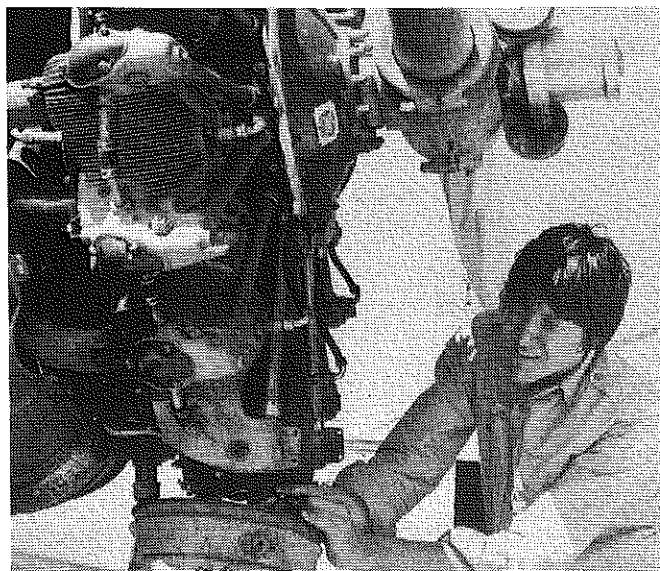




IN-SERVICE AGRICULTURAL MECHANICS EDUCATION — Gary McVey, University of Minnesota, Crookston, is shown demonstrating a dynamometer to a group of teachers at a tractor service and maintenance workshop in Willmar, Minnesota. (Photo from Forrest Bear, University of Minnesota)

## STORIES IN PICTURES

by  
Jasper  
S.  
Lee



SUMMER INTERNSHIP IN AGRICULTURAL AVIATION — A student from the University of Minnesota at Crookston is shown performing maintenance on an "Ag Wagon" as part of a 12-week summer internship in agricultural aviation. (Photo from Forrest Bear, University of Minnesota)



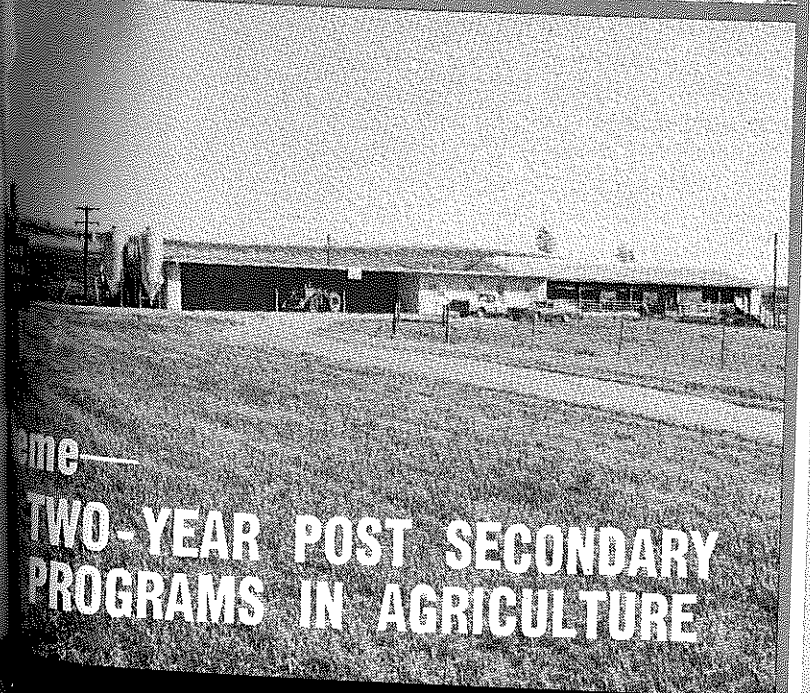
MARYLAND AG MECHANICS WINNERS — Elmer Cooper (right), advisor of the North Harford (Maryland) FFA Chapter, and W. Lamar Harris (left), chairman of the Agricultural Engineering Department at the University of Maryland, are shown with members of the department at the winning team in the Maryland Agricultural Mechanics Contest. The team is from the North Harford FFA Chapter. (Photo from University of Maryland)



DIESEL INJECTOR TESTING — David Resch (left) and Dennis Finstad are shown testing a diesel injector in the laboratory of a diesel service and maintenance class at the University of Minnesota. This testing permits checking opening pressure, spray pattern, chatter characteristics, and return leakage. (Photo from Forrest Bear, University of Minnesota)



CONSTRUCTING A HYDRAULIC LIFT — Members of the agricultural mechanics class and Hawley (Minnesota) FFA Chapter are shown constructing a hydraulic lift as part of their agricultural mechanics instruction. (Photo from Forrest Bear, University of Minnesota, and John Hest, Hawley, Minnesota)



Time —  
**TWO-YEAR POST SECONDARY PROGRAMS IN AGRICULTURE**



# AGRICULTURAL EDUCATION

Volume 48

Number 7

January 1976



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# AGRICULTURAL EDUCATION

## TABLE OF CONTENTS

### THEME — TWO-YEAR POST SECONDARY PROGRAMS IN AGRICULTURE

#### Editorial

One-Year Post Secondary Programs in Agriculture .....John H. Bartlett 147

Innovations at Florence-Darlington Technical College .....J. E. Cox 148

Ag Ed in California Community Colleges ...Ted S. Sybolt 150

A Changing Ag Technology Program at Utah State ....Keith W. Hatch and Gilbert A. Long 151

Ag Ed in North Carolina Community Colleges .....Coy L. Hudson 152

Specialized Individual Approach to Job Preparation .....Merle Brockshus and Bob Ruen 154

Status of Post Secondary Programs in Agriculture .....Lawrence H. Erpelding, Jr. 155

Agriculture Program at Joliet Junior College ..Max Custer 156

Post Secondary Student Teaching .....Daniel W. Brown 158

Educational Plans of Iowa Vo-Ag Students .....Bennie L. Byler 159

Junior College Farm Equipment Mechanics ...Kent Ewing 161

Agriculture's Future—Production Technology .....Keith L. Byers 162

Leader in Agricultural Education: Gordon I. Swanson .....Milo J. Peterson 163

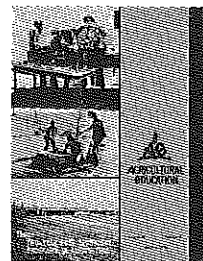
Opportunities for Professional Involvement by Post Secondary Teachers .....Sam Stenzel 164

From the Book Review Editor's Desk ..... 166

Book Reviews ..... 167

Dates and Events ..... 167

Stories in Pictures ..... 168



The cover photographs show various aspects of two-year post secondary agriculture programs in Iowa. The top photo shows agriculture business students sampling grain at North Iowa Area Community College. The center photo shows students in the landscape, nursery, and garden center program at Kirkwood Community College. The bottom photo shows the Feedlot Management Laboratory at Western Iowa Tech. (Photographs from Gerald Lamers, Iowa Department of Public Instruction)

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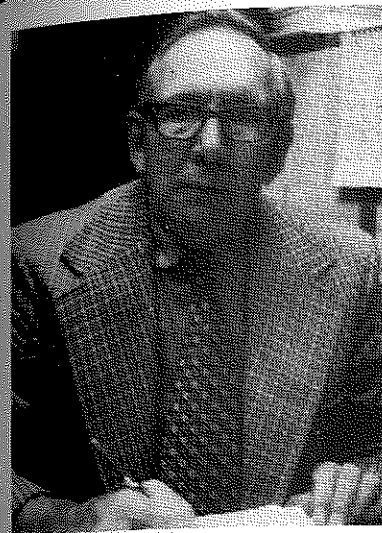
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## GUEST EDITORIAL



John H. Bartlett

As our society becomes more and more complex, we are becoming aware of some inadequacies of our educational system in terms of untrained manpower. The value of education in all occupational areas, including agribusiness, is increasing with each decade. The educational system needs and is attempting to assist all people to share in the economic and social benefits of our society.

There is much general education in vocational education and much vocational education in general education subjects. The difference lies in objectives. The primary objective in vocational education is to prepare and/or improve the individual for useful employment; the primary objective of general education is to prepare the individual to function socially and intellectually in society. The vocational student must be occupationally competent. Anything less than this is ineffective, and industry will be the final judge. Efforts to make the vocational curriculum more general do not substitute for the need for specificity in vocational training.

Obsolete skills, knowledge, and attitudes cannot be tolerated in vocational education curriculums. There is nothing sacred about standard lengths, in hours, weeks, or months in a given curriculum. "Competence to do the job" is a logical termination of training or criteria for graduation. The vocational curriculum should come under constant challenge and scrutiny by the advisory council and the instructors to keep its content valid and effective to

## One-Year Post Secondary Programs in Agriculture

John H. Bartlett, Coordinator  
Elevator and Farm Supply Management  
Iowa Central Community College  
Fort Dodge, Iowa

produce the type of trained individuals needed by the ever-changing industry.

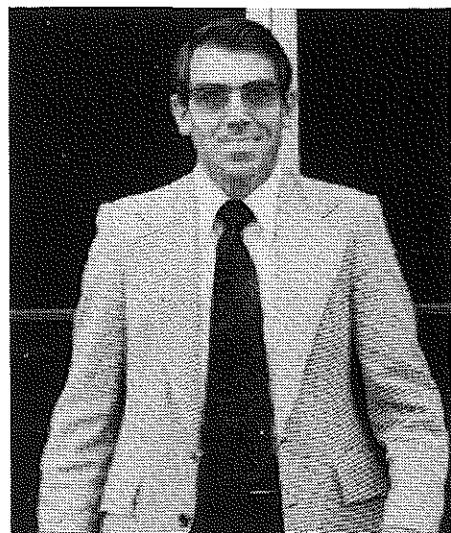
There are eight imperatives regarded as crucial for a modern concept of a vocational curriculum. These imperatives are: (1) that educational programs make provision for occupational information for all students, irrespective of their future goals; (2) that the first goal of vocational programs be to equip students with salable skills and to give them a base of occupational experience that will add relevance and adaptability to their goal; (3) that maximum effort be given to curriculum development which can accelerate the rate of skill achievement and retard the rate of skill obsolescence; (4) that vocational education provide experiences which will help the student to identify his talents, to relate those talents to the world of work, and to develop such talents as will widen his choices and improve the skills required for success; (5) that curriculum innovators determine what and how much generalized vocational preparation will make a graduate employable in the current and future job market; (6) that competence to enter the job be held as the minimum requisite for graduation and the eligibility for placement be regarded as the minimum completion requirement; (7) that the vocational curriculum satisfy the needs of learners in their vocational development as well as the needs of employers in their competitively productive environments, with the ultimate goal of producing competent, well adjusted workers and citizens; (8) that curriculum developers engage in research to determine the most effective and efficient programs for preparing individuals for occupational employment.

The Elevator and Farm Supply Management program is operated with the above standards in mind. We believe that flexibility in curriculum to meet the needs, both of the student and industry is a very important aspect. It is our philosophy that this can best be done in a curriculum that includes:

- (1) formal classroom presentations
- (2) individual and laboratory instructional activities
- (3) practical application with full-time "on-the-job training."

Can an eleven-month program succeed in accomplishing these objectives? Yes, it has been doing this since the first graduation class in 1968. Graduates are in such positions as managers, assistant managers, branch managers, foreman, fieldman, bookkeepers, sales managers and grain broker trainees. In fact, 65 percent of the graduates are in agribusiness positions, 25 percent are in production agriculture and 10 percent have continued their education at other institutions.

What do former graduates have to say about the Elevator and Farm Supply Management program? Don Reed says, "After four years in the labor force, one year as a district feed salesman, and three years as an assistant manager of an elevator, I have only begun to appreciate the value of the eleven-month vocational training I had at Iowa Central Community College in the Elevator and Farm Supply Management Program. Don continued, "over the past few years, I have visited with students and graduates of other programs in Iowa that are two years in length. I question the advantage of the extra year for several reasons. First of all, I was in the job market over a year (Concluded on page 149)



J. E. Cox

# Innovations at Florence-Darlington Technical College

J. E. Cox, Head  
Department of Agronomy  
Florence-Darlington Technical College  
Florence, South Carolina

The curriculum in Agronomy at Florence-Darlington Technical College involves a two-year study leading to the Associate of Science degree. Primary emphasis is placed on the study of field crops, soils, and management. The program produces graduates who have been well received as technicians, sales representatives, and managers of various agricultural businesses. Many graduates have been able to continue farming while in school and to return to the farm after graduation. Some were able to attend the technical college, whereas attendance at another college might have been financially difficult. Currently, a student may attend the institution during the day or in the evening. Many persons who have full-time day jobs have found attending school in the evening to be more suitable. Currently, there are more than sixty students enrolled in the agronomy program.

