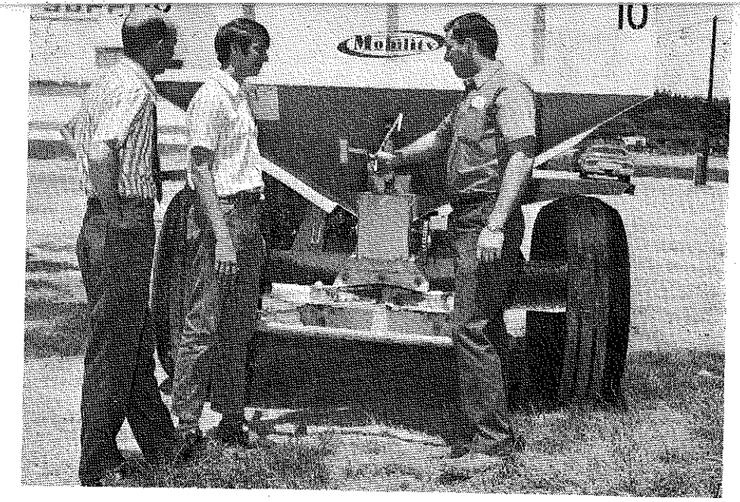
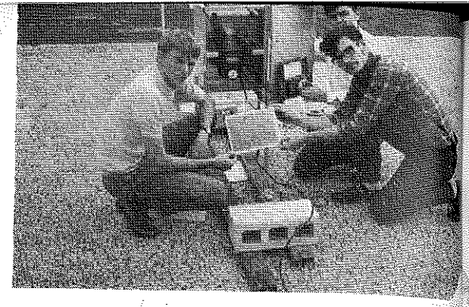
AGRICULTURAL EDUCATION

Agricultural Education

lume 45 October, 1972 Number 4



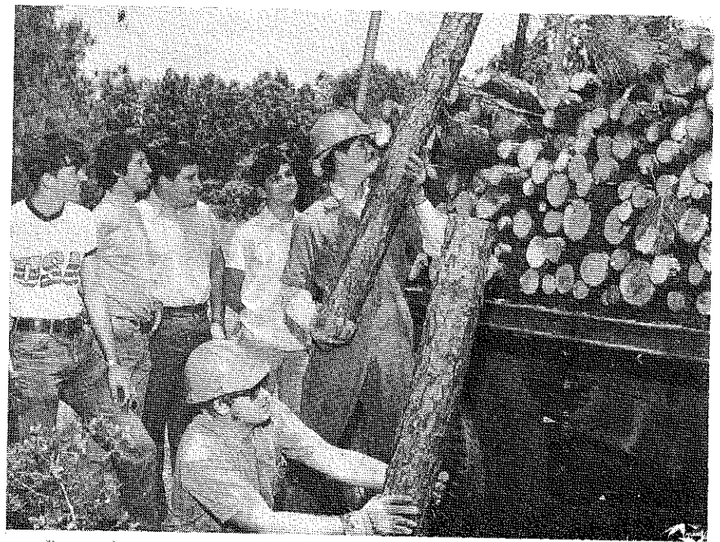


Jim Chester, Mark Hall and George Johnson remove an air filter from a high volume air sampler. The filter is then dried and weighed to tell the total amount of suspended particulate material in the air. This test is run for 24 hours and taken every 4 days. (Photo by Gary Bambauer, Instructor, Environmental Science, Joint Vocational School, Montgomery County, Clayton, Ohio)

Harold S. Clinkscales, left, Vo Ag teacher Crescent High, South Carolina, observes junior David Simpson and employer Eddie Brown, manager of Cyanamid Farm Supply. Mr. Clinkscales is helping David obtain supervised work experience and employment during the summer with an agricultural business firm. (Photo by J. Alex Hash, Associate Professor of Agricultural Education, Clemson University)

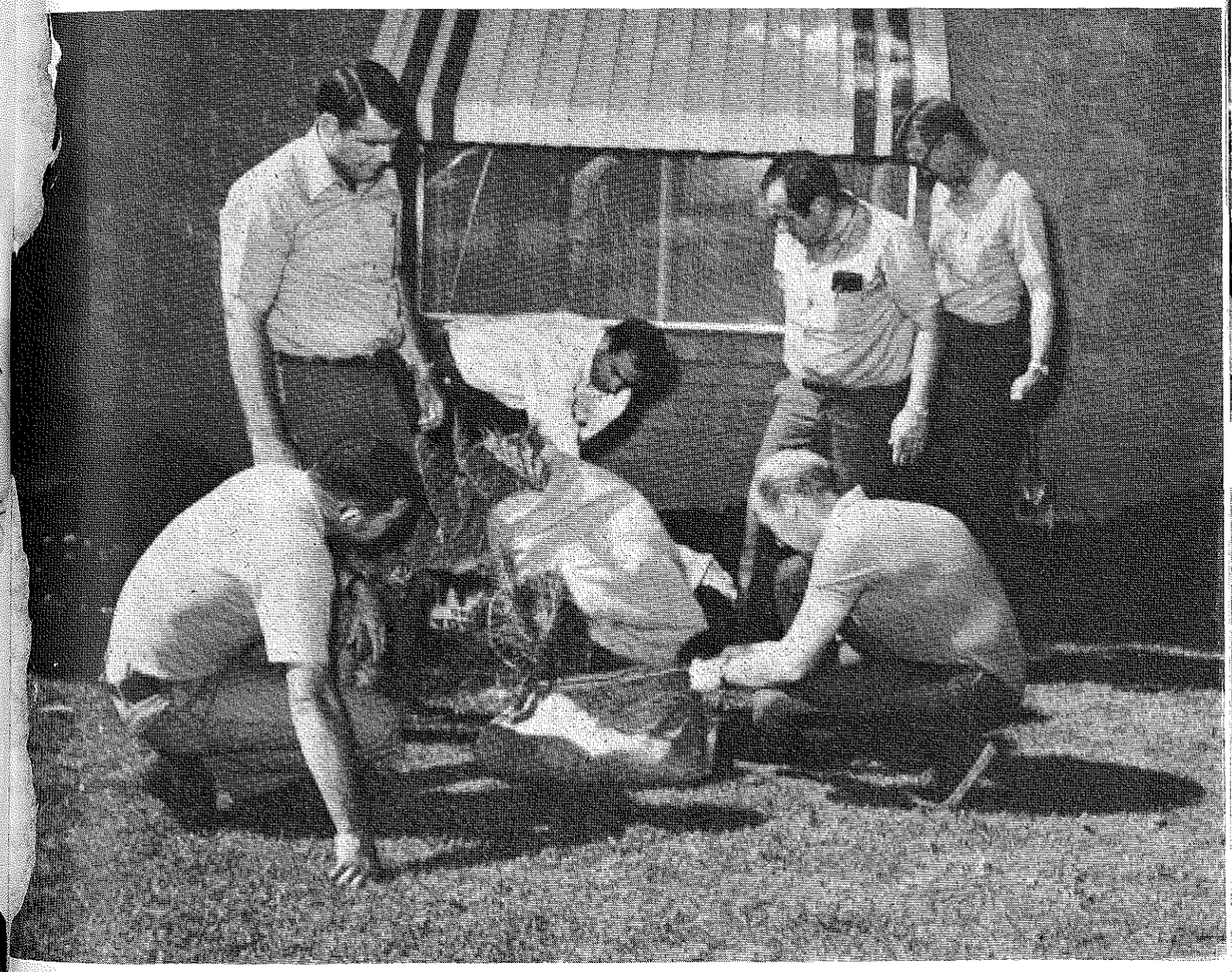
Stories in Pictures

by Richard Douglass



Prospective forestry students at Crescent High, South Carolina, observe a demonstration by two seniors on harvesting pulpwood from the FFA Chapter Forestry Laboratory. Since these students are considering taking the forestry course next year, they are learning all they can about the program beforehand. (Photo by J. Alex Hash, Associate Professor of Agricultural Education, Clemson University)

Vo Ag teacher Sam Clarr, McDuffie High, South Carolina, gives prospective sophomore enrollees a guided tour and orientation to the ornamental horticulture program at the school. These students will soon be making out their class schedules for next year. (Photo by J. Alex Hash, Associate Professor of Agricultural Education, Clemson University)



ARE YOU OBTAINING NEW "HANDS ON" EXPERIENCES?

Theme— IN-SERVICE EDUCATI

The
Agricultural Education
Magazine

EDPRESS Vol. 45 October, 1972 No. 4

TABLE OF CONTENTS

This publication is the monthly professional journal of agricultural education. The journal is published by THE AGRICULTURAL EDUCATION MAGAZINE, INC., and is printed at the Lawhead Press, Inc., 900 East State Street, Athens, Ohio 45701.

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Send articles and pictures to the Editor or to the appropriate Special Editor.

COVER PHOTO:
Utah Vocational Agricultural teachers attended a Curriculum Articulated Workshop for Ornamental Horticulture Services. Dr. Richard F. Stinson (center foreground) Pennsylvania State University, acted as Consultant.

Editorials

From Your Editor . . . THE LEAD MAN FOR IN-SERVICE EDUCATION


Roy D. Dillon

Do you have a tendency to wait and see what the other fellow will do before you decide what form of in-service activity you will participate in? Do you let someone else decide which in-service activities will be offered? Has it been three or more years since you participated in a structured in-service program? If such is the case, you are probably not keeping in time with the teaching procedures and technical competencies needed to conduct an up-to-date vocational program. These three questions are highly important for the vocational teacher, because we owe to each student the best qualifications we can muster, to prepare him for the world of work.

A sensitivity to up-to-date production farm or ranch and agri-business operational problems will enable the **local teacher** to relate more easily to the farmer, rancher, agribusinessman, and to students.

Teacher Educators must be sensitive to the in-service needs of teachers. Whatever combination of procedures is used for providing in-service activities, the teacher education staff should identify the needs so that necessary resources can be mobilized to meet that need.

At still another operating point, **State Department of Education staffs** feel the pulse of the local teacher in his instructional setting, and can advise him concerning in-service needs.

Most state laws require that teachers devote a certain number of days to in-service activities during the school year. This time can be profitable if devoted to work planned by those participating.

Who is the lead man for in-service education? It is the agriculture teacher, who asks himself, "What in-service need do I have?" and then communicates personally and through the channels set up in his State, to State staff and to teacher educators; it is also the teacher-educator, who systematically surveys the teacher clientele in order to plan the type of program to best satisfy the teacher's needs; it is the State staff, who not only help the teacher solve problems in the local setting, but also communicates the teacher's felt needs to teacher-educators for conversion into in-service activities.

In summary, if all three forces are in constructive action, positive efforts **will** be brought forth, a high percentage of teachers **will** be involved, and local programs will benefit. Examine each of the three forces in your state; is each playing an active role as we have described? If not, how do you mobilize to get teachers involved?—RDD

Guest Editorial . . . A REALISTIC APPROACH TO IN-SERVICE TRAINING


Ralph C. Dobbs

Ralph C. Dobbs
Associate Professor
Director of Adult Education Fellowship Program
University of Missouri, Columbia

and

Donald M. Rogers
Vocational Agriculture Instructor
Princeton, Missouri


Donald M. Rogers

A new concept in continuing education has led to the development of new techniques which are highly appropriate for contemporary vocational teachers. As professional educators, few of us have received formal training for careers in adult education. Typically, adult educators are recruited from another discipline. They frequently are employed because of a particular subject matter competence. Further, most teachers of adults are engaged only part-time in adult education. Skills and competence of instructing adults have been developed largely by individual effort while on the job.

With the above background in mind, an in-service course in participation training has been developed in Missouri to help meet the needs of many adult educators. The graduate level class is offered by the University of Missouri at Columbia and is designed for those who work with post high school and/or adult education programs.

PARTICIPATION TRAINING: A WORKING DEFINITION

Participation training can best be described as an educational means for helping persons help themselves. They learn how to learn by participating in a series of learning experiences, by examining their participation as they proceed, and by helping to improve the learning situation.

(Continued on next page)

Through participation experiences, members of the class learn educational skills and concepts, needed for effective young and adult farmer education.

Members of the group learn to help plan and take part in, a series of small-group discussions dealing with topics determined by the participants. They learn how their participation affects others, what some needs and problems of the group are and how to deal with them. Trainees learn to develop disciplined freedom of expression and how to help others within a group-learning situation. Through experience, members of the class learn group educational skills and concepts such as; goal setting, interpersonal communication, evaluation, concensus, disciplined observing, focusing of topics, discovering and meeting educational needs and leadership skills.

TRAINING ROLES EXPLORED

In Missouri, participants in the training program serve in each of six roles. This procedure offers sound educational experiences concerning each role. The roles and their functions include:

Discussion leader — A participant who volunteers to accept the primary responsibility for helping the participants work together effectively as they discuss their mutual goals.

