dates
 6. Understanding customs relating to engagements and to marriages
 7. Using table etiquette
 8. Understanding the responsibilities and customs for each member of a family

Teacher-Trainers

(Continued from page 54)

- sional and Subject Matter)
1. To evaluate, make adaptations, and distribute teaching aids compiled by other states and agencies.
 2. To assist college subject matter staff members and other agencies in developing new aids for teachers.
 3. To compile and distribute new aids for teachers.
 4. To revise and keep teaching aids up to date.
- H. Administrative**
1. To administer college departments of agricultural education.

2. To make annual reports to the state department of education and the U. S. Office of Education.
3. To prepare annual budgets for the state office and the college.
4. To prepare annual programs of work.
5. To assist the state supervisor in making recommendations on amendments to the state plan as it affects agricultural teacher-training.
6. To assist the state supervisor in planning annual state programs of work.

Many states thru staff meetings developing a yearly program of work, outlining the month-by-month duties and responsibilities for each member. This makes for efficiency and permits more satisfactory long-time planning by each person to complete or achieve assigned activities. This list of responsibilities should aid state staffs in developing yearly programs of work, as well as provide an over view of what is expected of a teacher-trainer. Furthermore it should be helpful in assisting the staff to have a better understanding of the duties and responsibilities in connection with the job of a teacher-trainer in vocational agriculture.

Materials and Methods

(Continued from page 43)

a unit on feeding the sow and litter, a teacher assembles materials involving objectives, anticipated problems, activities, references, approved practices to be taught, teaching aids, evaluative devices, etc. When it comes time to teach this unit to a given group of students, this accumulation of materials provides suggestions from which the teacher may make selections appropriate for the group at hand.

Checking Teaching Aids

In preparing for the year ahead, every teacher should recheck reference books, bulletins, films, charts, equipment, and other teaching aids. New materials should be ordered as needed and as finances permit, bulletin files and reference shelves should be reorganized, new charts should be made, specimens should be collected, and in other ways the facilities should be put in the best possible shape for the year ahead.

Planning for Individual Differences

One special challenge to every teacher as he plans for the year ahead is that of giving proper attention to individual differences which most surely occur among his students. A recent study by the writer indicates that some students at the close of their first year of vocational agriculture are as far advanced in understandings and problem-solving ability as some outgoing seniors. In vocational agriculture, methods should be planned which will provide effectively for these wide differences. George P. Deyoe, Michigan State College

The Kansas City Municipal Auditorium was used as official headquarters and housing for the F.F.A. national convention for the first time in 1937.

Eighteen states sent delegates to the First National F.F.A. Convention in 1928. The national organization of F.F.A. closed its first fiscal year \$118 in debt.

Our Leadership

AMONG the new supervisors in the Western Region is R. L. Morgan of Washington, who succeeded the late J. A. Guiteau on January 1, 1946.

After serving in the Army Air Corps during World War I, Mr. Morgan completed work for his degree at Oregon State College. From 1920 to 1927 he taught vocational agriculture in that state, and also received experience as a school superintendent. He has worked continuously in the field of supervision since becoming a member of the state supervisory staff in October, 1937.



R. L. Morgan

H. E. WOOD is another of the new state supervisors, but he, too, is no stranger in agricultural education. Mr. Wood served as assistant state supervisor in agricultural education from 1929 to 1933 and from this position transferred to the University of Florida as itinerant teacher-trainer, a position he held until entering the Navy in 1942.



H. E. Wood

Mr. Wood was graduated from the University of Florida in 1917 and received his master's degree from that University in 1930. After serving 16 months in the navy during World War I, he farmed until 1924 and then entered the teaching profession. In 1927 he was designated Master Teacher of Florida, and in 1927 he became associated with the University of Florida in the capacity of critic teacher.

THE third of the new supervisors being introduced this month is D. C. Lavergne of Louisiana, who has been a member of the state staff since 1941, and who took over the duties as Supervisor in February, 1945.