Beginning in September 1966, Florence-Darlington TEC initiated a pilot program in agriculture called "Field Crops Technology." Prior to this time, the only two-year programs of this type were out of state. Only two four-year schools within South Carolina provided agricultural curriculums. Each of these was more than 100 miles from our location.

The two-year Field Crop Technology curriculum included one quarter of supervised work experience and five quarters of classroom and laboratory work. Seven students, of the ten who began, graduated two years later. Freshman enrollment in the second year was over twenty. Freshman enrollment the third year was again over

**In order to meet the instructional needs of both day and evening classes, we began to video-tape as an economy move so that small classes, day and evening, could be covered as one class.**

twenty. Other technical colleges followed the lead and instituted two-year programs in South Carolina. There are now seven such colleges which offer some study in agriculture. The State Advisory Committee has been very much against duplication of programs. Each of the seven schools has a two-year curriculum in agriculture but each is in a particular discipline.

## RECRUITMENT

Enrollment has not been consistently high in many agricultural programs. In order to attract students to our program, a number of activities were carried out. The overall promotion of the program has included radio and TV programs where County Extension Leaders invited students, instructors, and graduates to participate in their programs. Also, speaking to Vocational Agriculture classes in the high schools has been a regular part of recruitment. Instructors, graduates, and students have participated.

An Agronomy Field Day was organized and carried out by the Agronomy Club. The Agronomy Department staff and students and Vocational Agriculture teachers and Extension Leaders worked together to plan and conduct the activities of Agronomy Field Day. High school students who were in the 4-H Clubs or enrolled in the Vocational Agriculture programs were invited to participate in a day of activities on our campus.

Activities included livestock and soil judging, public speaking, and identification of insects, crops, weeds, and weed seed. A meal followed the activities and trophies were awarded to the winners in all categories. The Agronomy Field Day has become an annual event. A scholarship program was begun at the same time the Agronomy Field Day began. A number of agricultural businesses contributed toward the scholarship fund.

The agronomy program took a new direction beginning in September 1974. A considerable amount of interest had been generated to begin evening classes. A decision was made to extend classes to the evening — offering identical instruction and number of courses so that a person could receive the Associate of Science degree in the evening. This opportunity appealed to the married person who had family responsibilities and a full-time, day job. The evening program has grown in enrollment from ten persons to forty in one year.

In order to meet the instructional needs of day and evening classes, we began to video-tape our day classes and provide these tapes for the evening classes. Two instructors are presently taping material from three courses. In the beginning, the video-tape was an economy move so that small classes, day and evening, could be covered as one class. However, classes have grown

*(Concluded on next page)*

CONTINUED

## INNOVATIONS AT . . . TECHNICAL COLLEGE

to be especially large in the evening, and the video-tape can take care of the large number of students.

The video-taping has been somewhat of a pilot study for the Technology Division and has been especially helpful for the engineering programs in which a few students were involved in make-up or special classes. The techniques of taping are front view, overhead view, or spot view. Drawings, textbooks, or other shots can be seen by manipulating buttons without the instructor's moving. The disadvantage of question and answer and chalkboard

work has not been worked out. A special advantage of video is realized when a guest speaker is invited. His presentation can be video-taped to be shown later, and he is not prevailed on to speak more than once.

A vital part of the agronomy program has been the supervised work experience. The advantages we have discovered in the supervised work include:

1. The student can get a twelve-week period of work in which he can learn and work.

2. He has no fear of being fired.
3. He can look into an area of work and decide if this is his area of interest. If he determines that he is not suited for this type of work, he is not obligated to stay. The supervisor is also not obligated to hire him if he decides the student is not suited to the work.
4. This is an excellent way for students to enter the job market; employers like it too.
5. This provides for good public relations and support from farmers and agribusiness people. ◆◆◆

CONTINUED

## ONE-YEAR POST SECONDARY PROGRAMS . . .

before the two-year students got out of school. I think it is common knowledge that at least 76 percent of our knowledge is learned from actual on-the-job training. If this is so, the normal two, eight-week periods in the eleven-month program, plus the whole year after graduating at our job, we are well on our way to a place in agribusiness before the two-year student is through with his formal education."

Rick Rosenquist has this to say, "The Agribusiness Program that I attended opened up a new life for me. It enabled me to discover the importance of an education or training in a specific field. Elevator and Farm Supply Management gives one the opportunity to choose what area of the business he desires to go into. In my particular case

as a grain merchandiser, I feel I have a better understanding as to what could or might happen. Of course, one's education never stops after completion of classroom study because the human mind never stops learning. On-the-job training plays an important role in the program. It gives the individual the opportunity to be learning a specific skill, and at the same time applying that knowledge to a work situation. I want to leave one thought. Management of any sort doesn't happen overnight. It is not a simple task and it must be achieved through hard work, determination and drive — that will never change."

Mike Ewing says, "The Elevator and Farm Supply Management course helped me by giving a good introduc-

tion into the agribusiness field. The topics covered are wide and give a good basis to work from. The course also helps to build confidence which is a vital part in any career."

These are statements made by three of the many graduates of our program, but they are typical. In conclusion, as one who is largely responsible for the direction of the lives of so many young people, it is imperative to remember that you are teaching students, young people — not subjects. You can only open the door to opportunity, of which agribusiness is most rewarding. The student must enter and through his efforts alone he will succeed. One can be proud to have had a small part in the direction and development of our "now" generation. ◆◆◆

## COMING ISSUES COMING ISSUES COMING ISSUES

COMING ISSUES

FEBRUARY — Education in Agriculture — Our Past and Our Future

MARCH — Programs in Agricultural Supply and Service

APRIL — Career Exploration

MAY — In-Service Education for Agriculture Instructors

JUNE — The Summer Program

JULY — Attitudes and Values for Employment

AUGUST — Secondary Programs for the Talented

SEPTEMBER — Planning and Managing School Facilities for Ag

OCTOBER — Preparing Teachers of Vocational Agriculture

NOVEMBER — Teacher Organizations and Professionalism

DECEMBER — More Effective Teaching

COMING ISSUES

# AG ED IN CALIFORNIA COMMUNITY COLLEGES

*Ted S. Sypolt  
Specialist in AG Education  
California Community Colleges*

Agricultural Education in California Community Colleges is charged with a great deal of responsibility to the students beyond high school. More specialization and therefore greater depth of programs and courses are covered. Students have several choices that they should and can make regarding their undertakings. A single course, a certificate program or A.A. or A.S. degree are three of the choices a student may take in order to be trained to enter a particular job or agricultural business or industry. The student may also decide to take a program for transfer to a four-year college, or a combination of both.

There are many instances where the students enter with one goal and change to another. Approximately 80 percent of the students, statewide, transfer on to a four-year institution, and others concentrate on entering directly into the world of work. Regardless of which choice is made, students should work as closely with their advisor or counselor as they can.

Until 1968, California Community Colleges were known as Junior Colleges and were under the Board of Education, and the agriculture departments were subsequently under the Bureau of Agricultural Education. At that time the Board of Governors for the California Community Colleges was formed, and the Community Colleges became a separate entity responsible for the educational programs, processes and all business of running the colleges. This included the severing of the agriculture departments from the Bureau of Agricultural Education. They are

now under the jurisdiction and work directly with the Specialist of Agricultural Education at the California Community Colleges Chancellor's Office.

The two groups, Community College and high school agriculture departments, still strive to work closely together through articulation of programs, activities, and professional organizations. The professional organization for agriculture instruction is the C.A.T.A. which has reorganized recently to meet the needs of both groups as well as meeting the needs of the entire group.

The Community College agricultural programs are a very important part of the overall educational undertakings of the California Community Colleges. There are 43 of the 100 colleges that have agricultural programs with one or more full-time agricultural teachers employed. An additional 15 colleges have partial programs, but in most cases are planning to become fully established within the next few years. Overall, there are nearly 200 full-time credentialed occupational agriculture instructors and close to 20,000 students at this time. Projections show that this number will increase each year for at least the next five years.

Agriculture teachers are still in demand in Community Colleges as they are in the high school programs. The largest majority of instructors hired into the community college agriculture departments come from high school agricultural teachers who have gained teaching experience and have demonstrated their abilities. This is a healthy situation for all involved in that the

instructors have had a good background as well as an understanding of the high school programs. Cooperation and articulation between an individual of this type and his/her counterpart in the high school programs are usually much greater and more satisfactory than if an individual comes directly from industry.

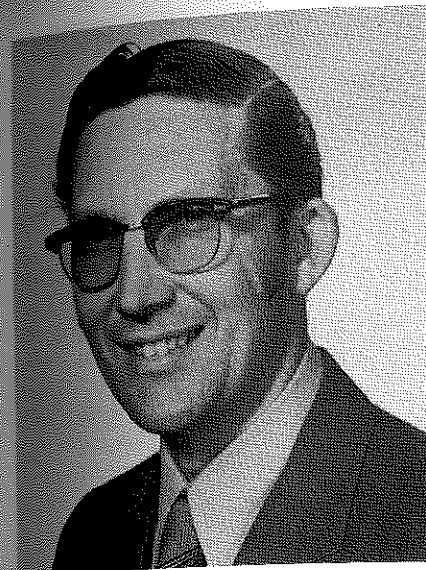
From the students view and standpoint, California Community Colleges are providing, and will continue to do so, a chance to attend programs of their choice that will make them more able to cope with the world of today and tomorrow. This will be done by providing access to programs that will allow them to become immediately employable or give the opportunity of transferring to a four-year institution.

The faculties of the California Community Colleges agricultural departments are well trained, dedicated people and are readily available to help students achieve their educational goals. ♦♦♦

## CORRECTION

A quotation in the first column of Richard Welton's article in the October 1975 issue should have read as follows:

A 1971 report on education in Brazil noted "that teacher training has always been a particularly knotty problem . . . a large proportion of Brazilian teachers are 'non-qualified' for their jobs."<sup>1</sup>



Keith W. Hatch

Based on seven years of experience, the Department of Agricultural Education at Utah State University has substantially revised its thinking concerning its two-year agricultural technology program. At the inception of the program, information from an industry advisory council and other sources indicated that an individual could be trained in a minimum of two years for employment in an agricultural implement dealership. The prime goal of the program was to provide prospective employees with sufficient background so that the individual with future managerial capabilities could achieve rapid advancement. The program was to include specific training in engine rebuilding, electrical components, hydraulic systems, transmissions, harvesting equipment, planting and tillage devices, service management, and parts management.

We found, however, that the entry level skills and career goals of the students vary considerably, depending upon basic interests, rural or urban background, and achievements reached in high school. Some want a strong background in service as well as parts because they believe that one complements the other. Others seem to feel that a broader background in all related areas will enhance advancement to managerial positions. Still other students have no interest at all in learning about related fields. They simply want to be prepared for a career in service or parts, or for a return to the family farm enterprise. Our structured program required each student to participate in each class regardless of interest.

## A CHANGING AG TECHNOLOGY PROGRAM AT UTAH STATE

*Keith W. Hatch and Gilbert A. Long  
Agricultural Education Department  
Utah State University*

Dissatisfaction and decreased motivation were encountered in some cases.

Along with the structured two-year program, we included a summer occupational experience program. Although this program proved effective in many ways, problems did exist. For one thing, the cooperating Intermountain Equipment Dealers wished to have students available in March, April, and May since that is when most equipment is being prepared for sale. Also, only a small percentage of the students returned for their second year.

Then too, we found that students planning to return to the family farm enterprise wanted know-how in agricultural technology. Neither the summer program nor the structured second year curriculum fulfilled these students' needs.

*Changes Made:* To alleviate these problem areas, the start of the supervised occupational experience was changed from June to March. This required a restructuring of the work to allow for more intensive coverage during the first two quarters of instruction. Further, the occupational experience was expanded to allow for the needs of the individual going back to a farm enterprise. A written training agreement and training plan was executed among the student and parent, owner, or manager of the enterprise, and the Utah State University coordinator. This agreement was designed to encourage and allow the student special activity in his or her area of weakness. Such activities were defined by individual students in consultation with their on-the-job advisers, e.g. fertilizer applications, grain drill calibration and planting techniques, rebuilding specific machines, etc. In some cases the instructor would intervene to assure that

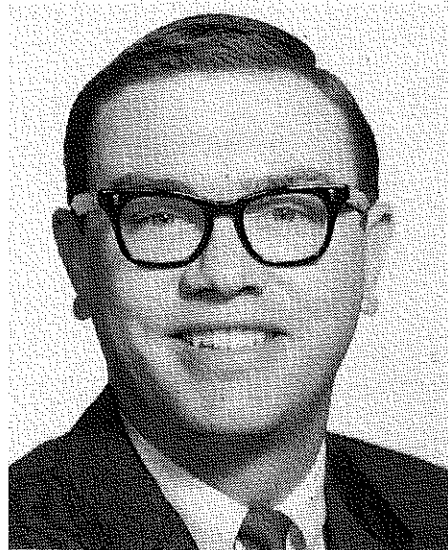
students would obtain more demanding responsibilities than had previously been available to them. These planned experiences provided for applications of machinery maintenance schedules, repair skills, and other technical competencies developed during the first year curriculum.

