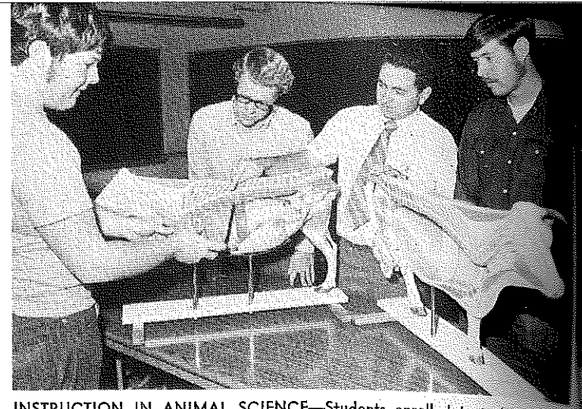
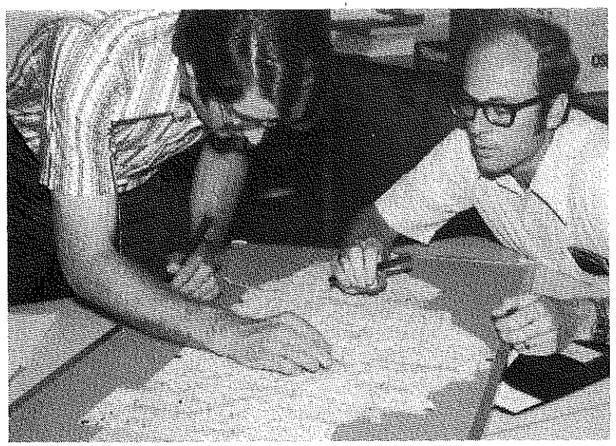
STORIES IN PICTURES

by Jasper S. Lee

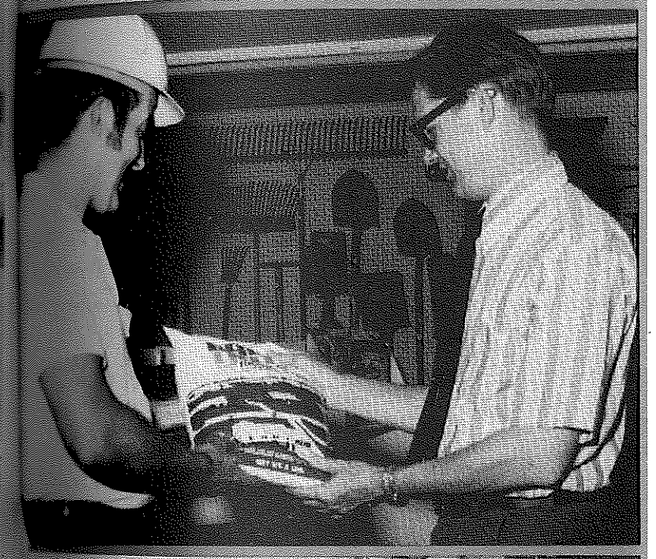


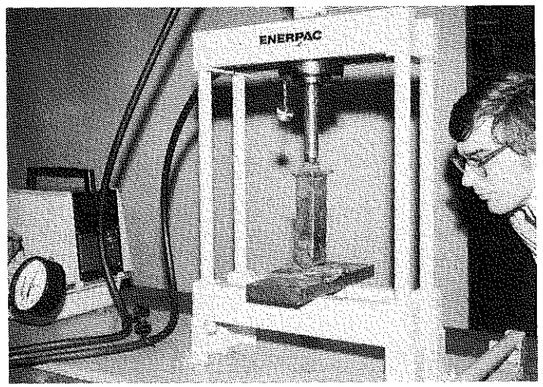
INSTRUCTION IN ANIMAL SCIENCE—Students enrolled in technical agriculture courses are using models of cattle in studying animal science at Parkland College, a community college at Champaign, Illinois. (Photo from Gayle Wright, Parkland College)



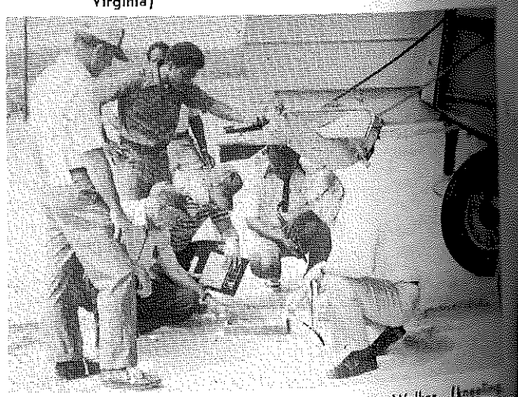
PLANNING SUPERVISION OF STUDENT TEACHERS—James Daniels (left) and Carl Reynolds, teaching assistants at the University of Illinois, are shown scheduling supervision of student teachers at their cooperating centers. (Photo by Robert W. Walker, University of Illinois)

FOOD PROCESSING WORKSHOP—David Baldock (center), Food Science Department at Virginia Polytechnic Institute and State University, is shown providing small group instruction to agriculture teachers and supervisors of school-community canneries in Virginia during a recent workshop on food preservation. (Photo by Jasper S. Lee, Virginia)





TESTING A WELD — James Cullison, senior in Agricultural Education at the University of Illinois, is shown testing a corner weld in an Agricultural Engineering Laboratory. (Photo from R. F. Espenschied, University of Illinois)



MEASURING COMBINE EFFICIENCY—G. M. Walker (kneeling, left), professor, Department of Agricultural and Extension Education, Mississippi State University, is shown demonstrating the use of a wooden frame to measure combine efficiency during a workshop for teachers. (Photo from Jimmy McCully, Mississippi)

Theme—Programs in Agricultural Supply and Service

AGRICULTURAL EDUCATION

Volume 48 Number 9

March 1976

EDPRESS

AGRICULTURAL EDUCATION

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THEME—PROGRAMS IN AGRICULTURAL SUPPLY AND SERVICE

The cover photographs show various aspects of supply and service programs. The top photograph (courtesy Max Amberson, Montana State University) shows Bill Rash, a student at Belgrade High School, being supervised by Roger Hanshew, Parts Manager for Gallatin Equipment Company, Bozeman, Montana. The center photo (courtesy Thomas Stitt, Southern Illinois University) shows Roger Johnson (left), agricultural occupations instructor at Wayne City (Illinois) High School, being supervised by Robert Wolff of Southern Illinois University during an internship program at Marion-Jefferson Service Company in Mt. Vernon, Illinois. The bottom photo (courtesy Alfred Mannebach, University of Connecticut) shows David Potz (left), an agribusinessman, demonstrating the servicing of a snowmobile to Donald E. Cook, agriculture teacher at E. O. Smith High School in Storrs, Connecticut.