Recorder — One who keeps a record of developing discussion on a chalkboard, newsprint, or some similar form.

Observer — A participant who watches how the group operates as a discussion team and to report his observations when called upon.

Group participants—Persons who discuss the topic and for whom the discussion exists.

Trainer—A specially trained person who helps the volunteer discussion leaders become more effective in their roles. He searches for in-flight opportunities which will help the participants become more responsible group members.

Resource person—One having had special training and/or significant experience in the subject matter being discussed.

By experiencing the different roles, each participant can be trained to function in each of the six roles of a training group.

TYPICAL SESSION AGENDA

An agenda for a typical training session is outlined below. Time allotments for each item must be adapted by the trainer to meet the demands and needs of the situation.

The trainer's introduction of 5-10 minutes should establish a learning atmosphere by explaining the training purpose, group procedure, and conditions of effective participation. Group discussion should last 30-45 minutes, with the recorder, observer, and discussion leader assuming their roles, and with group participants conducting the discussion. The discussion topic and goals should center around the interests and objectives of the group as they explore conclusions to a realistic problem which cannot be answered with yes or no.

A verbal critique shared by all participants, is conducted immediately after each session ends to examine and appraise how well the group has worked together during the discussion experience. They use this period to identify and discuss obstacles encountered and the accomplishments of their teamwork and individual learning for the purpose of improving future learning experiences. Before concluding a session, the group plans its next session, including: a) topic to be discussed, b) tentative goal and outline, c) volunteer leader and observer, and d) available resources for next session.

PRINCIPLES INVOLVED

Groups of ten to fifteen participants are usually considered optimal in size. This number allows the group to be seated in a circular pattern around tables in the classroom —an arrangement in which all participants are in eye contact with each other.

Class meetings are held at a central point at outlying areas within the state where teachers reside within a 50-75 mile radius. Block sessions are planned where the group may meet 3-4 hours one evening or 8-12 contact hours of discussion and critique within a weekend. It has proven very successful to include the noon or evening meal as a part of the group interaction and learning process. The training experience must last long enough for participants to do some reflecting, to discover some of their needs and problems, and to develop sufficient freedom together to allow them to experience the desired learning.

APPLICATION TO AGRICULTURE

This type of in-service education has proven very successful and practical for many agricultural educators in Missouri. Many facets of participatory training are already in use by vocational teachers in adult education, although we may fail to recognize this method of instruction.

Many young and/or adult farmer class sessions are conducted by small group discussion techniques. Advisory committees, fair boards, faculty committees or special groups may accomplish much more with a person present who understands the fundamentals of group process and the interaction of ideas into concrete conclusions.

Such an in-service training program is certainly worthwhile. It is very adaptable to a variety of conditions. It provides a high interest level which is necessary to hold the adult learner. In a word, one can say **it is realistic and it works.** ◆◆◆

Bergevin, Paul, and McKinldy, John. *Participation Training for Adult Education.* The Bethany Press, St. Louis, Missouri.

Campbell, John R. *In Touch With Students, A Philosophy for Teachers.* Educational Affairs Publishers, P.O. Box 248, Columbia, Missouri.

Dobbs, Ralph C. *Adult Education In America—An Anthological Approach.* Litho Printers, Cassville, Missouri.

Themes For Future Issues

January — Career Education: Elementary Programs

February — Career Education: Junior High Programs

March — Career Education: Secondary Program Vision

April — Career Education: Youth Organizations as an Instructional Tool

May — Career Education: Supervised Agricultural Experience Programs

June — Career Education: The School's Responsibility For Placement and Followup

UPGRADING THROUGH IN-SERVICE EDUCATION

J. A. White
Vocational Agribusiness Teacher
Beauregard High School
Opelika, Alabama

J. A. White

It is my belief that in-service training is just as important to the teacher of agribusiness education as pre-service training, if not more so. I am a firm believer in pre-service education and I think every teacher should be fully accredited before he is employed to teach.

Regardless of how thorough the pre-service curriculum may have been before the degree was awarded, after a few years of experience, a teacher finds himself lacking in one or more areas of instruction. It is impossible for a teacher to remain proficient — this is something he must constantly work toward. Technology changes so rapidly that the agribusiness education teacher finds that he must regularly secure additional instruction if he is to properly serve those with whom he works. It is no shame to be ignorant in an area of instruction — it is shameful to remain ignorant when instruction is available. **How, then, can a teacher upgrade himself in a particular instructional area?**

Events Sponsored by the State

1. *Working toward a higher degree:*

It is not possible for the undergraduate to enroll in all of the courses that would help him when he becomes a teacher. Oftentimes a student just cannot schedule courses that he knows he will need once he is on the job. This point alone justifies pursuit of courses that will lead to a higher degree.

Changing technology changes course offerings in our teacher-training institutions. After a teacher has been out of college for several years, he will find beneficial course offerings that were not available to him several years ago.

I believe every agribusiness teacher should have enough courses in school administration to help him understand the complex problems with which his principal, superintendent, and board of education are confronted. Some of these courses should be included in the Masters Degree study, although much of the work should be done in agricultural and technical areas.

Monetary reward is another reason why a teacher should earn a Masters Degree, if possible. Most school systems offer generous salary increases to those who earn higher degrees. Many systems offer substantial opportunity for the agribusiness teacher to acquire the Masters Degree over a period of years while he is fully employed. This should be justified by better teaching as the degree is acquired.

2. *Short Courses:*

In Alabama a teacher may schedule one or more short courses which are sponsored by the state each summer. These offerings are made after surveying teacher interests. Every teacher is encouraged to attend at least one workshop each year. Some courses may be taught at a university and graduate credit may be received upon completion of certain courses. College credit is not offered on most courses.

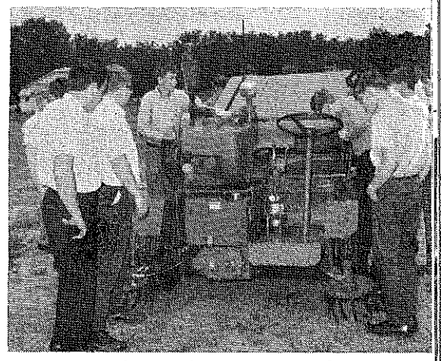
This area of instruction has proven to be very popular with Alabama teachers over the years. A few of the courses that have been taught are: arc welding, gas welding, repair of small gasoline engines, electricity, maintenance of shop equipment, weed control, beef cattle management, landscaping, greenhouse management, sheet metal, power mechanics, and concrete masonry.

3. *Area Meetings:*

Another possibility for instruction is through area meetings where teachers in several counties meet with the district supervisor, who plans the program. Specialists on various subjects may be brought in. However, time is the limiting factor because these meetings are held afternoon while school is in session.

Events Sponsored by the Local School System

1. *Meetings scheduled by the local administration:*



Students and farmers inspect a pecan harvester. It was demonstrated on campus at Beauregard High School.

In-service training programs that are sponsored by the local school system can be beneficial and challenging to the agribusiness teacher. For this to be true, the teachers should be involved in planning the activities. In my county system, the agribusiness teachers plan our county in-service programs with the approval of the supervisor of instruction. We meet 1:00 to 4:00 p.m. four or five times each year. Some of the events in which we have participated locally are: soils judging, gas welding, arc welding, livestock judging, visit to cabinet shop, visit to trade school, visit to achievement center, visit to materials center, budding and grafting, and work on other problems that confront us from time to time. When practical, joint meetings are scheduled with teachers of home economics.

2. *Using specialists in the instructional programs:*

Another possibility for a teacher to achieve proficiency is to bring into his classroom, shop, or field those specialists who can instruct teacher and students at the same time. There are many who will gladly give their time to this type of instruction on a limited basis. Some of those we might use are bankers, lawyers, farm loan agents, foresters and farmers.

(Concluded on page 80)

Phillip R. Zurbrick

IN-SERVICE EDUCATION FOR THE BEGINNING TEACHER

Floyd G. McCormick

Phillip R. Zurbrick and Floyd G. McCormick
Department of Agricultural Education
The University of Arizona
Tucson

In-service education for teachers of agriculture takes many different forms and, in many instances, can be described as extremely flexible and widely diversified. This flexibility and variability in in-service education programs allows for wide extremes in subject matter; in duration; in location and in objectives. This sometimes leads critics to characterize our in-service education activities as "beating snakes"; in that we do "a little here and a little there" with minimal follow-up and little evidence of change.

While we, in Agricultural Education in Arizona, are guilty of these criticisms; the heart of our in-service program has been a "New Teacher Program." The New Teacher Program, formally initiated in 1968, has been successfully continued ever since. This program has received much praise from teachers, high school administrators and supervisory personnel.

The primary intent of the New Teacher Program is concerned with helping the beginning teacher adjust to a new job and assisting him to minimize the common pitfalls and difficulties encountered by many new teachers. Particular attention is paid to helping these teachers improve their planning ability in an attempt to strengthen the overall instructional program and teaching methods.

Rationale for the Program

The basic rationale for the New Teacher Program is the belief that the first two years that the vocational agriculture teacher is on the job, the successes and failures which he experiences will, to a great extent, influence whether or not that individual chooses to stay in the profession and also will determine the effectiveness of his instructional program. It is during this time, and especially during the first year on the job, that work patterns are formed and procedures are developed which tend to become habits and, for the most part, will stay with the teacher throughout his career.

The beginning teacher needs assistance during these formative years with his planning for instruction, the budgeting of his time, and constructive criticism directed toward the development of a strong total program of vocational agriculture. Right along with this kind of help he needs some encouragement and support when his enthusiasm and morale begin to weaken.

Program Design

Growing out of the above rationale and convictions, the New Teacher Program as utilized in Arizona is outlined below:

Basic Principles Seminar (1st Week in June)
Objective:
To develop skill in the use of the inductive mode of instruction in teaching basic principles of agricultural science.

Curriculum Planning Seminar (2days late in July)
Objectives:
1. To develop a comprehensive curriculum for the first year of instruction for all classes taught.
2. To develop daily teaching schedules for at least the first six weeks of instruction for all classes taught.

Staff Visits to New Teachers (September and October)
Objective: Individual consultation by teacher education staff personnel placing major emphasis upon:
1. Developing teaching plans.
2. Improving classroom and shop instruction.
3. Developing occupational experience programs.

Staff Visits to New Teachers (November and December)
Objective: Individual consultation by staff personnel in teacher education placing major emphasis upon:
1. Evaluating classroom and shop instruction.
2. Supervising occupational experience programs.
3. Utilizing Land/Livestock Laboratories.

Curriculum Planning Seminar (December)
Objectives:
1. To evaluate the curriculum accomplishments of the first semester.
2. To re-plan the second semester curriculum for all classes taught.
3. To develop daily teaching schedules for at least the first six weeks of second semester.
4. To prepare the departmental budget.

Staff Visits to New Teachers (March and April)
Objective: Individual consultation by teacher education staff personnel placing emphasis upon:
1. Improving and evaluating classroom and shop instruction.
2. Preparing departmental inventories.
3. Preparing a check list of activities for closing out the school year.

Summer Program Planning Seminar (May)
Objectives:
1. To evaluate the first year's experience and accomplishments.
2. To plan a comprehensive summer program of activities.
3. To formulate plans for professional improvement.

Seminar Content

The basic principles seminar provides a demonstration of inductive teaching and allows new teachers to practice this methodology. The instructional units dealing with "Profit Maximizing Principles" and "Agricultural Marketing Principles" are used during the seminar. One surprising by-product of this seminar is the amount of understanding of subject matter the teachers pick up. A very common comment is: "I learned more about economic principles this week than I picked up in four years at the University."

(Continued on next page)

The primary intent is to help the beginning teacher adjust to a new job.

Another remark made at the conclusion of this year's seminar was: "This workshop gave me a better understanding of economic principles as well as a better method of teaching them to high school students." Upon the conclusion of the seminar, teachers are provided copies of both inductive teaching units along with sets of transparency masters.

The curriculum planning seminar held in July is planned so that the new teacher has been on the job for at least three weeks and still has three or four weeks before classes start. At this time, the teacher realizes a **need** and is ready to get serious about planning his curriculum with the start of school approaching. They have had a chance to meet students, parents and to identify community and student needs. As the principles of curriculum development are reviewed, a common reaction of the student teacher is: "Why didn't we get this earlier?" While their undergraduate preparation included principles of curriculum development, here is another example of where instruction was not effective until such time as there was a need or concern on the part of the individual for that instruction. During this two-day session, each teacher develops a comprehensive curriculum plan for his classes for the entire year and also develops a daily teaching schedule for the first six weeks of school.

