



# Agricultural Education

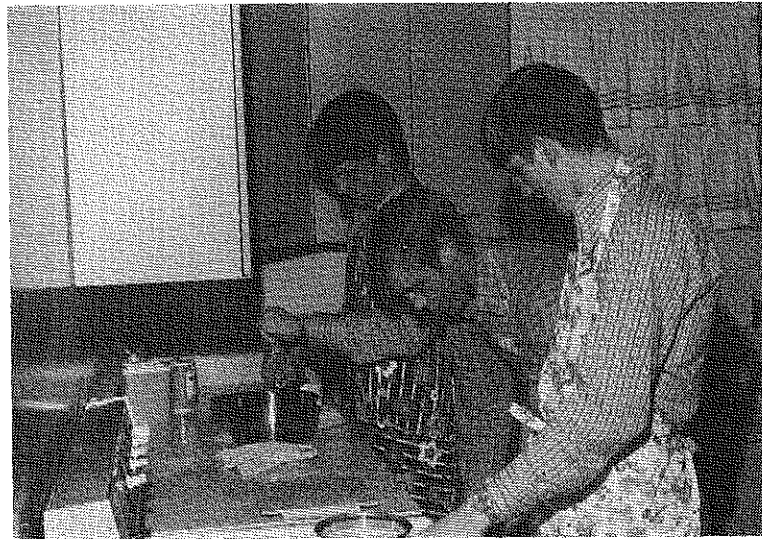
Volume 46

October, 1973

Number 4



**BUILDING A TEAM EFFORT** — Ralph Howard, second from right, Supervisor of Vocational Education in East Baton Rouge Parish, is shown discussing the program in Ornamental Horticulture in the Vocational Agriculture Department at Capitol High School in Baton Rouge with Ronald Bordelon, one of the Vocational Agriculture teachers in the school and some of the students. (Photo by Howard Brock.)

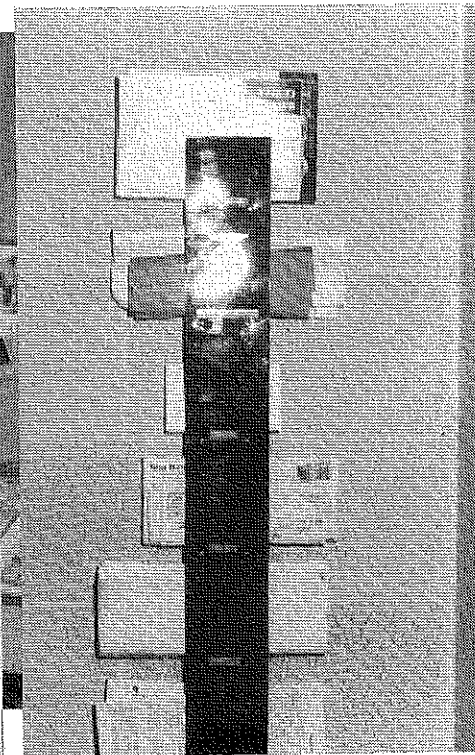


Articulated Plans with Other Teachers

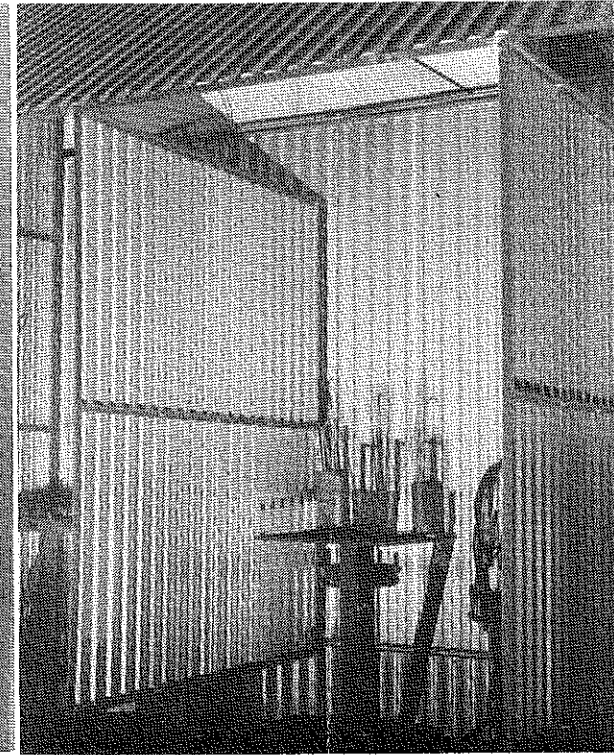
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by Richard Douglass

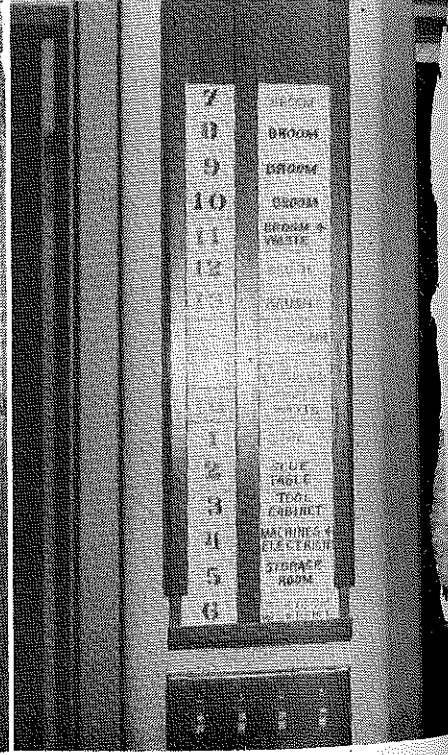
"GETTING READY FOR SCHOOL"



Convenient FFA Officer Mailboxes

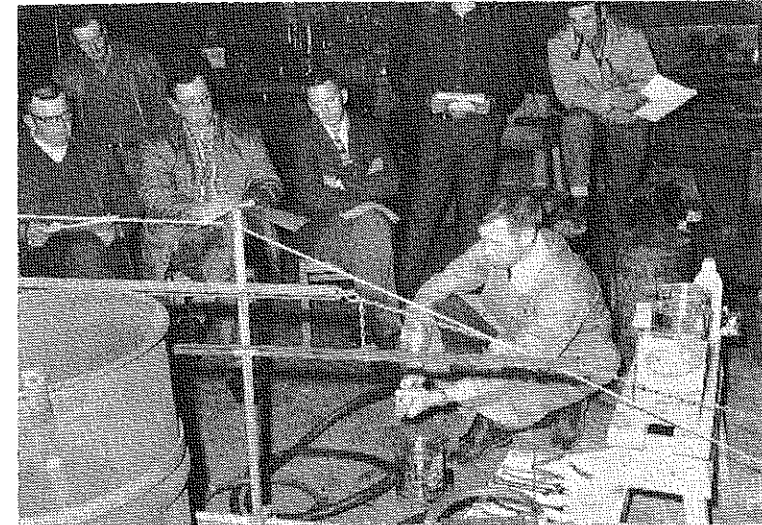


Safe, well ventilated Welding Booths



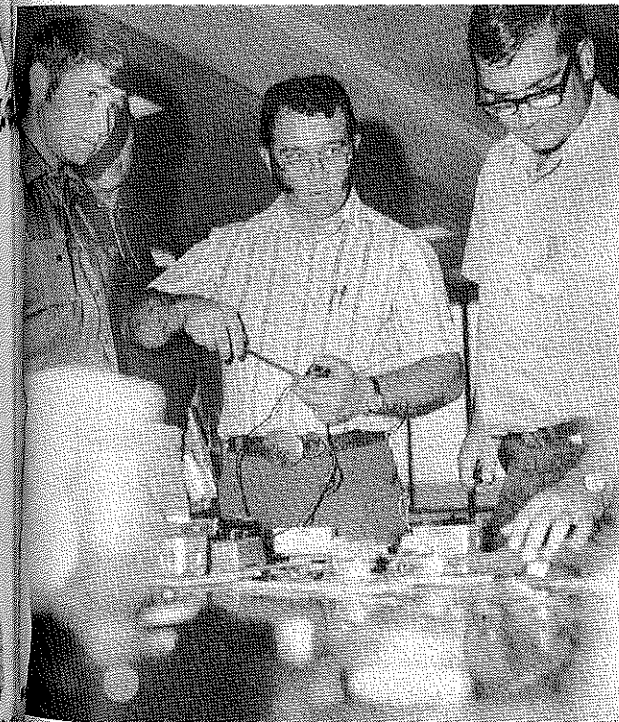
Efficient Shop Cleanup

UPGRADING



INSTRUCTION

ADULTS



APPLICATION



RECOGNITION

**Theme — CAREER EDUCATION:**  
**Are You Meeting The Adult's Needs In Your Community?**

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COVER PHOTO

**UPGRADING ADULTS** — Virginia Adult and Young Farmers (top) receive formal instruction on sprayer calibration. Proper chemical application is an environmental issue in many areas. This might be a good topic for a series of Adult classes this fall. (Photo from John W. Myers, Jr. Virginia State Supervisor. (Left) We all learn better if we can apply what we have learned. This group of adults (ag teachers in this case) are getting real "hands on" experience with various Electrical Control Circuits. With the continuing energy crisis, improve efficiency via automated Electrical Controls become more important. (Photo by Richard Douglass).

Recognition of adults for a job well done (Right) is a must for a continuing Adult Program. We have many opportunities to reward adults. Minnesota's recent State Honorary Degree recipients include individuals from cooperatives, agriculture instructors, state farm organizations, school administrators, State Chamber of Commerce and Industry, state livestock stockyards, State Department of Agriculture and the State Department of Natural Resources. Even a small completion certificate will often be displayed with pride by adult class members. He may even return for your next series of classes. (Photo from Paul Day, Minnesota State Department).

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From Your Editor . . .

**ADULTS NEED  
CAREER EDUCATION TOO**



Roy D. Dillon

The first reaction to a title such as the above is, (1) Why career education for adults? They probably hold jobs now, and (2) the priority should be to prepare the young person still in school. If we act on these two assumptions, many adults will not have a chance to participate in systematic educational programs which could prepare them for (1) advancement, (2) horizontal job change, (3) a new job, (4) or job adjustment because of problems encountered.

The adult is usually self motivated toward a career. If he is currently employed and has opportunity for advancement, he may enroll in advanced classes in his occupational area. These may be offered through his employer, or could be taught by the school. Only a good community occupational analysis will uncover this clientele group. In communities where adult education has not been conducted, the adult may be "surprised" to learn the capabilities of the local school.

One of the early recommendations following the establishment of a citizens advisory committee may be an adult class series, mainly because by getting "next to the school program" the adults could see how they would benefit.

An important point to remember, especially for the

beginning teacher, is that when adults are participating in your vocational program, community support is strengthened. One of the greatest concerns of the local vocational agriculture teacher is how to provide a comprehensive educational program in agriculture for the many clientele groups that may decide to participate, when only one teacher is currently employed? This dilemma is not easily solved. On the one hand it would be good to know there is more demand for the school's vocational education services than one teacher can handle, but the more difficult question is how to approach a solution.

I would submit that a local Board of Education would look most seriously at proposals for expanding program and staff in the vocational agriculture program if backed by an adult community that expresses their need both personally and through the citizens advisory committee.

Priorities can only be influenced by action. Multiple-teacher programs in Nebraska have grown by 800 per cent in just six years, from 2 to 16 departments. Most of these are rural high schools, with the added vocational staff to teach new junior high exploratory courses, new high school agri-business courses, and adult courses. The Board of Education had to be "sold" on the idea first. What do you need to do if you are in a similar situation, in order to "sell" expansion of your local program?

—RDD

Guest Editorial . . .

Vincent J. Amanna  
*Associate Director  
National Adult Education  
Basic Education Demonstration Project  
University of Wisconsin, Madison*



Vincent J. Amanna

RFD has developed and demonstrated a highly flexible multi-media information delivery system designed primarily for rural adults.

While almost half the adults living in rural America never attended high school, few have taken advantage of traditional adult education opportunities.

Distance, cost, time, and inconvenience mitigate against participation in traditional classes. The mere words "classroom," "teacher," "test," and "textbook" can scare away potential participants.

To encourage greater participation in continuing learn-

**RFD: A Multi-Media  
Adult Information  
Delivery System**

The flexibility and mixture of media was attractive to the large participating audience.

ing, especially among those adults with less than a high school education, RFD developed a non-sequential, broad scope delivery system that brings the program to the participant in a familiar and enjoyable form and setting rather than asking the participant to come to a traditional and possibly alienating program and setting. RFD's delivery system is entirely home-based.

(Continued on next page)

The RFD multi-media delivery system includes:  
 A weekly half-hour magazine format television series.  
 A weekly 3½-minute radio program.  
 A 4-page RFD ALMANAC mailed to participants.  
 Detailed Content Center bulletins mailed to participants on request.  
 Weekly home visits by trained paraprofessionals.  
 A toll-free, 24-hour ACTION LINE telephone service.  
 A comprehensive commercial promotion and publicity campaign.