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

Second-class postage paid at Athens, Ohio.

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

SUBSCRIPTION PRICE: $5 per year. Foreign subscriptions $6. Student subscriptions in groups (one address) $2 for October-May. Single copies and back issues less than ten years old are available at 50 cents each. All back issues are available on microfilm from Xerox University Microfilms, 300 North Zeeb Road, Ann Arbor, Michigan 48106. In submitting subscriptions, designate new or renewal and address including ZIP code. Send all subscriptions and requests for hardcopy back issues to the business manager: Charles F. Lebo, Business Manager, RD 2, Box 639, Halifax, PA 17032

Teaching Ag Supply and Service—Some Ideas

Charles W. Couture
Teacher of Agriculture
Springville-Griffith Institute
Springville, New York

The Agricultural Supply and Service program at Springville-Griffith Institute has evolved from a limited crops and livestock service program to embrace a variety of agricultural related businesses and was renamed Agri-Business. This course has shown the greatest enrollment growth in the total agriculture program.

Our three-teacher department offers Farm Production and Management, Agricultural Mechanics, Horticulture, Agri-Business, and an Agriculture 9 survey course. After completion of Ag 9, a student chooses one or more areas for specialization in the following three years.

Agri-Business is a single period (43 minute) class, taught on a three-year cycle. Thus, although students enter as sophomores, the class has students from three grades. This makes scheduling easier and eliminates the need for pre-requisite courses. It also allows students to take college entrance courses along with agriculture.

The purposes or goals of our Agri-business course are to:

1) acquaint the student with the scope of the business of supplying and servicing the agricultural industry,
2) relate to the students the complexity of business organizations which comprise the modern agricultural industry,
3) provide the students with the knowledge, skills, and experiences needed for entry into the agri-business field, and
4) encourage the students to seek post high school training in agribusiness.

Specifically, how are these goals met? Why do we feel our program is successful? Acquainting the student with the scope of agricultural business and the complexity of business organizations begins at the local level. We involve the student by field trips and the student's work experience programs. Records are kept by each student on his work experience. These are kept in a file drawer at school and each student fills out the record forms at the beginning of each month during class time. The record forms are the New York State accepted forms for students in Vocational Agriculture.

The scope of the agribusiness industry is further explored by the use of business trade magazines, movies, and the project method. The project allows every student to choose a business or commodity he wishes to become more familiar with. Each student writes the parent company requesting materials for display, record systems, and information on how the company is organized (corporation, cooperative, etc.). When possible, a local part of the business is visited for other information and a personal interview is conducted with the manager or an employee. After researching the topic, the student will prepare a written report, a display and present a class talk.

The business or industry is also represented when each student is required to bring in a newspaper or magazine article relating to agriculture. This weekly assignment reinforces the classroom instruction while keeping the student up to date on business trends, trade agreements, and consumer interests.

Helping the student become aware of the necessary skills for business entry is probably the easiest goal to achieve. Local agribusinesses are willing to send representatives to the classroom to explain how to become employed in their business. Examples are representatives of feed mills, oil companies, machinery dealers, milk plants, farm and garden centers. Class groups have been invited to annual sales and service meetings as guests and participants.

Selling theory is introduced by using a text on selling borrowed from the business department. We feel this interdepartment exchange of resources is a valuable asset to our program.

Our fourth goal is to encourage post high school training. As students become aware of the opportunities and study business careers, they see the need for additional training. Our scheduling allows them to take the other high school courses they need. Many of our students who do not plan on additional study combine Agri-business with a horticulture, mechanics or production agriculture major.

The use of the Agricultural Advisory Committee cannot be excluded from a successful agriculture program. Our committee consists of business leaders and farmers who critique our program and offer suggestions. Because they are aware of the school program, they are often willing to provide employment opportunities.

An important segment of our total agriculture curriculum is our continuing summer education program. The teachers visit every student who will be entering or continuing the agriculture program in the fall. The summer program also allows the teacher to become more acquainted with the agribusinesses in the Springville area. The business leader is interviewed for possible employment opportunities, as well as for valuable information which can be incorporated into classroom lessons. Many color slides are taken on the summer visits and aid in bringing the business to the classroom.

In summary, our Agri-business program helps individuals gain an understanding of agriculture supply and service. It enables agriculture majors or other students to recognize the relationship of agriculture and the world of business. We believe that the Agri-business course has helped improve our total agricultural offering. A number of our students have gone on for post high school training and are launched successfully in agribusiness careers. Most notable have been the two regional Star Agribusinessmen in the last three years coming from our Agri-business program. ◆◆◆

PRE-EMPLOYMENT LABORATORY TRAINING

Rene H. Vela
Teacher of Production Ag
and Co-op Coordinator
Mission, Texas

and

Jose Correa
Teacher of Production Ag
and Meat Lab Inst.
Mission, Texas

The authors, Rene Vela (left) and Jose Correa, display an appreciation plaque from the members of the 1974-75 Mission FFA.

We found that we were limiting our Co-op student enrollment to only those who had the natural ability or those who were quick to learn.
Many students now find it easy to transfer from the Lab Program to the Co-op Program.