During the Christmas recess, a second curriculum planning seminar is held at which time an analysis is made of the curriculum accomplishments of the first semester and the curriculum for the second semester is replanned, along with the development of daily plans for the next six weeks. A form similar to the one shown in Tables 1 and 2 is used to analyze curriculum accomplishment during the first semester.

TABLE 1
Determining Percent Completion of First Semester's Curriculum

First Semester Curriculum	Class	Class	Class	Class
Number of Units Planned				
Number of Units Taught				
Percent Completion				

TABLE 2
Determining Emphasis Placed Upon Major Areas of Instruction During First Semester in Each Class

Class: First Semester Curriculum	Plant Science	Animal Science	Agri. Mech.	Leadership (FFA)	SOEP (Records)	Ag. Busi. Management
Number Units Planned						
Number Units Taught						
Percent Completion						

This analysis has proven to be very enlightening and beneficial for these beginning teachers. Generally, the teacher discovers that he has not taught as many units as he had planned; thus he must schedule more time for the units he plans to teach during the second semester. Also, Table 2 helps the teacher spot weaknesses in his instructional program. Teachers often discover that unconsciously they

Instruction is effective because it occurs at a time when there is a need or concern felt by the teacher.

have taught more units in one area (normally the area of their strength) than in other areas. One teacher commented that he felt that his supervised occupational experience program was weak. After he completed Table 2, it was obvious to him why it was weak; he had not provided sufficient instruction in this area.

On the Job Supervision

Approximately five to seven weeks into the school year, a staff member visits each new teacher on the job. Experience has shown that at about this time the beginning teacher hits a low ebb, can use some encouragement and is very receptive to suggestions. Particular attention is given to classroom and shop instruction and the development of occupational experience programs. Teacher reaction to this phase of the program has been one of gratitude. As one participant put it, "You always seem to come on the wrong days, but I enjoyed the visit and appreciated the suggestions, even though I didn't adopt all of them." A second staff visit is scheduled in November or December.

Second semester staff visits are normally made during March and April. Again, improving and evaluating classroom instruction are emphasized along with suggestions on techniques for taking the department inventory and closing out the school year.

The last activity in the New Teacher Program is a one-day summer program planning seminar. This session is held in May at which time an evaluation of the first year's experience and accomplishments is made. Each teacher also plans his summer program, in detail, at that time.

Benefits Derived

As soon as the teacher submits a completed and signed (by his school administrator) summer program to the State office, he is eligible to receive two semester units of graduate credit provided, of course, that he has participated in and completed all of the above assignments. This gives the new teacher a start on a graduate degree in agricultural education.

As indicated by comments of participating teachers, this program has been well accepted. To evaluate its effectiveness in keeping good teachers in the profession or in improving instruction is difficult to measure. We do know, however, that more than one high school administrator has hired a graduate of the University of Arizona as opposed to a teacher from some other institution because of the value he placed on the New Teacher Program. Probably the greatest beneficiary of the New Teacher Program has been the teacher education staff. By being able to visit former students on the job, the staff in agricultural education at the University of Arizona is able to keep abreast of the current problems encountered by teachers and to evaluate the department's products in action. This provides excellent feedback for evaluation and revision of our instructional program. We ask our graduates: "How can you provide relevant instruction for your students if you don't get out where the action is!" Shouldn't we in teacher education also follow this practice? ◆◆◆

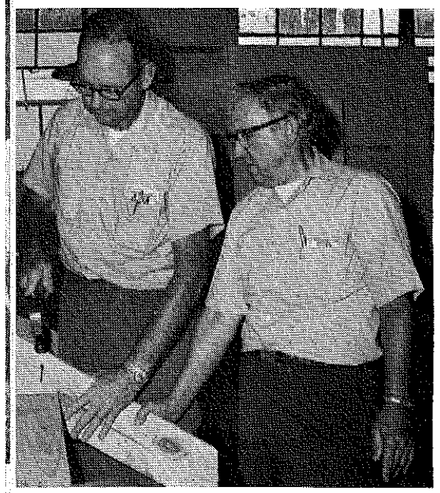
TEACHER IN-SERVICE EDUCATION FOR A CHANGING CURRICULUM

Alvin H. Halcomb
Subject Matter Specialist
State Department of Education
Auburn, Alabama

Alvin H. Halcomb

It has been said that "you can't teach an old dog new tricks." The reason for this statement is that the "old dog" hasn't seen any need to learn new tricks. For years he has wagged his tail and barked three times and has received the same type reward (a cold biscuit) for his performance. Why should he roll over, turn flips, or sit up straight for the same old thing?

But, with the development of new and more nutritious food, the master could demand more performance from his canine. "Ole Blue" then realized that more was expected before he received this new reward. Some type of in-service training or adjustment of a sort was required on the part of "Ole Blue."



"Hit the nail on the head" seems to be the topic of these two teachers participating in a Building Construction Workshop.

No, we are not going to the 'dogs' in our agribusiness education in-service training program in Alabama. In fact, we are staying ahead of the 'pack.' With the broadening of the agribusiness curriculum and the need for more specialization, an intensive program of in-service training has been implemented.

One concentrated effort has been toward summer workshops. For the past several summers, every Ag-Ed teacher has been involved in one or more workshops or in regular summer school programs. These workshops are usually the three-day or one-week type. For example, the following workshops were conducted this past summer (1972):

Type Workshop	Number Conducted	Number in Attendance
Electricity	2	44
Building Construction	2	36
Oxy-Acetylene Welding	2	29
Masonry	2	24
Ornamental Horticulture	1	19
Plumbing	1	13
Sheet Metal	1	17
Beef Cattle	1	19
Chemical Weed Control	1	34
Power Mechanics	2	28
Small Gas Engines	1	19
Care and Use of Power Tools	1	14
Audio Visuals and Journalism	1	20
	18	316

In addition to these summer workshops, many teachers were enrolled in regular summer sessions at colleges and universities.

In-service training is also provided during the school year. The meetings are usually held after regular school hours on a county, area, or district basis. Each of the six supervisory districts hold three or four such sessions each school year.

We in Alabama feel that workshops and short-courses will continue to be an important phase of our in-service program. Members of our State staff, teacher educators, extension service

Individual instruction is provided in this Masonry Workshop.

and experiment station personnel, along with business representatives cooperate in conducting this type training for our teachers. Workshops are held in high school Ag-Ed shops, technical institutes, colleges and universities, and in business and industrial facilities. ◆◆◆

(White — from page 77)

Events Sponsored by Business Firms and Agricultural Organizations

1. *Business firms:*

Our friends who are in agricultural business provide opportunity for the teacher to learn. Farm machinery dealers sponsor programs that help to up-date the teacher. Field days and machinery demonstrations provide excellent learning opportunity for teacher and student.

Manufacturers and distributors of farm machinery hold short courses for their employees. Agribusiness teachers may get permission to attend some of these.

2. *Agricultural organizations:*

Livestock breed associations provide excellent instruction through their field days, type demonstrations and judging contests. A teacher should schedule some of these programs without showing partiality to one group. He can take his students and livestock judging teams to some of these.

Others who provide similer events are Cattlemen and Farm Bureau.

It may not be possible for a teacher to participate in all events in one year, but over a period of years, an alert teacher should be involved in many of the events we have mentioned. ◆◆◆

IN-SERVICE EDUCATION IN MISSOURI

Bob R. Stewart
Assistant Professor
Agricultural Education
University of Missouri, Columbia

Bob R. Stewart

A five-year summary of teacher participation in in-service courses in agricultural education offered by the University of Missouri — Columbia faculty revealed that 75 percent of the teachers now teaching in Missouri have taken one or more courses for credit. In addition, all teachers had the opportunity to participate in a minimum of two non-credit workshops and nine sub-district meetings each year.

This record of participation in in-service education is possible because of the interest of Missouri teachers in keeping abreast of changes in the agricultural education program and in the technological changes in agriculture. This interest also exists on the part of the State staff, and definite provisions have been made to plan and staff in-service experiences for the teachers.

Each year 14 to 16 non-credit workshops of four hours in length are planned as a part of the program of the State Teachers' Conference. Topics are suggested by a teacher committee. The workshops are organized by teacher education representatives and are staffed by agricultural specialists, state supervisors, and teacher educators. The teachers are surveyed and assigned to two workshops of their choice. Initially, the most popular workshops involved technical agriculture subject matter. However, during the past three years there has been a great deal more participation in workshops dealing with program planning and developing in agricultural education. This year 50 percent of the workshops dealt with information related to programming in agricultural education. Workshop topics this year included: forage crop management, pesticide usage, swine management, planning to teach agricultural management, planning to teach agricultural sales and service, livestock judging, planning responsibilities in a multi-teacher department, electrical demonstrations, conducting supervised occupational experience programs in off-farm agriculture, forestry in the vocational agriculture program, controlling soil erosion, the Occupational Safety and Health Act as related to farming, programs of agriculture in area schools and community colleges, and utilizing the *Farm Planning Handbook* in teaching agricultural management.

Table I
Number of Enrollments Per Individual

Number of Classes Taken	Number of Teachers
1	118
2	64
3	58
4	34
5	18
6	9
7	8
8	4

Table II
Enrollments by Areas

Area	Number of Enrollments	Number of Classes
Agricultural Economics	142	13
Agricultural Education	175	11
Agricultural Engineering	469	34
Total	786	58

At the sub-district level, Missouri teachers have organized to provide a vehicle for communication and to conduct inservice education programs. The sub-districts range in size from 8 to 17 schools. The teachers and district supervisors meet and plan the programs. The topics covered vary widely and involve both the sharing of ideas among teachers present and the utilization of outside resource persons that deal with pedagogy and technical agriculture subject matter.

The University of Missouri — Columbia staff in consultation with supervisors and teachers organize and conduct all of the credit courses. Staff members with joint appointments in Agricultural Economics and Agricultural Engineering have major responsibilities in working in inservice education. In addition, the other staff members teach inservice courses on a rotating basis.

During the past five years, 58 courses have been offered for credit with 786 enrollments. The enrollments were by 313 individuals, 265 of which were teachers of agriculture. When the annual turnover rate is considered, 380 different teachers were employed during the five-year period. Therefore, 70 percent of this group completed one or more courses. As shown in Table I, individual enrollments ranged from one to eight classes. The mean enrollment was 2.5 classes per individual enrolled. Although the study covered a five-year period, there were fifty teachers involved who taught for only one year. When the data were analyzed as to the number of men presently teaching in Missouri, it was found that 199 or 75 percent of this group has taken one or more courses for credit.

The enrollment by types of courses was also analyzed. The participation was greatest in agricultural engineering courses as shown in Table II. However, it must be pointed out that the agricultural economics courses were all offered during the last three years of the five-year period studied.

Summary

The opportunity has been provided for Missouri teachers of agriculture to engage in inservice education on both a college credit and a non-credit basis. The teachers have taken advantage of the inservice opportunities available to keep abreast of changes in the agricultural education program and in technical agriculture. It is projected that during the next year, Missouri teachers will have the opportunity to elect participation in fourteen non-credit workshops, and eleven inservice courses for college credit as well as to participate in monthly sub-district meetings. ◆◆◆

IN-SERVICE EDUCATION PROGRAM IN TENNESSEE

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In-service education programs have become accepted as a means of keeping teachers up-to-date in changes in their subject area.

It is impossible for teachers of vocational agriculture to receive all of the training which they need during a baccalaureate program. This condition is made more complex with rapidly changing occupations in agriculture and federal legislation to implement programs to keep training abreast with changes and trends. In-service education programs for vocational agriculture teachers have become accepted as a means for trying to keep the teachers up-to-date in changes that have occurred in their subject area. It is futile to try to accomplish this task completely through on-campus courses at a state university. Many teachers are not actively seeking advanced degrees, and such courses offer little incentive to them even though they can profit from the instruction.

Several approaches for in-service education for vocational agriculture in Tennessee have been used. Many of the courses and programs which have been offered have dealt with methods of teaching with little emphasis on subject content. Inversely, some courses have dealt with subject content with little emphasis on methods of teaching. For a teacher to give the kind of instruction that is needed by students preparing for employment in agricultural occupations, competence is needed not only in methods of teaching but in subject areas as well. An in-service program dealing with both methods and technical subject areas was recently conducted for vocational agriculture teachers in Tennessee.

This program was unique in that Camp Clements, the state camp for youth organizations in vocational education, was utilized as an instructional center. During the month of August 1971, after the camping schedule had been completed for the summer, the facility accommodated 44 vocational agriculture teachers from the Middle Tennessee region for a week of in-service training.

The workshop was a joint effort between The University of Tennessee and the State Department of Education. Staff members from both institutions cooperated in planning the in-service program. Costs for meals and lodging of the teachers and the instructional materials which were purchased for the workshop were financed by the State Department of Education. The cost for the instructors was an expense paid by the university.