Television, radio and the promotional campaign introduce Content Center topics and motivate the participant to delve deeper into the subject area. The programs are entertaining as well as informative. Johnny Cash, Andy Griffith, Dr. Joyce Brothers, Buddy Ebsen, Burl Ives—and many other stars are featured. Content Center concepts are introduced and immediately useful information is presented.

The printed bulletins and ALMANAC present more detailed and structured information about the Content Centers, written and illustrated in simple yet non-condescending adult journalistic style.

The home visits and ACTION LINE provide the all-important personal contact, assist in identifying learning needs, and provide feedback and problem-solving mechanisms for personal application of the Content Center concepts. The Home Visitor, a most important link in the chain, is a helper and friend to the participant in every sense.

In this facilitating role, the Home Visitor's tasks are to help the participant move from non-involvement in his community to involvement; from the status of dependent learner to independent learner.

Designed to reach adults functioning below twelfth grade equivalency levels and living in low socio-economic circumstances, RFD is based upon adult coping and living skill needs as identified by participants. RFD's Content Centers include information on:

- Applying for a job
- Using community services
- Money-saving tips
- Smart shopping
- Making better meals
- Family health
- Improving communication skills
- ... to name a few.

RFD was used extensively by adults whose formal education extended beyond high school and who are in higher income levels. This was welcomed and encouraged for it removed the stigma of participation from the target audience.

One outcome of the intensive evaluation of RFD currently underway, strongly suggests that it was the flexibility and the mixture of media which was attractive to the large participating audience. This in turn suggests that given a subject matter content, other than life coping skills but of equal relevance to the participants, the delivery system might work equally well. For example, the vocational agriculture teacher who wishes to provide local farmers with opportunities to upgrade their agricultural skills could adopt the RFD model to his community and the resources available to him. If undertaken cooperatively with the County Agricultural Agent and the Extension Home Agent, the scope of content and the impact upon the farm family could be multiplied.

### Themes For Future Issues

- |   |   |
|---|---|
| January 1974 — Supervised Practice                        | July — Program Planning and Evaluation                        |
| February — Staffing Agricultural Programs                 | August — Teacher Education                                    |
| March — Looking Ahead in Vocational Agriculture           | September — School Organization and Articulation              |
| April — Production Agriculture — Still in Vogue           | October — Instructional Technology                            |
| May — Summer Accountability                               | November — Improving the Profession — the Job and the Teacher |
| June — Administration and Supervision — Local to National | December — Better Teaching and Learning                       |

## BOOK REVIEW

FUNDAMENTALS OF SOIL SCIENCE, by H. D. Foth and L. M. Turk. New York, John Wiley & Sons, 1972, Fifth edition, 454pp., \$12.95.

This is a text completely covering the concepts of soils, their physical properties and productivity. Included is essential information concerning soil water, organisms, organic matter and the chemical and mineralogical properties of soils. The discussion given to soil genesis, soil survey, and the classification and geography of the world's soils is most interesting and stimulating. The study also includes nutrient requirements of

plants, the composition, manufacture, and use of fertilizers, and the value of animal manures. Problems of soil erosion are presented as well as methods of control. Information on soils and agriculture of arid regions is presented as well as irrigation practices. Problems concerning soil resources in relation to the food and population problem of the world is presented.

Environmental quality has been taken into consideration in this addition as discussions including pesticide degradation and nitrate pollution has been included. The importance of soils in civil engineering, landscaping, geology biology, history, and social science is also recognized.

The glossary is a valuable addition to the text.

H. D. Foth and L. M. Turk have spent their lives in soil science education. H. D.

Foth is presently serving as Professor of Soil Science, Michigan State University. At the time of writing, L. M. Turk was Professor Emeritus of Soil Science and former Director of Agriculture Station, Michigan State University. Due to their past educational experiences and their connection with previous editions of this publication, the authors are well qualified.

This book would be an excellent reference for Vocational Agriculture classes in the Senior High School. Most effective use of the publication could be made by Junior and Senior college students throughout the world, however any student of soils could gain much from the study, as I did.

Ernest H. Muncief  
 Vocational Agriculture Instructor  
 Marlow High School  
 Marlow, Oklahoma

## ADULT EDUCATION IN AGRICULTURE AND

## CAREER EDUCATION — The Real Problem

Bill Richardson  
 Assistant Professor  
 Agricultural Education  
 Purdue University



Bill Richardson

Educators from all segments of the American school system have expressed concern for adult education. Recent developments in the United States Office of Education (USOE) have aimed at refocusing the goals of American education, of which education for adults has been a part of this refocusing effort. Agricultural educators are becoming involved in this effort as adult education has long been entrenched in educational programs in our school service areas.

The developments by the USOE in career education for adults has been unique, not to mention the developments in career education for adults in agriculture. The concept of career education, as observed by this writer, tends to focus on a K-12 approach to education.

Due to the foregoing, a question that arises in many minds is, "... What is career education for adults in agriculture?" This question is so broad that considerable variation exists as to the possible solution or answers to the question. This writer will not attempt to provide such an answer. However, there are some items that must be internalized in the thinking of all agricultural educators before an attempt can be made to answer the question.

One of the first items that must be undertaken by agricultural educators is to commit ourselves to adult education in agriculture. The rationale behind the educational programs being conducted in the name of adult education in agriculture does not demonstrate the commitment. Holding an adult class for the sake of improving the image of a local department in the eyes of supervisors, teacher educators, and teacher peers does not in itself testify for a genuine commitment to adult education.

Agricultural teachers, teacher educators, and supervisors must look at what we are doing in the name of adult edu-

cation and analyze these activities in terms of the career development of the individuals enrolled in these programs. This analysis may reveal a need to redirect the goals and objectives of these on-going programs. If we fail to provide skills to these adults that enhance their occupational development, then we fail to provide a career development service. Therefore, educators in agriculture must *commit* themselves to the concept of career development for these adults before career education for adults can take place.

The adult education facet of career education for adults is vaguely defined, and career education for adults in agriculture is completely obscure — which seems to place adult education in the "rumble seat" of the career education movement.

Closely aligned with becoming committed to adult education is the place of adult work on the *agenda* in agricultural education. We have placed a variety of activities on our program of activities agenda. The position of adult work on that agenda is oft toward the bottom, if it is on the agenda at all. Items placed toward the bottom of agendas have the precarious possibility of being carried over, briefly looked at, or dropped from the agenda as other items take up the available time. If we in agricultural education are to become committed in our approach to adult education the position of adult work must be placed in a more favorable position on the agenda. This means, in essence, that adult education in agriculture must become a *high priority* item in our approach to career education in agriculture. We cannot begin to provide quality career development programs for adults in agriculture until our *agenda* reveals that adult work is a high priority item.

Assuming that a commitment can be

made to adult education and that adult education can become a high priority item, it is imperative that certain aspects of our traditional approach to adult education be altered.

One of the first items to be altered is the approach to adult work as though it is something "extra." This approach is often fostered by the commitment and priority aspects previously discussed. The agricultural educator must treat adult work with equal time and effort as other aspects of a comprehensive agricultural program are treated. This means a major change in thinking for many teachers, administrators, teacher educators, and state supervisors. The teachers may alter their approach with some ease, provided they are committed. The altering of administrators' thinking will require a cooperative effort from *all* persons involved in adult education to our school systems if we are to alter local attitudes. This selling process will not be easy, but it can be done—if we are committed.

The next alteration relates to the reimbursement for teaching adults. In many instances teachers and others treat adult work as an opportunity to earn extra money; a situation that occurs due to reimbursement procedures of many states. Likewise, these reimbursement patterns focus attention on adult education as an extra activity, something to do if time permits; not as an integral part of the agricultural program. If systematic adult education is to be one of the priority items, then our reimbursement procedures should reflect such. This fact alone can do a great deal to alter the feeling and thinking of local administrators toward adult education.

The amount of emphasis placed on adult education by teacher preparation programs in our teacher training institutions is an area of concern if we are to provide adequate direction to beginning teachers. If we are to become committed to adult education our pre-service programs must reflect this commitment. And, to do this adult educa-

(Concluded on page 82)



# FARM MANAGEMENT PROGRAMS FOR—

Adult Farmers

## Post-Secondary Voc-Tech

Harold Swanson  
Iowa Western Community College  
Council Bluffs, Iowa



Harold Swanson  
were.

Are you faced with the problem of developing a meaningful farm management program? Our approach stresses farm planning with the record keeping function telling us how good our plans

**Personal and Farm Budgets**  
Family budgets for family living costs are the primary starting point for developing a farm operation plan. The farming operation must yield enough money to meet family living expenses and provide reinvestment capital. These two factors correlated with the operator's efficiency determine how big the farm operation has to be to have a chance of yielding satisfactory net earnings.

### What Do Records Tell Us?

We handle this part of the program by analyzing records of various record keeping associations in Minnesota, Iowa and other states that we have available, to illustrate what it costs to provide the living for a family. We then use the net worth statements to show how they can equate the net worth to get the average annual rate of reinvestment in the business. We take the net worth statements of the records that we have available and try to get the average age of the individuals involved, and divide the net worth by years that this group of farmers had been farming. These records show an average net worth of anywhere from forty to sixty thousand dollars, which indicates that the reinvestment rate based on twenty years of farming is somewhere between two and three thousand dollars per year. The records on the personal living costs usually indicate that the family of five needs between five and seven thousand dollars per year to provide for family living. We then add the family living costs and the reinvestment per year together and come up with a figure that indicates a minimum of seven to ten thousand dollars as being the returns that must be expected out of a farm operation.

We go further into the records of these various associations to determine what the net profits or earnings of these farmers are. We find that there is a very definite trend of percentages that can be used to help determine the minimum size of the business operation. We also have to point out that there are three figures that must be understood

## Veterans On Farm

**We emphasize that the planning process should utilize 90 percent of the management time, and record keeping only 10 percent.**

when analyzing record keeping association summaries and records. These are the net cash income, labor earnings, and management returns. We explain the difference between these figures. The net cash figure is generally understood, but the labor earnings and the management returns create much confusion and misunderstanding. Generally the average farmer in record keeping associations will net between twenty and thirty percent on his gross sales. The top twenty percent of the farmers (based on earnings) will net from four to seven percent higher than the average of that group. Ironically, with most record keeping groups you find that the bottom twenty percent will be earning less than five percent of their gross sales.

### Projecting Farm Business Volume

The use of the percentage of net on gross sales is a valuable way of helping a farmer determine how big he has to get in order to provide the income that he needs to be happy in his farm operation and have a chance for meeting the needs of the family and reinvestment requirements. We have found that since a farmer generally nets twenty to thirty percent of his gross sales, we point out that his sales must be three to five times his required net earnings (family living costs plus reinvestment).

### The Planning vs The Recordkeeping Process

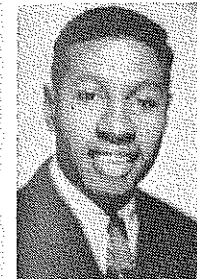
The record keeping is a history process and the real important thing in farm management is the planning process. We use the history recording process to find out how close our actual results are to our planned pro-

(Concluded on page 82)

# Joliet Junior College's Vocational Programs In The Illinois State Prisons

E. Kenneth Wright, Jr.  
Associate Dean of Instruction  
Joliet Junior College, Joliet, Ill.

## Introduction



E. K. Wright, Jr.

For years correction institutions have pondered over the preparing of those persons in prisons, so that upon reentry into society those persons might become productive individuals. The institutions over the country have done little to nothing about the problem; maybe there is a lack of funds and human resources or maybe we good citizens don't feel that prisoners are worth the funds and effort. However, the reason is not clear as to why the correction institutions have not solved the concern.

## Rationale

It is accepted and sometimes realized that penal institutions have lagged far behind in educational rehabilitation programs for their inmates. This fact is especially disturbing in view of the fact that prison populations are on the increase. This population is in need of comprehensive and intensive education services if rehabilitation and successful return to society is to be realized.

Today in Illinois and throughout the country, prison industries do not reflect the kinds of job experiences that one could find in the present world of work. Consequently, the transferability of skills obtained during the period of incarceration is impossible.

Chief Justice Warren Burger is a vocal advocate of reforming the penal system to stress rehabilitation rather than revenge. He believes that we should stop thinking of criminal justice as something which begins with an arrest and ends with a final judgment of guilt. Justice Burger believes that there is a lack of worthwhile vocational training in American Prisons. "It is no

Penal institutions have lagged far behind in educational rehabilitation of their inmates.

help to prisoners," he said "to learn to be pants pressers if pants pressers are a glut on the labor market."<sup>1</sup>

## Objectives

The primary objectives of the Inmate Training Program are to prepare selected inmates for entry level positions as automotive mechanics, welders, draftsmen, machinists/machine operators, accountants (with data processing background), and food service workers (chef, cook). And there are other important objectives:

★ To establish a model program designed to fit the particular educational needs of a prison population.

★ To afford inmates the opportunity to acquire job skills that will enhance their ability to compete in the contemporary world of work after parole.

★ To decrease recidivism rates.