The rules of the game are the same. The playing field has been extended. The number of players increased. So the ballgame is much more interesting to all. Vocational Agriculture in Texas has experienced a tremendous and beneficial change with the times. It was a fortunate change for the students in Vocational Agriculture that educational leaders in Agricultural Education and the State Board of Education recognized the need and the direction which Vocational Agriculture undertook.

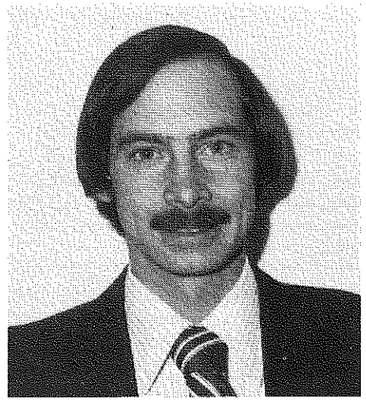
Prior to that change, Vocational Agriculture was directed to the farm-oriented student and it served its purpose well. Now, we recognize that production agriculture is still the sound and solid foundation upon which the total program is built. We extended a wing out of the classroom to the agribusiness world and found a great educational tool in an Agriculture Cooperative Training program. We found additional facilities and some great instructors at little cost. Then we found that we were limiting our co-op student enrollment only to those who had the natural ability or to those who were quick to learn. There was another group of students who had some ability and yet needed more "work experience" than that gained in Production Agriculture before we could turn them over to the agribusiness world. Such was the case, and we found the Pre-Employment Laboratory Program quite useful. This aspect of our program is one that requires research, advice from agribusinessmen, realization of students' projected skill needs and adequate financing. The Laboratory Program fit our basic philosophy in teaching Vocational Agriculture at Mission High School in that a student must first be exposed to a skill in the classroom. The instructor must demonstrate that skill in the shop or in the field. The student must then perform the skill. The student's ability to perform must be cajoled, tried, tested and repeated. The student's results must be evaluated individually and not compared to the whole group or class.

In the fall of 1946, Vocational Agriculture was added to the High School curriculum at Mission High School. In 1965, the Cooperative Training Program in Agriculture was initiated as a pilot program, one of eleven, statewide. Production Agriculture consisted of 45 students in one class each of VA I, VA II, and VA III. The first two students in Cooperative Agriculture were enrolled as agricultural mechanic's helper and as agricultural machinery set-up mechanic. In 1968, the department was increased to include a second teacher in Production Agriculture due to the increased enrollment in Production Agriculture. The enrollment in Cooperative Agriculture was fairly stable at two or three each year. After several years of a small cooperative program, a Pre-Employment Laboratory Training Program in Meat Processing was investigated and researched in 1970. Facilities were made available by the Rio Grande Children's Home which had a Sausage Plant and also processed beef. The plant is located six miles from the main campus, so it was necessary to provide for at least three hours per class. The idea was to create a pilot program and give the school, instructor and students an actual, situation type of work experience. It was also an opportunity to find out if it could be feasible for the School District to afford such an installation on campus. One of the instructors was certified as an instructor in Meat Processing upon completion of the required three-week program at Texas Tech University in the summer of 1971. So, everything was in order for the first class of 14 students enrolled for the fall of 1971 with only an initial investment of less the $500.00. In 1972-73, we had 10 students, 7 in 1973-74, 5 in 1974-75 and 8 enrolled this year. Our Co-op Program increased from one or two students a year to an average of 8 students since 1972-73. The Co-op Program and Meat Processing Lab are scheduled during the same period of the high school schedule and both carry the same credit value toward graduation. The students find it easy to transfer from the Lab Program into the Co-op Program at anytime they find themselves capable in some phase of Meat Processing.

(Concluded on page 202)

Training in Ag Supply and Service— A Student Decision

Daryle E. Foster
Agriculture Teacher
Elmira, New York



Daryle E. Foster

Drastic changes have occurred in United States agriculture during the past decade. Production agriculture is still very essential to our economy, but we as educators must also remember that agribusiness employs nearly 40 per cent of the work force of the United States. Who will furnish the agriculture industry with trained personnel in occupations in supply and service of agricultural products? In our school, it's a student decision.

The Bush Occupational Center in Elmira, New York offers agriculture education in five major areas: Agricultural Production, Agricultural Mechanics, Ornamental Horticulture, Conservation, and Agricultural Supplies and Services. This school which offers only vocational and technical courses supplements the existing curricula in the eight surrounding feeder schools. Our students are bused to the Center from their home school for a two and one-half hour period of instruction. One group attends in the morning and a different group attends in the afternoon. The required subject matter is obtained at the home school during the remainder of the day.

Student selection of the agriculture program begins with orientation at the ninth grade level in the students' home school. At this time students are introduced to the five occupational clusters previously mentioned. Students expressing a sincere interest in pursuing an occupation in the agricultural field are accepted into the Agriculture II program at the tenth-year level. This is an exploratory curriculum designed to expose the students to all five areas taught at our center. Students change teachers frequently, thus receiving the benefit of teacher expertise in each field.

Job Title Cards

Following the successful completion of the Agriculture II program, each student with the help of parents, guidance counselors, and teachers, selects his or her area of concentration by choosing a job title card from one of the five occupational clusters in agriculture. One of the 200 plus job title cards is in Figure I.

Job titles are proposed by the advisory committees in each of the major areas. The Agricultural Supply and Service program committee is selected from individuals whose occupations fall into that cluster e. g., Farm Supply Managers, Agriculture Salesmen, Farm Equipment Dealers and the Agricultural Business Teacher. This committee studies and then selects the modules (30-hour block of instruction) which it feels the student would need to enter that occupation. The curriculum for each title appears on each job title card and contains a list of approximately 24 modules recommended by the committee. These modules are selected from over 200 modules developed by the Bureau of Agricultural Education of the New York State Education Department.