We have also initiated two stages of certification to differentiate between entry level skill development and skills needed for advancement into specialized areas of parts merchandising, or service management. The first year certificate of completion indicates preparation for employment as: delivery man, yard maintenance, sales trainee, mechanics helper, parts stockman, painter's helper, steam cleaner, and machinery assemblyman.

It is difficult, if not impossible in one year, to develop and expand the latent interests of an individual, and simultaneously to reach the level of achievement desired (and in many cases required) in the agricultural dealerships. A high quality of work is expected by a typical dealer from these new employees. With the first year certificate of completion, certain levels of achievement are readily defined for both students and the dealerships. To further enhance the students' motivation to continue, a second year specialization program was developed. The student now specifies vocational choices among parts merchandising, service, repair work, or farming.

We have found that an early career choice within the broad agricultural machinery area adds to the students' motivation and success in the program. By encouraging regular student involvement in tailoring an individual program, we also hope to promote con-

*(Concluded on page 153)*



Coy L. Hudson

## AG ED IN NORTH CAROLINA COMMUNITY COLLEGES

Coy L. Hudson  
Dept. of Community Colleges  
Raleigh, North Carolina

The agriculture industry in North Carolina and the nation needs individuals with a good understanding of agriculture who can exercise sound judgment and competently perform such activities as producing, selling, servicing, distributing, supervising, evaluating, operating, and testing agricultural products. The education of persons to enter these agricultural occupations is a primary objective of agricultural programs in North Carolina's system of community colleges and technical institutes. These programs are designed to provide a theoretical and practical understanding of the field of work so one can perform such activities as selling, servicing, and managing in farm, agricultural or natural resource occupations.

Areas where technical agricultural trained personnel are needed are farms, supply and equipment firms, feed and fertilizer plants, horticultural enterprises, poultry hatcheries, agricultural chemical firms, agricultural research installation, food processing plants, food wholesalers, forest services and industries, fish and wildlife management preserves, soil and water conservation districts, animal care firms, wood processing industries, and recreational areas.

To meet the wide diversity of manpower needs in the agricultural industry, the member institutions of the North Carolina Community College System have developed various technical and vocational agricultural curriculum programs. In general, technical programs are two academic years in length and lead to the awarding of an

Associate in Applied Science Degree. The graduate of a technical program usually works in close cooperation with and under the direct supervision of a professionally trained person, unless he is self-employed. Vocational programs are designed to train people for entrance into a skilled occupation. Vocational programs may range from one to seven quarters in length, depending upon the development of skills or job proficiency. Graduates of a four-quarter or longer program are awarded a diploma, and certificates are awarded for the successful completion of any program one to three quarters in length.

In the 1974-75 academic year, twenty-four different technical and vocational agricultural programs were offered in the Community College System, with approximately 3,400 students enrolled. These programs are listed in Table 1.

During the past five years, one of the most popular programs has been Ornamental Horticulture. During this time, the number of horticulture programs offered in the system has doubled, while numbers of students enrolled have almost tripled. Presently, eleven institutions offer a horticulture program. Program emphasis has changed during the past few years from ornamentals to landscape technology.

### State Advisory Committee

A significant development that has occurred in the horticulture program area has been the involvement of a statewide horticulture advisory committee. Initiated in January of 1972, this committee is composed of land-

scape architects, nurserymen, landscape contractors, and faculty members from the Horticulture Department at North Carolina State University. In addition,

Table 1. Technical and Vocational Agricultural Programs offered in the North Carolina Community College System in the 1974-75 Academic Year.

<i>Technical Programs</i>	
Agricultural Business Technology	
Agricultural Chemicals Technology	
Agricultural Management Technology	
Agricultural Science	
Agricultural Science and Mechanization	
Fish and Wildlife Management Technology	
Fisheries Research and Management Technology	
Food Processing Technology	
Forest Management Technology	
Forest Products	
Horticulture Business Technology	
Orchard Management and Horticulture	
Ornamental Horticulture	
Outdoor Recreation Resources	
Poultry and Livestock Technology	
Recreational Grounds Management Technology	
Soil and Water Conservation Technology	
Veterinary Medical Technology	
<i>Vocational Programs</i>	
Farriering	
Horticulture	
Lumber Specialist	
Saw Filer	
Sawyer	
Taxidermy	

(Concluded on next page)

## CONTINUED AG ED IN N.C. COMMUNITY COLLEGES

community college and technical institute horticulture instructors and their administrators attend most of the meetings. Horticulture instructors from the various institutions are also encouraged to bring one or two different students to each meeting.

The purpose of the advisory committee is to provide information and guidance to the Community College System that will assist the Department of Community Colleges and member institutions to provide the most relevant horticulture programs possible that will meet the needs of both students and industry. The meetings are scheduled on a regular basis four to six times per year and are held at the institutions that have a horticulture program or at the firm or business of the industry representatives on the committee. The length of each meeting is approximately five hours, with a luncheon, tour, and business meeting scheduled. Tours are taken of the facilities at the location where meetings are held, and occasionally at other horticultural businesses or industries that provide opportunities for the members to gain new ideas by observing first-hand innovations in the horticulture industry. Some of the topics covered at the business sessions include recruitment of students, cooperative work experience, employment opportunities for graduates, student interests and needs, course and

curriculum requirements, materials selection and utilization, trends in the horticulture industry, facility and equipment needs for horticulture programs, student enrollment trends, trained manpower needs of the horticulture industry, departmental clubs or organizations for horticultural students, and articulation between secondary, community college, and four-year college or university programs in horticulture.

### Veterans' Training

The Agricultural Science and Mechanization curriculum or the Veterans Cooperative Farm Program is another rapidly expanding program. This program is designed primarily for veterans who are engaged in farming. The Department of Community Colleges and the Department of Public Instruction cooperatively administer the program. Twenty-four community colleges and technical institutes are offering this program which is designed to meet the needs of the agricultural producers in the areas the institutions serve. Classes are usually scheduled in the evening or late afternoon to accommodate the full-time farmer so he can continue his farm work and also attend school.

The objectives of the Agricultural Science and Mechanization Program are as follows:

1. To train veterans to manage and

operate a farm.

2. To develop the technical skills and scientific knowledge necessary to increase efficiency in the farming operation.
3. To aid the veteran to further develop an awareness of his responsibility as a citizen in the community.

In order for a veteran to be eligible to receive educational benefits by enrolling in the program, he must be engaged in production agriculture which is relevant to the course of instruction offered by the institution. He must also be enrolled in classes a minimum of ten (10) hours per week, forty-four weeks per year to receive full-time benefits. The length of the program is thirty-six months.

Additional educational programs in agriculture are being researched for possible inclusion in the North Carolina Community College System to meet the needs of those who wish to pursue a technical career in the field of agriculture. Through a planned process of educators working and cooperating with leaders in all phases of the agricultural industry, the Community College System hopes to continue to provide meaningful and relevant agricultural education to all those who enter the open doors of the fifty-seven institutions who desire instruction in agriculture. ◆◆◆

## CONTINUED A CHANGING AG TECHNOLOGY PROGRAM . . .

continued advisement concerning educational possibilities. As now operating, the second-year specialization program fosters such advisement since certain goals have to be discussed with each student early in the first year and again during the development of a second-year curricular plan, the total process tends to solicit an added commitment on the part of the student.

Many students, after getting involved in vocational programs, find that post secondary schooling is not so bad and decide that additional schooling would further enhance their educational opportunities for success. An effective vocational program, therefore, should ideally allow for such additional schooling without imposing a time penalty because of the vocational training. This requires close coordination between the

vocational program and the college or university oriented administration.

Few administrations take seriously the added time expense confronting an originally vocationally oriented student who decides to pursue a degree program. Self-righteous comments such as "this individual would be more valuable with both degree and practical background, therefore, he should pay more for his education," are more common than are efforts to achieve coordination. Ideally, courses required in the first part of a vocational or baccalaureate program should differ little.

In this dynamically changing world of agriculture, our training programs need flexibility and constant reevaluation to meet the needs of students and potential employees. As employers' requirements change, so must the quali-

fications of those seeking employment.

In designing effective training programs, however, we must realize that basically, the vocationally oriented student hasn't changed much. Long-term goals seem to turn such students off, but short-term goals that are made part of career development foster confidence in achievement and capabilities. These students need to be helped to see that a basic mechanics program no longer meets the needs and criteria level of all areas of parts, sales, and service. Our second year specialization program at Utah State University certainly is not the total answer to problems besetting this field. It does, however, promise to be several steps closer to meeting student and employer needs than would a more rigidly structured program. ◆◆◆

## SPECIALIZED INDIVIDUAL APPROACH TO JOB PREPARATION

Merle Brockshus and Bob Ruen  
Farm Management Instructors  
Area One Voc-Tech School  
Calmar, Iowa

**Some students have made arrangements to become a partner in their home farm prior to enrolling. They are required to take a farm record training specialty.**

Here at Northeast Iowa Vocational-Technical School we have instituted a specialized three phase approach to job preparedness for students enrolled in our Farm Management Program.

### Phase I Career Planning

The heart of this program is the educational plan which each student develops. Time is allotted each week for the student to do such things as: (a) identify competencies (knowledge and skills) essential to accomplishment of career goals after graduation, (b) develop a sequence of regular courses, specialty courses and on-farm occupational experiences which when properly combined will result in greater attainment of job preparedness goals, and (c) development of specific work plans to guide accomplishment of learning activities when the students go out on their supervised occupational experiences.

### Phase II Farm Enterprise Specialty Courses

Our students enroll in what we call specialty options such as Swine, Dairy, Beef and Crops. Formal classes, individualized study in our new Learning Resource Building, and the school farm provide opportunities for learning essential knowledges and skills pertinent to the specialty courses.

### Supervised Occupational Experience

Supervised Occupational Experience has the following objectives: (1) To help the student learn through real experiences, (2) To permit the student to

work with equipment which is not available at Area One, (3) To permit the student to work in an actual situation which cannot be duplicated at the school, (4) To help the student apply and see the application of his or her classroom experiences, (5) To permit the student an opportunity to develop a sense of responsibility as required in the world of work, (6) To permit the student to gain experiences more closely related to the needs of the industry.

Many of the required skills can best be learned on well managed farms where profitability is the basis for management programs and decision making. Only farms of this type can serve as supervised occupational experience training sites. Another essential requirement of the training site is the ability and willingness of the site manager to provide the experiences desired by the individual student as indicated in his or her work plan for the six week supervised occupational experience period.

During the first week of the supervised occupational experience, the instructor, student and the training station manager sit down and go over the work plan, picking out specific jobs which can be achieved during the balance of the six weeks. A second visit is made about two weeks later to check progress and deal with any problems that may arise. Another visit is made during the final week to evaluate the cooperative work experience.

Upon the students return to campus from their co-op training (a) a summary of accomplishment is written up by the student, (b) a performance report is received from the training station manager and (c) an achievement evaluation of the work experience is completed by the instructor.

A new level of student proficiency in regards to job preparedness is then de-

Shown are Duane Strong (left) and Gary Larson, both of Elgin, Iowa. Mr. Strong is Gary's employer and supervisor for the supervised agricultural experience program.

termined. This proficiency level is used as the base criteria for development of learning activities for the second work experience period (spring quarter—1st year). This procedure is also used prior to the two supervised occupational experiences available in fall and spring quarters of the second year of the Farm Management program.

### Home Farm Work Experience

Some students have made arrangements to become a partner in their home farm operation prior to enrolling at Area One. Therefore, they have some individual needs which also are special such as (1) they must be a part of the labor supply while in school, (2) the home operation has to be expanded during the time they are attending school so that meaningful employment opportunity is available at graduation time and (3) some of their learning activities must complement the way in which the home farm is operated.

Students who go to their home farm are required to take a farm record training specialty. In this program, the student will take over the record keeping duties for one year starting in the winter quarter of his first year and closing them out during the winter quarter of his second year. Upon completion of the record year, an analysis of the records will be done.

The Farm Management program at Northeast Iowa Vocational-Technical School (Area One) is designed to serve each student as a special person. The initial development, periodic evaluation, and timely expansion of an educational plan for each individual student is the key to program success. A personalized educational plan which best incorporates regular class work, specialty courses and supervised occupational experiences provides each student opportunity for greatest achievement of job preparedness. ♦♦♦



Lawrence H. Erpelding, Jr.