★ To develop a model for multi-agency cooperation addressing the problems of incarcerated members of society.

★ To provide college courses applicable toward Associate of Applied Science Degree Programs at Joliet Junior College focusing instruction on entry level skill attained in accounting/data processing, automotive services, mechanical production technology, mechanical design technology and food service for three hundred inmates at the Illinois State Penitentiaries, Stateville and Pontiac.

★ To identify job placement opportunities for those inmates from the penitentiaries who graduate from the various programs or leave the program prior to graduation for reason of being paroled.

★ To provide up-to-date training facilities for the instructional programs—accounting/data processing, culinary arts, automotive service, mechanical production technology and mechanical design technology.

★ To gather data on inmate performance to improve future student selection, advisement and placement practices related to inmate training programs.

★ To substantiate the value of a

multi-agency cooperation in providing meaningful training experiences for inmates.

★ To develop a plan whereby the operation of the various training programs can be on a regular funding basis after June 30, 1973.

## Procedures of Implementation

The strength of this project request lies in making approved vocational programs available to the inmate population of Illinois State Penitentiaries at Stateville and Pontiac Prisons.

During the contract period (October 11, 1971 — June 30, 1973) facilities were made available to offer instruction for college credit applicable toward the following associate degrees: (1) Accounting/Data Processing, (2) Automotive Service (3) Culinary Arts (4) Mechanical Design Technology, and (5) Mechanical Production Technology.

Instruction with these programs is focused first on entry level skills in the occupational areas of: accounting/data processing, automotive mechanics, and food service. Each of these occupational areas according to the Illinois Employment Service is rated from "above average" to "high" in terms of employment vacancies. And this focus is consistent with the interests of inmates polled at Stateville and Pontiac Prisons.

The Director of the Inmate Training Program from Joliet Junior College has worked closely with the prisons and selected members of the prison staff to identify the facilities needed to serve the inmates. Space provided for these programs in the form of classrooms and laboratories was modified physically as necessary and equipped by the college.

Recognizing the need for long range consideration, Joliet Junior College is prepared to transfer ownership of all equipment purchased as a part of this special contract effort to the Department of Corrections after June 30, 1973.

This plan, the success of which is largely dependent upon the cooperative funding outlined in the proposed

(Concluded on page 82)

Projecting farm business income is an essential part of planning.

# ANOTHER STEP FOR ADULT EDUCATION

*Marcia Headrick  
Instructor of Horticulture  
Texas Department of Corrections  
Goree Women's Unit  
Huntsville, Texas*

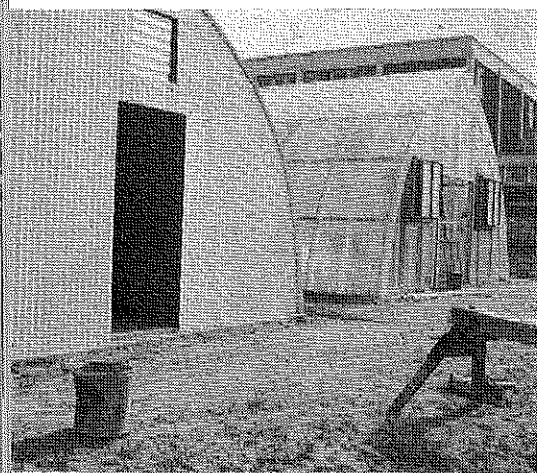


**Marcia Headrick**

Texas inmates of the women's prison unit can now be paroled or discharged with a newly acquired saleable skill in horticulture.

The "free world" schools, as they are called by the inmates at Goree, the prison for women in Huntsville, Texas, are not the only places one can be trained in the field of horticulture.

The horticulture program began July 1, 1972 and consisted of 50 women ranging in age from 20 to 67 and crimes ranging from minor offenses to murder. The program was designed to allow the students to be divided into five groups and rotate among four teachers. All teachers are employees of Windham Independent School District, which is limited to and encompasses all of the education programs (grades K-



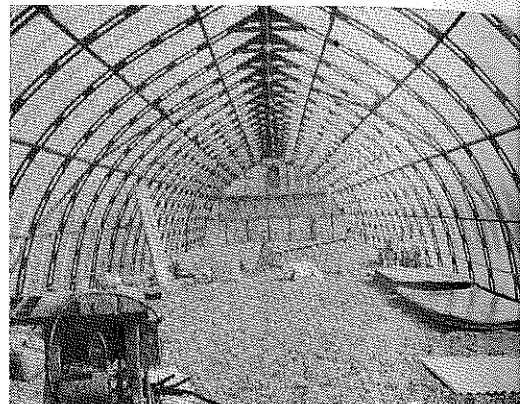
Facilities being constructed at Goree Prison for Women in Huntsville, Texas.

12) in the Texas Department of Corrections, TDC. For instance, group I on Monday attends Mrs. Mary Jefferson's class who teaches academics; Tuesday, group I is with Miss Terry Sims, who teaches occupational guidance; Wednesday, group I comes to Miss Headrick for horticulture theory and greenhouse experience. On Thursday, Mr. Robert Brock has group I outside practicing the theory learned in the classroom the previous day. On Friday, group I goes to their state assigned job in the prison. Lest the wrong idea be obtained, it should be understood that these women must work every day as well as go to class. All the classes are set up in the afternoon from 12 p.m. to 6 p.m. Each morning the women must spend four hours at their state job whether it be in the kitchen, garment factory, laundry, yard crew or various other jobs at Goree.

The classes will soon be moving to the new quansit hut greenhouse and head house. The head house will be divided into a classroom and work area, while the 20' x 100' greenhouse will be used in learning experience as well as helping to aid the prison system in retaining its position as self supporting.

Each unit of TDC has a goal to maintain. The horticulture class hopes to be able to aid the units in reaching this goal by supplying shrubs, bedding plants; and also in landscaping.

How does one feel when he starts teaching at the Windham School District? Most teachers are pretty nervous! However, for this teacher, on her first day at Goree she found herself less nervous than at the first day of student teaching under vocational agriculture teacher, Rex Stephens at Stephenville,



Greenhouse under construction.

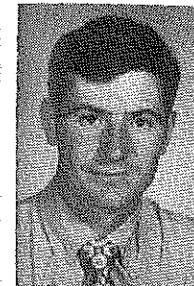
Texas. As a matter of fact this teacher concluded that it may be safer working in a prison than in some of the public schools today. The women enrolled in this class are no different than anyone else; they just have not had the same opportunities. They turned to means outside the law and got caught. Hopefully during an inmate's stay at Goree she will gain training and experience in some vocational field so she can get employment. One important aspect of the inmate getting a job, which is the hardest to teach, is the desire to work!

Horticulture is not the only vocational program at Goree, there are six others. A new Treatment Center houses a library, two units in cosmetology, two units in vocational office education, one unit in floriculture, and one unit in home economics as well as several academic classrooms and offices.

A woman, while in Goree, can get her training in any of these above fields, a General Education Development (GED), and credit for two years of college. This is one large step in the area of adult education. ◆◆◆

# CAREER EDUCATION FOR FARM WIVES

*Gary L. Kuhns  
Agriculture Instructor  
Atkinson High School  
Atkinson, Illinois*



**Gary L. Kuhns**

Career education is the biggest boom we've had in vocational education for several years. Career education takes on a wide range of forms and implies a variety of educational programs. We are more aware than ever of our responsibility as educators—not only to school children but to every individual in the community, kindergarten through life.

It was this new breath in educational thinking which prompted the Atkinson High School to offer a new program in adult education. The course was entitled "The Farmer's Wife Seminar in Machinery Operation."

## Organization of Seminar

A local farmer, Paul Catton, was the first to inform us of the need for a training program for farm wives. Mr. Catton proposed offering this program for several reasons. First, good reliable farm help is hard to find and many farmers cannot afford a "full-time hired man." Second, the lady of the farm owns one half of the machinery. She is more likely to appreciate the high investment and thus take better care of the equipment if she knows how. Third, many farm wives in the area enjoy working out-of-doors and are enthused about helping their husbands during the peak seasons. Fourth, safety is a big consideration in machinery operation. Through this seminar we hoped to make farm wives more safety conscious.

A brief outline of the three session seminar is given below:

When planning a course for farm wives, be sure to enlist the help of local businessmen and machinery dealers to provide equipment for discussion and demonstration purposes. These people are glad to help with any worthwhile projects. ◆◆◆



Young farm wives learn basic tractor maintenance as a part of their ag machinery seminar.

## AG MACHINERY SEMINAR FOR FARM WIVES

### I. FIRST SESSION

#### A. Registration

#### B. Introduction

1. Why this seminar
2. Instructors introduced

#### C. Daily Care & Maintenance of Farm Tractors

1. Use of operators manuals in caring for machinery
2. Daily service of farm tractors
  - a. Check Oil
  - b. Check air filter indicator
  - c. Tires
  - d. Radiator
  - e. Batteries
  - f. Greasing

#### 3. Proper starting and stopping tractors

- a. Procedures for diesel
- b. Procedures for gasoline tractors

#### 4. Using the instrument panel to operate machinery

#### D. Ladies perform checks on tractors provided in shop

Ladies were to go through full procedure of checking tractors & go through starting & stopping procedures)

#### E. Refreshments

### II. SECOND SESSION

#### A. Farm Safety

1. Introduction
2. News articles in papers of fatal accidents
3. Movies furnished by John Deere on safe operation of farm machinery. (Roll Bars, etc.)
4. Discussion of movies & farm safety

#### B. Refreshments

### III. THIRD SESSION

#### A. Farm Trucks

1. Discussion of driving, shifting, and two speed axle operation
2. Demonstration of truck operations in shop by local truck driver

#### B. Tools Every Farm Wife should have around the house & shop

1. Prices
2. Uses
3. Advantages of tools
4. Care of tools

#### C. Care of Lawn Tractors & Mowers

1. Service & Maintenance
  - a. Oil
  - b. Air Cleaners
2. Types of mowers available & advantages (mowers furnished by local dealer)

#### D. Presentation of Certificates

#### F. Evaluation & future planned courses

#### F. Refreshments



(Richardson—from page 77)

tion must become a high priority item in teacher training institutions. This could very well be the most productive avenue for establishing adult education as a higher priority on our agenda. The attitudes developed in beginning teachers should have a far reaching effect on adult education in years to come.

In summary, the question of "what is career education for adults in agriculture?" was formalized for the basis of discussing adult education. However, prior to discussing that question there are several items concerning our adult education programs that must be

(Swanson—from page 78)

examined. (1) We must become committed to adult education in agriculture. (2) We must re-examine the position of adult education on our agenda of activities for teachers of agriculture. (3) We must not foster the attitude that adult education is something extra. (4) The reimbursement patterns for adult education, in many cases, must be altered to reflect a commitment to adult education in agriculture. (5) Pre-service teacher training programs must place emphasis on adult work.

The five items outlined in this article are concerned as being the real problem that must be overcome if adult educa-

(Wright—from page 79)

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costs of lime, fertilizer, herbicide, insecticide, seed and other costs including fixed cost of the operation. We use ASC or SCS and other maps, planimeters or grids to get accurate acreage figures. We also project yields and prices at various levels to get a high and low income projection. We establish the total net contribution that we can expect if we depended totally on our cropping program. Non-cash crops, like pasture, are credited at going rental rates. Then, we proceed to take the existing livestock programs and in various ways project these earnings tying in the crop production with the livestock program, subtracting from the cropping program totals, the value of the grain and feeds it will supply to the livestock operation. The combination of these two operations turns out a total sales figure that the planned farming operation could yield in the coming year. Is this figure satisfactory? Will it

have a potential based on the percentages that we were talking about before of meeting the family living requirements and reinvestment capital? We find that we can talk about the problems from a management stand point and give the individual farmer or student an idea of whether his problem is volume, a low rate of return of gross sales, or a combination of the two problems. One of the most helpful factors about this approach is that it helps set limits on size and lets him recognize that fact that he doesn't have to be a big operator; that he can determine his level of total sales that will have a chance of returning him the needed earnings and be happy at this level. We refer to this as the happiness factor and consider it one of the keys to develop and maintain the feeling that the family farm is in a good position to maintain its supremacy in American agriculture.

tion.

The guiding of inmates to an appropriate instructional program and career choice was a joint responsibility of the instructional staff from the college and designated staff at Pontiac and Stateville Penitentiaries.

It should be recognized that initial instructions were limited by the facility preparation that was in progress at the time of start-up. Each inmate spends approximately twenty (20) hours per week in classroom and/or laboratory instruction which is basically the same amount of time spent by a full time college student. Those inmates leaving an instruction program having completed two semesters of work, will be capable of entry level employment within the occupational areas of: accounting/data processing, automotive

service, food service, welders, machinist/machine operator and draftsman.

#### Summary

We are very pleased with the Inmate Training Program. We have received from average to good responses from the inmates and administration of the prisons. We recognize that the older (more settled) inmates are taking advantage of the training program more readily than are the younger inmates.

The total year's budget for the project at the two institutions was \$534,030. The project was funded by the State Division of Vocational Rehabilitation, Department of Corrections, Division of Vocational and Technical Education, and the Illinois Junior College Board.