(Continued on next page)

COMING ISSUES COMING ISSUES COMING ISSUES

COMING ISSUES

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

Modular System

The modular system has advantages for the student because they are: 1) able to select courses that will prepare them for a specific job, 2) allowed to work at their own pace, depending on their ability and 3) able to evaluate their progress in an extremely short period of time.

The students are given a set of written performance objectives at the beginning of each module and they are marked on each objective. The completed objective sheets are placed in students' placement folders located in the Guidance Department. Students may also choose to make up any missed objective(s) or may repeat a particular module at a later date, provided the module is taught again or teacher supervision can be arranged.

Agricultural Supply and Service

Students who select a job title card in Agricultural Supply and Service study subject matter concerned with preparing them for occupations involved in providing supplies used in the production phase of agriculture, including processing, marketing, consulting, and other services. Sub-group units of instruction include:

1. Agricultural Chemicals
2. Feeds
3. Seeds
4. Fertilizers
5. Advertising Services
6. Accounting-Bookkeeping
7. Personnel
8. Farm and Garden Supplies
9. Food Distribution
10. Petroleum
11. Management
12. Other, Communication

Within these sub-groups, individual modules are offered and students may select from the 24 modules offered in the Agricultural Supply and Service program.

All 175 agricultural students in our Center receive instruction in certain select modules, e. g., "Securing Employment" and "Personal Financial Planning." These units are necessary for a successful student — a person with the vital skills and training to become gainfully employed in agriculture.

We in agriculture education have long realized that students learn best by *doing*. Establishing an agricultural supply store provides an effective, practical enterprise for the students. They receive experience in salesmanship, management, accounting, and distribution while supplying the Agricultural Department with the goods required to operate a program. My students take inventory, order supplies, arrange displays and distribute items to the other teachers requesting supplies. The Agricultural Supply Store allows the students to apply what they have learned in the classroom.

Work Experience

The most successful agricultural supply and service programs have supervised work experience arranged for each student. The location and availability of work experience should be coordinated by the teacher and the advisory committee. Every effort must be made to place students in appropriate stations where employers are willing to train and supervise.

There are several ways that work experience programs can be integrated into the student's schedule. A module

(Concluded on page 208)

AGRICULTURE PROGRAM CARD

JOB TITLE CARD

02-2
DOT. NO.
262.358
162.168

Name

Job Title Selection
1. Salesman (Grain & Feed Prod)
2. Manager — Feed Mill
3. Ass't Manager — Feed Mill
4.

AG III & AG IV PROGRAM

Home School

CODE #	TITLE	Period	Teacher
.0201 - 01	Sales Chemicals		
.0202 - 01	Sales Feeds		
.0203 - 01	Sales Seeds		
.0204 - 01	Sales Fertilizers		
.0207 - 01	Sec Employ & Emp Res		
.0208 - 01	Buy & Sell Ag Prod		
.0208 - 02	Farm Home Garden Sup.		
.0211 - 01	Organizational Pat		
.0211 - 03	Finance & Credit Sys		
.0211 - 05	Taxes In Ag		
.0211 - 06	Legal Aspects of Ag Bus		
.0299 - 01	Personal Finance Plan		
.0205 - 01	Display & Ad		
.0205 - 03	Ag Prod Salesmanship		
.0206 - 01	Recordkeeping I		
.0206 - 02	Recordkeeping II		
.0206 - 03	Analysis Ag Bus Rec		
.0205 - 02	Advanced Advert. in Ag		
.0205 - 04	Advanced Sales in Ag		
.0207 - 02	Personnel Mgt for Ag Bus		
.0299 - 07	Oral & Written Comm for Ag		
.0211 - 04	Insurance for Ag Bus.		
.0301 - 23	Mat'ls for Handling Equip		
.0307 - 01	Elec Fund for Ag		
.01.0301 - 01	Fund of Engines		
.0299 - 02	Comp in Agriculture		
.010101 - 02	Feeds & Feeding		
.010402	Nonfood Products		
.0603 - 01	Soil Science		
.0104 - 08	Marketing Farm Prod.		
.9901 -01	Setting Up Work		
.010201 - 02	Growing the Crop		

FIGURE I

Paths to Ag Service and Supply Employment

Clayton Castleman
Director of Vocational Education
Stuttgart, Arkansas

and

Annette Greenland
Public Information Officer
Stuttgart, Arkansas Public Schools

It's true — more young people are interested in careers in agriculture at a time when fewer farmers are needed.

This is the trend here too, on the fertile Grand Praire of Arkansas, where most of the tillable land of five counties is divided into large, highly mechanized rice and soybean farms.

Stuttgart, a city of 10,000 people, calls itself "The Rice and Soybean Capital of the World." Hub of the prairie, it serves as headquarters for Riceland Foods, the world's largest rice milling and marketing cooperative. Three independent rice mills, seed, plants, and dozens of other agricultural service and supply firms complete the total agribusiness picture.

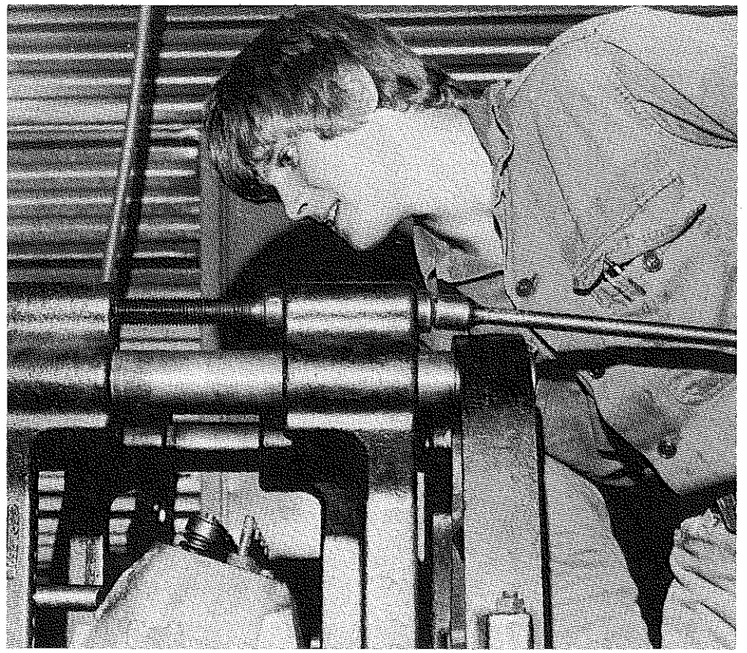
Our vocational educators, saw a dual need in the community: young people who wanted to become part of the agribusiness complex, and the service and supply people who needed sources of capable employees.