Even though the camp was located in the Middle Tennessee area, in the region where the teachers resided, most of them stayed at the camp throughout the week. This permitted them to devote their undivided attention to the routines of the workshop and also enjoy recreational facilities of the camp.

The in-service program consisted of approximately 34 hours of organized instruction. Three subject areas deemed important by pre-choices of the teachers comprised the instructional program. These areas were *repair of small gasoline engines, agricultural drafting, and agricultural supplies and sales.* Each subject area was scheduled for 10 hours of simultaneous small group instruction on a two-hour rotational basis. Evening sessions were used for an additional four hours of whole group instruction in methods of teaching the areas being emphasized in the workshop. Many of the teachers spent more than the scheduled time in learning activities since many of them worked extra hours gaining practical experiences in the small engines and drafting laboratories.

An in-service workshop dealing with both methods and technical subject areas was conducted.

The camping facilities were sufficient for the workshop. Since the instruction was simultaneous in all three subject areas, three teaching stations were utilized. Laboratories were equipped for the small engines and drafting areas. Equipment needed in these two areas was small and portable which facilitated the equipping of the laboratories. Some of the equipment was purchased but much of it was on loan from local vocational agriculture departments. The teachers furnished their own small engines for repair.

The agricultural supplies and sales course was taught by a representative from the Tennessee Farmers' Cooperative whose responsibility has been to prepare training programs for local cooperative managers. His method of instruction was primarily lecture and group discussion but this was supplemented with teaching materials used in the training programs for cooperative employees. The teachers learned from a person in industry the character traits and occupational competencies needed by employees in one of the largest agricultural businesses in Tennessee.

The agricultural drafting course was taught by a former industrial arts teacher, state supervisor of industrial education and presently a local director of vocational education. He gave instruction in elementary drafting that could be used in teaching vocational agriculture students how to make, interpret and figure bills of material from drawings. The teachers actually made drawings that could be used in giving instruction in agricultural mechanics to vocational students.

The small engines repair course was taught by a university staff member of the Agricultural Education Department. Approximately 25 percent of the time in teaching this course was spent in presenting theory and other concomitant instruction; the remainder of the time was used in laboratory activities with teachers working in pairs in repairing small engines. Many of the teachers became proficient in actually disassembling and reassembling their engines and making the necessary repairs and adjustments. Two repairmen from a nearby repair shop spent one afternoon at the workshop. They shared their experiences which were of a very practical and useful nature.

(Continued on next page)

The agricultural education staff member taught the method's phase of the in-service program. This was taught to all of the teachers as a group during the evening sessions. Approaches were used to correlate the three subject areas into a comprehensive vocational agriculture program and to show how these are related to occupations in agriculture. Methods of teaching with effective adaptation to giving instruction in small engines, drafting and agricultural supplies and sales were also presented and discussed during this phase of the workshop.

Two State Department of Education supervisors were actively involved in the in-service program. They helped plan the workshop, attended all of the classes and coordinated activities among the teachers, State Department of Education and The University of Tennessee.

This type of an in-service training program for vocational agriculture teachers represented an innovation in Tennessee. The following conditions were rather unique:

1. **Using camping facilities for an educational program for vocational agriculture teachers.** The camp was more convenient to many of the teachers than college campuses in more distant parts of the state. The teachers were also privileged to enjoy the relaxed atmosphere of camp life even though it was easily detected that the attitude to learn prevailed among most of the participants.
2. **Setting up sufficient laboratories in a facility not designed for teaching technical agriculture.** This was made possible by giving instruction in subject areas which were well adapted to the use of small portable equipment.
3. **Offering subject area content closely correlated with methodology.** This approach has merit in that it may prevent technically trained teachers from teaching their subject area irrespective of students needs, interests and occupational opportunities. This should also lessen the gap between "what to teach" and "how to teach."
4. **Concentrating on three critical areas in vocational agriculture during a condensed workshop.** Many times such workshops are confined to one subject area which may not represent the interests and needs of a large number of teachers. By offering three subject areas simultaneously it was possible to practice small group instruction on a rotational basis where each teacher was given equal learning opportunities in each area.
5. **Creating a situation where teachers can receive coordinated follow-up from supervisors and university personnel.** The supervisors became knowledgeable of the subject content that was taught and should be in a better position to supervise the teachers relative to their acquired experiences in these areas. The university staff member was involved in teaching in a technical subject and correlating methodology to all of the subject areas. This experience should encourage a more realistic attitude toward rendering professional assistance to teachers with problems in giving instruction in agricultural subject areas.

An informal setting, well equipped laboratories, subject area and methodology closely related, concentration on critical areas, and a cooperative atmosphere, all were key conditions in this Tennessee teacher workshop.

The teachers will submit teaching plans developed in the three subject areas to the agricultural education staff member for critiquing. These plans will be evaluated according to their usefulness in teaching vocational agriculture. This should help them put into practice things which were learned in the workshop.

The supervisors and teacher educators who were involved in the workshop should be in a better position to work as a team in helping teachers with problems in their instructional programs relative to acquired experiences during the in-service programs. Each of these persons should be cognizant of the knowledges and skills which were acquired and how best to encourage teachers to apply them in practical situations.

This is not the only type of in-service training program that can and should be offered to vocational agriculture teachers, but it does represent a change from more traditional types. The results from the combined efforts of many were encouraging and the teachers were complimentary. The teachers had plans for incorporating what they learned into a more effective program for preparing students for employment in agricultural occupations. ◆◆◆

BOOK REVIEW

OUR SOILS AND THEIR MANAGEMENT by Roy L. Donahue, Danville, Illinois: The Interstate Printers and Publishers, Inc. 1970, Third Edition, 683 pp., $7.95.

This is a complete text covering the principles of soils formation, composition, and management. Included are essential elements of plant growth and deficiency symptoms. The treatment of land judging can be generalized for use throughout the United States. The importance of organic matter to soil management is included as well as the care and use of manures, crop residues, and other soil conditioners.

Study involves use and results of fertilizers and lime. Tillage problems of soil and water management are presented as well as soil and water conservation practices. Irrigation and drainage problems are developed. Attention is directed to soils and water management for field crops, gardens, lawns, pastures, rangelands, orchards, and forests.

Career planning information is provided about job opportunities in agricultural technologies and professions. An effort has been made to develop the nature of agricultural occupations, education required, employment opportunities, and approximate salary ranges. The basic information presented would be quite useful, however, many of the statistics quoted and salary ranges indicated are of 1965 vintage. Information of this nature is understandably difficult to keep current.

Dr. Roy L. Donahue is Professor of Soil Science at Michigan State University, East Lansing, Michigan. He is emminently qualified because of his education and work experiences in Michigan, Illinois, New York, New Hampshire, Mississippi, Kansas and Texas. Foreign countries among his travels include Greece, India, Japan, Africa, Brazil, and other South American countries. Dr. Donahue's background as a forester, agronomist, and soil scientist places him in an envious position from which to view this subject broadly.

This book would be especially useful as a text in Vocational Agricultural classes for high school juniors and seniors. It could also be effectively used in agricultural technology programs at the post-secondary level. This book would serve most effectively as a classroom textbook for advanced students of soils and water management throughout the United States.

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WORK EXPERIENCE FOR TEACHERS

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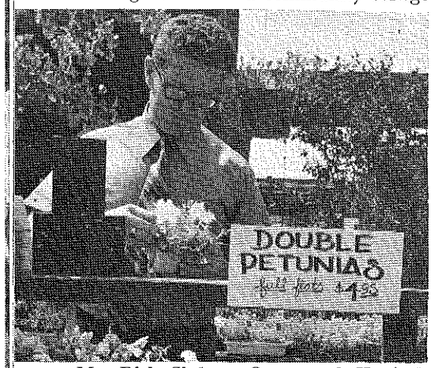
The concept of work experience is as old as agricultural education. Most of the time it is thought of by teachers as a program for their students as part of their supervised practice program. However, it may have another more direct application. As agriculture becomes more sophisticated and expands to related fields, teachers must acquire new and improved technical skills in order to keep abreast of inevitable changes. What better way to learn new skills and improve their competency for teaching, than by actively participating in a work experience program, just as they expect their students to do.

In addition to technical ability acquired, becoming familiar with the pressures of the world of work, current industry standards and conditions, will enable teachers to counsel more effectively and better relate to problems of their students.

During the summer of 1971, the Agricultural Education Department at the University of California, Davis came up with a novel approach to teacher involvement in the world of work. The primary purpose was to help the high school and community college teacher of vocational education upgrade his occupational competency and acquire new competencies through on-the-job experience in a carefully selected business or industry for a minimum of four weeks while concurrently enrolled for related class work before, during, and after the work experience.



Mr. Dick Shelton, Ornamental Horticulture instructor at Rio Linda Senior High School gains experience working for Capitol Nursery in Sacramento. Mr. Shelton's high school is located in an urban area, an area which provides many job opportunities for students with Ornamental Horticulture training.

While work experience programs for students are common, there is little experience to draw on for such programs for teachers. Funds for support of this trial program were provided through the United States Office of Education — E.P.D.A. in order to defray the additional expenses involved in setting up a new program.

The design of the class was one which included four different disciplines. Included were agriculture, home economics, industrial education and business teachers. It was obvious from the first on-campus class meeting that the broad vocational spectrum involving both men and women, and some students, was a real asset in adding zest and interest to the periodic class meetings.

Placement in the work station was made in terms of the experience opportunities in the participating company and the occupational objectives of the teacher. Each teacher was encouraged to find his own job station; in most cases he did so, and ended up working in his home community. However, the college coordinator provided guidance in getting an appropriate station and assisted in locating stations if teachers could not find their own.

In some cases it was necessary for the work experience coordinator to work with the teacher and employer to develop a meaningful program, with a minimum of repetition. A station was acceptable only when a variety of experiences relative to the occupational goal was planned.

The class was conducted as part of the summer session program so all students were enrolled in the institution and received six units of college credit.

Enrollment in the class was acquired easily through the regular state newsletters and assistance of the regional supervisors in each vocational field. A brochure was not developed but this would be another angle in publicizing the program. The class was limited to twenty-five teachers. Five of these were teacher candidates in their graduate year. Sixty-five applications were turned in and it was necessary to reduce this to the operative level of twenty-five. This was done through a selection committee composed of a teacher educator, course coordinator, and the state work experience coordinator.

The class was also open to teachers from a broad geographical area which in itself helped to hybridize the program. Since in most cases the teacher worked in his own community and traveled to the University only for the four meetings, the expense to the participants was held down.

With the approval of the coordinator the teacher was able to work for one, two or in several cases, for three different employers. The University did not enter into any of the aspects of pay. If pay was involved, that was strictly between the teacher and his employer. It was noted that about 45 percent of the participating teachers did get some pay. One important outcome was that those not involved with pay often had the benefit of exposure to a greater variety of skills since they did not necessarily need to be productive, economic individuals for the business.

Through the program the teachers gained insight into the problems encountered by their students when they leave school and enter the job world. Each teacher was required to go through the regular channels of em-

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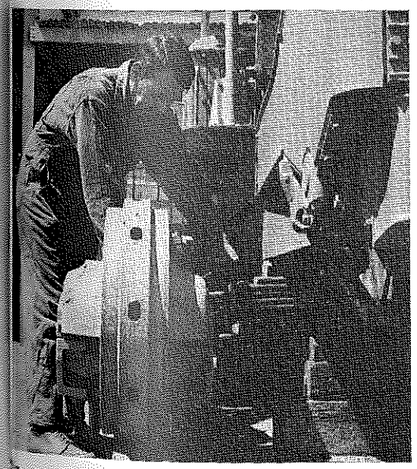
ployment which in some cases involved a mariad of paper work along with possibly a physical and an interview.

The first on-campus meeting of the entire group is very important in setting the tone and enthusiasm for the program. At this time the details of registration were taken care of, each member discussed what his work station would be with the rest of the class and a preliminary self-evaluation was made by each teacher of his own strengths and weaknesses in relation to his job.

Resource persons from business education and industrial arts who had work experience backgrounds were used to introduce the subject to teachers.

During part of the periodic day long campus meetings the teachers each presented a fifteen-minute program using a multi-media approach. Included in their presentation was a description of their job, necessary training, opportunities and growth potential for students. Part of the time was spent with state and local work experience supervisors covering the types of work experience programs.

Involvement of the individual class members was a key part of these meetings. Much was gained through shared experiences and problems. One teacher spent his summer working for a winery. As a fall-out benefit he presented a wine tasting program which preceded the regular lunch. Needless to say his presentation was well received by the class. Another class member had worked up a video tape which he planned to use with his own shop class. Here again job opportunities, skills required and teaching methods were blended together for a fascinating presentation.