1 "Rehabilitation vs Revenge," *Time*, March 2, 1972.



Ralph C. Dobbs

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

## PARTICIPATION TRAINING FOR THE POST SECONDARY TEACHER

Lee Fitchett

Lee Fitchett  
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Chillicothe Area Vocational-Technical  
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Lee Fitchett

Over the past few years learners are telling educators that the participants want to be involved in the learning process. The adult learners are actually pleading to be heard. In a real sense adults are asserting their individuality, and asking for a voice in the entire learning process. The intensity of the interest among adult learners has caused educators to search carefully for possible solutions to this dilemma.

A number of authorities in the discipline of Adult Education such as Bergevin and McKinley<sup>1</sup> have answered this great challenge of the seventies with specific recommendations. At the very core of these recommendations is the concept of participation training.

The authors of this article maintain that participation training not only helps the learner become involved, but makes the instructor's job easier and hence paves the way for more productive teaching. Participation training is a system for helping group members help themselves by accepting personal responsibility for self and others in small group learning experiences.

#### Roles are assumed

In group participation training, members of the group actively get involved by accepting and playing several roles. Each learner assumes a role beyond that of learner. Rather than the instructor always being the discussion leader, the student actually learns how to lead. Each member of the group assumes the responsibility of assisting the class in making a decision on what the group desires to do. The *leader* also gets the group involved in formulating a plan to achieve their mutual goals. This experience constitutes reality.

Another interesting role assumed in group participation training is that of *process observer*. In the role of observer the learner does not take a verbal position. He gives strict attention to the process of interaction among the participants. By observing and critiquing what happens he becomes acutely aware of the strengths and weaknesses

that the participants possess. In this role, the adult learner gains valuable tips and information on how he may become more effective in future sessions. This insight applies to the leader's role as well as the observer's role.

In the role of *participant*, every member learns to accept responsibility for the group decision. With guidance from the discussion leader each member learns to share ideas. He assists other participants in the communication process. In this process he learns principles of group decision making. One of the most significant benefits is that each member of the group is viewed as an important person. His ideas are considered and evaluated by the group. He sees himself as a functioning part of the team.

Each session also has a *recorder* who may be co-leader if the group consists of more than twelve to fifteen members. By recording the development of the discussion on the chalkboard, members receive information faster and it is made more meaningful. Members can see what actually is being accomplished and therefore are better able to stay on the topic. They tend to accept the information more readily than if it came only from the instructor.

#### Element of structure for participatory learning

The basic structure for the decision making process is made up of three parts: (A) Topics, (B) Goals, (C) Outline.

In order to be educational and stimulative the topic should be stated as a question which cannot be answered with a "yes" or "no."

The goals of the group must be based on what the group desires or expects to achieve. This is accomplished in a cooperative atmosphere and requires the participation of everyone in the group.

In order to achieve the desired outcome several steps are explored. The group in essence, formulates a plan of attack which is called the outline. The outline or steps may be stated as ques-

tions, phrases, or goal-like tasks which define the sequence and content of the discussion. The desirable outcomes of group decision making are so numerous and practical that the modern adult teacher cannot afford to be without them.

#### Summary and applicability

Benefits which can be expected from participation training over and above traditional methods are as follows:

1. Topics to be discussed are always determined by need, interest and desire of the group of learners.
2. Participants define their own goals, which are subject to change as the need arises.
3. The responsibility for what is learned is up to each group member.
4. Group members direct the discussion along lines they wish to pursue.
5. Leadership is shared, giving each member an opportunity to gain leadership training.
6. Participation training provides a means of helping members to help themselves by learning how to learn.
7. Resource materials are used only to the extent needed to understand and solve problems as defined by the group.
8. A built-in relevancy factor allows interest to remain high.
9. Boredom is for all practical purposes eliminated.
10. A sense of team unity and personal reinforcement is developed and maintained.

In short, participation training is highly appropriate for all phases of education, but is particularly applicable for the post secondary adult learner. The busy instructor himself also benefits as this gives him a plan that will be successful in making sound decisions in both the teaching and administrative role at the post secondary level.

1 Bergevin, Paul and John McKinley, *Participation Training for Adult Education*, Bethany Press, 1969.

# CAREER EDUCATION: "Indian Adults"

James E. Watkins  
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James E. Watkins

The Vocational Agriculture Department of Tuba City High School, located on the Navaho and Hopi Reservations in Arizona, supports the concept that the school should meet the educational needs of the entire community. The Vocational Agriculture Department is meeting the needs of the adult Indians in the community by holding an adult education program in the form of short courses designed to upgrade the adult skills in farming and ranching. The courses have been set up in eight-week blocks of intensive training in specific occupational areas. The courses are offered through the public school in cooperation with the Bureau of Indian Affairs.

The first such course was based on a specific community need which exists in the small farming valley situated about one mile south of this community of 6,000 people. The irrigation system that supports the 600-acre farming valley consists of a diversion dam on the Moencopi wash which feeds into a rock-and concrete-lined supply ditch. Moencopi wash runs continuously only during the winter and only when it rains during the summer. Pumping water from the supply ditch when the wash is running, and directly from ponds in the wash when it is not running, is necessary in order to grow Indian corn, melons, and squash in the summer. The corn is very important to both Navaho and Hopi culture with both the corn and its pollen being used in their ceremonies. The pump engines that are used are primarily of the one-cylinder type, and maintenance and repair of these is highly important. The pump engines must be in running order at short notice so that maximum utilization of the sparse water supply can be accomplished each summer.

## Eight-week intensive adult courses were designed in specific occupational areas.

A small gas-engines course was obviously needed. The Vocational Agriculture Department realized this need and adopted the Internal Combustion Engines course that had been developed by Dr. Clinton O. Jacobs of the Agricultural Education Department at the University of Arizona in Tucson. The course offering was as follows:

### Adult Education: The Internal Combustion Engine

This is a unit of instruction in the "Internal Combustion Engine" using the small gasoline engine as the teaching model. The primary purpose of the unit is to acquaint students with the principles of internal combustion engine operation. The class sessions will include lecture, questions and answers, actual work on engines, quizzes, and

tests. After completion of the unit, students will be allowed time to repair any small engines they wish.

The lessons involved in this unit of instruction are as follows:

- I Principles of Internal Combustion Engines
- II Identification and Function of Engine Parts
- III Definition of Terms
- IV Valve and Ignition Timing
- V Fuel Induction-Carburetion
- VI Magnets Ignition-Distributor Ignition
- VII Spark Plugs
- VIII Taking Accurate Measurements
- IX Using the Torque Wrench in Engine Repair
- X Maintenance and Repair

This unit will equip students with entry-level skills for repair work on small gasoline engines. The class will consist of eight weeks of meetings. The class meetings will be from 6:00 p.m. to 9:00 p.m., on two nights each week for a total of 48 class-hours.

### Schedule of Class Topics

- 1st week—Principles of Internal Combustion Engines  
Identification and Functions of Engine Parts  
Definition of Terms
- 2nd week—Valve and Ignition Timing  
Fuel Induction-Carburetion
- 3rd week—Magnet Ignition-Distributor Ignition Spark Plugs
- 4th week—Taking Accurate Measurement  
Using the Torque Wrench in Engine Repair
- 5th, 6th, 7th, 8th weeks — Maintenance and Repair Including Repair of Student's Engines.

The class was held during the winter just prior to spring planting and 20 adults from Tuba City and the surrounding area were enrolled. During the class, many of the students repaired their own pump engines and these were put in use irrigating their small farms. After completion of the course, some of the students used their newly developed skills to repair or tune-up their tractors for the coming season.

Basing instruction on community needs has always been a principle that has made for successful operation of Vocational Agriculture Departments. The class offered by the Tuba City High School Vocational Agriculture Department, utilizing this principle, has done much to make a lasting impression on the members of the community, as well as to meet their needs. ♦♦♦

Arnold Carlson  
Wells Vo-Ag Farm Management Inst.  
Wells, Minnesota

# FARMER TEST PLOTS CAN HELP UPGRADE ADULTS

The basis for a good Farm Management program must be the use of the analysis on the individual farm operation. However, along with the individual farm analysis there are many other tools a Vo-Ag Instructor can use in his Farm Management program.

One set of tools that has been used by the Wells Vo-Ag Dept. for the several years is individual field check plots on each member's farm. Each farmer is encouraged to try something new, a new product or a new idea, on his own farm. When he does this, he leaves a check plot with the old product or old method. In the fall the products and ideas are evaluated to see if the new ideas are worth using on a larger scale. In the winter all the ideas are shared at Farm Management meetings. By having farmer try one idea each farmer has to only experiment once, but, he has 30 to 50 different ideas or products to look at depending upon how many members are in the Farm Management program and how many members participate. This testing allows the farmer to see how the new ideas from the Universities and companies work on his own soil type, with his farming practices, with local weather conditions. These individual plots are usually just a new chemical, new variety, a different rate of fertilizer, a different plant population, a different tillage practice, etc.

From individual testing most controlled checks have been conducted on corn varieties, soybeans varieties, and herbicides. The Wells Farm Management corn variety test plots started when several different members were each watching their own corn varieties and trying to do some cross-checking. There were no replications and often the yields of varieties differed from farm to farm even if the same variety was grown on more than one farm. These farmers, all members of the Wells Farm Management program, decided to conduct some replications using different farms rather than replicating the same variety several times on the same farm under the same conditions. A corn committee was formed in the Wells Farm Management program. This committee set up rules and regulations for having a corn variety test plot for the farmer that wants to be in the con-

trolled program. They also have set some rules and regulations for the corn companies cooperating. This started with six farmers or six replications and has grown to seven farmers all raising the same full season corns in each of their test plots, and 3 farmers all raising the same early season varieties. All of the farmer cooperators can add a few new varieties besides those selected by the committee to be tested, so they have an opportunity to look at new varieties. The varieties usually selected by the committee are varieties commonly sold in the area and new varieties that look promising. This year there are 38 varieties that are replicated on the farms and farmers will have an opportunity to see the results of 84 different varieties on these 10 farms.

The varieties are planted on approximately 1/2 acre each so they are machine handled and machine harvested. The farmer plants the varieties at the same population and uses his normal cropping practices used for all the rest of his corn on his farm. By doing this the plots are checked under normal field conditions. The farmers are not shooting for record yields but rather yield comparison checks among varieties. All data is recorded at planting time on tillage practices, fertilizer, planter settings, plate size, etc. Plant populations are taken, rainfall records are kept by the farmers, and unusual conditions during the growing season are recorded. In the fall meetings are held in the field to observe and discuss varietal differences and to study the corn practices. At harvest time stalk breakage, ear loss, moisture, test weights, and yields are recorded.

The results of all the test plots are published for each individual farm, are averaged by use of the replications, and published as an average. The published results includes dry bushel yields, gross profit as if sold wet from the field, test weight, moisture at harvest, stalk breakage, ear loss, seed cost, and profit over seed cost. The results are used by all Farm Management members and others that request the published data.

It has been an educational tool be-

cause it has allowed us to study all points of corn production such as planting rates, planter plates and settings, date of planting, amount and time of rainfall, as they affect the yield. Also studied have been chemicals used, varietal tolerance differences to chemicals, stalk breakage, ear loss, and maturity as compared to growing degree days. At harvest time we can study field loss, combine adjustments, test weight differences, drying abilities, etc. The profit side of selling wet corn verses dry corn, discounts, seed costs, seed size and how it affects cost can also be studied.

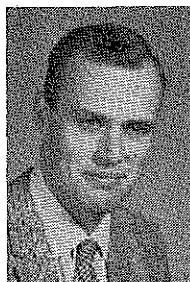
In the late fall meetings are held for all Farm Management members to discuss the test plot results. The members who have the plots serve on a panel to explain what they have observed, and to answer questions about the plots. This brings good discussion on corn varieties and general corn production practices. Later in the winter general meetings are held for all those interested. Meetings have been also held in neighboring towns to discuss the different results.

Because field plot checking has grown so heavily in the area the farmers that are members of the Farm Management program have purchased a weigh wagon to be used during the fall for any member that conducts any kind of check. Last year, the first year the wagon was purchased, over 250 samples were checked. This year the wagon will probably be used to weigh over 300 samples. It can be used for every test plot a farmer conducts, not just variety checks. Some of these test plots are not planned at planting time but turn up during the growing season when it is discovered that something unusual occurred. An example of this is chemical drift on soybeans where part of the field is affected but not the entire field.

Field check plots is just another tool that can be used successfully in a Farm Management program to supplement the total program. The individual farm analysis, however, is still the main basis of the total program. ♦♦♦



# A CRITIQUE OF RESEARCH IN AGRICULTURAL EDUCATION



Alan A. Kahler

Educators generally agree that the purpose of research is the development and testing of workable theories that will lead to solutions to problems and issues confronting the profession, with the eventual goal of improved program outcomes. In the past, research efforts in vocational education have been criticized as being "narrow, insignificant, and amateurish."<sup>1</sup> Is research in agricultural education attacking the critical problems confronting the profession? Are we developing and testing workable theories that will lead to solutions to these problems? Is the current emphasis on research "forward looking," providing teacher educators, supervisors, and teachers with the tools needed to solve current and emerging problems?