So, in the last two years, the vo-ag department of Stuttgart Public Schools has developed, with the help of the community, Arkansas' largest agriculture co-op program.

Ten years ago our vo-ag program was 100 percent production oriented, involving 80 students. This year we have 308 students in a balanced program of production, agri-mechanics, and services and supply. We're offering alternatives to on-the-farm employment while maintaining a strong program in production.

Beginnings:

Before the co-op program was launched in 1974, an eight-member advisory council worked for months with the three-member vo-ag staff to define needs in the local service and supply fields, and to outline a program to meet those needs. Council members, most of whom volunteered their services without waiting to be asked, include farmers, a miller, and representatives from equipment, parts, chemical, implement repair, and financing fields. We also have access to crop-dusters, custom-work specialists such as surveyors and welders, and agri-research teams. We could even broaden our scope to include recreation, because Stuttgart is also "The Mallard Capital of the World!"



Student Ralph Goacher milling a tractor head in the machine shop where he is employed.

The council and staff aimed the initial exposure to a future in agriculture at seventh graders, by means of career orientation classes which were already part of the middle-school curriculum. Although the youngsters study careers of all kinds in these classes, we take steps to see that they are shown agriculture in its separate aspects, thus laying early foundations for later decisions.

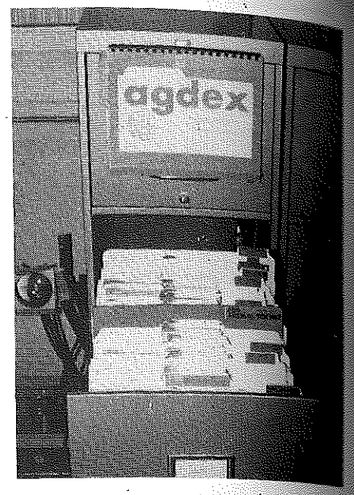
The second phase of exposure comes at the ninth & tenth grade levels, when students choose agriculture as an elective in the junior-high and high school curriculums. For these students, exploration is accomplished, not only in the traditional lines of agri-service and

(Concluded on page 202)

agdex—
Friend or Foe?

David P. Smith
Instructor
U. of Nebraska-Curtis

If the year of filing is placed on the materials, out-of-date materials can be more easily recognized by anyone using the file.
Bulky materials like slides and video tapes are AGDEXed and a 3x5 card identifying the material is placed in the file.



It is 8:25 Monday morning and your senior ag students are sauntering into class expecting another day of tic tac toe along the margins of their notes on farm management (you hope their notes are on farm management). But you have a little surprise for them, having spent some extra weekend time (2 hours above the usual sixteen hours or so) you have jazzed up the material a little with slides, transparencies and audio equipment, using, of course, the problem solving approach of "present situations versus ideal," and a magazine article called "How to Manage the Unmanageable" as motivation. You go to your friend and every ag teacher's friend — a well organized file cabinet (or cabinets, if you are lucky) piled or possibly crammed with good information — to pull out the article "How to Manage the Unmanageable." But where is it? In the file cabinet, yes. But where in the file cabinet? (The bell just rang.) Under *Ma* for management. Nope. Maybe under *F* for farm management. Nope. Possibly under *Mo* for motivational ideas. Nope. (Classroom noises are causing some panic.) Of course, you remember now, under *Mi* for miscellaneous. Now that you have narrowed the field to only one file drawer, you have a chance. But time is running out. (The class is betting on who can hit the spot on the black board first with his chalk.) You give up and go to class with those so often used words, "Let's go to shop!"

Your situation may not be as bad as this, but I am sure that if you look back, a student or friend has come in at some time or other and asked about some information you said you had but you just could not seem to find. Can we as agriculture teachers command the respect of our students in such subjects as farm management or record keeping when we cannot manage our own file cabinets? How can we manage the unmanageable? For years agriculture teachers have been plagued with the problem of how to file mail, extension bulletins, management reports, magazine articles, newspaper clippings, forms and reports. Many times good information goes into file 13 because we do not know what to do with it. Possibly you are one of the lucky few who has developed his own fool proof system. This is great until you decide to move to a new department, then you are back re-doing someone else's "fool-proof system." What can we do?

In 1959, research was completed by Ohio State University on a system of indexing agricultural materials. From this research and the efforts of the Agricultural Education Division of the American Vocational Association, we have available to us a standardized filing system for agricultural materials — AGDEX. To obtain information about AGDEX write to: The American Vocational Association, Inc.; 1510 H Street, N.W.; Washington, D.C. 20005.

If I have not convinced you that a standardized system is needed, stop here; go on to more important things. But if you are convinced, read on. I will attempt to give you some helpful hints from my own experience of setting up an AGDEX filing system.

Let me give you some background. I am an instructor at the University of Nebraska School of Technical Agriculture at Curtis, Nebraska. We are a twenty-one month post secondary agriculture school with twenty-six full-time instructors in six departments. The departments are: Ag Business Technology, Ag Land and Water Technology, Ag Machinery Mechanics Technology, Commercial Horticulture Technology, Production Agriculture Technology, and Veterniary Technology. One of the requirements for accreditation of a technical school is that a unified filing system be used. For us, AGDEX seemed to be the obvious choice. As a recent graduate of agriculture education from the University of Nebraska, I had some knowledge of the AGDEX system and was assigned the task of setting up a system for the Production Technology Department. Within the department are four instructors who specialize in animal production, nutrition, soils, and plant science.