Post secondary education programs of less than baccalaureate level in agriculture and its related fields continued to expand during the 1974-75 academic year. Data collected for the 1975 Directory of Post Secondary Education in Agriculture, Agribusiness, Natural Resources and Environmental Occupations showed increases in the number of programs offered, students enrolled and faculty employed.

Department chairmen in post secondary institutions offering one and two year programs in agriculture, agribusiness, natural resources and environmental occupations were surveyed to determine the status of the national effort in terms of students, teachers and programs. Data from non-resident institutions were acquired from appropriate areas in State Departments of Education.

Data compiled by Maynard Iverson in 1974 when compared to the 1975 figures reveal some interesting developments. While the number of institutions offering one and two year programs in agriculture, agribusiness, natural resources and environmental occupations has declined since 1973-74, the total number of programs has increased. A comparison for data gathered in 1973-74 and 1974-75 are in Table 1.

Part-time faculty have assumed greater responsibility for teaching. It is evident that administrators are selecting a larger number of part-time faculty to meet instructional demands placed on the institutions by increased student enrollment. The ratio of full-time to part-time faculty in 1973-74 was two to one. In 1974-75 the ratio

## Status of Post Secondary Programs in Agriculture

Lawrence H. Erpelding, Jr.  
Teacher Education  
The Ohio State University

Table 1. 1974 to 1975 Changes in Two-Year Post Secondary Education

	1973-74	1974-75	Change
Institutions Offering Programs	453	441	-12
One- and Two-year Programs	1,136	1,334	+198
Full-time Faculty	1,456	1,575	+119
Part-time Faculty	711	1,118	+407
Student Enrollment	46,085	54,428	+8,343

Table 2. Two-year Post Secondary Institutions, Enrollment and Faculty

Years	Institutions	Enrollment	Faculty
1966-67	142	10,290	393
1967-68	197	13,786	527
1968-69	243	28,434	716
1969-70 and 1970-71		(Data were not collected)	
1971-72	383	32,622	1,864
1972-73	401	39,041	2,136
1973-74	453	46,085	2,167
1974-75	441	54,428	2,690

- Manley, Fred W., "Two-Year Technical Education Curricula in Agriculture and Natural Resources in the U.S.A.," Annual Surveys.
- Iverson, Maynard J., "Directory of Post-Secondary Education in Agribusiness and Natural Resources Occupations," (1971-72) (1972-73) (1973-74), Vocational Education Department, University of Kentucky, Lexington.
- Erpelding, Lawrence H., Jr., "Directory of Post-Secondary Education in Agriculture, Agribusiness, Natural Resources and Environmental Occupations," (1974-75), The Department of Agricultural Education, The Ohio State University, Columbus.

decreased to approximately three to two.

Types of curricula vary widely throughout the United States. Approximately 26 percent of the students were enrolled in comprehensive production agriculture programs. The next most popular area was horticulture with about 18 percent of the enrollment. Forestry and agribusiness programs followed with nine and eight percent of the enrollment respectively. Programs having the smallest enrollments were mining technology, fisheries, agricultural inspection, food processing, and agronomy.

Adult education programs were offered in 140 (32 percent) of the 441 institutions having agricultural and related programs. The majority of programs are titled production agriculture, veterans' cooperative training, and farm operation and management.

Slightly more than 36 percent of the two-year institutions reported that curriculum-related student organizations were used to provide leadership opportunities and occupational growth. Some of the 160 colleges, institutes and schools having agricultural, agribusiness, natural resources, and environmental education programs are listed below. (Concluded on page 157)

# Agriculture Program at Joliet Junior College

Max Custer  
Joliet Junior College

The cooperation of agriculturally related businesses is the primary requisite for the establishment of a successful two-year program in agriculture at the post secondary level. At least, this cooperation is what we at Joliet Junior College attribute the success of our program to.

In 1961, J. E. Hill, Illinois' Director of Vocational Agriculture, said, "If any junior college in Illinois will offer a two-year program on how to farm, I will see to it that they get 100 percent of the expenses paid." I was never sure that Mr. Hill would have made good his pledge, but I was inspired, and would have, if time permitted, begun the first such program in the state in 1962 rather than 1964.

During the early 60's Joliet Junior College had the only college agriculture courses in the state which offered transfer credit. But the need for a practical, two-year program was becoming more and more apparent.

The first step was to determine what such a program should comprise. A survey was made of area farmers and businesses connected with farming. Briefly, the results of this survey showed that there was a definite need for such a program, and that the curriculum needed most was an agricultural supply curriculum.

With the help of Dr. Lloyd Phipps of the University of Illinois Agricultural Education Department and six of his students who were working on advanced degrees, a survey was conducted to determine job opportunities in off-farm agriculture and to identify the areas, or clusters, of the most jobs. This survey indicated that, without a doubt,

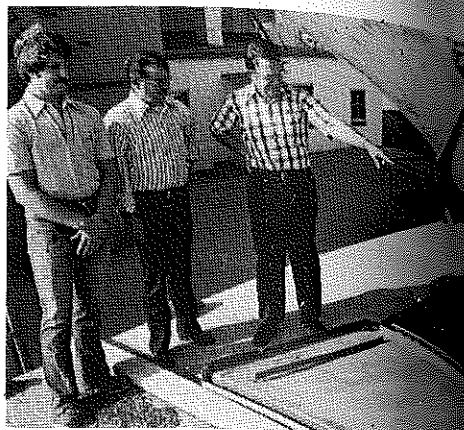
the providing of farmers with supplies and how to properly use them, was the area of greatest need.

In developing our over-all curriculum, we leaned heavily on the ag education staff at the U. of I. The curriculum, as it was presented to the Illinois Agricultural Association in Bloomington, Illinois, was exceptionally well received. In fact, the statement was that they could use *now* all the people we could graduate in 10 years.

In May of 1964, our program was approved. We publicized it with articles in more than 150 daily newspapers, about 50 radio stations, on 3 television programs, in numerous magazine articles and through a tremendous amount of personal correspondence. In August we had 48 students enrolled. These were basically farm boys interested in agriculture and farming, but with no opportunity to farm.

I do not want to give the impression that we were new to the teaching of agriculture at Joliet Junior College. We had operated a regular transfer program since 1954, and had taught agriculture at Joliet Township High School for many years prior to that time. Our Farmers' Short Course, which attracts, each spring, more experienced farmers for a 6-session updating and social time than any program of its kind in the nation, celebrated its 27th anniversary this year. (More than 400 area farmers attended the Farmers' Short Course in 1975. Our participants now include many father-son teams.)

During the early days, there were many problems to be overcome, but all those involved with the project were enthusiastic and cooperative and this



JJC Department Chairman, Max Custer (right) visits a student on the job. Ag students must have a semester of job experience for the Associate degree.

made the job much easier than might have been expected.

The instructors hired for the new two-year curriculum were untiring. We had instituted courses that had never been taught anywhere before, and these courses would have to be developed by our ag teachers and taught by them.

Of the 15 required courses, 11 were taught in the agriculture department, with the remainder in business and speech.

Since the beginning of the two-year associate degree program barely more than ten years ago, our agriculture program has expanded until it now includes both an agribusiness option and an ag production and management option in the regular agricultural supply curriculum; plus a two-year horticulture program with options for landscape, turf management, nursery operation, or floriculture. We have also begun several certificate programs due to increasing pressure for rapid-job-readiness skills taught at the community college level. We encourage our students to stay in school long enough to be thoroughly knowledgeable about their jobs, however, and prefer to guide students, where possible, into programs that will give them long-range as well as short-range job possibilities.

Shortly after our two-year program was organized along the lines the agricultural practitioners had indicated were needed, our first advisory council was formed. This group functioned to advise us on the establishment of training stations and policies in regard to our cooperation with agricultural businesses.

I feel very strongly that advisory groups should be used in any college (Concluded on next page)

## CONTINUED AG PROGRAM AT JOLIET . . .

that offers or plans to offer such an agricultural program. However, the educational personnel of the college should be in charge of the meetings of such advisory groups and the group should function as a part of the school and not as an entity separate from the school.

Of course, no program is any stronger than its faculty. At Joliet Junior College, we have long required the master's degree and also that our instructors be fully qualified as vocational agriculture teachers. With the present lack of well-qualified vo-ag instructors, the temptation on many campuses will be, I fear, a lessening of qualifications. This will be a mistake, and will result in the erosion of the quality programs we strive for.

It is important, too, that the administration of the college be familiar with the over-all duties of our teachers. Many jobs do not show up on an ordinary daily program or computer print-out; thus we prepared a staff assignment breakdown which has proved to be very valuable in maintaining reasonable workloads for our agricultural staff.

Although our first transfer courses were weighted heavily toward dairy science (since at that time approximately 50 percent of the area farmers were dairy farmers), the emphasis has shifted until the aspect of the curriculum is minor.

At the time the two-year program was started in 1964, the general attitude toward grain farming was negative. Corn was selling for \$1.00 a bushel, and grain farmers who faced ever increasing costs of equipment and labor were being forced out of business. We were discovering though, the truth

of the old saying "you can't take the farm out of the boy." Thus, it was necessary to find farm-related occupations for our students. The ag supply program was the answer.

### EXPERIENCE PROGRAM

Our required semester of job experience has proved to be one of the best things about our program. Whether the young man or woman stays with the training position after graduation (which 75 percent of them do) or goes into a farm production situation, the job experience combined with classroom discussion of that experience is something that is relevant to his life's work. How beneficial for a producer to understand fully the different fertilizers, or the mechanics of his equipment, or the financing of his operation! Thus, the variety of on-the-job training sites is a definite plus in our educational effort. Our students have been good enough in their various job situations that one company offered to hire the entire class for job training. But we turned this offer down because of the learning benefits derived from a multiplicity of job categories.

I think I can say without exaggeration that Joliet Junior College's pioneer program has set the pattern for 2-year programs throughout Illinois, and yes, across the nation.

Certainly, we recognize that farming is a rapidly changing occupation and that our programs must be continuously scrutinized for timeliness. Our students must be taught to keep themselves aware of changing methods, markets, and equipment.

Although we cannot teach everything about farming in two years (and if we could, no one could learn everything

about farming in two years) we believe that the combination of good classroom teaching and relevant on-the-job experience, directed by excellent faculty and guided by knowledgeable advisory board members will produce men and women who will be a credit to farming and to their communities.

We have many students who continue their training at 4-year colleges and universities. Fifteen per cent of our students are in the transfer curriculum and another 25 percent eventually go on to some kind of advanced training. Studies show that more than 90 percent of our ag students have continued in agriculture as their occupation. A recent survey of 29 graduates who were actively engaged in some agricultural occupation indicated that 17 of the twenty nine were "highly satisfied" with the JJC curriculum selection and the other 12 were "satisfied." None of the respondents indicated that they were "indifferent" or "dissatisfied" with the curriculum.

Considering the fact that Joliet is considered "an industrial community," the success of our agricultural program is even more remarkable that if we were located strictly in the heart of farmland. But this location is, in part, responsible for its success, since it gives our students access to the broadest diversity of farm-related businesses. Because we have concentrated on the excellence of our program rather than numbers, we have attracted the numbers as well. The ag-horticulture programs at JJC are among the fastest growing curricula of the college. We like to feel that they were founded on solid principles of both agriculture and education. And, we plan to continue to emphasize those principles. ♦♦♦

## CONTINUED STATUS OF POST SECONDARY PROGRAMS . . .

mental occupation programs have a curriculum-based student organization for each area of instruction.

Since the first survey of the status of post secondary education in agriculture conducted by Manley in 1967, we have witnessed phenomenal growth in one- and two-year programs. The number of institutions offering such programs has increased threefold. Student enrollment is five times greater. The

number of faculty teaching in the agriculture, agribusiness, natural resources and environmental occupation programs has grown by 675 percent. A summary of data collected in annual surveys is included to demonstrate growth patterns.

### Summary

Data collected in 1975 continue to provide evidence that the educational

consumer finds post secondary education in agriculture, agribusiness, natural resources and environmental occupations of less than the baccalaureate degree meaningful and useful in accomplishing occupational and educational objectives. The 1975 data which revealed large increment increases in number of programs, enrollment, and faculty would seem to indicate years of additional growth lie ahead. ♦♦♦

# POST SECONDARY STUDENT TEACHING

Daniel W. Brown  
Agricultural Educator  
Ellsworth Community College  
Iowa Falls, Iowa

Post secondary student teaching opportunities should be provided for students in colleges and universities who wish to prepare for teaching at the post secondary level. The responsibilities of post secondary educators vary from those of secondary vocational educational instructors in several important ways: class characteristics, student-teacher relationships, departmental functions, occupational placement, recruiting, and multiple-man teaching situations are but a few.