It is with such questions in mind that I propose to review research recently completed in agricultural education, observe trends, raise questions, and make generalizations concerning its direction and impact on problems and issues confronting the profession.

## Current Emphasis

Data presented in Table 1 reveal the percentage distribution of 458 studies completed in agricultural education from 1969 through 1971 by problem area. The 458 studies are those reported in the "summaries of studies series"<sup>2</sup> completed in the four regions.

With the current national interest on accountability in education and the emerging emphasis on competency-based programs in agricultural education, one would have expected to see a higher percentage of studies completed in the area of program evaluation and measurement. Questions raised by those outside of the profession concerning the allocation of federal and state funds to vocational agriculture programs certainly underscores the need for a critical review and analysis of program content and outcomes and the possible redirection of program goals and objectives.

TABLE 1  
PERCENT OF STUDIES  
COMPLETED BY PROBLEM AREA

Problem Area	1968-1969 <sup>a</sup> Percent	1969-1971 Percent
Administration and Supervision	11	11
Curriculum	15	17
Employment and Occupations	22	11
Evaluation and Measurements	14	12
Facilities and Equipment	1	.7
Historical	2	.3
Individuals with Special Needs	3	5
Research	2	6
Students, Occupational Guidance	14	19
Teachers, Teacher Education	11	8
Teaching and Learning	5	10
Total	100	100

<sup>a</sup>Percentage distribution reported by McCracken in the November, 1970 issue of *The Agricultural Education Magazine*.

It was encouraging to note the increase in number of studies completed in the area of curriculum. In the main, these studies dealt with the development and implementation of instruction in agribusiness occupations. Current emphasis

on career education will require that agricultural educators reevaluate program objectives and current course content with the purpose of incorporating the agricultural education program into the career education movement. What is the role of agricultural education in career education? What program changes will be necessary to infuse the study of agricultural occupations into the career development process? What changes must be made to adjust program content to occupational needs, interests, and desires of students? Research that will assist agricultural educators in developing and implementing "broad-based occupational education programs in agriculture geared to individual needs and interests of students" will certainly be "on target" in the years ahead.

It was pleasing to see the increased emphasis on research in the area of teaching and learning. Studies in this area dealt primarily with analyzing the effectiveness of using selected teaching methods and techniques in the teaching of vocational agriculture. More emphasis should be placed on studying more of the basic problems in the learning process such as how students learn, factors that effect learning, and student interest and needs assessment. These are difficult problems to research, however, with our increased sophistication in the field of research, we should be able to contribute to a better understanding of these basic problems.

The largest group of studies conducted over the past two years were in the program area entitled "Students, Occupational Guidance." Approximately 80 percent of these investigations were follow-up studies of former vocational agriculture students. While the results of these studies provide valuable information concerning the current occupational status of graduates, they rarely provide concrete information about the effect of the graduates education on the process of becoming established in their present occupation. Research in this program area should be broadened to include more of the basic problems dealing with occupational choice. Blau, et al.,<sup>3</sup> pointed out that, "Occupational choice is a developmental process that extends over many years. There is no single time at which young people decide upon one out of all possible careers, but there are many crossroads at which their lives take decisive turns which narrow the range of future alternatives and thus influence the ultimate career choice of an occupation." How do young people make occupational choices? What are the critical times in a young person's life that most influence ultimate career choices and how do we recognize these times? What kinds of information does the student use at these critical periods to make valid decisions leading to a career choice? What types of educational experiences should be provided for students that will provide the background information needed to make valid career decisions?

## Scope of Research

Of the 458 studies completed during the 1969-71 period, 38 percent were studies of local problems, 12 percent were studies of problems covering large geographic areas within a state, 43 percent of the studies were statewide in scope, one percent dealt with problems involving several states, and six percent were national in scope.

The fact that 93 percent of the studies completed were

either local or statewide in scope suggests that researchers in agricultural education are identifying real problems confronting the program in their states and communities and are attempting to find solutions to them. Some would argue that such an emphasis on research has little cumulative effect on the issues confronting the profession. When one realizes, however, that the vocational agriculture program varies by state and community being geared to individual community and state needs, this emphasis seems quite appropriate.

A real need exists to expand research efforts in agricultural education to include more regional and national efforts. While there are program differences among the states and communities within states, there are many problems that are common and even unique to regions and the nation that require the attention and combined efforts of researchers within those regions.

## Staff Involvement in Research

Data presented in Table 2 reveal the percentage distributions of studies conducted by staff members and graduate students. As one would expect, a large portion of the research completed was done by graduate students in agricultural education. It was interesting to note the increase in percentage of studies completed by staff members. Thirty-two percent of the studies carried out by staff members were regional or national in character and 46 percent were statewide studies. Approximately one-third of the studies were continuing studies requiring several years for completion.

It is apparent that efforts on the part of agricultural educators must be intensified in bringing about more coordinated, institutionally-supported research efforts in and among the states. The thought that research in agricultural education is a function of teacher education must change. Supervisory personnel and teachers of vocational agriculture must become more involved in the research process. We will, never be really effective in translating research findings into program procedures and practices until all of these people are involved in the research process.

TABLE 2  
PERCENT OF STUDIES COMPLETED BY  
STAFF MEMBERS AND GRADUATE STUDENTS

	1964-1966 <sup>a</sup> Percent	1968-1969 <sup>b</sup> Percent	1969-1971 Percent
Staff	13	11	17
Doctoral	20	32	32
Masters	67	57	51
Total	100	100	100

<sup>a</sup>Percentage distribution for North-Atlantic Region reported by Love in the March, 1968 issue of *The Agricultural Education Magazine*.

<sup>b</sup>Percentage distribution reported by McCracken in the November, 1970 issue of *The Agricultural Education Magazine*.

## Design and Methodology

A review of research methods used are summarized in Table 3. One concludes that a situation of status quo exists and that research in agricultural education is very "backward looking."<sup>4</sup> This impression is borne out by the fact that 88 percent of the studies completed during the 1969-1971 period were ex post facto and survey studies. Only 12 percent were experimental in design and considered "forward looking."<sup>5</sup> One would be in error to assume, based on the strong emphasis placed on ex post facto and survey designs, that research in agricultural education lacks sophistication and soundness. The problem, sources of data, purpose of research, and other such factors should dictate the selection

TABLE 3  
METHODS OF RESEARCH USED IN STUDIES

	1964-1966 <sup>a</sup> Percent	1968-1969 <sup>b</sup> Percent	1969-1971 Percent
Experimental	14	14	12
Ex post facto	39	16	17
Survey	47	70	71
Total	100	100	100

<sup>a</sup>Percentage distribution for North-Atlantic Region reported by Love in the March, 1968 issue of *The Agricultural Education Magazine*.

<sup>b</sup>Percentage distribution reported by McCracken in the November, 1970 issue of *The Agricultural Education Magazine*.

of the design to use in conducting the study. McCracken,<sup>6</sup> when discussing methodological weaknesses of survey designs pointed out that, "In survey research, major problems result from non-probability sampling, failure to follow-up nonrespondents, questionable reliability and validity of measurement instruments, and projection of findings beyond that which is justified by analysis of data." With such a large portion of our research being of the survey type, one wonders about the reliability and validity of our total research effort and its real impact on problems confronting our profession at local, state, and national levels.

## Summary

It is apparent that research is being conducted in many of the substantive areas of agricultural education. While these efforts may appear to be small and fragmented, they are attacking problems confronting the program on a local and statewide basis and should be considered most worthy research efforts. In light of research priorities observed in the 1969-1971 summaries of studies, it would appear that the research completed is providing the practitioner with the tools needed to solve these problems on a limited basis. There is credence, however, in the statement that research in agricultural education is to play a more prominent role in solving problems confronting our profession, we must (1) respond more quickly to studying current and emerging problems as they develop, (2) expand the scope of our investigations to include more regional and national studies of common problems, (3) become involved in researching more of the basic problems underlying the more apparent problems that are currently being researched, (4) expand our research activities to include both knowledge and expertise from other related disciplines, (5) devote more staff time at all levels to research thus increasing the scope and magnitude of our total research effort, and (6) make better use or more sophisticated research methods to insure a higher degree of reliability and validity in our research findings.

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# TEACHING ADULTS IN RETIREMENT

Carman Parks  
Vocational Agriculture Teacher  
Callaway County High School  
Murray, Kentucky



Carman Parks

In 1938 when I began teaching agriculture the thinking was that agriculture teachers should guide the students who enrolled in their classes in the direction of production agriculture whether they were on the secondary level or adult level. Agriculture teachers didn't suspect that future needs might be somewhat different.

As years passed changes began to take place. Many teachers were hesitant to accept the challenge of change; consequently they were doing a less effective job of educating.

Fortunately as the need of change became more apparent, teachers accepted the challenge as will be revealed by the following example. "John" enrolled in my adult farmer class because he was invited to do so by a regular member who wished him to meet the other farmers and the agriculture teacher. Mr. John Morgan was a retired Air Force colonel who was new in the community. He and his wife, Pat, had bought a small tract of land on which they had built a beautiful house. They wanted to do more than "just live" on the farm. Being capable people who enjoyed good health, they wished to make the most of their opportunities. Neither had been "farm oriented" prior to John's service years.

John, having little knowledge of farming and wishing to grow beef cattle, presented to me the challenge to change. What could I do for Pat and John? First, additional land was needed to support a beef animal enterprise. Nearby a forty-five acre tract of land had been abused and abandoned but with proper preparation it would be suitable for beef cattle.

The challenge was met and John bought the land, cleared undesirable growth, and repaired run-down fences. With the help of the ASCS, a pond was built. With the help of the agriculture teacher, John limed, fertilized, and seeded the land to a permanent pasture. The land responded to treatment and soon was ready for cattle. Beef cattle with

**A part-time enterprise in retirement became a larger learning experience which contributed to the community.**

calves and a good bull were purchased. The Morgans were on their way to a successful enterprise, enjoying life, and making some extra money while they were retired.

Caring for a small herd of beef cattle didn't take all of John and Pat's time. Pat became interested in growing a vegetable garden. Hearing about the new horticulture program and greenhouses, John and Pat decided to add a small greenhouse to their operation. Both operations began to grow. Additional land was purchased and extra help was needed in the greenhouse. This created opportunities to hire women in the community who were otherwise unemployed, enabling them to earn extra money. Both operations were proving to be profitable.

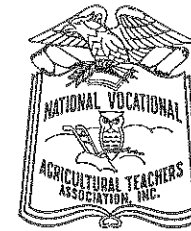
Again more land was bought, some of which was woodland from which timber was sold. Another greenhouse and an expansion of the beef herd resulted. The structures of the greenhouses necessitated little investment; however, the return was great.

This entire operation began six years ago. John has never missed a class session. Now John and Pat own and operate eight hundred and fifty acres of land, have one hundred head of beef cattle, and are producing bedding plants and landscape plant materials in four greenhouses. The Morgans enjoy their work saving life. They have time for vacations, time for entertaining friends, and time to really enjoy living.

I believe that our vocational programs will continue to expand and improve, and it behooves the agriculture teacher to prepare himself so that he may render a service to all the people in the community where he lives and teaches. Today we hear, not production agriculture exclusively, but career education with emphasis on agribusiness, natural resources, and environmental occupation. ◆◆◆



Sam Stenzel  
Assistant to the Executive Secretary  
National Vocational Agricultural  
Teachers' Association, Inc.



One of the major goals of the Executive Committee for the National Vocational Agricultural Teachers' Association (NVATA) is to publish a complete history of the NVATA during the Silver Anniversary year. The research for significant information has revealed several "Happenings" which the author thought sufficiently interesting to be shared with NVATA members.

- The NVATA was organized during a special session for agricultural educators attending the 42nd American Vocational Association (AVA) Convention December 1-4, 1948 held in Milwaukee, Wisconsin.

- The NVATA was the second National Association organized for vocational agriculture teachers. During the 1929 AVA Convention at Philadelphia, an organization was formed but continued for only two years.

- Four NVATA presidents served less than a full three year term prior to their election. Those presidents and their terms as Regional Vice President were Julian Carter, Wellsville, New York (1958-59); Walter Bomeli, Bangor, Michigan (1961-63); Sam Stenzel, Russell, Kansas (1963-64); and William G. Smith, East Brunswick, New Jersey (1967-68).

- The NVATA has had two Executive Secretaries. Lionel E. Cross, San Jose, California served from 1950-1958 and James Wall, Lincoln, Nebraska has served since November 1958.

- Six persons have served as treasurer of the NVATA. They were Jess

# Happenings In The NVATA Between 1948-1973

Prelude to the NVATA 25th Anniversary Issue of The Agricultural Education Magazine, next month.

Smith, Geneva, Wisconsin (1948-50 and 1952-54); LeRoy Bunnell, Tremonton, Utah (1950-52); Eldon Taylor, Redding, California (1954-58); Paul Mechling, Lancaster, Ohio (1958-59); Robert Howey, Sycamore, Illinois (1959-67); and Sam Stenzel, Russell, Kansas (1967-72).