Mr. Donald Carroll teaches Agricultural Mechanics at King City Joint Union High School. Here he updates his mechanical skills by working for Livingston Tractor Company in his home town.

A problem which developed during the course was the legal aspects of liability. One student working for the State Division of Forestry was required to have some form of workman's insurance.

Quote from California Education Code Paragraph 5-992 5992. School district as employer Notwithstanding any provisions of this code or the Labor Code to the contrary, the school district under whose supervision work experience education is provided shall be considered the employer under Division 4 (commencing with Section 3201) of the Labor Code of persons receiving such training unless such persons during such training are being paid a cash wage or salary by a private employer, or unless the person or firm under whom such persons are receiving work experience elects to provide workmen's compensation insurance. (Added by stats.1968, c.182, p. ——, 21.)

Health insurance was a problem however. It was possible for the teachers to take out the regular student health insurance extended form through the University if he or the employer thought that was necessary. In many cases the teacher already had health insurance with his local district which ran through the summer.

Public relations is a "natural" when it involves work experience and the teacher in his home town. The home town papers and other news media were most eager to cover the action. As a result the teacher's position was enhanced in the community as well as with his own administration.

Besides the pre- and post- self-evaluations the teachers were required to submit a weekly report form which included hours worked, new skills learned, and problems encountered. A number of assignments were given which required the teacher to survey his own program and his community in relation to job training and job opportunities. An additional survey was made of his home community of possible work experience stations he might be able to use in his own program. Associated with this survey was a study of the four types of work experience programs in the state. These being *General, Exploratory, Vocational* and *Cooperative*. A state work experience supervisor was used to explain how the programs differ and the various sources of funding.

A final day-long meeting was planned where the participating teacher, his administrator, and employer would meet together on campus to evaluate the program. This was planned to occur about two months after the teacher has gone back into the classroom. Thus, he has been able to apply the fruits of his summer effort to his teaching. Looking back in retrospect provides an ideal time to evaluate the program and his own progress, and to compare it with the pre-evaluation he made of himself at the start of the program.

Mr. Kent Eastwood (right), Agriculture instructor at Ripon High School, shown working with Mr. Dale Kuil, fieldman for Pacoast Chemical Company. Mr. Eastwood learns about the job opportunities and training necessary for this important agriculture occupation so he will be better able to relate to his own students this fall.

Supervision by the course coordinator is an important part of the total program. He serves as the liaison between the University, teacher, teacher's administration, employer and the home community. Every teacher was visited once and in about half the cases two or more times depending upon the nature of the job station, location, and problems.

One of the big questions in this type of program is whether funding is necessary. In order to have a successful program, time and money must be provided. However, it appears at this time that the program should not be much more expensive than any other ongoing program.

The major cost items would be the teacher or coordinator's salary, his transportation to visit the work stations and an office budget to cover the cost of a considerable amount of correspondence and record keeping.

With our rapidly changing technology this is just another way that education might take the lead to help keep teachers abreast of the situation.

TRENDS IN NON-VOCATIONAL AGRICULTURE —An International Review

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Abraham A. Blum

The idea to integrate agriculture into general education is not new. J. A. Comenius, one of the outstanding educators of the 17th century advocated relating education to everyday life by emphasizing contact with the objects of the student's near environment. J. J. Rousseau's romanticist longing for nature influenced his educational thoughts and led him to teach the young agriculture. The famous Swiss educator Pestalozzi introduced gardening into his school, partly as pre-vocational training, but also as a mean for character education.

A rough glance at the developments of agricultural education seems to indicate that vocational agriculture, by growing quickly, has overshadowed the non-vocational trends in agricultural education. But these trends have never ceased to interest educators who put personality growth before subject matter mastery. It might be more than a coincidence that with the renewed swing of the "curriculum pendulum" from a strict division into subject matter disciplines towards a larger integration, non-vocational agriculture is starting to develop again in various parts of the world.

At least four trends can be identified in non-vocational agriculture (or in "Rural Science," as it is sometimes called, with a slight shift in emphasis). Each trend tends to develop under different socio-ecological conditions and is influenced by a local or national philosophy of education. A fifth trend—prevocational experience in agriculture—was discussed in an earlier issue of the Agricultural Education Magazine, and is not included in this review.

1. Agriculture as Part of Rural Studies

This trend developed mainly in industrialized countries and received renewed interest in Great Britain, in connection with the "Countryside 1970" movement. According to a School Council Working Party[1], rural studies are based on man's endeavor to understand and use nature for his own purposes. These studies may lead to the development of a lifelong hobby: growing plants or rearing animals as an emotional balance to life in an industrialized society. Agricultural practices in the rural studies trend are studied mainly in the light of their influence on the balance of nature and as applicaton of biological principles. Strong emphasis is put on the need for sound conservation practices. According to the British conception of rural studies, the valuable craft tradition must be retained as a practical basis for further development. Nearly all schools engaged in rural studies use a plot of land for demonstration and experimental purposes.

Similar projects were developed also in other parts of the world. In continental Europe the school garden is mostly intended for extra-curricular do-it-yourself activities in vegetable and flower growing, whereas in the United States some garden projects are directed by Vocational Agriculture teachers (as reported earlier), while others are strongly Biology-oriented.[2]

2. Agriculture as Part of Science Education in Developing Countries.

Quite different in origin and motivation are the various primary and lower secondary science programs, which are developed mainly in Africa.[3,4] These projects use simple agricultural experiments as inexpensive and meaningful ways to teach science. In developing countries agricultural yields are still low and experiments with fertilizers (as example) will show students, that applied science can be very relevant to everyday life and can lead to self-reliance.[5]

Another argument in favor of agricultural education in the African primary school is based on the recognition that most students will live in the village, and therefore they should not be moved away from the activities in which they will have to partake later in life.[6,7] Although it is acknowledged, that a classroom teacher should not hesitate to take a spade in his hands, the trend in Africa is to come to a working arrangement with extension workers who would take charge of the agricultural part of an integrated rural education program.

In most developing countries primary agriculture is seen as part of the science program, but in some countries a regular Agriculture curriculum has been introduced, and interesting material, well adapted to local conditions, has been adopted.[8]

Often in developing societies, students tend to identify the lack of technical progress in agriculture with the rural way of life in the village and, at the same time, to equate the scientific revolution with urbanization. This misconception strengthens the tendency to move to the city, even when there are no job openings for the new arrival in the urban slum.

A science curriculum, which combines the experimental approach of modern science teaching with subject matter contents taken from the students agricultural environment, might decrease this psycho-social conflict. An applied, rural science curriculum might combat the idea, that scientific progress is possible (both as general process and as personal advancement) only in an urban society.[9]

3. Agriculture as Part of Affective Education

Relatively few agricultural curricula state explicitly affective objectives. The Hawaiian Elementary School Gardening curriculum, for example, emphasizes objectives like "fostering international friendship, aesthetic appreciation" and uses flower culture as

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a mean to achieve the aim.[10]

In Israel the legislator felt that education toward productivity and the dignity of work are important educational objectives. This socio-educational view, together with the will to settle and restore unproductive land, influenced the decision to teach agriculture in elementary schools as compulsory subject. In the past the emphasis was put on the practical arts aspect. In recent replanning, however, the trend was to create in the young's mind a more representative picture of modern agriculture than in the past.[11] Immediate and intelligent application of scientific discoveries and technological inventions by Israeli farmers is the main factor in the success of Israeli agriculture. The progress of a farmer depends very much on his ability to absorb new knowledge and to apply it to his own conditions. This ability should be developed through a suitable method of teaching in school. Therefore open-ended field experiments, stressing scientific methodology elements, were introduced into the general agricultural curriculum. This combination proved to be able to change interest in, and attitudes toward agriculture in both rural and urban trial classes in Israel.[12] The plants grown are chosen not for their market or consumer value (although this is considered), but rather for their methodological role in the curriculum. Because agriculture is given also in city schools, flower and home plants are emphasized for motivational reasons.

4. Agriculture as Part of Environmental Education.

During the last few years many educators have become aware of the growing need to innovate curricula which discuss pollution problems and other environmental issues. These issues can affect mankind very seriously and deserve to be discussed on the basis of a careful reappraisal of scientific research, weighing the pros and cons of each possible action. Too often the mass media and many people of good intentions, who jumped on the bandwagon, distorted the picture by using slogans impetuously, where a balanced view would do a better service to their cause.

The use of synthetic pesticides and fertilizers by farmers is part of the environmental syndrome. So far few school curricula have taken up the challenge to prepare scientifically sound materials, which allow the student to experiment and to come up with his own conclusions.

The Agriculture as Rural Science Project in Israel has developed a unit on the pesticide problem.[11] This unit is built around a case study, starting with a major economic problem — the damage caused by the Mediterranean Fruit Fly, which is one of the most dangerous pests in Israel and many subtropical countries. Special emphasis is given on the "Rise and Fall of DDT." Students (usually in 8th or 9th grade) experiment with DDT on pests, their predators, bees and the (now resistant) house fly. In other experiments students investigate alternative actions like the use of attractants, biological control and the integrated approach to pest control. Students are confronted with two one-sided presentations of the insecticide problem — a passage from "Silent Spring" and the answer to this passage, given by an USDA representative in a Congressional Committee meeting.

Probably the most advanced American junior high school curriculum, which uses an ecological approach and field experiments, is the Foundational Approach to Science Teaching (FAST), based at the University of Hawaii. Students participate in a Field Productivity Contest, in which they compare organic and conventional methods of plant growing. Here too, the aim is to educate towards a scientific and balanced view of agro-ecological issues.[13]

In Great Britain a similar approach is emerging. Project Environment is preparing packages of written materials, in which two contradictory sides expose their view on controversies, which have an agro-ecological background.[14]

The Common Factor

Each of the above described trends stresses another aspect of the syndrome called agriculture in general education. Each trend is strongly influenced by the policy maker's philosophy of education. Nevertheless these trends converge in a non-vocational definition of agriculture, according to which agriculture is conceived as a technology, in which man uses and changes — to a certain extent — the factors of his environment, in order to supply his needs. From here stems the interest in the life sciences, which serve agricultural research and practice. From here also the growing concern about the possible boomerang effect of the farmer's interference in nature.

Arguments in Favor of Agriculture in General Education

The main arguments in favor of agriculture in general education, which are used in the curriculum literature, are the following:

1. *Each student is an agricultural consumer:* Only a small percentage of students will become agricultural producers, but all of them are consumers of agricultural products. A general education curriculum must therefore refer to agricultural problems, which are relevant to both producer and consumer, e.g. the world hunger problem, dangers in food spraying etc.
2. *Agriculture as applied science:* Modern, educational methodology emphasizes the importance of applying principles to the solving of problems. Agriculture is a kind of biological technology, in which science becomes relevant to everyday life. This aspect has been neglected by many of the new biology curricula.
3. *Ecological issues involving agriculture:* Agro-ecological issues like pest control, the use of fertilizers and the world hunger problem can be used effectively to educate students towards a more balanced view of major controversies.
4. *Aesthetic and emotional values:* Subjects like flower growing can contribute much towards the aesthetic education of the student and help, especially in urban communities, to foster his emotional relationship to plants. Agriculture can also be an effective educational means to develop positive attitudes towards work.
5. *Development of self-concept:* Agriculture can be an experience for developing a significant portion of an individual's self-concept. Little has been done to explore this aspect of agricultural education.[15]
6. *Agriculture in compensatory education:* Another nearly untapped potential of agricultural education is its use in compensatory education of the disadvantaged.[16]

(Concluded on page 91)

TRAINING TEACHERS FOR THE DISADVANTAGED THROUGH APPRENTICESHIP PROGRAMS

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The concept that earlier and more specialized programs are necessary to prepare prospective teachers to work with the disadvantaged has been investigated at Purdue University. Apprenticeship programs have been established to provide prospective vocational teachers with experience in vocational agriculture programs and programs for the disadvantaged.

An apprenticeship program is the terminology applied to a summer training program during which prospective vocational teachers, following their sophomore, junior, or senior year, are placed with a vocational agriculture program or a program for the disadvantaged for a ten week summer period.

Investigators of the problem of working with disadvantaged children have identified that teachers often have low expectations for disadvantaged students' learning ability and often view the disadvantaged problem with distaste rejecting as unworthy of their efforts the children who most need to learn the value of learning.* This problem spurred the establishment of an apprenticeship program to assist in resolving some of the difficulties encountered by the teachers and thusly by the disadvantaged student.

The apprenticeship program is directed at giving the prospective vocational teacher greater insight into the disadvantaged milieu.