## Why Post Secondary Student Teaching?

While enrolled at Iowa State University as a graduate student, I decided that I wanted to enter the agriculture teaching profession, but not at the secondary level. I let my desire to be known to my advisor, Mr. Clarence E. Bundy, and our Agricultural Education Department Head, Dr. Harold R. Crawford. They cooperated to design a unique program to meet my needs. I became a pilot student being prepared for post secondary teaching in a teacher education program which traditionally had produced secondary instructors. My courses were modified to allow me to relate information to the post secondary level while my classmates completed projects related to secondary programs. Also, I did work on independent projects to learn more about post secondary institutions, their programs, and their students. When the time for student teaching approached, I went to Hawkeye Institute of Technology, a community college, at Waterloo, Iowa, and worked under Virgil Christensen, head of the Agriculture and Natural Resources Department.

## Class Characteristics

The student population at the post secondary level varies greatly from that

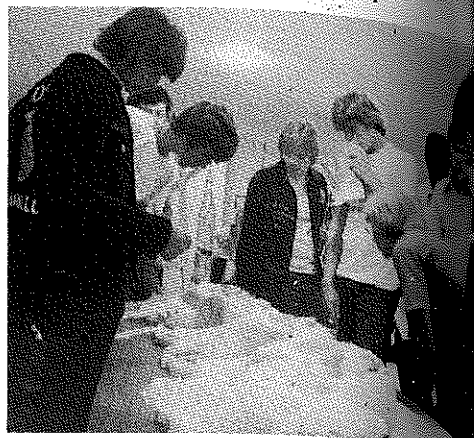
of the secondary level both for work in and out of the classroom. When an instructor at the post secondary level teaches a particular lesson or unit, he must consider that there is little likelihood that the material will be reinforced or repeated in subsequent courses. Secondary vocational agricultural teachers usually have several opportunities to convey similar material to a particular group of students. At the secondary level, multiple-man departments and teaching specialization are the exception rather than the rule in Iowa whereas, at the post secondary level the reverse may be true. Teaching solely in the animal science area, agronomy, power mechanics, or horticulture, for example, allows one to develop expertise in that specific area.

In a multiple-instructor post secondary situation, good communication among the instructors is essential. Instructors teaching related topics must coordinate their presentations to avoid gaps or overlaps of information. An example would be a curriculum where agricultural law is not presented as a course, but is worked into the other courses as law applies to them.

Many post secondary institutions which provide agriculture also have campus farms. This was the case in my post secondary student teaching situation. I worked with the students in swine management at the campus facility, both through individualized and group assignments and in class projects and demonstrations. My student teaching experience at the campus farm provided me with the opportunity to realize various ways in which a learning laboratory can be an extension of the classroom.

## Occupational Placement

Occupational placement at the secondary level may be optional; how-



The Ellsworth Community College Meat Evaluation Clinic is held for high school students as a service to local vocational agriculture teachers. Wally Koester is Clinic Coordinator.

ever, at the post secondary level, it is an integral part of every student's educational program. Class material is geared toward activities in which the student will participate during his occupational placement.

While at Hawkeye, I had the opportunity to learn how instructors place students in training locations. I experienced locating suitable training sites and coordinating the students who were placed there for their occupational experience. Final placement is also an instructor's concern as many post secondary agricultural departments perform that function. A rapport with industry is necessary, if not required, to provide information about positions and to be able to place students in jobs which are suited for them and which offer an opportunity for job satisfaction and future advancement.

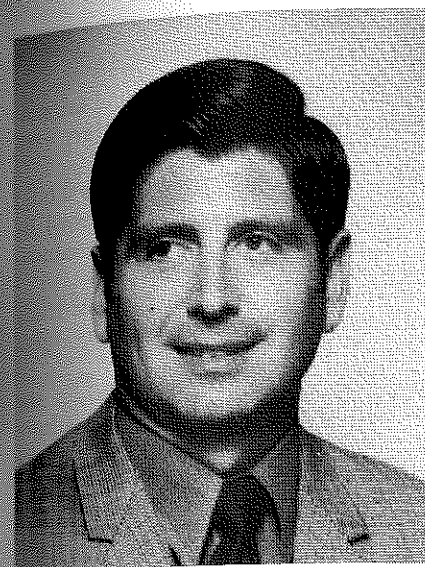
## Recruiting

Successful recruiting of new students at the post secondary level is imperative for program survival. Student teaching at a post secondary institution allows one to become familiar with techniques and procedures for doing this. Time has to be scheduled in the instructor's duties to provide for recruiting activities — developing methods, determining goals, and designing presentations. Post secondary recruiting is a much different task than is recruiting at the secondary schools.

## Departmental Functions

Since post secondary agricultural programs usually have multiple-man departments, there is with that charac-

(Continued on page 160)



Bennie L. Byler

High school students of today are faced with a tremendous challenge in preparing themselves academically and vocationally for their life's work. Many opportunities exist for them to continue their formal education beyond high school.

Vocational agriculture students have been greatly affected by the increased educational opportunities available to them. This has been due primarily to an accelerated growth and expansion of agricultural programs in post secondary institutions. The agricultural programs in Iowa post secondary area vocational schools have grown considerably with enrollments increasing from approximately 800 in 1965 to over 2400 students in the 1974-75 school year.

The task of assisting young people in establishing and attaining their educational and occupational goals becomes increasingly difficult because of factors which affect their educational plans. These include: varied opportunities for post secondary training, influence of peers, parental influence and attitudes of society which have an influence upon the amount and type of formal education youth may receive.

The Department of Agricultural Education at Iowa State University recently completed a study to assess the educational plans of Iowa vocational agriculture students and selected factors which may be related to the educational plans of these students.<sup>1</sup>

## Procedure

The study included a random sample of thirty Iowa high schools which provided vocational agriculture programs in the 1974-75 school year. A total of 623 junior and senior vocational agriculture students participated in the study.

In completing the instruments and questionnaire, each student was expected to state his/her educational plans upon graduation from high school. Based upon the students' educational plans, the following groups of students were identified and studied: students planning to attend a post secondary area vocational school, students planning to attend a four-year college or university and students planning to enter

<sup>1</sup> Byler, B. L. Analysis of Factors Related to the Educational Plans of Iowa Vocational Agriculture Students. Ames, Iowa: Department of Agricultural Education, Iowa State University, 1975.

# Educational Plans of Iowa Vo-Ag Students

Bennie L. Byler.  
Agricultural Education  
Iowa State University

the world of work upon graduation from high school.

A total of 42 items related to educational and occupational decision-making were studied to determine differences which may exist among the above groups of students.

The instruments and questionnaire used in collecting the data for this study are as follows:

1. *Personal, Family, and Community Data Related to Educational and Occupational Plans of Iowa Vocational Agriculture Students.*
2. *Agribusiness Achievement Test* by Peterson, et al.

## Selected Findings and Recommendations

The findings of this study reveal that there are differences in selected factors related to educational and occupational decision-making among vocational agriculture students grouped according to their stated educational plans upon graduation from high school. The following are recommendations, preceded by three selected findings upon which the recommendations were based. These findings and recommendations should be of interest to high school vocational agriculture instructors, vocational guidance counselors, post secondary area vocational school personnel, and others who are in a position to assist vocational agriculture students in establishing and attaining their educational and occupational goals. These statements and recommendations should have direct implications for those individuals involved in the development of secondary and post secondary agriculture programs.

Over 55 percent of the students participating in this study indicated that they planned to get a job upon graduation from high school and not attend college.

- A. Developing agricultural job entry level skills should be a priority in the secondary vocational agriculture curriculum.
- B. Instructional programs in vocational agriculture should be structured in such a manner as to assure that students will attain the necessary knowledge and skills needed for immediate entry into occupations, as well as the option to pursue additional formal education if they so desire.

(Concluded on next page)



- C. The vocational agriculture curriculum should include specialized programs following one or two years of basic instruction to prepare for specific agricultural occupations.
- D. Entrepreneurship in agricultural production and/or agribusiness should be encouraged, and the curriculum should be structured as to include such training.
- E. There is a need for appropriate, practical, participating experiences in agriculture through supervised occupational experience programs to facilitate transition between school and the world of work.
- F. Junior high school occupational exploratory programs should be developed to assist students in identifying their vocational interests, assess their vocational strengths, and set tentative occupational goals so that relevant instruction may be provided. Vocational agriculture instructors and vocational guidance counselors should provide appropriate assistance to students who do not plan to continue their formal education beyond high school.
- G. Administrators should maintain a keen sense of awareness of the importance of the vocational agriculture program in their high school curriculum. There is an expanding demand for people who possess the knowledge and skills needed for the vast array of jobs available in agriculture.
- H. Assistance in employment placement should be provided and planned follow-up activities should be conducted.

Approximately 27 percent of the students participating in this study planned to attend a post secondary area vocational school upon graduation from high school.

- A. Greater emphasis should be placed on articulation between secondary and post secondary programs of agriculture.
- B. Continuous communication between high school and post secondary area vocational school personnel should be maintained.
- C. High school students should be provided

with current program and curriculum materials from the various post secondary area vocational schools.

- D. Post secondary area vocational schools should assess the knowledge and skills possessed by these incoming students and provide educational experience accordingly.

About 17 percent of the students included in this study planned to attend a four-year college or university upon graduation from high school.

- A. Greater efforts should be expended in the articulation between secondary agriculture programs and agriculture programs at the four-year colleges and universities.
- B. High school students should be provided with current information about agricultural programs and curricula at four-year colleges and universities.
- C. Four-year colleges and universities should assess the level of knowledge and skills possessed by these incoming students, and plan educational experiences accordingly.

#### Summary

In recent years there has been a rapidly accelerating growth of agricultural programs in post secondary area vocational schools. This increased program expansion has brought about a need to determine the educational goals of junior and senior vocational agriculture students and factors which may be related to their educational plans upon graduation from high school.

A knowledge of the tentative educational plans of junior and senior vo-ag students and an assessment of factors which are related to these educational plans should provide a basis for developing programs, materials and curricular offerings to assist youth in attaining their educational and occupational goals.

Instructors of agriculture, administrators, vocational guidance counselors and other teachers must have a keen sense of awareness of the challenges facing youth in assessing their academic and vocational strengths. Assisting these young people in making meaningful and realistic decisions regarding their future educational plans should continue to be a vital concern to educators. ♦♦♦

#### CONTINUED POST SECONDARY STUDENT TEACHING

teristic a division of official duties. One person doesn't complete all necessary paperwork, serve as club advisor, teach adult classes as well as day classes, coordinate all students while on-the-job, and provide agricultural services to the community. These functions are delegated across the entire post secondary agricultural teaching staff. Open lines of communication are crucial. An instructor must be aware of the activities of the other instructors and they in

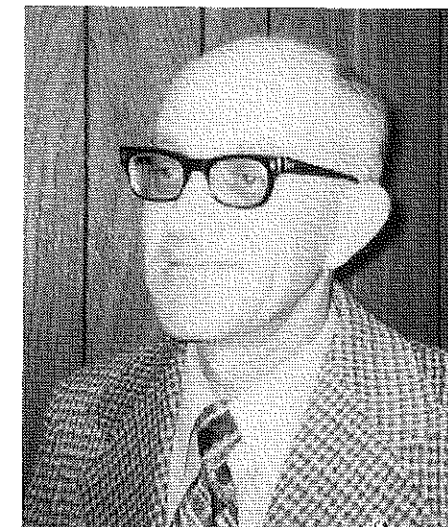
turn must know what he is doing to keep all activities working toward the common goals of the department. Formal weekly departmental meetings and many informal contacts throughout my student teaching experience made this distinction apparent to me. By working at the community college level, I became aware of committees and faculty responsibilities unique to the community college organization. Because of my student teaching expe-

rience, I did not find the functioning of a post secondary institution to be foreign. An instructor may have several non-teaching, "free" periods throughout his day; he must be disciplined enough to make constructive use of that time. In my student teaching experience, I discovered that non-teaching duties are very important for the individual instructor, department, and the institution.

(Concluded on page 166)

## Junior College Farm Equipment Mechanics

Kent Ewing  
Instructor - Coordinator  
Northeastern Junior College  
Sterling, Colorado



Kent Ewing

Travel from coast to coast or border to border, and you'll see agriculture from all roads. Agriculture mechanics is a very important phase of this huge business of agriculture.

New agriculture equipment costs a lot of money. In fact, even ten-year old tractors are often sold for almost their original cost. Besides all the large machinery such as tractors, combines, balers, etc., there are over eight million one-cylinder engines in use on farms.