Mr. Lavergne graduated from Louisiana State University in 1937 and received the master's degree from this University in 1941. Before becoming a member of state staff, Mr. Lavergne taught vocational agriculture at Bogalusa, Louisiana in 1937-38, and thereafter directed the program of agricultural education in this school for two years. His work in the state office prior to 1945 included responsibilities incident to the war-training program from 1941 thru 1944, and the position as assistant state supervisor during 1944-45.



D. C. Lavergne

OFFICE OF EDUCATION, WASHINGTON, D. C.

John W. Studebaker—U. S. Commissioner of Education
R. W. Gregory—Ass't Commissioner for Vocational Education
W. T. Spanton—Chief, Agricultural Education

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H. B. Swanson—Teacher-Training R. E. Naugher—Part-time and Evening
A. H. Hollenberg—Farm Mechanics

—directors
s—supervisors as—assistant supervisors rs—regional supervisors
ds—district supervisors t—teacher-trainers it—Itinerant teacher-trainers
rt—research workers sms—subject matter specialists nt—negro teacher-trainers

ALABAMA

d—R. E. Cammack, Montgomery
s—J. C. Cannon, Montgomery
as—H. F. Gibson, Auburn
as—T. L. Faulkner, Auburn
as—R. W. Montgomery, Auburn
ds—H. R. Culver, Auburn
ds—L. L. Sellers, Auburn
t—S. L. Chesnut, Auburn
t—D. N. Bottoms, Auburn
sms—C. C. Scarborough, Auburn
nt—Arthur Floyd, Tuskegee Institute
nt—F. T. McQueen, Tuskegee Institute

ARIZONA

d—E. D. Ring, Phoenix
s—J. R. Callison, Tucson
t—R. W. Cline, Tucson

ARKANSAS

d—J. M. Adams, Little Rock
s—C. R. Wilkey, Little Rock
as—S. D. Mitchell, Little Rock
ds—T. A. White, Monticello
ds—O. J. Seymour, Arkadelphia
ds—J. A. Niven, Russellville
t—Roy W. Roberts, Fayetteville
t—LaVan Shoptaw, Fayetteville
nt—J. C. McAdams, Pine Bluff

CALIFORNIA

d—Julian A. McPhee, Sacramento
s—B. J. McMahon, San Luis Obispo
as—Weir Fetters, San Luis Obispo
rs—E. W. Everett, San Jose
rs—B. R. Denbigh, Los Angeles
rs—Howard F. Chappell, Sacramento
rs—A. G. Rinn, Fresno
rs—Harold O. Wilson, Los Angeles
rs—H. H. Birmingham, Chico
t—S. Sutherland, Davis
sms—Geo. P. Couper, San Luis Obispo
sms—J. T. Thompson, San Luis Obispo

COLORADO

d—E. C. Comstock, Denver
s—A. R. Bunker, Denver
t—R. W. Canada, Ft. Collins

CONNECTICUT

d—Emmett O'Brien
s—R. L. Hahn, Hartford
t—C. B. Gentry, Storrs

DELAWARE

d—R. W. Heim, Newark
s—W. L. Mowlds

FLORIDA

d—Colin English, Tallahassee
s—Harry Wood, Tallahassee
t—E. W. Garris, Gainesville
it—W. T. Lofton, Gainesville
it—J. G. Smith, Gainesville
nt—L. A. Marshall, Tallahassee
nt—G. W. Conoly, Tallahassee

GEORGIA

d—M. D. Mobley, Atlanta
s—T. G. Walters, Atlanta
as—George I. Martin, Tifton
as—C. M. Reed, Carrollton
as—J. N. Baker, Swainsboro
as—J. H. Mitchell, Athens
t—John T. Wheeler, Athens
t—R. H. Tolbert, Athens
sms—A. O. Duncan, Athens
nt—Alva Tabor, Fort Valley
nt—Benj. Anderson, Fort Valley

HAWAII

d—W. W. Beers, Honolulu, T. H.
s—Warren Gibson, Honolulu, T. H.
t—F. E. Armstrong, Honolulu, T. H.