I have found that there are four basic steps to setting up the AGDEX system: 1) labeling file folders with the pre-printed AGDEX labels, 2) arranging these folders in numerical order and dividing them into subject areas with file dividers to form a skeleton file, 3) numbering materials to be filed with the appropriate AGDEX number and placing these materials into the proper folder, and 4) keeping the file up to date.

(Concluded on next page)

The first step was simple—placing the pre-printed labels on the file folders. This, I can see now, was my first mistake. Before labeling folders I should have done some planning. I used file folders of the standard type having tabs on the right, left, or in the middle and placed my labels on them by color grouping—all red labels on left tabs, green on right, brown on middle, etc. —for all ten colors used in AGDEX The problem, as I found out later, was that in the finished file, colors become mixed. This caused no great problem but if I had planned ahead I could have had a more useful system. I suggest that for best results use folders with tabs in the same place for the four agricultural enterprise areas: field crops, horticultural crops, forestry, and animal science. Use folders with tabs in a different place for the enterprise practices: soils, diseases and pests, engineering, and economics. This will make your information on material that is cross referenced more easily found.

My second step was to set up a skeleton file. I did this by putting my labeled folders in numerical order and placing file dividers between the major divisions. For file dividers I used one-eighth inch masonite and attached the proper label. Since the system consists of numbers from 1-1000 with the major divisions at 100, 200, 300, etc., I needed ten masonite boards.

Because of the amount of material I had to file, I felt I needed some type of dividers within the major subject areas. Finding suitable dividers seemed to be a problem. First of all I wanted dividers that would be easily distinguished from the file folders and secondly had a large enough tab to hold the AGDEX labels. I was not able to meet my second requirement so I ended up doing some scissor work on the labels to make them fit the small tabs of the file dividers I was using. I put ten of these subdividers between every major AGDEX subject so one hundred of these were required. For example, in the area of animal science (AGDEX #400) I have dividers at 410 dairy, 420 beef cattle, 430 sheep, and so on. Since I did not have enough of these labels with lettering larger than the labels on the folders, more were requested from the printers. Unfortunately, I found I could not get them without ordering the entire AGDEX system which I did not need. I solved the problem by typing my own labels with a typewriter having the extra large type.

Now that I had a skeleton file set up with file dividers and empty folders, I was ready to start numbering or AGDEXing material and placing it in the file. After reading the instructions provided with the AGDEX and trying to remember how the agricultural education department had instructed me to do it, I was thoroughly confused. Consultation with a fellow instructor, however, and the sending of a letter to the University of Nebraska Agricultural Education Department asking for information helped me get things under control.

I had numbered a couple hundred bulletins and phamplets and begun filing them when I ran into another problem; what should I do with bulletins for which I did not have a file folder with a pre-printed label? Should I put it in the file folder with the closest number or make more folders? After filing some material by its closest number I realized I would never be able to find it again once the system grew to considerable size. The system I had already had proved that; so, using the blank labels provided I typed labels for all material for which I had no folders.

At this point my AGDEX had grown to fill one file drawer so it was expanded to a four drawer file cabinet. The system is now set up and is functional. All new material coming into the office is numbered and filed by the department secretary. Any new folders that are needed are made by her. I still have two file cabinets of material to either AGDEX or throw out. In most filing systems, information is filed but never thrown away when it is out dated. This problem is almost as serious as not filing the material in the first place. I suggest that the year of filing be placed on any information filed so that out-of-date materials can be more easily recognized by anyone using the file. Such dated material is easier to spot and thus makes updating a simple process.

We have taken one step further in the Production Agriculture Department by AGDEXing audio visual equipment. All slides, videotapes, filmstrips, etc. are AGDEXed and a 3 by 5 card showing the number, title, subject, etc. is made. This card goes into the appropriate file folder in the AGDEX. Anyone looking for information on a subject in the AGDEX who finds a 3 by 5 card will know there is some additional information available as shown on the card.

Over the past year, I have spent approximately 80 hours in setting up this AGDEX. Had I had a better understanding of the system before I started, I could have cut this time down considerably.

The AGDEX system is not going to cure all your filing problems and if you do not keep it up, number all materials, and set it up properly it may be no better than any other system. The biggest problem I see with this system is deciding where to file a specific item. Many of the topic areas are narrower than much of the printed material to be filed. Also there is the possibility of filing the same materials in two or three places. For example, a bulletin on pastures could be filed in the livestock areas under feeds or in field crops under pastures. The only practical solution to this, that I can see, is to be consistent and remember that in someone else's AGDEX you might find the same material in another place. A big advantage to the AGDEX over most systems is its cross-referencing between the agricultural enterprises and the enterprise practices. For example, if I am looking for information on cattle feeding equipment, I would first look in the area of animal science under beef cattle feeding where I would find a cross reference for agricultural engineering, livestock buildings and equipment. Another advantage is uniformity between departments and schools so that once you learn to use the system you can go to any other AGDEX file and find the information you are seeking with a minimum amount of effort.

Well I have rambled on about long enough and it is time for me, and probably you, to get ready for the next class. I will go to my AGDEX file and have all my reference information at my fingertips. Wouldn't an AGDEX help you? ◆◆◆

CONTINUED PATHS TO AG SERVICE . . .

supply, but also those related to agri-mechanics, through textbook units, field trips, speakers and filmstrips.

By the end of the tenth grade, most agriculture students are ready to choose one of three paths: production agriculture, agri-mechanics or service and supply. Production and mechanics has its separate curriculum and staff. The other path leads to the co-op program.

Last year three-fourths of our tenth-grade agriculture students applied for the co-op program — twice the limit set by our supervisory capability at the present time.

Meanwhile, staff canvassing or agri-related firms had produced a capacity list of job slots. In conferences with the co-op supervisor, each student chose an area of interest. Then the staff attempted to match job to student.