These are just a few of the reasons why Northeastern Junior College launched a farm mechanics program in 1968. This was a one-year program under the Manpower Development Training Act. In 1969, the curriculum was redesigned into a two-year program. The graduates receive an Associate in Applied Science degree. In 1974, we added a one-year certificate for individuals who desired only a year of training in order to do a high percentage of their own mechanical work when they returned to the farm.

Our program also serves other vocational departments here at N.J.C. such as Turf Management, Occupational Agriculture, and students in transfer agriculture.

The interest in this new program was good. Because of its growth, a second instructor was added in 1973. We had also outgrown our original building which has a shop area 40 feet by 60 feet. This last year the college committee approved the construction of a

Like any new program, it took some time to prove to the dealers that we could train personnel for their businesses.

Several of the new students even have jobs picked out before they enroll.

new vocational building which was begun last winter. Unfortunately, the building was not completed in time for the fall classes as had been expected.

The Farm Equipment section of the new building was an area 80 feet by 150 feet, with a shop area 80 feet by 120 feet. Other improved features, besides the increased shop space, are special rooms for diesel pump and injector repair, hydraulics, a wash room, a tractor dynamometer test room, and a reference room. Like the original building, the new one also has an office, a locker-restroom combination, tool room, large classroom, and storage room for audiovisual equipment, teaching materials, etc.

The curriculum is designed to train students for every phase of an implementation dealership in service, sales, and parts.

A very important part of the student's training is actual experience. We don't have any problem getting equipment to work on as many of the students bring in tractors and equip-

ment from their family farms. We also take care of the tractors and mowers for the college's maintenance department.

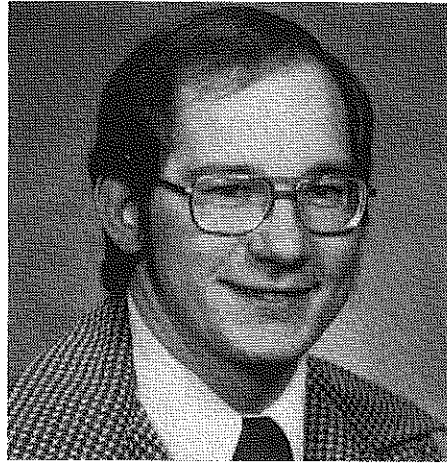
Like any new program, it took some time to prove to the dealers that we could train personnel for their business. Now the dealers in Sterling are very willing to help give our students further practical experience. They hire our second year students as part-time employees after class hours.

Recruitment of new students hasn't been a problem. Many new students enroll because of a past or present student. Our state high school vocational agriculture teachers also do a real good job in advising students interested in agriculture about our program. Nearly nine out of ten of our students have been in high school vocational agriculture classes.

We've never had any trouble placing students after graduation either, as we have dealers asking for more men than we can train. Several of the new students even have jobs picked out before they enroll. Some of our graduates have returned to the farm, and others are working as mechanics, partsmen, and salesmen in dealerships.

The advisory committee was reorganized last year to include three graduates of the program. Two are working in dealerships, one as a salesman and the other as a mechanic. The third is farming. The rest of the committee is made up of a farmer-rancher, and three owners of dealerships. Each of these individuals know the program, and are well qualified to advise concerning changes.

(Concluded on next page)



Keith L. Byers

## AGRICULTURE'S FUTURE -- PRODUCTION TECHNOLOGY

Keith L. Byers  
Production Agriculture Dept.  
University of Nebraska  
Technical School of Agriculture  
Curtis, Nebraska

at the University of Nebraska School of Technical Agriculture (UNSTA) in Curtis, Nebraska, instructs students in the above technologies. The 21-month Production Agriculture program is for young people interested in pursuing the farming and/or ranching career. Students enrolled at UNSTA have a curriculum centered around livestock technology, plant & soil technology, agricultural business management technology, and machinery mechanics skills. Applied social and natural sciences are included in the curriculum to prepare the students for roles in community leadership.

To enhance the curriculum offered at UNSTA, the students spend 50 percent of their time performing practical applications of the theory. In numerous courses at UNSTA, the 400 acre school farm is used in teaching the practical application of theory to the students. The farm consists of dryland and irrigated cropland, native rangeland and introduced pastures. The 35-cow herd; and grain handling facilities are operated by a manager who coordinates with instructors in using the livestock, land, machinery equipment, and facilities for practical work. The students are involved in swine farrowing procedures, calving procedures, castration, vaccination, branding, ear notching, etc. of livestock. Field preparation, planting, irrigating, and harvesting of the school's crops are used for student

instruction.

Another method used by the Production Agriculture Technology program at UNSTA to enhance the students background in agriculture is a three month work-experience program. After six months of on-campus instruction, each student selects an approved work-experience location where he is employed by a farmer or rancher. At this work-experience location the student uses his newly obtained knowledge and skills as well as learns new ideas and skills from his employer. Production Agriculture instructors visit with the student and employer at the work-experience location to observe what is being learned by the student and to talk to the employer about the student's abilities. At the end of the three months of experience the employer evaluates the performance of the student on quality of work, quantity of work, adaptability to agriculture, job knowledge, dependability, and attitude toward his job, company, and co-workers. The students then return to the campus for ten months of instruction where the knowledge gained from their work experience is used in classroom and laboratory discussions.

When the young agriculturists graduate from the Production Agriculture program at UNSTA, they are ready to return to farms and ranches and provide the food and fiber needed by the fast growing world. ♦♦♦

Throughout the United States, numerous two-year post secondary programs in agriculture have been established with the objective of training young men and women to become better agriculturists in this world where food and fiber are becoming important bargaining tools. As we look into the complexity of the field of agriculture, we see that the heart of agriculture is the individual farmer or rancher who is producing the food and fiber for his family, city, state, nation, and world. Each year the world requires more food and fiber, and the farmers and ranchers are expected to produce it on the same acreage of land or less than the year before. How can they continue to carry on this task? Efficiency! How can they become more efficient? They can do it by studying the technology involved in producing the food and fiber, by studying the latest research carried out by land-grant universities, by studying the complexity of the marketing system, by becoming more proficient in mechanical skills, and by studying record keeping systems.

The Production Agriculture Technology program, one of six programs

### CONTINUED JUNIOR COLLEGE FARM EQUIPMENT . . .

Recommendations for farm mechanics programs:

1. Be sure the program is completely ready before doors are opened to students.

Too many programs are started with the intentions of doing something after a certain quota of students is met. This often means a lack of tools, equipment, facilities, operating monies, and oc-

asionally even the instructor!

2. Be sure the facilities are suitable.

Sometimes the facilities are designed with doors too small, poor lights, unsafe design, etc.

3. Instructors should keep updated on new equipment, prices, and agriculture changes.

We have now entered a time when implement employees can earn good wages. It is up to us to train these

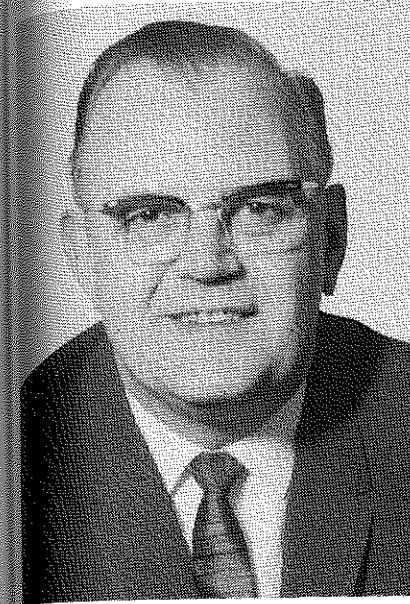
people to be as efficient and well informed as possible.

4. There is a need to continue increasing good ag implement mechanics courses in the high schools. To at least equip the high school graduate with enough skills to do good maintenance work on farm and ranch equipment should be the aim of that program. ♦♦♦

## Leader in Agricultural Education:

### GORDON I. SWANSON

by  
Milo J. Peterson\*



Leadership takes many forms and is exerted on many levels. The professional career of Gordon I. Swanson is a case history of leadership ranging from the local community to the state, national and international areas. If a leader can be described as one who has the ability to influence the thoughts, attitudes and actions of others then Dr. Swanson is a leader.

In common with many of his colleagues, he shares a farm upbringing and a rural background that has molded his character and shaped his philosophy. Gordon Swanson graduated Cum Laude from the University of Minnesota in time to put in one year of vocational agriculture teaching before becoming a combat officer in the U.S. Marine Corps. Surviving several of the bloodiest campaigns in the Pacific, he returned to teaching agriculture at Alexandria, Minnesota. Here his leadership resulted in the development of a six man department with strong emphasis on adult farmer education, community service and FFA.

During his program of graduate study, Dr. Swanson demonstrated a talent for creative research which has continued to be one of the bases for his leadership. His work in the area of educational research, particularly on the economic aspects, has provided

several landmark studies.

It is perhaps in the field of international education that Dr. Swanson's leadership has been most dramatically apparent. At the age of 38 he became the youngest person to be appointed to the position of Program Officer in the Department of Education of UNESCO. One result of his tour of duty at UNESCO headquarters in Paris was the subsequent establishment of a separate Department of Agricultural and Science Education. Dr. Swanson is the only American citizen to have served in that capacity. He has served on the joint FAO-ILO-UNESCO advisory committee and was Coordinator for the UNESCO Study on Agricultural Development.

In addition to his work with UNESCO, Dr. Swanson has served as consultant on international development projects for the World Bank, Ford Foundation, OECD (Higher Education Planning for Agriculture) and several other agencies and foundations. His work has taken him into countries around the world, always providing leadership for the advancement and promotion of agricultural education. Rural people from Afghanistan to Australia, from Ghana to Libya,

in at least two dozen countries, have been the beneficiaries of his tireless quest for improving educational opportunity in agriculture. Farmers and their families who have never heard his name will have a little better chance for a little better life as a result of Dr. Swanson's leadership.

Gordon Swanson's international activities have not precluded his participation in dozens of professional leadership thrusts on the domestic scene. He has carried the banner of educational improvement on many fronts, always under the escutcheon of vocational agriculture. Hundreds, even thousands, of educators have learned the facts of life about agricultural education through his influence. This has been true within his own university, the American Association for the Advancement of Science, the labyrinth of HEW and particularly, the USOE. He was the first (and only) "ag man" to serve as president of Phi Delta Kappa and is presently chairman of the Board of Directors of the P.D.K. Foundation.

It is fortunate for agricultural education that Gordon Swanson is a man possessed of vigor, vitality and stamina. These qualities have enabled him to advise undergraduate and graduate students, teach a normal class load, serve on the endless routine of University committees, produce a bibliography of more than one hundred titles, participate in church, community and a variety of service organizations and rear a family (with considerable assistance from a wonderful wife), and still find time to do a bit of deer hunting, fishing, and golf.

As his undergraduate and graduate adviser, it gives me cause to once again ponder the adage that a teacher should measure his success in the measure that his students surpass him. ♦♦♦



Milo J. Peterson

\*Milo Peterson is a professor of Agricultural Education at the University of Minnesota.



Sam Stenzel

With the passing of the Vocational Education Act of 1963 and the Amendments in 1968, attention focused upon new horizons for agriculture. Specialization in the agricultural clusters not only recognized vocational agriculture training in production but also in agribusiness, natural resources, environmental occupations and other facets related to the agricultural industry. Vocational education in agriculture included training beyond the secondary schools, such as area vocational technical schools, community colleges, and junior colleges.

Post secondary education in agriculture, agribusiness, natural resources, and environmental occupations of less than the baccalaureate degree continued to expand. Community colleges changed from primarily college-transfer institutions to hybrids of academic and occupational education. They grew in number from 678 in 1960 to 1,203 institutions in 1975 and increased their occupational enrollments from 13 percent to almost 50 percent.<sup>1</sup>

#### NUMBER OF PROGRAMS INCREASED

The growth in number of post secondary schools incorporating vocational agriculture programs into their curriculum was phenomenal. The 1975 *Directory of Post Secondary Education in Agriculture, Agribusiness, Natural Resources and Environmental Occupations* listed 399 post secondary institutions with vocational agriculture programs. They offered 1,334 programs in the states and territories of the United States. Total enrollment exceeded 54,425.<sup>2</sup>

The institutions varied in number of

# Opportunity for Professional Involvement by Post Secondary Teachers

Sam Stenzel  
Assistant to the NVATA  
Executive Secretary  
Lincoln, Nebraska

TABLE 1. Vocational Agriculture Programs in each Post Secondary Institution and the Number of Schools Offering Vocational Agriculture Programs.<sup>2</sup>

Vocational Agriculture Programs	Institutions Offering Vocational Agriculture
1	86
2	52
3	44
4	48
5-10	98
More Than 10	71

TABLE 2. Number of Full-time and Part-time Teachers Employed to Teach Vocational Agriculture in Post Secondary Institutions.<sup>2</sup>

Positions	One Teacher		Two Teachers		Three Teachers		Four/More Teachers		Total Teachers
	Prog Tchrs	Prog Tchrs	Prog Tchrs	Prog Tchrs	Prog Tchrs	Prog Tchrs	Prog Tchrs		
Full-time	122	122	81	162	42	126	135	1162	1572
Part-time	61	61	46	92	34	102	81	863	1118
Summary	183	183	127	254	76	228	216	2025	2690

programs offered. Table 1 gives a breakdown of the number of vocational agriculture programs offered in the post secondary institution.