- Joe Cuffman, Midland, Texas served as the NVATA Region II Vice President for five years (1950-55).

- Two past presidents of the NVATA have been elected vice president of the AVA Agriculture Division. They were Floyd Johnson, York, South Carolina (1965-67) and Glen D. McDowell, Pikeville, Kentucky (1973-75).

- Past president Julian Carter, Wellsville, New York was elected president of the National Association for Supervisors of Agricultural Education.

- Floyd Johnson, past president of the NVATA was elected AVA president for 1967-68. He is the only vocational agriculture classroom teacher ever elected to that position.

- Luther W. White, Northport, Alabama, died while serving as alternate vice president of NVATA Region V in 1956.

- Robert Bishopp, Powell, Wyoming served only eight months as NVATA president; Luther Hardin, Searcy, Arkansas served as NVATA president for 16 months. The 1957 AVA Convention was held in August and the 1959 Convention was moved back to December. NVATA presidents serve from Convention to Convention.

- Two Regional alternate vice presidents were teachers in the same high school. Elmer Olson (1954-55) and Verdine Rice (1958-60) taught vocational agriculture at Williston, South Dakota while serving as alternate vice president.

- Earl McKim, Eaton Rapids, Michigan served as alternate vice president for Region IV for six years (1952-58).

- W. S. Weaver, Delphi, Indiana served two one-year terms as vice president for NVATA Region IV. He was elected to complete the unexpired term of George Buchanan, Frankfort, Kentucky (1960-61) and Walter Bomeli, Bangor, Michigan (1963-64).

- The NVATA has recognized 173 persons with Honorary NVATA Membership, 63 persons with NVATA Citations, and 13 agribusiness firms with the Outstanding Service and Cooperation Award.

- Twenty-three persons serving as NVATA president are still living. Jess Smith, Geneva, Wisconsin (1950-51) and A. C. Hale, Camden, Arkansas (1951-52) are deceased.

- The November issue of the *Agricultural Education Magazine* will be devoted to the NVATA professional leadership in agricultural education and services provided to affiliated State Associations and individual members. A complete NVATA history is being prepared and will be available at the 25th National Convention in Atlanta, Georgia December 1-5, 1973. ◆◆◆

## BOOK REVIEW

FUNDAMENTALS OF SERVICE — POWER TRAINS, by John Deere Publications, Department F, John Deere Road, Moline, Illinois 61265, Second edition, 1972, 156 pages, 212 illustrations, \$5.20 Softbound.

This text is written in a clear understandable language updating transmissions, hydrostatic drives and torque converters. Color diagrams and actual photographs aid greatly in understanding theory.

The text is basic for high school and post high school as well as for shop trainees and vocational students. It is designed primarily for use in understanding power trains as they are commonly used to transmit power on the farm and ranch and in industrial

machines.

Color slide sets (35mm) are revised and expanded to cover the new edition. 195 slides — \$64.00.

Transparency masters are now available for use with this book. 130 masters — \$13.00.

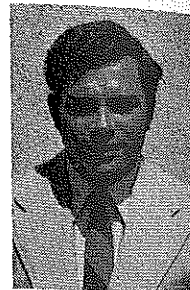
M. G. McCreight  
Associate Professor  
Agricultural Education  
University of Nebraska — Lincoln



J. F. Lawrence

# IN TEACHER EDUCATION -- APPLY "LEARNING BY DOING" WITH ADULTS

J. F. Lawrence, Specialist Continuing Education in Vocational Agriculture Bureau of Agricultural Education University of California, Davis



H. John Kihorany

H. John Kihorany, Vo-Ag Teacher Special Training County Office of Education Santa Cruz, California

Teacher educators, right along with local vo-ag instructors, are facing very challenging and changing demands to meet the needs of youth and adults who have special deficits, handicaps or disadvantages. Also, the role of the teacher is changing in order to match the expanding responsibilities that will tax his ability to manage resources and supervise his total program properly.

Vo-ag, perhaps more than any other type of educational program, requires close cooperation with the community. It prepares and retrains youth and adults for gainful employment in agricultural occupations and also supplies the means for upgrading their skills. Combining the "learning by doing" student teaching experiences to also include the actual conduct of an adult class can well provide an invaluable learning tool for the total teacher education process in agriculture.

Coordination between the secondary adult evening school principal, university vo-ag teacher trainer and Bureau of Agricultural Education specialist for adult and Young Farmer education has prompted the selected use of student teaching resources made available during the spring on-campus phase of the graduate year offered at the University of California, Davis campus. This is in addition to the normal practice of en-

couraging student teachers to observe a Young Farmer meeting or adult class while gaining actual teaching experiences with high school classes and FFA members.

Those student teaching experiences derived from this practical concept have concluded:

- 1) immediate challenge to lesson preparation, technical expertise and rapport with adults;
- 2) insights gained regarding adult educational needs and demands;
- 3) confidence gained in working successfully with adults;
- 4) cooperative efforts realized as a community resource manager.

Normally, newly credentialed vo-ag teachers encounter heavy time demands as they achieve job placement and establish themselves in their respective high school programs. Little priority if any is provided in the area of adult education. Moreover, the majority of new teachers during this first or second year generally are prone to lack confidence and be reluctant to deal with a Young Farmer program or special adult class as an instructor. And, those teachers lacking basic understandings of the needs and desires of adults avoid the consideration of expanding or adapting the educational resource of the vo-ag department for meeting those needs.

Perhaps teacher education is overlooking a most vital learning device if the present curriculum coverage of adult and Young Farmer education reflects only a token emphasis at best and continues to remain a separate and sometimes alien part of the total vo-ag program concept.

**Special senior citizen class benefits both teacher and student:**

A recent example of U.C. Davis graduate John Kihorany exemplifies the kind of benefits derived from teaching a special adult class while completing credential requirements during the Spring 1972 on-campus training. John replied to a request by the Davis High

School Adult principal to set up a special Saturday morning vegetable garden class to include senior citizens and convalescent patient type individuals. With a \$25.00 budget to develop a 10-week course, John immediately sought community resources. A plot of vacant ground was volunteered adjacent to the convalescent home, reducing transportation problems. A nearby store supplied water. A tractor, plow, hoes and other equipment came from the City Parks department. Seed was donated by a company 50 miles away. "I learned a very important fact," states John. "People, businesses, ranches and agencies are most willing to help if you go out and ask for it."

Being offered for the first time, the course enrolled a diversified group of 22 people: one high school aged student, four middle-aged women, two retired couples, four women over 65 years of age, two men over 50 years of age, and seven convalescent patients (some in wheelchairs) from 45-75 years of age.

The course was designed to be 90 percent practical and 10 percent theoretical problem solving. Instruction included planning, planting and caring for a vegetable garden, mini-gardens, disease and pests, resource people and field trips. A major instructional goal was accomplished as the class participants carried on the garden through harvest time, long after the 10-week session ended:

Several interesting developments occurred:

- 1) certain convalescent patients had to make adjustments to the work demand and their physical handicaps through teamwork and cooperation;
- 2) a surprisingly keen interest for field trips developed;
- 3) the importance of developing good public relations with the community was recognized;
- 4) instructional technique became very individualized;

(Continued on next page)

- 5) a very cooperative relationship developed among class members.

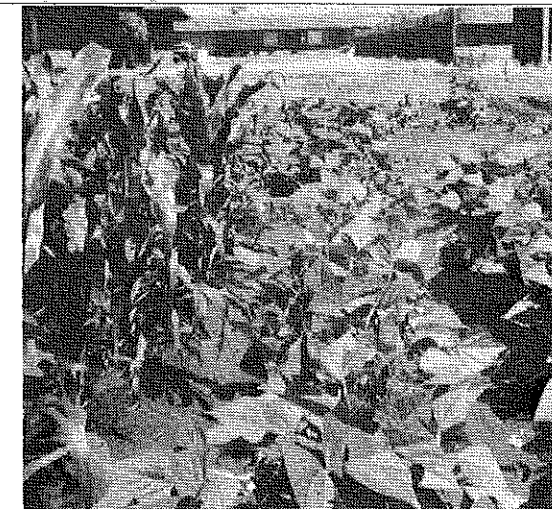
In teaching adults and learning how to best fulfill their individual needs, John believes you must first be capable of recognizing adults' needs and problems. John's background with this pilot class, his vo-ag training and Peace Corps experiences were instrumental in his being hired by the Santa Cruz District office this year to develop a special agricultural lab program for mentally retarded young adults and high school aged youth.

### Benefits to Vo-ag department:

Vo-ag instructors agree that the benefits derived by vo-ag departments that have successfully incorporated adult education classes into the total program plan reflect:

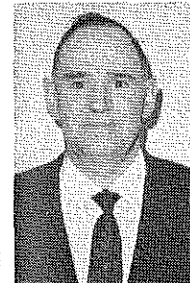
- 1) a high level of school-community communication and relationships;
- 2) fuller utilization of school facilities;
- 3) indirect instructional upgrading of the day high school classes;
- 4) a most viable community support base with a built-in public relations program;
- 5) direct articulation with the needs and demands of the industry.

If we are to meet the challenges of the Vocational Education Act and the needs of adults as well as secondary students, it will be vital to also apply our "learn by doing" concept to the preparation of teachers for adults in agriculture.



Near-harvest time — class has already concluded its 10-week meeting schedule, but members followed through to harvest. Convalescent home in background:

Bert T. Showman, Instructor Northwest Technical College Archbold, Ohio



Bert T. Showman

For many years farmers have had offered to them educational meetings in the various areas of agricultural production, presented by vocational agriculture departments, the agriculture extension services of the land grant colleges, and even by many of the industries serving agriculture. All too often these meetings are presented via what we call the "shotgun approach." A series of meetings will cover a wide variety of topics, each covered in rather general terms, factual information, without really teaching the farmer to solve a specific problem. The purpose of education is to train people to use certain facts to solve specific problems, not just to disseminate information.

You must know the specific and immediate needs of the farmers you expect to serve before you can plan a really helpful series of instructional meetings. Such a list of needs is not easy to acquire because many times the farmers themselves are not fully aware of some of their real problem areas. Ohio Vocational Agriculture has promoted a program of Farm Business

## MEETING FARMERS' SPECIFIC NEEDS

Planning and Analysis for several years. Through this program farmers are guided through the process of accurate record keeping and a thorough analysis of the farm records to determine the strengths and weaknesses of the farm business. Once complete and accurate records of the farm business have been analyzed, the specific needs of each farmer become apparent. The analysis may indicate problems in feeding efficiency, crop yields, marketing efficiency, labor efficiency, overmechanization, excessive overhead, or insufficient volume of business. The analysis will also indicate the strong areas of the farm business on which you can build.

"Shotgun series" of adult meetings too often do not help the farmer solve a specific problem.

A number of different plans are available which can give you a complete farm business analysis. Many of the agricultural colleges offer a computerized analysis through their extension services. Production Credit Association offers an electronic farm accounting system to its patrons and several private companies have made such a system available. Whether you use a computerized system, or perform

your own analysis makes little difference as long as you acquire the needed information.

Build your training program around the known needs of the farmers you serve. It is important that discussion of a particular problem be carried through to a decision or solution. Lead your farmers through their problems to a decision; their decision, not yours. Adults need training in the decision making process too. Since many of the management decisions to be made will be private and rather confidential in nature it will be necessary to follow up your class room meetings with individual on-farm training sessions where the final decision will be made.

Individualized instruction such as this requires a lot of time on your part and limits the number of farmers you can serve at any one time. However, those who have already been trained in record analysis and the decision making process will be better able to go it alone while you spend your time with another group.

If you want real personal satisfaction and a sense of serving the farmers of your community, try this personalized method of working with your adult farmers. Your returns in friendships and accomplishments will far outweigh the costs of time and effort on your part.



Seven members of the special adult class and instructor John Kihorany (third from right).



# CAREER EDUCATION: ADULT PROGRAMS

## *A Unique Opportunity To Serve Returning Veterans*

Clayton P. Omgig  
Teacher Education  
Department of Vocational Education  
University of Kentucky, Lexington



Clayton P. Omgig

Career education has an important part to play in adult programs in agriculture for many individuals, but, since our veterans have been out of the job market and away from recent developments in agriculture and agriculture-related occupations for two years or more, career education has a unique role to play for them. For those who desire to return to agriculture, an awareness program slanted toward current opportunities would be very valuable. Upgrade training will surely be sought by those who have a farm or agricultural job to which to return. Others will face the problem of desiring an opportunity to farm, but not finding this a realistic possibility because of the investment required today or because of the lack of available land.

All in all, the problems of the returning veteran today are much different than those problems which adult programs in farming helped solve two decades ago. The following discussion, although unique to the veteran, is applicable for all adult programs in agriculture.

The components of career education have been pretty well outlined. These include (1) awareness, (2) orientation/exploration, and (3) skill preparation. When speaking of these components, we generally consider them occurring during the K-12 years of our formal education with awareness to occupations and the world of work a K-6 responsibility, orientation/exploration a 7-10 responsibility, and skill preparation in grades 11-12 and extending into postsecondary education.