Weeks before the students embarked on their agri-adventures, classroom time was spent discussing interview techniques, grooming, working with the public, and general procedures of bookkeeping, inventory, farm layout, and parts identification.

Enthusiasm ran so high that the selected students took care of job preliminaries before summer was over, and all but two were "on the job" in the afternoon of the first day of school.

The co-op students work half days during eleventh and twelfth grades, and are paid at rates set by the individual employers, depending on the type of job and the student's ability. At present, none earn less than the legal minimum wage.

Employers write evaluations of their student employees each semester, more often if necessary. The co-op supervisor supplies his comments in writing, too, and all reports are shared with the student.

Class time is provided one or two days each week for the co-op students to discuss progress and problems informally. Word-of-mouth "advertising" has already caught the interest of next year's eleventh-graders.

Perhaps the first-year achievement of our co-op program in services and supply can be measured by the length of our two waiting lists: students who want to join the program, and employers who have positions available. They wait because our single co-op supervisor has all he can handle; of course, we're already talking about expansion.

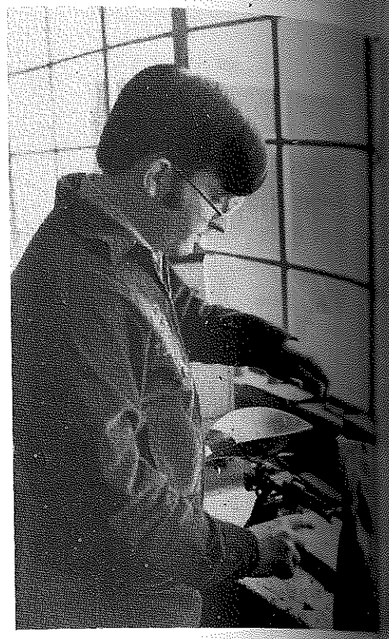
Our new program benefits from the district's campus layout. Junior and senior high schools are on the same campus, allowing us to utilize teachers and equipment effectively.

A 2,500-square-foot greenhouse between the two schools makes a horticulture program available to students as early as ninth grade, so they need not wait for the co-op program to start acquiring practical experience. In the greenhouse operation, agriculture classes order supplies, keep inventories, set up work schedules, prepare products for sale and market them.

Nearby, two acres are set aside for our use as a horticulture lab, where vegetables and ornamental plants are grown in individual student plots.

All of these factors move us closer to our goal: enabling a student to make a career choice before graduation, a choice based on enough experience for him to be competitive in the employment market.

Many of our 1975 graduates are still on their work stations. However, they have not reduced the number of available co-op jobs, because the businesses have expanded enough to accommodate both the new full-time employee and the co-op position.



Student John Stewart grading soybean seeds in the seed company where he is employed.

Major barriers to expansion of our co-op program will be lifted in the fall of 1976, when a 17,000 sq. ft., three shop, three classroom vo-tech building, now under construction a few feet from our greenhouse, is completed. Our staff and space will be doubled.

We expect the number of students to increase accordingly; and, of course, we already know where the jobs are: out in the world of agricultural service and supply. ◆◆◆

CONTINUED PRE-EMPLOYMENT LAB . . .

In evaluating the program, we find:

1. A student enrolled in the Lab Program for two years is prepared for the world of work with at least one salable skill.
2. A student enrolled in the Lab Program in his 11th year and in the Co-op Program his 12th year finds himself with a salable skill and an awareness of the business world.
3. Students who have had experience in either the Lab or Co-op Program find that they have a good primary or secondary skill. The fact that an individual has knowledge of more than one skill makes him a more stable working person.
4. A well-balanced Vocational Agriculture program must have the four classes in Production Agriculture, at least one class of Cooperative Agriculture Training, and at least one class of Pre-Employment Laboratory Training.
5. All resources must be explored for there are many ranchers, farmers, agribusinessmen, businessmen, and employees who help make any program a success. ◆◆◆

A FOLLOW-UP OF AGRICULTURAL STUDENTS FROM WYOMING COMMUNITY COLLEGES

Roddy J. Smith and Dr. James Durkee
University of Wyoming

Community college agriculture programs are expanding rapidly in Wyoming. The programs are changing by incorporating more agribusiness programs utilizing the cooperative method of teaching agriculture students. This growth and development leads to the questions: (1) What is happening to those young people who enroll in agriculture programs in Wyoming Community Colleges?, (2) Where are they now?, (3) Did their experiences in the agriculture programs help them attain their present position?

To find the answer to these questions and others, a study of 651 former agriculture students from Wyoming Community Colleges, was completed. The purpose of the study was to determine the effectiveness of the agricultural education programs in Wyoming Community Colleges as viewed by former students. Three broad areas were considered in the study: (1) Placement of former student (2) Why the students chose a particular program, (3) Improvements in the program that would have been more beneficial to the students. These areas were further subdivided to ascertain the importance of the community college educational experience in obtaining their present job, the courses that were most helpful and those that were the least helpful and how well the students thought the program met their needs.

The study included students of agriculture, who had completed at least one semester of college during the years 1968-1973. The four community colleges offering agriculture during these years were included in the study. An opinionnaire was mailed to 651 of the former students, which asked the students to respond to questions covering placement, selection, and improvement. From the opionnaires mailed, 19.51 percent were returned in a useable form. Names were not asked for on the instrument, so a follow-up mailing was not possible.

From the survey it was determined that 56.9 percent of the students who enroll in community college agriculture programs graduate from the program. It was also determined that 29 percent of the students were involved in programs not leading to a degree, one- or two-year terminal programs, and 71 percent were working toward a Bachelor's degree.

The students were asked to identify reasons why they chose a particular program. It was determined that proximity to home was the factor for choosing a program to 41.18 percent of the students. Program design was given as the reason by 27.45 percent of the students, recommendation from former students, 19.61 percent and 11.76 percent indicated other reasons for enrolling in a particular program. The reasons specified most often in the category "other" were scholarships and the economics of attending a community college.