The Procedure

Apprentices, prospective vocational instructors, were placed with vocational agriculture programs or programs for the disadvantaged for a ten week period during the summer of 1971. Apprentices with vocational agriculture programs were placed with vocational agriculture instructors to engage in the department's regular summer program. Apprentices with programs for the disadvantaged were assigned to supervisors of such programs and engaged in a wide variety of activities; such as working with disadvantaged children, administering programs for the disadvantaged, interviewing parents of disadvantaged children, and planning programs for the disadvantaged. Apprentices arranged with the school for the selection of the ten weeks that they would engage in the apprenticeship program. They were encouraged to arrange their schedule in order to be at the schools through the first week of the school's fall session. Therefore, not all programs were conducted during coinciding ten week periods. The Indiana State Department of Public Instruction, Vocational Section, assisted the Purdue Agriculture Education staff in making supervisory visits to the apprentices, and provided the funds for the program. Apprentices were reimbursed for their participation in the programs.

Apprentices were randomly selected from those applying for the vocational agriculture apprenticeship program or the apprenticeship program with the disadvantaged. Twenty-five vocational agriculture apprentices and six apprentices with programs for the disadvantaged were selected to participate. The vocational agriculture apprentices were then allowed to choose the school with which they wanted to work from those schools indicating that they wished to participate in the program. Apprentices with programs for the disadvantaged were allowed to choose the center at which they wished to reside for the summer and the program's university coordinators contacted the schools, from a randomly ranked list by geographical area, to obtain their training station.

Two commonly identified factors that affect the success of the teachers in dealing with disadvantaged children are the teacher's attitude toward the disadvantaged and the teacher's personality integration. With this in mind, the apprentices underwent evaluation at the end of the program. Investigation was made into attitudes and personality. The apprentice groups were compared with each other; as well as with non-participating applicants for the program with the disadvantaged, and supervisors of programs for the disadvantaged. The semantic differential concepts of disadvantaged children, parents of disadvantaged children, and myself (the apprentice) were used to evaluate their attitude. The Personal Orientation Inventory was used to evaluate personal orientation.

The Findings and Implications

Apprentices with programs for the disadvantaged maintained that the program had been of sufficient length, that they had gained the necessary insights needed to work with the disadvantaged, that they had changed their future plans as a result of the program, and that the program should be continued. Apprentices with vocational agriculture programs concurred in these generalizations for their program.

The investigation into attitudes lent credence to the assertion that apprentices viewed more favorably disadvantaged children and parents of disadvantaged children. Personality evaluation illustrated that apprentices

(Concluded on page 91)

ALABAMA'S IN-SERVICE EDUCATION —For Ornamental Horticulture

George S. Williams
Agriculture Teacher
Andalusia High School
Andalusia, Alabama

During the past decade a demand has been placed on teachers of vocational agribusiness in Alabama to include more instruction in Ornamental Horticulture in their curriculum for both high school and adult students. This demand springs from several changing situations.

First, home ownership has experienced rapid growth, increasing the demand for landscape planting material and services. Thankfully, the improving economic conditions permit the new and established home owner to landscape his premise, and the long weekend and short workday enjoyed by most workers allows time to follow this pursuit. But many in this group lack the know-how to use and grow landscape plants, placing a demand on the agribusiness teacher for giving instruction in this area.

With the increased demand for ornamental plants, an expansion in the production and marketing of ornamental plants is being experienced. The expansion in this segment of agriculture calls for more trained workers and offers an opportunity and challenge to teachers of vocational agribusiness to provide this needed training.

Another reason for this surge of interest in and need for instruction in Ornamental Horticulture is the current emphasis being placed on improving our environment. After all, the life processes conducted within trees, lawn grasses, shrubs and flowers is nature's way to control air pollution. Civic groups, garden clubs and local government units are conscious of our environment and sponsor clean-up, fix-up and beautification programs. In most communities the agribusiness teacher, along with his FFA members and their Building Our American Communities program, is the most logical person to assist and lead in this movement.

Few leaders in agribusiness education will question that the responsibilities of the local agribusiness teacher to his community extends beyond simply providing job training for its youth and adults. Admittedly, working with interested groups and individuals in growing bedding plants may not provide job training, but it provides the know-how to grow plants which enables the professional man, merchant, housewife and others to live a more enjoyable life. Of greater benefit, it lays a foundation for community support for our prime job of giving vocational training. What can the agribusiness teacher accomplish without community support? And what an opportunity the current interest in beautifying home grounds, public areas and industrial sites plus the movement to improve our environment provides for the agribusiness teacher to become a part of his community!

The hitch to many agribusiness teachers in Alabama capitalizing on this opportunity is their lack of training in the field of Ornamental Horticulture. Our teacher training programs require little instruction in this field and students tend to select elective courses in other areas of vocational preparation. The result is that old and recent graduates alike are unprepared to plan and conduct training in Ornamental Horticulture. This is not intended as criticism or an indictment of our teacher training program, but stating an existing condition that is equally applicable to other instructional areas in this period of rapid change in vocational agribusiness programs.

The vocational agribusiness supervisory staff in Alabama recognized this situation ten years ago and planned a continuing in-service program to provide and update training in Ornamental Horticulture for their agribusiness teachers. As a teacher who has been privileged to take part in this in-service program, it has been most helpful to me and those I instruct.

Below is a resumé of several phases of this in-service program:

1) A group of agribusiness teachers representing each supervisory district in Alabama were selected to attend a two week workshop on Home Landscaping conducted by the Ornamental Horticultural staff of Auburn University. Ornamental plant identification and the preparation of landscape planting plans for home grounds and school campuses was stressed. The following summer a second workshop continued this study and prepared plans for the teachers of their district. This provided background information and techniques for each agribusiness teacher to include home ground improvement in their curriculum and to use in adult programs.

2) The landscape workshop was followed by the State Department of Education publishing a suggested teaching guide titled Home Ground Improvement. The state agribusiness supervisory staff coordinated the preparation of lesson plans and study questions by the teachers who attended the landscape workshops and the answers to the study questions were prepared by the staff of ornamental horticulture at Auburn University.

A more recent study guide which includes all phases of ornamental horticulture has been prepared by the state agribusiness subject matter specialist. Copies of both publications have been issued to all agribusiness teachers in Alabama and student copies are available at a nominal cost.

3) As on-campus greenhouses began to be established over the state, the emphasis in Ornamental workshops shifted to greenhouse construction and management. One-week workshops have been staged annually for the past six years and are open for agribusiness teachers who operate on-campus work experience laboratories. Specialists from Auburn University and the agri-

(Concluded on page 95)

Pioneers in Agricultural Education:

ARTHUR K. GETMAN

Arthur Kendall Getman

Arthur Kendall Getman (1887-1968) was well known as one of the early leaders in the field of Vocational Education in Agriculture. In fact, he stimulated leadership; rewarded leadership; and often quoted verses dedicated to 'A Leader,' a title he well deserved.

Dr. Getman's experience in leadership followed his graduation from Cornell University in 1911 with a B.S. degree in Agriculture. He accepted a position in the Cortland State Normal School to train teachers of Vocational Agriculture, prior to any well established program at Cornell University. Next, he became a specialist in Agriculture Education in the State Education Dept. at Albany, N.Y. for two years. This experience was followed by a Teacher Training position at Rutgers University for two additional years, prior to returning to the State Education Dept. at Albany to accept an appointment leading to the position of Chief of the Bureau of Agricultural Education. This position he held until 1947. His last three years of service were spent as Assistant Commissioner of Vocational Education.

Personal Characteristics and Philosophy

A. K. Getman was a religious man who believed in his fellow men, especially in youth. His son, Kendall, wrote concerning his father's religious life:

> **"He was very active in church work most of his life. Did you know that his first choice of a career was the ministry? Because of poor vision, however, that profession seemed inadvisable. He was superintendent of the Sunday School for eight years at Calvary Methodist Church (where the memorial service was held) and an active parishioner for fifty years. He was also instrumental in developing councils of churches at regional and state levels. For several years he served on the Troy Conference Board of Education of the Methodist Church and in the Administrative Committee of the New York State Council of Churches. He was also a vice-president of the latter.**
> **In the late 1930's and 1940's my father was a trustee of Green Mountain Junior College, Poultney, Vermont, which, at that time, was affiliated with the Methodist Church. His book,** The Church in Action **was published in 1931."**

Though Dr. Getman had a strong appreciation for rural life and the Bailey philosophy, he was fully cognizant of the writings of other leaders in the field of agriculture as reviewed through historic documents, extending over long periods of time. He accepted the findings of research in Technical Agriculture and in Agricultural Economics, which were used extensively as instructional materials throughout the State of New York during his administration. However, the background of **idealism** or "The Art of Living" as revealed in his section of Whither Agricultural Education (1938) came first with 'A.K.' to quote:

> **"When we move from science to art we pass from the realm of specific knowledge to the realm of creative, personal values. Put a dozen scientists at work on a problem and they will return with precisely the same answer. But give a dozen artists a picture to paint, a park to plan, a home to build, or a song to write, and they will return with widely different interpretations. Modern science is all for accuracy, exactness, meticulous data, and demonstrable propositions. But such terms in the realm of art are in a strange land. Here men use symbols to stir the imagination, express the truth, and inspire the soul. These values give a glimpse of Reality which forever baffles our understanding."**

In addition, to A.K.'s idealism and spiritual point of view, he was well known by his associates for his enthusiasm, his cheerful outlook on life, his ability as a fluent speaker, his vast resources of knowledge, his vision, his creativeness, his support for initiative and leadership and for his ability to inspire youth, through their teachers.

Leadership in Action

The three decades in which the writer of this article was privileged to work closely with A.K. Getman may be distinguished as the transitional 20's; the expanding 30's and the patriotic 40's. Space does not permit an extensive account of 'A.K.'s' administration.

The shortage of well-qualified teachers of agriculture in the 1920's was, indeed, a handicap. This problem was met, in part, by 'A.K.'s' personal appeal for increased college enrollments of F.F.A. boys, as he spoke at their banquets and at the two statewide meetings. The same stimulation inspired teachers of agriculture to assist in recruiting prospective teachers of Vocational Agriculture.

More funds were badly needed for an expanding program and 'A.K.' (an adroit businessman) left no stone unturned in raising funds for lobbying Vocational Education Acts through Congress. One year the Teachers of Agriculture of N.Y. voted $100.00 to aid in legislation.

Again, 'A.K.'s' business ability was apparent when he was able to have a provision written into the Central Rural School legislation to require all centralizations to provide for the teaching of Vocational Agriculture and Home Economics.

The expansion of high school departments of vocational agriculture and enrollments was from 68 departments and 1138 boys in 1919 to 106 departments and 2289 boys in 1929. By the end of the 1930's, New York State had 300 departments of vocational agriculture enrolling 9,600 boys

(Continued on next page)

E. R. Hoskins is Professor of Rural Education, Emeritus, Cornell University, New York.

E. R. Hoskins

(Hoskins — from page 90)

and 5,500 out of school youth.

Another big program for 'A.K.' was the upgrading of the six State Schools of Agriculture to the Technical Institute level and finally to the Junior College level. This program was personally supervised by A. K. Getman and recognized as one of his greatest achievements. Three of the six centers were also used by teachers working on circuits to carry agricultural instruction to small schools of their areas.

'A.K.' was a strong supporter of the Department of Rural Education at Cornell and the special staff engaged in training teachers of vocational agriculture. In fact, he offered certain summer session courses and encouraged his teachers to enroll for their professional improvement programs. Oswego State Normal offered courses in industrial arts training for teachers who were required to teach both agriculture and industrial arts in small schools. Again, Dr. Getman's desire for professional improvement led him to enroll for special courses at both Harvard and Columbia Universities. Approximately 30 teachers of agriculture were trained at Cornell each year in the 1930's and 'A.K.' had positions for all of them and several out of state men as well.

It was during the 1940's that the teachers of agriculture of New York experienced their "finest hour." One hundred of our well qualified teachers were enrolled in the armed services; seven gave their lives in the air or on the battle fronts of the world. The fifty-year book of the Association of Teachers of Agriculture is dedicated to their memory.

Though there was a terrific loss of teachers, many temporary teachers, mechanics and others were recruited to 'carry on' the several alphabetical programs proposed and financed by federal funds. The greatest of all special programs was the Veterans' Training Program carried on through the schools following the war. These programs are still studied by graduate students in many colleges who wonder at the terrific responses to the total war effort.

A. K. Getman carried his full load for the national programs as well as the state program. His influence was felt in nation-wide research programs, as vice president of the American Vocational Association and finally as president of the A.V.A.

Many teachers of agriculture in New York will remember A. K. Getman for his stimulating leadership and individual help that he was ever ready to give to them. Thousands of F.F.A. boys will remember him and his stimulating banquet speeches; his encouragement for continued education at the technical institutes or college; and perhaps most for his aid in securing Camp Oswegatchie. Their appreciation was expressed when they dedicated Getman Hall to his memory.