IDAHO

d—William Kerr, Boise
s—Stanley S. Richardson, Boise
as—Elmer D. Belnap, Idaho Falls
t—H. E. Lattig, Moscow
t—H. A. Winner, Moscow

ILLINOIS

d—Ernest J. Simon, Springfield
s—J. E. Hill, Springfield
as—A. J. Adams, Springfield
as—H. M. Strubinger, Springfield
as—P. W. Proctor, Springfield
t—H. M. Hamlin, Urbana
t—J. N. Weiss, Urbana
t—Melvin Henderson, Urbana
t—H. J. Rucker, Urbana

INDIANA

d—Clement T. Malan, Indianapolis
s—Harry F. Ainsworth, Indianapolis
t—B. C. Lawson, Lafayette
rt—S. S. Cromer, Lafayette
it—K. W. Kiltz, Lafayette
it—H. W. Leonard, Lafayette
it—H. B. Taylor, Lafayette
it—E. E. Clavin, Lafayette
it—I. G. Morrison

IOWA

d—L. H. Wood, Des Moines
s—H. T. Hall, Des Moines
as—D. L. Kinschi
t—Barton Morgan, Ames
t—John B. McClelland, Ames
t—J. A. Starrak, Ames
t—T. E. Sexauer, Ames

KANSAS

d—C. M. Miller, Topeka
s—L. B. Pollom, Topeka
t—A. P. Davidson, Manhattan
it—L. F. Hall, Manhattan

KENTUCKY

d—Watson Armstrong, Frankfort
s—E. P. Hilton, Frankfort
t—Carsie Hammonds, Lexington
t—W. R. Tabb, Lexington
nt—P. J. Manly, Frankfort

LOUISIANA

d—John E. Coxo, Baton Rouge
s—D. C. Lavergne, Act., Baton Rouge
t—A. Lariviere, Lafayette
as—J. J. Arreneaux, Baton Rouge
as—C. P. McVea, Baton Rouge
as—C. L. Mondart, Baton Rouge
t—Roy L. Davenport, University
t—J. C. Floyd, University
nt—M. J. Clark, Scotlandville
nt—D. B. Matthews, Scotlandville

MAINE

s—Herbert S. Hill, Orono
ast—Wallace H. Elliott, Orono

MARYLAND

d—John J. Seidel, Baltimore
s—H. F. Cotterman, College Park
nt—J. A. Oliver, Princess Anne

MASSACHUSETTS

d—M. Norcross Stratton, Boston
s—John G. Galvin, Boston
t—Jessie A. Taft, Amherst

MICHIGAN

d—E. B. Elliott, Lansing
s—Harry E. Nesman, Lansing
s—Luke H. Kelley, Lansing
s—Raymond M. Clark, Lansing
t—H. M. Byram, East Lansing
t—G. P. Deyoe, East Lansing
t—G. C. Cook, East Lansing

MINNESOTA

d—Harry C. Schmid, St. Paul
s—Carl F. Albrecht, St. Paul
t—A. M. Field, St. Paul

MISSISSIPPI

d—H. E. Mauldin, Jr., Jackson
s—A. P. Fatherree, Jackson
as—R. H. Fiskerly, Jackson
ds—E. E. Gross, Hattiesburg
ds—E. E. Holmes, Oxford
ds—V. P. Winstead, State College
t—V. G. Martin, State College
t—N. E. Wilson, State College

—D. W. Skelton, State College
sms—A. F. Strain, State College
nt—A. D. Fobbs, Alcorn

MISSOURI

d—Roy Seantlin, Jefferson City
s—J. H. Foard, Jefferson City
ds—Joe Duck, Springfield
ds—C. V. Roderick, Jefferson City
ds—J. A. Bailey
t—G. F. Ekstrum, Columbia

MONTANA

d—Ralph Kenek, Bozeman
s—A. W. Johnson, Bozeman
s—H. E. Rodeberg, Bozeman
t—R. H. Palmer, Bozeman