Proponents of career education argue that it should be a continuous education process "from the cradle to the grave." The potential audience for adult programs in agriculture has not had the benefit of the "cradle to adulthood" portion of that process. Therefore, we must take them from where they are, adults, and, until career education becomes well established in our public schools, work to develop a uniquely adult career education program in agriculture.

How can this be done? The traditional adult education programs in vocational agriculture have not all been successes in the past. How can something so new and so nebulous be a success?

Most people involved in adult education programs in agriculture are directly involved with production agriculture. It is also true that a great many persons who engage in production agriculture must participate in some other income producing venture in order to provide sufficient income to sustain themselves and their families. Typically, the small farmer moonlights in such occupations as selling seed and feed; working for implement companies; carpentry; elevator work; or the wide range of custom-work activities. Still others find supplemental employment in factories or

other full-time positions. In the latter cases, agriculture often becomes the supplemental income. Programs should be devised which capitalize on this knowledge.

Why do individuals work in production agriculture as well as in other jobs? Many could find full-time employment elsewhere and not have to work in agriculture also.

The answer to the above question poses an interesting problem to people involved in planning and implementing adult programs in agriculture. A majority of the people who work elsewhere to supplement their incomes do so in order to remain on their farms or to remain associated with production agriculture.

What alternatives can be provided through adult programs in agriculture? In the broadest sense, the initial phase of career education must include all occupational clusters. In a model program, as we leave the awareness phase, we begin limiting the number of clusters investigated, but cover a few in more depth. By the time we reach skill preparation, we are down to a single cluster. In many respects, the adults enrolled in adult programs are "down to a single cluster," farming and agribusiness occupations.

What then might constitute a uniquely adult career education program in agriculture? As has already been stated, the adults who constitute the potential enrollment for programs have not had benefit of career education and may not be cognizant of the many opportunities available to them in farming and agribusiness occupations. Therefore, the following activities are suggested as a means of bringing career education into upgrade training for the adults in agriculture.

1. **Individual counseling** — Adults enter programs for a variety of reasons, but unlike secondary education students, they are not required to do so by law or by parents. We can, therefore, assume that they have a real or felt need for participating. How often do we take the time to find out why an individual enters an adult program? He has a purpose or he would not be there. This purpose might relate to upgrade training to more adequately perform in his present position or it might be to prepare the individual for a new or supplemental position. How can we help the adult move toward his career objective if we don't know what this objective is? The adults' interests and goals must be identified if we are to work with them in a meaningful way.
2. **Occupational awareness** — In working with adults in upgrade training, one should be in a position to provide information relative to the wide variety of occupations (full and part-time) which are available in farming and agribusiness fields. This can be accomplished as part of the formal instruction in some classes, informally through bulletin boards and

# TEACHING MANUAL SKILLS TO THE DISADVANTAGED

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The teachers of disadvantaged students today face an ever-growing body of knowledge from which to select instructional methods and use the most productive techniques for presenting materials and subject matter.

Education is faced with the problem of more effective utilization of teachers and methodology. The vocational agriculture facility of the school often contains the tools, machines, and materials of industry. These items constitute the media through which the learners may be taught.

Literature has documented the problem of the so-called "socially and culturally" disadvantaged students in traditional school programs. The "disadvantaged" are of various races and ethnic backgrounds and they may suffer learning difficulties.

Teaching techniques in the usual operation with the disadvantaged are those commonly used in regular student programs. Among the problems the teachers of disadvantaged students face is the selection of effective techniques for teaching these young people and which, if any, traditional or innovative techniques will work? Another pertinent inquiry is whether disadvantaged students can learn as well with the auto-instructional methods as they can with the conventional mode of instruction or whether auto-instruction supplemented with the visual aids is as effective as the conventional method.

The study on which this article is based was conducted in a vocational school for disadvantaged youth. The general format of the experimental design consisted of two instructional methods and each unit consisted of one class. The modes were auto-instruction and the conventional lecture-demonstration method, both reinforced by

visual aids. Students' names were alphabetized first and then randomly assigned to each mode of instruction. Each group, which included six students, was under its respective mode of instruction for three weeks. At the end of the three weeks, the group switched modes. At the beginning of the fourth week the control group served as the experimental group and the experimental group served as the control group.

Group one (experimental) was subjected to the auto-instruction mode. A typical class began with a review of the previous week's lesson, and was led by the experimenter because of the students' general low ability to read. The auto-instructional mode, like the conventional mode, consisted of half of the class period being used in their respective modes and the second half of the class period was devoted to lab work. The students had the programmed instruction recorded and played to them by the experimenter who served as the monitor. After review of previous material, each student worked on his own for the remainder of the class with limited assistance. At the midpoint of the class period, the students were allowed to have a recess. When the students resumed, the monitor assigned students to laboratory work. With the experimenter serving as monitor during the lab procedures, he answered individual student's questions and worked with those who needed assistance.

The control group worked in the conventional setting. Lecture, discussion, and demonstration served as a basis for instruction reinforced by visual aids. The experimenter followed the same sequence of information. The lecture contained the same subject matter in the same sequence as that which was introduced in the first mode.

Progress of the students was assessed

by a series of tests which consisted of the following:

**Retention.** This test consisted of examining the students' ability to retain information.

**Observation.** The observation of performance examination required the subjects to perform a manipulative skill. The experimenter, along with the vocational agriculture teacher, recorded the students' sequence of action as they attempted to perform the skills.

**Time.** During the entire experiment records were kept of each subject's time to perform the designated skill so that the time variable could be analyzed.

Each instructional mode was designed to follow the same programmed materials, keeping in mind that the primary purpose of the experiment was to contrast the two methods of instructional procedure.

The findings of this study revealed no significant differences between performance of students taught in the conventional method and those taught by auto-instruction. This was true concerning the observation and retention factors, based on the two-way analysis of variance. When treatment by skills was analyzed against time, a significant interaction at the .01 level occurred. The conventionally taught group consumed less time than the auto-instructional group.

There was evidence that students with special needs can be taught manipulative tasks and related information equally well through a self-instructional method or the conventional method of instruction program. The special need students seem to be able to learn the cognitive aspect of manipulative skills through either technique. ◆◆◆

displays, or by establishing special classes dealing with careers in agriculture. For example, in a class on records management, part of the discussion could center around the application of such training in addition to keeping one's farm records in order. This could include the various career levels available and the preparation and experience generally required.

3. **Orientation/Exploration** — The orientation/exploration component of a career education program includes indepth study of an occupational cluster(s) including "hand-on" experience if possible. If we take the position that we are going to assist the "individuals" in our program in career development activities, how can this component be accomplished?

In many respects, orientation/exploration is an indepth extension of awareness. Since it may not be practical to expose all adults to an organized series of exploration activities, this component could be satisfied (1) on an individual basis or (2) through case study type of discussions of actual experiences by members of the group. The career possibilities discussed should play a significant role in stimulating individual pursuit, and case studies would tend to increase career awareness and, at the same time, give a feel for what the occupation has to offer.

4. **Individualized Instruction** — Adult programs must possess the flexibility to adjust to the varying career objectives which are present in the potential clientele. Remember, the difficulty of fitting secondary students into a common mold is many times compounded when considering adults. If an adult is stimulated toward pursuing a given career, instruction and counsel must be geared toward helping him achieve his goal. This kind of individual attention will require effort above and beyond that of the classroom or shop.

Since an adult attends a program on his own, the success of that program depends upon the perceived benefit derived by the participant. If no benefit is received, the individual will not be back, nor will he recommend adult programs to anyone else.

The career education concept can be integrated into adult programs and can help these programs gain new life. There are many populations to be served; this calls for individualization to the extent possible. In addition to programs which can be directed toward returning veterans, there are successful farmers striving for higher standards and small farmers needing skills to obtain part-time employment in agriculture related occupations. The potential clientele is there. Active recruitment and relevant programs will assure the adult participation. ◆◆◆

**FUNGI IN AGRICULTURAL SOILS**, by K. H. Domsch and W. Gams. New York, Halstead Press Division John Wiley & Sons, Inc. 1972, 290 pp. \$19.75.

The authors have treated very systematically and thoroughly a discussion of ninety-eight genera and two hundred fourteen species of fungi in agricultural soils.

Individual species are described according to several features such as color-pigmentation, smell, shape, structure (stolen and rhizoid formation), branching patterns, and special identifying characteristics (corkscrew effect, etc.) are explained in brevity.

The occurrence of each of the two hundred fourteen species are categorized as worldwide, regionalized, or local distribution. The specific soil adaptation is usually noted such as predominance in forest soils, arid soils, and arable soils. The frequency of occurrence under specific cropping conditions is also noted.

Growth characteristics are provided in detail. The fungus' optimum temperature, Ph range, nutrient needs, speed of growth and optimum substrates are incorporated into each discussion.

Special specifics are noted for most entries. Factors such as antagonism, by-product formation, preferred substrates, and common production problems or benefits caused by the particular fungus.

The co-authors, Domsch and Gams, are both Germans. The original book was written and published in Germany in 1970. A translation into English yielded this review edition.

The book is quite technical and could be used in a high level undergraduate agronomy course in soil fungi. The use in a high school classroom would likely result in boredom and disinterest. The use as a reference book for teachers of high school students is somewhat questionable. A teacher with a special interest in soil fungi might use the book to good advantage and want it in his bookshelf as a special reference.

Larry D. Rost  
Purdue University

Nine sections are covered in the publication: Electricity — How It Works, Testing Tools and Equipment, Storage Batteries, Charging Circuits, Starting Circuits, Ignition Circuits, Lighting and Accessory Circuits, General Maintenance, Diagnosis and Testing of Electrical Systems. A page is devoted to symbols and several pages of definitions of terms.

This is a very well illustrated publication with ample pictures, cutaway views, schematic drawings and other illustrations. Color is used to bring out the detail. Chapter 1 "Electricity — How It Works" is very basic and should give the reader the fundamentals of the theory of electricity and magnetism so he should have no difficulty with the remaining contents.

M. G. McCreight  
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Agricultural Education  
University of Nebraska — Lincoln

**CONTRACT FARMING AND ECONOMIC INTEGRATION**, by Ewell Paul Roy. Danville, Illinois: Interstate Printers and Publishers, Inc., 1972, Second Edition, 661 pp. \$8.50.

The first edition of this book, entitled **CONTRACT FARMING, USA**, was published in 1963. It was a pioneering effort by Dr. Roy to bring together all available materials in this area. This second edition expands on topics of special interest such as the economic theory of contract farming and integration, the futures market in relation to contracting, and developments in contract farming worldwide. This new edition has been revised and updated with regard to contracting in the following United States agricultural commodities: hatching eggs, broiler chickens, market turkeys, table eggs, hogs, beef cattle, sheep, dairying, fruits, vegetables, seed, field and horticultural crops forestry, other livestock, fisheries, and farm inputs and services. The book contains an appraisal of contracts, a discussion of cooperative integration and contract farming, an examination of the relationship of contract farming to various aspects of governmental policy, and a discussion of the future for contract farming and economic integration. Sample contracts for commodities have been revised and updated.

The author of this book, Dr. Roy, is eminently qualified to write on this subject. He is Professor of Agricultural Economics and Agribusiness and Distinguished Faculty Fellow at Louisiana State University. Since 1950, he has been conducting research into the programs and problems of contract farming. He has written some 250 articles and has made more than 100 addresses on the subject of contract farming and economic integration. He is also the author of other books on agribusiness, cooperatives, collective bargaining in agriculture, and applications of economics to agriculture and agribusiness.

**CONTRACT FARMING AND ECONOMIC INTEGRATION** is directed toward a wide audience which includes teachers and students of agriculture in high schools, junior and senior colleges and universities; professional agricultural workers; young and adult farmers; agribusinessmen; managers and executives of cooperatives; and agricultural administrators. With the expanded treatment of topics such as the economic theory of contract farming and

integration, the book should be especially useful as a text for college courses in marketing, farm management, and policy where the students have a background in micro-economic theory. This does not mean, of course, that one must be college-trained in economics to understand and benefit from the book.

J. Dale Oliver  
Associate Professor  
College of Education  
Virginia Polytechnic  
Institute and State University

**ELECTRIC MOTORS — SELECTION — PROTECTION — DRIVE.**

Original manuscript by R. H. Brown and G. E. Henderson. Revised by W. Harold Parady, Coordinator; J. Howard Turner, Engineering Editor; and James E. Wren, Assistant Art Director, American Association for Vocational Instructional Material (AAVIM). Order the book from AAVIM, Engineering Center, University of Georgia, Athens, Georgia 30601. Copyright 1972. 56 pp. \$2.60 per copy.