Table 2 shows that post secondary institutions employed 2,690 persons to teach the vocational agriculture programs.

Approximately 42 percent of the instructors were part-time teachers. The major source of teachers came from outstanding secondary school programs and personnel from the agricultural business and industries.

#### PROFESSIONAL LEADERSHIP STRUCTURE

Although the type of programs varied within states and programs differed substantially throughout the United States, teachers of vocational agriculture had several commonalities. Those included an interest in vocational edu-

cation, conducting creditable programs, training students to be proficient and employable, and maintaining favorable relationships with fellow employees and associates.

Members benefited from the experience and work of colleagues on local, state, and national levels. The American Vocational Association (AVA) was the "umbrella" for all vocational educators. Vocational educators for agriculture comprised the AVA Agriculture Education Division. The Agriculture Division affiliates were the American Association of Teacher Educators in Agriculture (AATEA), National Association of Supervisors for Agricultural Education (NASAE), and the National Vocational Agriculture Teachers' Association (NVATA). Each had representation on the Agriculture Division Policy Committee. The division vice president for agricultural education served on the AVA Board of Directors.

#### GRASSROOTS REPRESENTATION

When organized in 1948, the major concern of the NVATA was representation for all classroom teachers, especially those at the grassroots level. As time passed, it became advisable to provide associate membership to state supervisors and teacher educators. That affiliation allowed the NVATA to become more viable and permitted closer program correlation between the three AVA Agriculture Division groups.

Until the passage of the Vocational Education Acts in 1963 and the Amendments in 1968, NVATA professional service and leadership was specifically designed for teachers in secondary schools. Since 1968 the NVATA has endeavored to become the professional organization representing the classroom teachers at both the secondary and post secondary institutions. State associations were encouraged to provide for active post secondary teacher participation in state activities. Several states complied and provided for post secondary teacher involvement.

Three general plans evolved and were implemented. The most common plan provided for post secondary teachers to participate within their local district and state association. All active members possessed the same rights and privileges. Another popular plan permitted post secondary teachers to organize a separate subdivision within the state association structure. Membership privileges were identical to those of the secondary teachers. A third plan provided for a separate state organization for post secondary teachers. The members were eligible for affiliate membership in the state association and ex-officio representation on the state association executive committee.

W. R. Harrison, president of the NVATA, stressed a need for total involvement when he spoke at the national convention in New Orleans. He said:

"Opportunities for involvement and participation of all teachers of vocational agriculture need to continue to expand at the state and national level as we continue to work together. Progress has been made. It is imperative that we remain alert to take actions that will provide for involvement. It is even more imperative that the NVATA provide an opportunity for all teachers and others in agricultural education to remain united and work diligently for our common interest."<sup>3</sup>

#### GUIDELINES FOR INVOLVEMENT

A policy resolution was adopted by the delegates attending the national NVATA convention in 1974. It read, in part:

"THEREFORE BE IT RESOLVED that the NVATA and state associations take an active part in welcoming vocational agriculture teachers in post secondary institutions and involve them in state and national vocational agriculture teachers' association activities."

The NVATA developed and adopted guidelines to aid state associations implement the resolution. Those guidelines included several procedural recommendations and were approved at leadership conferences.

#### AMEND STATE ASSOCIATION CONSTITUTION AND BYLAWS.

... provide active membership for teachers in post secondary institutions offering less than a baccalaureate degree.  
... discourage affiliate membership and a separate state organization for post secondary teachers.

#### PROVIDE FOR REPRESENTATION ON THE STATE ASSOCIATION EXECUTIVE COMMITTEE.

... post secondary teachers should become members of their district and advance through the ranks to assume leadership positions, or  
... post secondary teachers should have representation on the executive committee in an ex-officio capacity, or  
... organize a separate district for post secondary teachers, who elect their representative on the executive committee.

#### ESTABLISH A POST SECONDARY EDUCATION STANDING COMMITTEE ON ARTICULATION WITHIN THE STATE ASSOCIATION.

... appoint teachers from each post secondary area (junior college, area vocational technical institute, community college, adult, veteran) within the state.  
... stagger terms of appointment to insure continuity on the committee.

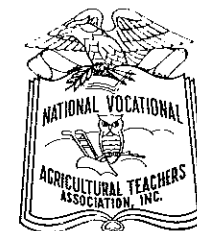
#### INVOLVE MEMBERS IN THE ANNUAL STATE CONFERENCE.

... appoint representatives from secondary and post secondary schools on the conference planning committee.  
... provide separate district meeting time for secondary and post secondary teachers.

... plan general sessions to interest both secondary and post secondary teachers.  
... invite all post secondary teachers to attend and participate in the conference activities.

#### STATE AND NATIONAL PROFESSIONAL AWARDS

... encourage secondary and post secondary teacher members to apply for professional recognition awards.  
... orient award selection committees on differences in secondary and post secondary programs and evaluate each application accordingly.



#### UTILIZATION OF POST SECONDARY SERVICES

... use post secondary teachers as judges and consultants for FFA awards and contests.  
... use post secondary facilities to conduct and/or host various FFA functions and in-service teacher training programs.

#### SUMMARY AND CONCLUSION

The entire realm of vocational agriculture instruction has changed since 1968. Agricultural production programs expanded, programs were developed for agribusiness, natural resources, and environmental occupations, enrollments increased, and the supply of qualified teachers diminished.

Professional organizations assumed a new role and additional responsibilities as the administration organized and reorganized the U.S. Office of Education. With each reorganization, staffing for agricultural education decreased. Appointments remained vacant after key personnel retired. The panacea also carried into state echelons of leadership. Personnel on the state agricultural education staff became hamstrung and restricted in their activities, leadership, and participation on state and local levels.

The NVATA revitalized its professional efforts to represent all vocational educational education in agriculture. It reiterated the importance of strong state associations, conducting outstanding local programs, publicizing agricultural education activities, and maintaining favorable relations with those with whom they worked. It encouraged pride in the profession and called for total commitment as a teacher. It stressed the need to attain membership from every vocational agriculture teacher. Over 90 percent of the secondary teachers responded and became members of their state and national vocational agriculture teachers' associations. Such a goal is also realistic for post secondary teachers.

(Concluded on next page)

State associations were given a mandate by the delegates attending the NVATA national convention. Many associations reacted and amended their constitutional bylaws accordingly. They revised their program of work to implement the recommended guidelines. Membership in those state associations and the NVATA increased substantial-

ly from teachers at post secondary institutions. Post secondary teachers now have the opportunity and a responsibility to get involved in professional leadership. The decision is theirs!

<sup>1</sup>John F. Jennings, "Emerging Issues in Vocational Education," *The American Vo-*

*ational Journal*, L (September, 1975), p. 29.

<sup>2</sup>Larry H. Erpelding, "Directory of Post Secondary Education in Agriculture, Agribusiness, Natural Resources and Environmental Occupations," Office of Education (Washington: United States Department of Health, Education and Welfare, 1975).

<sup>3</sup>W. R. Harrison, "President's Report," *Minutes of the NVATA Convention*, (Lincoln: National Vocational Agricultural Teachers' Association, 1974), p. 52.

### Teacher-Student Relationships

The relationship between the student and the teacher is much different at the post secondary level than at the secondary level. Students at the secondary level usually have similar backgrounds and experiences due to the fact that they came from a somewhat homogenous setting. Post secondary agricultural students have different levels of expertise in the classes having come from diverse backgrounds — some with an excellent secondary vocational agricultural background and others with none at all, some with in-depth agriculture experience while others have not had those opportunities. Students are legally adults; what they do in their non-class activities is

largely their responsibility. Students may commute to classes or they may live on campus. Part-time jobs which are often necessary to meet financial obligations for their education are common. Some students are married and have family responsibilities. Most have interests and pursuits outside of the classroom. The diversity of the post secondary population presents matters with which the post secondary instructor must deal and that are in addition to the usual "how to motivate" and "what to do about different learning rates" concerns.

### Providing an Experience to Better Qualify You to Teach

I decided while receiving my formal

education that my goal was teaching agriculture at the post secondary level. I believe that I have been more successful in that pursuit because I had the opportunity for post secondary student teaching experiences. There have been many secondary instructors who have moved to post secondary teaching positions, but they have been successful only if they have been able to recognize the differences in the job characteristics at the post secondary level and make the necessary adjustments. Many problems which I encountered during my first teaching position at the post secondary level were not foreign to me because I had the opportunity of student teaching at a post secondary institution. ◆◆◆

## From the Book Review Editor's Desk . . .

### BOOKS TO BE REVIEWED

APPLIED ECONOMICS: Resource Allocation in Rural America; By Rueben C. Buse and Daniel W. Bromley, Iowa State University (1975)

CORN QUALITY IN WORLD MARKETS; Edited by Lowell D. Hill, The Interstate Printers & Publishers, Inc. (1975)

FEEDS AND FEEDING; By Arthur Cullison, Reston Publishing Company, Inc. (1975)

FUNDAMENTALS OF HORTICULTURE; By Edmond, Senn, Andrews, Halfacre, McGraw-Hill Book Company (1975)

HIGH-QUALITY PROTEIN MAIZE; Proceedings compiled and edited by Purdue University (CIMMYT), Dowden, Hutchinson & Ross, Inc. (1975)

INSECT BIOCHEMISTRY AND FUNCTION; Edited by D. J. Candy and B. A. Kilby, Halsted Press (1975)

INSECTS IN RELATION TO PLANT DISEASE, Second Edition; By Walter Carter, A Wiley-Interscience Publication, John Wiley & Sons (1973)

PHYSICAL EDAPHOLOGY; By Sterling A. Taylor, W. H. Freeman and Company (1973)

PRINCIPLES OF APPLIED CLIMATOLOGY; By Keith Smith, Halsted Press (1975)

PROTEIN AND NUTRITION POLICY IN LOW-INCOME COUNTRIES; By Francis Aylward and Mogens Jul, Halsted Press (1975)

RANGELAND MANAGEMENT; By Harold E. Heady, McGraw-Hill Book Company (1975)

THE SELECTIVITY OF DRUGS; By Adrien Albert, Halsted Press (1975)

VOCATION AS THE CORE OF AMERICAN SOCIAL PHILOSOPHY; By Harold H. Punke, The Interstate Printers and Publishers, Inc. (1975)

WESTERN FERTILIZER HANDBOOK; By Soil Improvement Committee California Fertilizer Association, The Interstate Printers and Publishers, Inc. (1975)

If you feel qualified to review one of these books and desire to do so, write the Book Review Editor and he will send the book for review. Once reviewed, the book becomes the property of the reviewer.—James P. Key, Book Review Editor, Agricultural Education Department, Oklahoma State University, Stillwater, Oklahoma 74074

## BOOK REVIEWS

THE MERCK VETERINARY MANUAL, by O. H. Siegmund (ed.). Rahway, New Jersey: Merck & Co., Inc., 1973, Fourth Edition, 1618 pp. \$13.50.

The Merck Veterinary Manual, Fourth Edition, uses the general organizational scheme of the earlier editions. It is comprised of eight parts.

Part I deals with diseases of the common domestic animals, large and small. Conditions occurring in North America are emphasized but increased attention is given to diseases occurring elsewhere.

Part II, Toxicology, considers the more common poisons: herbicides, pesticides, chemical poisons, poisonous plants and fungi, and bacterial poisons. Regulatory aspects of the poisons are also covered. Part III discusses diseases and pests of poultry. Part IV is concerned with the management of fur, laboratory, and zoo animals as well as those of fish and caged birds. Part V is a section on nutrition. It contains information about nutritional requirements of many domestic animals and poultry. Nutritional deficiencies are also treated, and "composition of feedstuffs" tables are printed. Part VI, Addendum, is devoted to sections on diagnostic procedures for the office laboratory, physiologic values, radiology, oxygen therapy, routine immunologic procedures, social behavior among domestic animals, and much additional information. Part VII contains the prescriptions used throughout the Manual. Generic names are used when possible in the 651 prescriptions given. Part VIII is the index. Numerous cross references provide several routes of access to important subjects.

The 22 sections of the book are thumb indexed and coded. These sections are further subdivided into over 1000 chapters, sub-chapters, and topics. The etiology, clinical findings, lesions, diagnosis, prophylaxis, and treatment of each disease are included as feasible. A large number of tables appear throughout the book, summarizing important data in readily accessible form.