NEBRASKA

d—G. F. Liebendorfer, Lincoln
s—J. D. Clements, Lincoln
as—E. W. Deems, Lincoln
t—H. E. Bradford, Lincoln
t—C. C. Minter, Lincoln

NEVADA

s—Lloyd Dowler, Carson City

NEW HAMPSHIRE

d—Walter M. May, Concord
s—Earl H. Little, Concord

NEW JERSEY

d—John A. McCarthy, Trenton
s—H. O. Sampson, New Brunswick
s—E. V. Bearer, New Brunswick
as—O. E. Kiser, New Brunswick

NEW MEXICO

ds—Frank E. Wimberly, State College
as—L. C. Dalton, State College
t—Carl G. Howard, State College
t—H. M. Gardner, State College

NEW YORK

d—Oakley Furney, Albany
s—A. K. Getman, Albany
s—W. J. Weaver, Albany
as—R. C. S. Sutliff, Albany
as—J. W. Hatch, Buffalo
t—R. M. Stewart, Ithaca
t—E. R. Hoskins, Ithaca
t—W. A. Smith, Ithaca
t—Roy A. Olney, Ithaca

NORTH CAROLINA

d—T. E. Browne, Raleigh
s—Roy H. Thomas, Raleigh
as—R. J. Peeler, Raleigh
ds—E. N. Meekins, Raleigh
ds—J. M. Osteen, Rockingham
ds—T. H. Stafford, Asheville
ds—T. B. Elliott, Woodland
t—Leon E. Cook, Raleigh
t—L. O. Armstrong, Raleigh
t—J. K. Coggin, Raleigh
nt—G. B. Simmons, Greensboro
nt—C. E. Dean, Greensboro
nt—W. T. Johnson, Greensboro

NORTH DAKOTA

d—A. F. Arnason, Grand Forks
s—Ernest L. DeAlton, Fargo
t—Shubel D. Owen, Fargo

OHIO

d—J. R. Strobel, Columbus
s—Ralph A. Howard, Columbus
ds—W. G. Weiler, Columbus
ds—E. O. Bolender, Columbus
ds—H. G. Kenestrick, Columbus
ds—F. J. Ruble, Columbus
t—W. F. Stewart, Columbus
it—ds—C. E. Rhoad, Columbus
t—A. C. Kennedy, Columbus
rt—Ray Fife, Columbus

OKLAHOMA

ds—J. B. Perky, Stillwater
as—Bonnie Nicholson, Stillwater
ds—W. R. Felton, Stillwater
ds—S. M. Cromoe, Stillwater
ds—Byrd Killian, Stillwater
t—C. L. Angerer, Stillwater
t—Don M. Orr, Stillwater
t—Chris White, Stillwater
nt—D. C. Jones, Langston

OREGON

d—O. I. Paulson, Salem
s—Ralph L. Morgan, Salem
as—M. C. Buchanan, Salem
t—H. H. Gibson, Corvallis

PENNSYLVANIA

d—Paul L. Cressman, Harrisburg
s—H. C. Fetterolf, Harrisburg
s—V. A. Martin, Harrisburg
t—Henry S. Brunner, State College
t—William F. Hall, State College
it—Russell B. Dickerson, State College
t—C. S. Anderson, State College

PUERTO RICO

d—Lloyd A. LeZotte, San Juan
s—Nicholas Mendez, San Juan
as—Samuel Molinary, San Juan
ds—Fredericko A. Rodriguez, San Juan
ds—Juan Acosta Henriquez, Arecibo
ds—Juan Robles, Cayey
ds—Andres Ramirez, Mayaguez
t—Lorenzo G. Hernandez, Mayaguez

RHODE ISLAND

ds—George H. Baldwin, Providence
t—Everett L. Austin, Providence

SOUTH CAROLINA

d—Yerd Peterson, Columbia
as—W. C. James, Columbia
ds—W. M. Mahoney, Honea Path
ds—R. D. Anderson, Walterboro
ds—J. H. Yon, Loris
t—W. G. Crandall, Clemson
t—B. H. Scribner, Clemson
t—J. B. Moore, Clemson
t—T. E. Duncan, Clemson
t—F. E. Kirkley, Clemson
nt—Gabe Buckman, Orangeburg
nt—J. P. Burgess, Orangeburg