The book is divided into three major parts with subdivisions:

- I. Selecting Electric Motors
  - A. What size motor to select
  - B. What motor speed to select
  - C. What motor duty to select
  - D. What motor type to select
  - E. What type of bearings to select
  - F. What type of enclosure to select
  - G. What type of mounting base to select
- II. Selecting motor overload protective devices
- III. Selecting motor drives
  - A. What type of drive to select
  - B. Determining the size of drive needed

The book is organized in a listing approach. It is a very colorful book and has excellent and eye catching art work. It gives a systematic approach to the subject and is organized in a manner where anyone can find what information they need. The book is written and illustrated in a manner which should hold the attention of the student. A slide set paralleling the book is available.

The authors have combined their expertise to produce a very informative and comprehensive publication. R. H. Brown is chairman of the Agricultural Engineering Division at the University of Georgia. G. E. Henderson is Executive Director of the American Association for Vocational Instructional Materials. Both of these gentlemen are in positions to know some of the problems of educators and the type of materials needed.

This book appears to be best suited, as a reference or text, for use with junior and senior high school students. However, it could be used by middle elementary school students. Adults with a non-technical background would also be able to use this book to determine their needs. It is written in such a manner that it can be used as a quick reference. This book is definitely adapted for high school students because it is easily understood and is written in non-technical language.

Sam Post  
Vo-Ag Instructor  
Kingsland Public Schools

## BOOK REVIEWS

**AN INTRODUCTION TO STATISTICAL SCIENCE IN AGRICULTURE**, by D. J. Finney. New York, New York: Halsted Press, a Division of John Wiley and Sons, Inc., 1972, Fourth Edition, 290 pp., \$17.95.

The need for a non-mathematical, easy-to-read publication concerning statistics in agriculture may have been met by this book. The author explains in detail not only the bases of statistical science but also how to apply this basic knowledge to the unique problems of agriculture.

The author first conditions the reader by extolling the need for statistics. Then, in layman's words, he meticulously explains the basic language of statistics, the very simple mathematical operations, and finally, detailed statistical operations and experimental design. In addition, Mr. Finney lists several books for those who wish to further their knowledge of statistical science.

Due to its introductory nature, the book is deficient in statistical tables, i.e., normal distribution, t-distribution, chi-square distribution, and F-distribution. Therefore, an agriculturalist who desires to use statistics to any degree would need additional references.

Because of its aim toward the novice statistician, the book can best be applied as a text for a beginning course in agricultural statistics at the undergraduate college level. In addition, it may be used as a self-study guide by the professional agriculturalist untrained in statistics.

Mr. Finney, a professor of statistics and Director of the Agricultural Research Council Unit of Statistics is uniquely qualified to write a book wedding the science of

statistics and its application to agriculture. In "a Warning," though, he writes, "This is a book on statistical science, not agriculture." He has done both an admirable and a useful job in writing this book.

Gary E. Briers  
Vocational Agriculture Teacher  
Sweeny High School  
Sweeny, Texas

**IMPROVEMENT OF LIVESTOCK PRODUCTION IN WARM CLIMATES**, by R. E. McDowell, San Francisco, W. H. Freeman and Co., 1972. 711 pp., \$19.50.

The book, *Improvement of Livestock Production in Warm Climates*, deals with and explains the efficiency of livestock production in the region of the world between latitudes 30 degrees North and 30 degrees South. This is the area which is called the "warm climate area." This book covers all areas of production, feeding, breeding and management of livestock in the warm climate area. Due to the fact that livestock is a means of survival of many people, it is of great importance to know the "yes" and "no" of many things pertaining to livestock production.

The beginning chapters of the book deal with the role of livestock in the warm climates, the need for livestock improvement, environmental conditions and climatic elements and their importance, the animal body and its reaction in warm environments, and animal responses to warm climate areas.

Other chapters deal with feeds and forage production. This, of course, is very important in profitable livestock production. Also characteristics of breeding stock is mentioned in later chapters. Due to the increase in population and decrease in land space, it is very important to make good use of what we have. Through better development and higher yields of better quality we can achieve these goals of higher standards. Later, application of mating systems is mentioned. Helpful suggestions are given in the area of inbreeding and linebreeding. All areas are covered in this topic, including sheep, swine, and poultry production. Also crossbreeding and outcrossing is informally viewed.

Other areas of concern covered are the water buffalo and its future, milk handling and processing, meat handling in the warm climates and development of livestock programs. All of these are to be taken into consideration and not handled lightly.

This book is plainly written so that high school students and undergraduate college students can easily comprehend the factual information about livestock production in warm climates. The author composes an excellent series of facts and writes it in such a way that high school students can easily understand and know the importance of livestock production if so concerned. People concerned with foreign agriculture and different enterprises may surely find this book beneficial to them. The 132 illustrations and 99 tables create picturesque visual learning and interest for any student. The book is also broken down and placed in a categorical manner for easy reference.

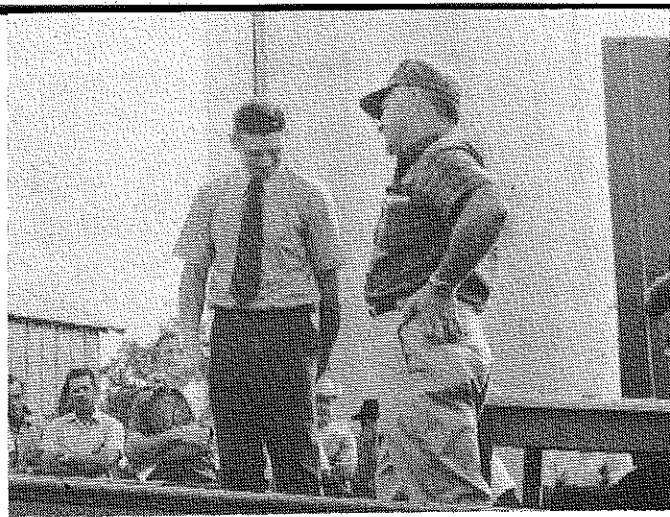
Kenneth E. Lack  
East Texas State University

**FUNDAMENTALS OF SERVICE — ELECTRICAL SYSTEMS**, by John Deere Service Publications, Department F, John Deere Road, Moline, Illinois 61265. Second edition, 1972, 236 pages, 428 illustrations. \$6.25/copy. Softbound.

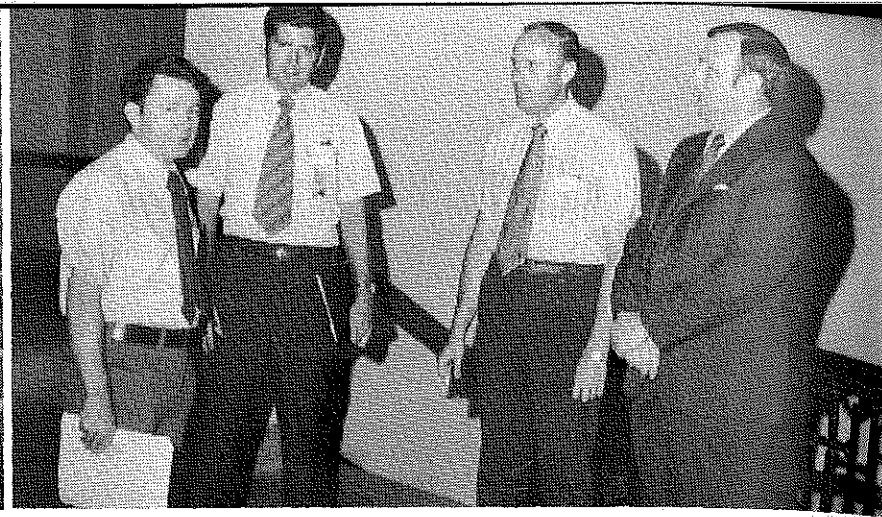
This text has been revised to include more on alternators, bypass ignition, transistorized circuits, and testing. Both a.c. and d.c. charging circuits are fully covered as are starting, ignition and accessory circuits.

Electrical systems as interpreted in this publication refers to mobile machines. The purpose of this publication as indicated to the reader is to train a person so he can understand and service the electrical system with speed and skill. It is intended for high school and post-high school training in basic electricity as part of power programs, and is also a practical reference for machine operators and technicians. Each system is covered with a systematic approach by beginning with, "how it works", moving into "why it fails" and finally "what to do about it."





1. Virginia Adult and Young Farmers provide input as well as participate in formal classes (photo from John W. Myers, Jr., Assistant Supervisor, Virginia State Department of Education).

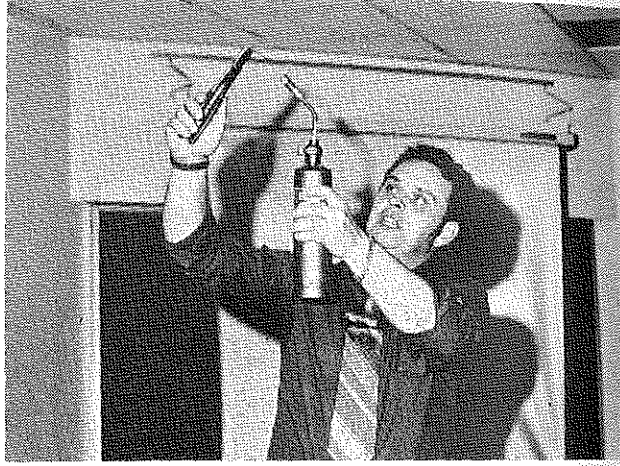


2. Teacher Educators stand ready to assist when teachers make their needs known. Left to Right, John Thompson, Wisconsin, Ben Byler, Alan Kahler and James Gibson, Michigan. (Photo by Richard Douglass).

# Stories in Pictures

by Richard Douglass

## WHERE DO YOU LOOK FOR HELP?



3. Teachers should explore the use of technical experts in the community to provide realism, help solve actual day to day problems as well as occupational information. The effect of heat upon the expansion of metals is demonstrated by the instructor of the Wynn Oil-Fuel Seminar held at West Bend, Wisconsin. (Photo from Wayne Koene, Moraine Park Technical Institute, Fond du Lac, Wisconsin).



4. Teachers should seek assistance from their supervisors. Local, area and State supervisor's role is to help us improve our program. J. C. Simmons helps a Vo-Ag teacher at Capital High School, Baton Rouge, Louisiana. (Photo supplied by J. C. Simmons, Assistant State Supervisor, Vocational Agriculture).



5. Guatemala Agricultural teachers organize with guidance from Harry Pierce, University of Florida and Kermit Adams, California Polytechnic. The central purpose of the new organization is professional improvement. Subsequent conferences will be devoted to the various ways of improving agricultural education methodology at the high school levels in Central America. (Photo from Carl Beeman, University of Florida.)



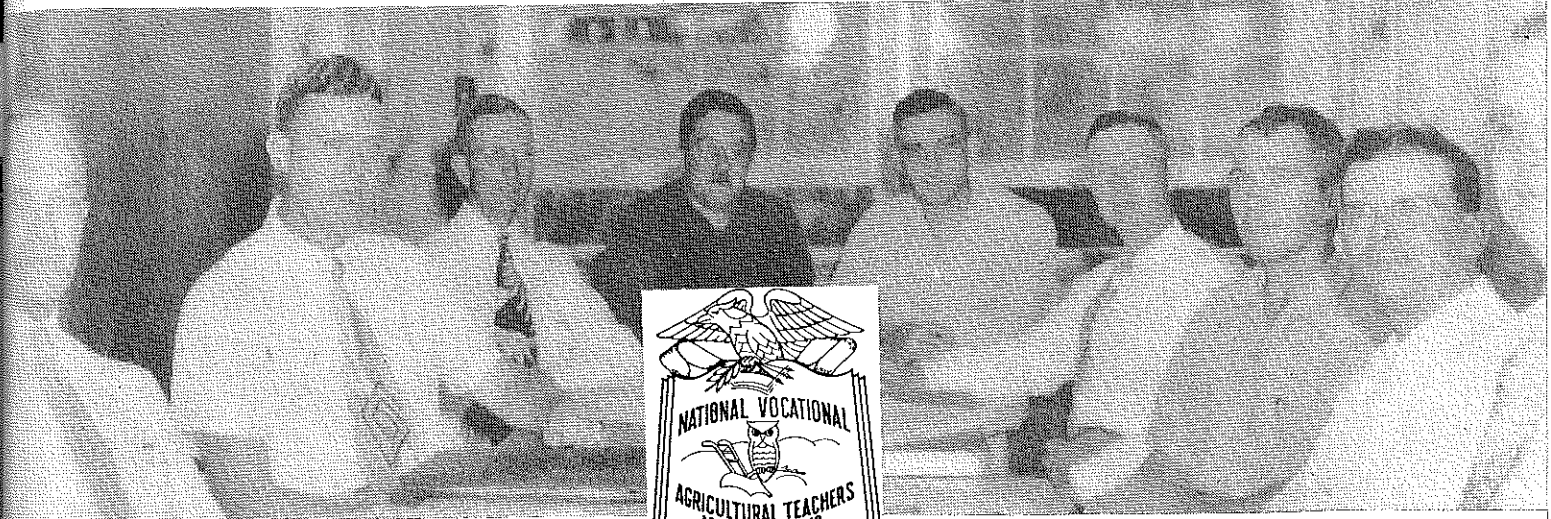
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