Perhaps F.F.A. boys of the 1920's, 1930's, and 1940's still think of 'A.K.' as the leader who was 'Building a Bridge' for them.

Summary of A. K. Getman's Writings and Publications

Dr. Getman wrote a preface for each of three books published by the Association of Teachers of Agriculture in 1931, 1941 and 1951. In the first two books this section was entitled "Early Days"; in the third book it was called "The 1940's in Review."

Dr. Getman was author, joint author, contributor or editor of ten professional books or reports, including the well known Stewart and Getman's "Teaching Agricultural Vocation" (1927). He was chairman of several research committees for which he wrote reports or introductions. In addition, he was editor or joint editor of more than twenty of the Wiley Farm Series texts, which were used extensively in Veteran Farm Training Programs.

As chief of the Bureau of Agricultural Education, he published innumerable State Bulletins, leaflets, directives and handbooks. ◆◆◆

(Blum — from page 87)

Meaningful work experience might prove to be very valuable in this field of education.

1. School Council Working Party: Rural Studies in Secondary Schools. Evans/Methuen Educational, London, 1969.
2. B. Shalucha: Youth at Work in the Living World, Dept. of Botany, Indiana University, Bloomington, Indiana, 1969.
3. African Primary Science Program, Educational Development Center, Newton, Mass., 1969.
4. A. Grabecki: Unesco Pilot Project on New Approaches and Techniques in Biology Teaching in Africa, Final Report, Paris, 1968.
5. J. Elstgeest: A New Adventure in Science Education in Tanzania, Morogore Teacher's College, 1968.
6. Unesco Working Group for the Pilot Project on Rural Education in Primary Schools, Final Report: Dakar. 1968.
7. Education in Rural Areas; Report of the Commonwealth Conference on Education in Rural Areas, London, 1970.
8. Ministry of Education, Malawi: Agriculture, Teacher's Guide, Standards VI and VII, 1968; Standard VIII, 1969.
9. A. Blum: Science Teaching in Developing Societies — Some Psycho-Social Determinants; In: *New Trends in Integrated Science Teaching*, Vol. I, Unesco, Paris, 1971.
10. E. K. Yoshinaga: A guide to Elementary School Gardening in Hawaii, *Ag. Ed. Bull. No. 13*, Dept. Public Instr. Honolulu, Hawaii, 1960.
11. A. Blum: Let's Grow Plants; Agriculture as Environmental Science. Curriculum Center, Ministry of Education and Culture, Jerusalem, Israel, 1971.
12. A. Blum: Horticultural Curriculum as Part of Science Education and Prevocational Guidance in Junior Secondary Schools: *Proc. 18th Int. Hort. Congress*, Vol. I, Tel Aviv, 1970.
13. Foundational Approach to Science Teaching (FAST), University of Hawaii, Honolulu.
14. Schools Council Project Environment, University of Newcastle-on-Tyne, Newcastle-on-Tyne.
15. J. Moss: The Past is Prologue. In: Am. Ed. Res. Assoc.: *Review of Ed. Res.* (on Vocational Technical and Practical Arts Education.) Vol. 38, No. 4, 1968.
16. B. S. Bloom, A. Davis and R. Hess: Compensatory Education for Cultural Deprivation. Holt, Rinehart and Winston, New York, 1965.

(Field & Miller — from page 88)

tended to live more in the "here and now", and were more sensitive to their own needs and feelings as a result of the apprenticeship programs.

The attitude of many new teachers toward the disadvantaged has been likened to that of a psychiatrist who would object to associating with mentally ill patients or a social worker who insisted on a case load of families with no domestic difficulties* The question then arises in the minds of those associated with education as to what can be done to assist with this situation. Teachers who are summarily deposited in a classroom with disadvantaged children who are socially, culturally, and economically alien to the teacher's way of life have a tremendous obstacle to overcome in attaining success in their chosen profession. It is a shocking experience to encounter students who are less enthusiastic and less capable than the teacher had expected. The adjustment is a difficult one, at best, for both the teacher and the student. This shock can be ameliorated by providing prospective vocational teachers with an early experience in working with disadvantaged children. An apprenticeship program can assist in accomplishing this end by providing the prospective vocational teacher with an earlier experience in working with the disadvantaged.

*Hodenfield, G. K. and Stinnett, T. M. *The Education of Teachers.* Englewood Cliffs: Prentice Hall, Inc., 1961.

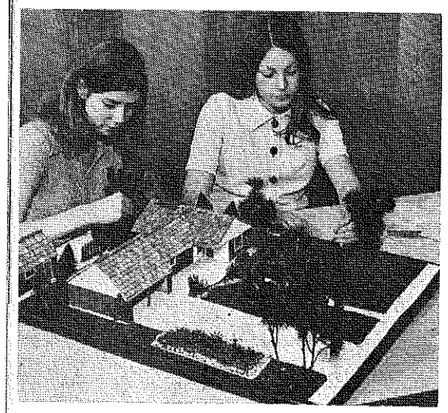
IN-SERVICE EDUCATION TO UPGRADE TEACHING

Mrs. Geraldine Couture
Agriculture Teacher
Shadle Park High School
Spokane, Washington

Geraldine Couture

Let me tell you about my experiences in teaching a vocational agriculture course, and how I have had to search for in-service training to upgrade myself in my instruction area. I had two strikes against me from the start. For one thing, I am a woman, and agriculture is not a course that a woman would ordinarily teach. For another, I am not an agriculture major, nor a science major, though I wish I were. The only things I had going for me were the love of the subject I was to teach, a master's degree in education, and seven years work experience in an agri-business, and a strong desire to teach a vocational subject.

My major teaching areas had been English, then Art, but for several years I had been trying to interest the Art Department in our school in some type of vocational training for art students at the high school level. So much of our high school teaching has been geared to the college bound students. **Today's youth are asking for education and training that will lead to career opportunities.** They are entitled to experience the meaning of work and to test themselves in different work roles. I tried to outline a course that might lead an Art major to some type of work experience. However, when I surveyed the field, I found that the Community College in our area was adequately filling the needs of the advertising agencies in our city. There seemed to be few employment opportunities, other than as sign painters and display assistants that would be suitable for high school students. Also, I found that certification standards called for extensive occupational experience in the subject to be taught. Although I had taught Commercial Art for several years, I had no actual experience as a commercial artist.



Kathy Woods and Patricia McPherson working on a landscape problem.

One day my department head approached me with an idea of teaching a course in floral design as a vocational subject. It was a natural for me. It was a subject that was of particular interest to me, for previous to my teaching career I had worked in a greenhouse as a planter's assistant and later in the attached flower shop as a floral design artist. I knew that at times the local florists were under-staffed, for hardly a holiday passed that I wasn't asked to work in one or another of the flower shops in our area, and many times I did work long enough to help fill the mounds of orders that had piled up for Mother's Day or Easter delivery. I enjoyed the change of pace from teaching, and working with flowers was a skill that I did not want to forget. The owners of these flower shops were very cooperative when I got my program launched.

I have been teaching this vocational agriculture course for over three years under a special vocational certificate. It has not been a static course, for I have changed the content several times, finding that I needed to add units of study to give the students a better background or to broaden the scope. I *knew* the operation of a flower shop; I *knew* the skills of designing; I *knew* how to sell, and I also *knew* the operation of a greenhouse and could identify and care for the flowers grown there, but I found that the students in their search for knowledge required even more. So, I *knew* that my course had to be broadened to include Ornamental Horticulture. How could we do this with my qualifications alone? I needed help of some kind.

There is a shortage of instructors qualified to teach vocational agriculture. Teachers are needed in specialized agri-business courses, such as, Ornamental Horticulture, Nursery Operation, Golf Course Management, Greenhouse Operation, and Landscaping, to name a few. These are subjects that are relevant to urban living. I read that by 1979, over a million students would be enrolled in agri-business education. Fifty-five percent of these students will be training for career objectives in off-farm agri-business, and 45 per cent with objectives in farming and ranching. It is believed that in secondary schools these enrollments will increase in corresponding numbers as programs in agri-business are extended to urban as well as rural schools. Manpower will be needed in the rapidly expanding agri-business segment of agriculture. Almost every state reports significant increases in enrollments in Horticulture. The switch to more training in this area has been slowed by a lack of instructors trained in this specialized area. Most teachers have been trained to teach production agriculture and the switch has necessitated some in-service training, and one of the most significant changes to take place in vocational education in recent years has been the addition of training programs for off-farm agriculture occupations.

In order to keep abreast with the demands of my students for more scope in their instruction, and to keep abreast with the changing times, I have tried to avail myself of as many in-service types of training that I could work into a busy teaching schedule. Also we found it necessary to add a second instructor to teach specialized courses. I will team-

(Concluded on page 95)

FALL ON-FARM INSTRUCTION

LaVern R. House
Farm Management Instructor
Granite Falls Public Schools
Granite Falls, Minnesota

Do you work from sunrise to sunset and a little longer? Most of the farmers in the fall of the year have that long a working day. Therefore, the scheduling of on-farm instruction in the fall has proven to be a real problem.

This fall period does present an excellent opportunity, however, to take soil samples, check crop yields, examine weed control, and calculate combine losses. All of this work can be done in the fall of the year even though the cooperator is very busy at this time. A fall program of this nature started with the people enrolled in the farm management program at Granite Falls this last fall.

To get the instruction started, the importance of these activities and also the general operations to be followed were explained. This preliminary explanation greatly facilitated the scheduling of these farm visits.

This work was organized so that when a cooperator had finished the harvest of a field or due to weather conditions was unable to operate, he contacted the Vo-Ag Dept. and a visit was scheduled for the purpose of soil testing. At the same time, combine losses were calculated and the other associated areas checked. The results of these visits with the current enrollment are as follows:

Only 8 per cent knew the proper method of soil sampling; none knew how to use the recommendations booklet for fertilizer application; 92 per cent relied on the local dealers for soil sampling; and 89 per cent had not taken soil tests in the last five years.

This on-farm instruction has proven beneficial in the application of proper ratios and amounts of fertilizers. One cooperator's soil test results was high in organic matter — with 35 on the phosphorous level, and a potash level of 376. In the past, the corn crop has averaged 122 bushels per acre with a fertilizer program of 175-100-100 pounds.

After checking references and discussing the alternatives, the decision was made to plan next year's crop with a 120-40-40 application of fertilizer. This test will be followed up next summer with a leaf analysis check to determine if this amount is available to the plants. Most of the cooperators are planning on following the basic recommendations as reported in the test.

To follow up this instruction the results will be recorded by fields on the crop map in the Minnesota Farm Account Book. This will serve as a reference guide until it is time for another test to be taken and the information will be readily available for discussion of the cropping program.

The analysis summary tables contain large amounts of information on the cropping program. This soil test report can be used as a source of supplementary information to evaluate the results more fully. Combined with the information of fertilizer costs, yields, and returns, plus the averages of area farms contained in the analysis print out, the soil test information will assist in deciding next year's fertilizer and crop rotation.

As one member stated, "without this type of a program and a little prodding I would never have used this management practice." Next fall the members will have had this basic instruction and the teacher can now work with the new members enrolled in farm management. This fall time is too valuable to be wasted by remaining in the office and waiting for the harvest to be finished.

The results obtained from the work started this last fall will be used many times; such as when the crop is being planted, evaluation of the growing crop, and the respective yield — but the work has to be started first. ◆◆◆

HAVE YOU TRIED ACREAGE MEASUREMENT THIS WAY?

Henry C. Goodson
Vo-Ag Teacher
Stewart County High School
Lumpkin, Georgia

Henry C. Goodson

This article is premised on the assumption that (1) many calculations to establish approximate acreage are based on *pacing* and (2) *multiplication* is largely preferred to *division* where rather large numbers are involved.

Briefly stated, square yards (based on pacing) times 2066, with 7 places pointed off from the right in the product, simultaneously converts square yards to square chains and square chains to acres. The following figures give the basis of this calculation:

4840 sq. yds. = 10 sq. chains = 1 acre

484 sq. yds. = 1 sq. chain = .1 acre

1 sq. yd. = .002066 sq. chains = .0002066 acre (approx.)

4840 square yards
X2066
29040
29040
9680
.9999440 acre
(7 places pointed off, as stated above)

Rounded off to 4 decimal places, this product deviates only 1/10,000 of an acre from the true area (or the equivalent of 1/10 of an acre per 1,000 acres).