SOUTH DAKOTA

d—J. F. Fines, Pierre
s—H. E. Urton, Pierre
t—C. R. Wiseman, Brookings
t—Stanley Sundet, Brookings

TENNESSEE

ds—G. E. Freeman, Nashville
as—J. W. Brimm, Nashville
ds—H. N. Parks, Gallatin
ds—L. A. Carpenter, Knoxville
ds—Ben Douglas, Jackson
t—N. E. Fitzgerald, Knoxville
t—J. B. Kirkland, Knoxville
rt—A. J. Paulus, Knoxville
rt—E. B. Knight, Knoxville
nt—W. A. Flowers, Nashville

TEXAS

d—W. E. Lowry, Austin
s—Robert A. Manire, Austin
s—R. Lano Barron, Austin
as—George H. Hurt, Austin
ds—B. C. Davis, Austin
ds—O. T. Ryan, Lubbock
ds—C. B. Barclay, Commerce
ds—C. D. Parker, Kingsville
ds—W. E. Williams, Alpine
ds—L. V. Halbrooks, College Station
ds—J. B. Payne, Stephenville
ds—J. A. Samuel, Arlington
ds—J. A. Marshall, Nacogdoches
ds—Thomas R. Rhodes, Huntsville
t—E. R. Alexander, College Station
t—Henry Ross, College Station
t—E. W. Walton, College Station
t—J. L. Moses, Huntsville
t—Ray L. Chappelle, Lubbock
t—S. V. Burks, Kingsville
sms—W. R. Sherrill, College Station
it—G. H. Morrison, Huntsville
it—J. C. Brown, Kingsville
nt—O. J. Thomas, Prairie View
nt—W. D. Thompson, Prairie View
nt—Paul L. Rutledge, Palestine
nt—Gus Jones, Caldwell
nt—E. F. Collins, Texarkana
nt—S. E. Palmer, Tyler
nas—W. M. Collins, Prairie View
nt—Oliver Saberry, Prairie View

UTAH

d—E. Allen Bateman, Salt Lake City
s—Mark Nichols, Salt Lake City
as—Elvin Downs, Ephraim
t—L. R. Humpherys, Logan

VERMONT

d—John E. Nelson, Montpelier
s—W. Howard Martin, Montpelier
t—C. D. Watson, Burlington

VIRGINIA

d—Dabney S. Lancaster, Richmond
s—F. B. Cale, Richmond
as—R. E. Bass, Richmond
ds—T. V. Downing, Ivor
ds—J. O. Hoge, Blacksburg
ds—W. R. Legge, Winchester
ds—W. C. Dudley, Fowhatan
ds—W. C. Dudley
t—Harry W. Sanders, Blacksburg
t—E. Y. Nolin, Blacksburg
t—C. E. Richards, Blacksburg
nt—G. W. Owens, Ettrick
nt—J. R. Thomas, Ettrick
nt—A. J. Miller, Ettrick

WASHINGTON

d—H. G. Halstead, Olympia
s—Bert L. Brown, Pullman
as—E. M. Webb, Pullman
as—H. M. Olson, Pullman

WEST VIRGINIA

ds—John M. Lowe, Charleston
as—H. N. Hansucker, Charleston
t—D. W. Parsons, Morgantown
t—M. C. Gaar, Morgantown
t—A. D. Longhouse, Morgantown

WISCONSIN

d—C. L. Greiber, Madison
s—Louis M. Samsan, Madison
t—J. A. James, Madison
it—Ivan Fay, Madison
it—Clarence Bonsack, Madison
t—V. F. Nylin, Platteville
t—J. M. May, River Falls

WYOMING

d—Sam Hitchcock, Cheyenne
s—Jack Ruch, Cheyenne