Nearly 300 authors and reviewers contributed their skill, erudition, and effort under the scrutiny of an eight-person editorial board. Their objective was "... to provide the veterinarian with concise, authoritative, and readily available information on diagnosis and treatment of the diseases of animals kept by man for use of pleasure."

The book is directed to the veterinarian and his colleagues and associates in the animal sciences. It is a most worthy reference for all vocational agriculture departments.

Gary E. Briers  
Iowa State University  
Ames, Iowa

THE FOOD IN YOUR FUTURE, by Keith C. Barrons. New York: Van Nostrand Reinhold Co., 1975, 180 pp. \$7.95.

This book tells the non-farmer what farmers would like them to understand about farming and being a landowner. The content is also directed toward the landowner in that heavy emphasis is placed upon conservation, prevention of pollution and sedimentation, and wildlife management. Economics of agriculture and the role of government in agricultural policy is well covered. The book is focused upon what is necessary to provide an adequate and nutritious diet for the population of the world now and after the year 2000. The author points out in the first chapter that one is never farther away from agriculture than his next meal. In the second chapter, the importance of land, farmers, weather, supplies, finance, processing, storage, transportation and distribution to well stocked market shelves is explained. Chapter three, "Revolutions on the Farm," traces advancements in mechanization, yields, soil fertility, and confinement rearing of livestock and poultry. In chapter four, the reason for expensive food is detailed, and Mr. Barrons makes a case for a grain reserve for "domestic emergencies only." Chapter five is the ecology chapter which centers on wildlife habitat, erosion prevention and, to some extent, handling chemicals according to directions. In chapter six, groups that hamper agricultural production are attacked. Chapter seven is devoted to providing protein and exploring ways to provide it. Chapter eight is titled "Whither the Green Revolution." New technology was the topic of chapter nine. In chapter ten, suggestions were made for efficient use of energy. The last two chapters are used for some predictions and the summary.

The author is presently employed by Dow Chemical Company where he discovered Dalapon. He has had a wide range of positions which have taken him to several land-grant colleges and a seed company. Primarily, he is a plant breeder. His grasp of the problems, from politics to genetics, and his sensible suggestions deserve widespread reading. Any person who wants to defend agriculture and the land should have this book. The book is an excellent source of information and ideas for FFA speeches.

Martin B. McMillion  
VPI & SU  
Blacksburg, Virginia

## DATES AND EVENTS

10th International Course on Vocational Education and Teaching in Agriculture

Introductory Seminar  
July 29-August 9, 1976

Main Seminar — August 10-27, 1976

For more information write:

The Secretariat of the CIEA  
Division of Agriculture  
CH - 3003 Berne, Switzerland

MIDWEST FARM PLANNING MANUAL, By Sydney C. James, Ames, Iowa: Iowa State University Press, 1975, 3rd Ed. \$8.50.

A useful guide for planning crop and livestock enterprises, *Midwest Farm Planning Manual*, has just been published in a revised third edition by the Iowa State University Press.

With updated prices and current information from reliable sources in agronomy, agricultural engineering, animal science, and agribusiness, this revision enables agriculturists to plan carefully. Facts and figures are presented in table form for easy reference.

Written by Sydney C. James, professor of agricultural economics, Iowa State University, *Midwest Farm Planning Manual* focuses on four main areas:

1. Current information for planning crop and livestock enterprises and obtaining major farm inputs. Included are data about fertilizers, seeds, chemicals, livestock rations and feeds, labor requirements, machinery and equipment operating expenses, and costs of major farm structures.
2. Cost and return figures to aid in evaluating the farm enterprises. Ten-year prices through 1974 are shown for major crops and livestock.
3. Farm credit, insurance, and tax information.
4. Farm budget forms useful for crops, livestock, machinery, and equipment planning, and the family.

The revised third edition of *Midwest Farm Planning Manual* will be of special interest to farmers, agricultural extension agents, farm managers, college farm management teachers, ag students, vocational agricultural teachers, agricultural credit agents, and researchers in farm management and production. While some of the information, such as soil types and planting dates are developed specifically for the Iowa area, most of the data would be useful by agriculturalists across the country.

Punched to fit a standard three-ring notebook for the user's convenience in adding personal information, it is available from bookstores and from the Iowa State University Press.

Roger D. Roediger, Assistant Director  
Ohio Agricultural Education  
Curriculum Materials Service

Vocational Education Week  
February 8-14

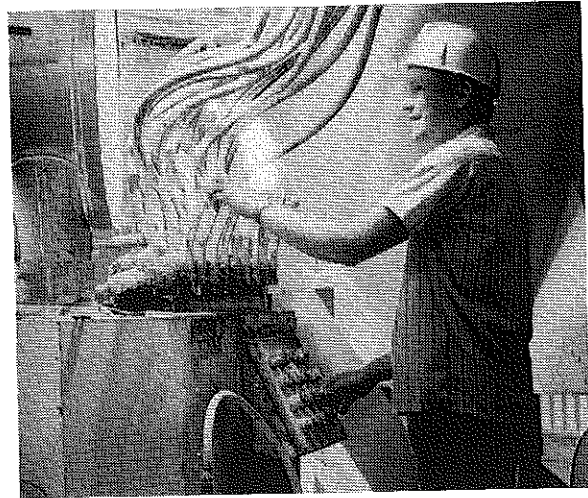
Southern Agricultural Education Conference

Buena Vista Hotel, Biloxi, Miss.  
April 5-8, 1976

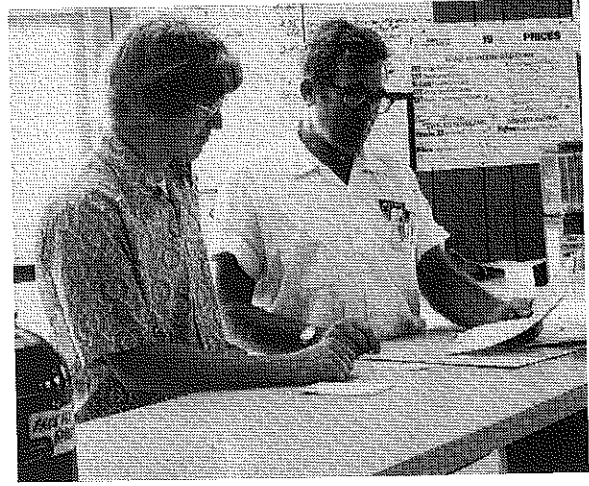
Southern Research Conference in Agricultural Education  
Louisiana State University  
July 27-29, 1976

# STORIES IN PICTURES

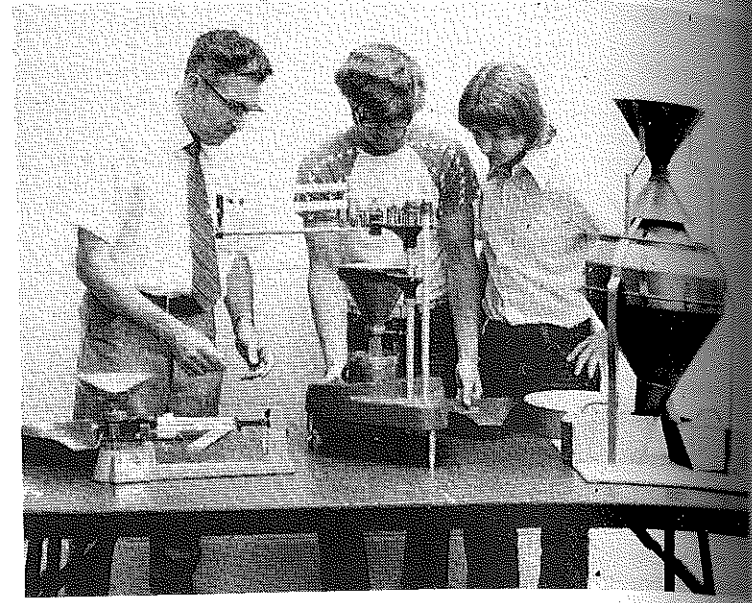
by  
Jasper  
S.  
Lee



**EMPLOYMENT EXPERIENCE** — John Hanson, agribusiness student at Muscatine (Iowa) Community College, is shown operating an automated feed mill as part of his employment experience. (Students in the program attend classes for 45 weeks and participate in employment experience for 36 weeks.) (Photo from Gerald Lamers, Iowa Department of Public Instruction)

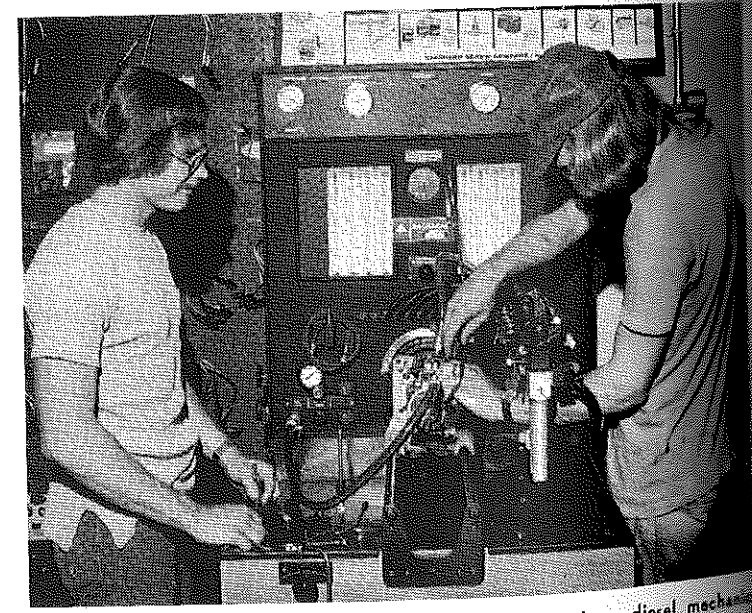


**AGRIBUSINESS EXPERIENCE** — Steve Murphy, agribusiness student at Muscatine (Iowa) Community College, is shown receiving instruction from Dale Plummer, manager of Sweetland Feed Mill. On-job instruction is an integral part of the agribusiness program. (Photo from Gerald Lamers, Iowa Department of Public Instruction)

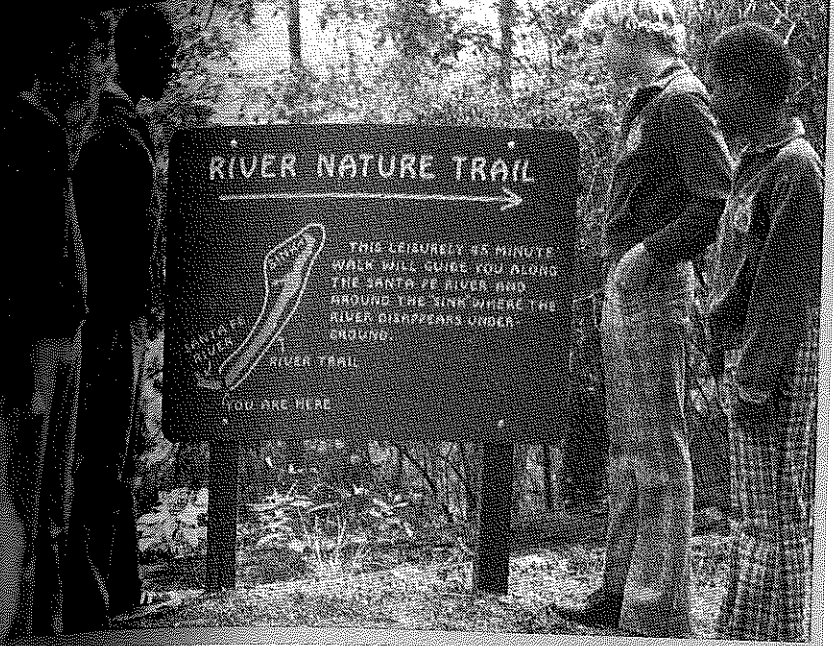


**INSTRUCTION IN GRAIN GRADING** — Walter Mitschele, Instructor at Muscatine (Iowa) Community College, is shown instructing students in the grading of grain and the use of grain grading equipment. (Photo from Gerald Lamers, Iowa Department of Public Instruction)

## Supervised Practice at Two-Year Colleges



**CALIBRATING DIESEL INJECTION PUMP** — Students in a diesel mechanics and maintenance class at the University of Minnesota Technical College (Waseca) are shown installing a diesel injection pump on a calibration stand for testing. Students learn why it is important to test injection pumps before installation on a tractor. (Photo from Wes Fausch, U. of M. Technical College (Waseca), and Forrest Bear, University of Minnesota)



EDITOR  
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OUR PAST AND OUR FUTURE