Since pacing (at best) would certainly not be considered the most accurate means of *measurement*, this order of *calculation* would prove adequate for its intended purpose. ◆◆◆

FACTORS AFFECTING PARTICIPATION IN STATE FFA ACTIVITIES

Gerald R. Matteson

Gerald Matteson
Associate Professor,
Agricultural Education
Wisconsin State University
River Falls

DeWayne Carlson
Vocational Agriculture Teacher
Hudson High School
Hudson, Wisconsin

DeWayne Carlson

In an attempt to determine why some FFA chapters in Wisconsin more frequently participated in state FFA activities a study was conducted at Wisconsin State University-River Falls. It was hoped that insight would be gained as to whether such factors as (1) age and teaching experience of the vocational agriculture instructor, (2) the teaching load of the vocational agriculture instructor, (3) local school policies, (4) the vocational agriculture geographical location within Wisconsin, (5) activities within the local chapter and (6) Wisconsin State Association policies had any influence on the FFA Chapters' participation in state FFA activities. With the assistance of Mr. A. B. Cordes, Executive Secretary of the State FFA Association, eighty instructors were randomly selected from four levels of participation in state FFA activities (0-4, 5-8, 9-12, 13 or more activities) for the school years 1968-69 and 1969-70.

Questionnaires were sent to only single man departments. Information was obtained from seventy-eight of the eighty instructors selected for study.

Findings and Conclusions

In randomly selecting schools for this survey all ten FFA sections in the state were represented. Over one-half of the Vo-Ag departments exceeded enrollment of fifty students and had instructors teaching only vocational agriculture classes during the school day. **As class enrollment in one instructor departments exceeds one hundred students, the participation level in state FFA activities declined.**

Thirty-six percent of the Vo-Ag instructors participating in state FFA activities were under thirty years of age and sixty-four percent were less than forty years old. **Participation in state FFA activities increased as years of teaching experience increased.** This was verified by the fact that eleven of the fifteen instructors with over twenty years of teaching experience were high participators. Over half of the schools had a teacher turn-over in their vocational agriculture department during the past decade. **FFA chapters experiencing high instructor turn-over tended to be lower participators in state FFA activities.**

FFA as a unit of instruction was taught by ninety-seven percent of the instructors. **FFA chapters who had more high school graduates, or members who more frequently used the official FFA ceremonies at their meetings were more likely to be high participators in state FFA activities.** The larger membership chapters were most likely to be higher participators in state FFA activities. About one-fourth of the participants felt the names Future Farmers of America and Vocational Agriculture affected their chapter and class size.

A higher participation in state FFA activities is indicated in school systems where the administration has an understanding of what is involved in state FFA activities. Administrators were not opposed to participation in state FFA activities and agriculture field trips. Buses or other school vehicles were available to departments for this purpose.

The distance between the location of the FFA chapters and the place where state FFA activities were held (Milwaukee, Green Lake, and Madison) had **little to no effect** on the frequency of participation in state FFA activities by the FFA chapters.

Lack of information on state FFA activities from the state office or FFA association was indicated by only 13 percent of the instructors. Twelve percent indicated reports arrived late at their departments. Only six percent felt a lack of assistance from the state office and nine percent indicated a lack of assistance from the state FFA officers. However, a need for revision of state FFA activities was indicated by a number of instructors.

Although there was not a substantial difference between participation groups as to their involvement in local chapter activities, **the number of local FFA activities gradually increased as the chapters increased their participation in state FFA activities.** The high school FFA chapter who would most likely be a high participator in state FFA activities had:

1. **An experienced instructor whose tenure in the department was ten years or more.**
2. **Taught only Vo-Ag classes.**
3. **Less than 100 students in his high school Vo-Ag classes of which most would be FFA members in addition to several graduate members.**
4. **Good rapport with high school administration.**
5. **Members who were aware of state FFA activities.**
6. **A well developed program of local FFA activities.**
7. **Indicated satisfaction concerning the assistance received from the state FFA office and officers.**
8. **Favored change in FFA and Vocational Agriculture to include change in activities and the names of FFA and Vocational Agriculture.**

Recommendations

The high school administrator must be made fully aware of the importance of maintaining a vocational agriculture teacher in the same department for **several years** if program continuity and development is to become a reality in areas such as the FFA. In order for the Vocational Agriculture teacher to develop and sustain a program with satisfactory width and breadth of scope, **he must have time to do so.** An enrollment of 100 students is not inducive to this end. **It is recommended that any Vo-Ag department with an enrollment of 100 or more students should be staffed by more than one man.** The high school Vo-Ag teacher should explain thoroughly their FFA program to their administrator and their students. A continual program of information concerning the FFA should be developed to meet this end.

Continual effort must be made to

(Concluded on next page)

(Matteson & Carlson — from page 94)

make changes in the high school Vocational Agriculture program to meet the changing needs of persons who are or will be employed in agricultural business and industry. Consideration must be given to changing the name of FFA and Vocational Agriculture so that all persons involved feel as though they can and will belong.

Further study should be conducted in the following areas:

1. **Effect of community cooperation with the local FFA chapter and its level of participation in state FFA activities.**
2. **Detailed analysis of class enrollments in Vocational Agriculture and its effect on the FFA chapters participation in state activities.**
3. **Degree of participation in local FFA activities as compared to the chapters participation in state FFA activities.**
4. **The nature and scope of their preservice education desired by the vocational teachers as it relates to the FFA.**
5. **Recommended name changes of FFA and Vocational Agriculture.**

(In-Service Education To Upgrade Teaching, Couture — from page 92)

teach with a plant science teacher.

We have broadened my beginning course to a two year program to include Plant Science, Elements of Landscaping, Turf Management, Nursery Operation, Floral Design, and Greenhouse Operation, all under the general heading of Environmental Horticulture I and II. Some of these units will be taught by me while others will be taught by my team-mate. We have organized these units together so that we know the material covered by each. Since the burden of these new courses must be carried by two teachers who are not as familiar with all the new areas as we feel we should be, we are both availing ourselves of the in-service courses that our area colleges are offering.

One of the courses that was offered that we felt might be of value was a Vocational Teacher Training course. Much of the material covered was a repeat of the methods courses that any teacher was required to take to get a degree in education. Nevertheless, the vocational approach in writing student objectives was helpful.

Another class that we completed last fall was a class labeled VTE 570 Occupational Internship which dealt largely with Ornamental Horticulture and Landscaping. After completing the landscaping segment of this in-service training I immediately taught a unit of the same in our high school, and although my class was made up largely of girls, it was one of the most successful subjects that I have ever taught. It was enthusiastically received and students asked for a continuation of the subject.

Another type of training that I have used to up-grade myself in my instruction areas has been the clinics and seminars and demonstrations offered by people in the profession. For instance, the institutes offered by the Greenhouse Operators, and the Nurserymen's Association, and the design clinics offered by FTD and Allied Florists. I have received invitations to attend their conferences and workshops, and this is one of the best ways that I know of to keep my subject matter relevant to the needs of the community that I hope to serve. I have yet to attend one of these work sessions that I have not returned to my classroom with renewed enthusiasm and interest.

Finally, WSU has offered extension courses in Greenhouse Management, Agriculture Power Mechanics, and Environmental Management during the last year. Any one of these courses would have been helpful, but I could not find the time to take them all. I am sure that some courses equally as good will be offered at another time so that I can continually upgrade my teaching.

(Alabama's In-Service Education, Williams — from page 89)

cultural extension service, the personnel of commercial nurseries, commercial greenhouses and vocational agri-business departments with strong programs conducted the workshops.

4) A group of four teachers with ornamental horticultural programs, located within convenient driving distance, organized to meet monthly to discuss common problems. The location of the meeting places rotated to allow each teacher to view what and how the other teachers were operating. After two years this practice was discontinued due to changes in personnel and programs, but the writer can vouch for the usefulness of this type in-service program.

5) In several instances district supervisors have arranged for agri-business teachers with some experience in operating school greenhouses to serve as consultants to nearby teachers who are beginning programs in Ornamental Horticulture. This has proven to work to the mutual advantage of both teachers.

6) A recent addition in Alabama's program to update training for agribusiness teachers is an internship program for graduate students conducted by the teacher training staff at Auburn University. In this program on-campus study is interrupted for a three week work assignment in a trade or an agricultural related business of their choice. In this assignment, the teacher joins the work force of the business, gaining on-the-job work experience in as many phases of the operation as time will permit. The selections of a trade or business for the internship assignments have been varied but several teachers have elected to work in a commercial nursery or greenhouse. Teachers enrolled in this program report it provides quality training they can use in their teaching duties.

7) An unorganized but invaluable part of the Ornamental Horticultural in-service program in Alabama is the encouragement of agribusiness teachers to visit commercial establishments in the trade, become members of their trade associations and attend their meetings and workshops. This practice enables the teacher to keep abreast with the changing practices in the trade, to understand better the skills he needs to teach, and conveys to the members of the trade that vocational agribusiness education is making an effort to provide trained workers for their business. In every instance the commercial grower welcomes the visit and expresses a desire to help prepare the teacher for his job training responsibilities.

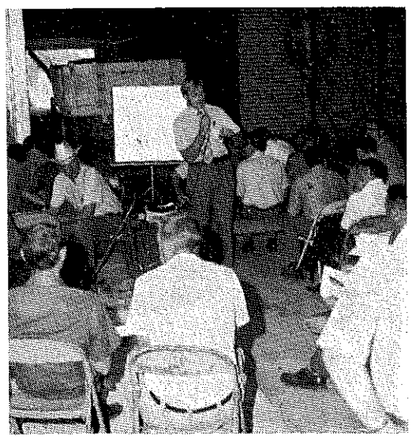
In conclusion, as valuable as in-service programs are to prepare and upgrade a teacher in a particular instructional area, they cannot do the entire job. The in-service program may provide the incentive and a good portion of the know-how, but it must be supplemented by continuous individual study on the part of the teacher. In the area of Ornamental Horticulture, this may come through reading trade magazines and other publications, browsing through every trade catalogue available, keeping up with research and collecting both a personal and school library. The teacher will never know all the answers to questions he confronts, but systematic filing of these materials will provide the answer to many questions. ◆ ◆ ◆

Professional organizations play a key role in In-Service Education. To supply the increasing demand for Agricultural Professional Personnel, NVATA operates a Career Booth each year in conjunction with the National FFA Convention. Sam Stenzel, new Assistant NVATA Executive Secretary, assisted with last year's booth. (photo from Sam Stenzel)

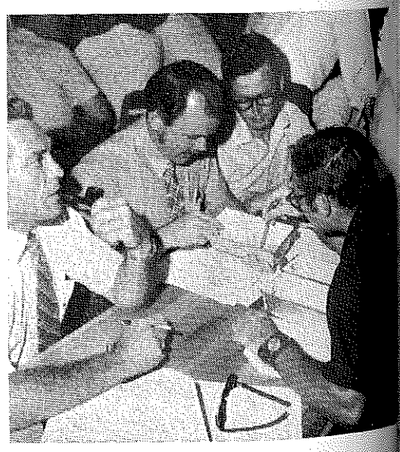
Stories in Pictures

by Richard Douglass

"Career Education" The theme of many In-Service Workshops in 1972. Dr. Duane Neilsen, Project Manager for Career Education Development Task Force, USOE, helped the Nebraska State Department of Education define their role in Career Education. (photo by Richard Douglass)



"Being Involved" and "Hands On" are key words for In-Service Education. "Grain Grading" and "How to Set up a Judging Contest" are the topics at this In-Service Workshop. (photo supplied by Richard Bringelson, Coordinator, In-Service Agricultural Teacher Education, University of Nebraska.)



AGRICULTURAL EDUCATION

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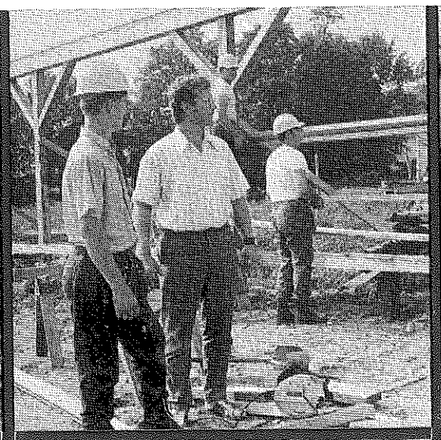

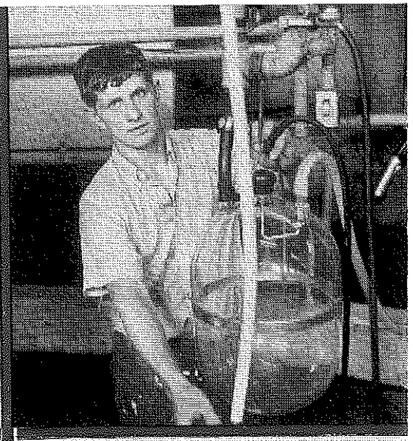

THEME: AGRICULTURAL EDUCATION IN TRANSITION