When asked the reason for not graduating, the students gave the following responses: personal family or medical reasons—32.43 percent, financial—13.51 percent, did not intend to graduate—10.81 percent, program did not meet their needs—10.81 percent, the military—8.11 percent, and other—24.32 percent. Students were then asked to rate how well the program met their needs. The program was rated average to excellent by 87.4 percent, and only 12.6 percent ranked it below average. Of the above average listings, 17.65 percent rated their program excellent, 38.66 percent above average and 31.09 percent average. Only 3.36 percent rated the program poor, while 9.24 percent said it was below average.

In order to determine what courses were the most helpful to the former students and which were the least helpful, the students were asked to list the courses. The first five courses listed as most helpful were: all agriculture courses Animal Husbandry, Feeds and Feeding, Crops, and Economic Principles. In the later years of the study, more emphasis was placed on business and management and the changes taking place in agriculture.

Heading the list of courses most desired by the students was a practical veterinary course. This was followed by four business courses; Record Keeping, Ranch and Farm Management, Agriculture Economics and Farm Finance.

The students were asked "How do you think the program could have been improved to help you more?" Listed most often was: to offer more practical work, delete unrelated requirements, add a practical veterinary course, update material and add business courses.

The study showed the students of Wyoming Community Colleges were primarily returning to farms and ranches. Fifty-six percent were going back to production agriculture while 24 percent became employed in agriculture-business and 20 percent were in non-agriculture occupations.

Of those in production agriculture, 17.65 percent were ranch owners, 13.45 percent ranch managers and 9.24 percent ranch workers. Farm owners comprised 6.72 percent of the students, farm managers 4.20 percent and farm workers 4.20 percent.

The students in agriculture business were involved in the following catagories: Feed and Supplies Sales—6.72 percent, Agriculture Instructors—5.88 percent, Agriculture Mechanics and Welding—2.52 percent, Professional Rodeo—1.68 percent, Forestry—1.68 percent, Feed Manufacturing—.84 percent, Custom Operations—.84 percent, Agriculture Economist—.84 percent and miscellaneous 3.36 percent.

(Concluded on page 210)

Missionary in Zambia Makes Things Happen in Agricultural Development

*Larry Hills**
Agricultural Enabler
Nega Nega, Zambia

and

O. Donald Meaders
Teacher Education
Michigan State University

Introduction

Planning and conducting instruction in agriculture to help youth and adults improve their level of living and to bring about an improvement of the total community is the objective of many many teachers of agriculture. Outstanding teachers have taken into consideration several principles, such as the following, to help guide their activities:

1. The persons to be affected by the program should be involved in planning activities.
2. The instruction should be based on what is needed for entrance and advancement in the occupation chosen or being considered by the students.
3. The resources of the community should be utilized for conducting the instruction.
4. The facilities and equipment to be used should be like or simulate the actual working conditions.
5. The program of instruction should include instructional activities for both those preparing to enter the world of work and for those already engaged in occupations.

The following is an account of experiences helping rural people in Nega Nega, Zambia improve their conditions. It reflects activities which illustrate application of the principles mentioned above. Although the differences between the conditions in Zambia and communities in the United States are quite great, perhaps there are more similarities, in principle, than differences.

Purpose of Work in Zambia

The Hills are members of a team sponsored by Family Farms and United Methodist Church and are called "enablers," or sometimes labeled "settlement initiators." An area of approximately 18,000 acres is being divided for the relocation of people from other parts of the country. The "enablers" are there to help with the settlement of families, the development of farming and community activities and, in general, to help the people have more "life" than before.

The Area and Problem

The Republic of Zambia, formerly the Protectorate of Northern Rhodesia, came into existence on October 24, 1964. It contains about 4.7 million people in a land-locked area of just under 300,000 square miles in southeastern Africa. Approximately 70 percent of the population is rural, engaged in farming and fishing. The country measures over 800 miles in its longest east-west axis and 700 miles on its longest north-south axis.

Most of the nation is a broad plateau between 3,000 and 5,000 feet above sea level. It has sharply defined wet and dry seasons: May to August is cool and dry; September to November is hot and dry; and December to April is warm and wet.

Nega Nega Settlement lies along 10 miles of the Kafue River at the eastern end of the Kafue Flats, a vast flat, flooded area, rich in fish, fishermen, and wildlife. A survey conducted in February 1974 indicated that 75 fishermen in the area of the Settlement have been severely oppressed by the land use policies in effect along the river for the past many years. The farmers who claimed ownership of the land along the river had not allowed the fishermen to live on the farm land. Therefore the fishermen had to seek homesites on mounds and sand bars in the flats which were flooded each year during the rainy season and be eaten by mosquitos and plagued by malaria and bilharzia the whole year long. Under these conditions they could not get wives to stay with them and could not have families. This acute instability hampered the proper development of the harvesting of fish, a protein resource badly needed in Zambia. The anguished cry of the fishermen was for homesites above flood level where they could marry and have families and carry on their family and fishing activities without constant fear of flooding.

Some Developments

Two areas on the Settlement designated as fishing villages have been subdivided into family-size plots rented on 14-year renewable leases to qualified fishermen. Thirty-six fishermen have thus far leased plots and built permanent houses on them. They and their families number more than 1200 persons. All of the fishermen are now married. Scattered divorced wives and lent-out children have returned home. The volume of fish harvested from the river has increased. Fishermen have grouped together to dig wells for clean, convenient water through the use of techniques and equipment made available by the Settlement. A spark has leaped to life through a bit of "enabling," and those who are touched, they and the Hills, have more life than before. (Do you walk a little straighter and with a little more zest after one of your students has been presented with an award?)

It is a five-mile walk from the fishing and farming villages of the Settlement to the nearest store in Nega Nega. The need was obvious for a more convenient store. Also, when the Hills came to this area to live, they found a new and struggling church led by a young pastor and his wife who had moved to this area after several years in the noisy,

(Concluded on next page)

*Larry Hills has an Ag Ed degree from Michigan State and has been a missionary in Zambia since 1967.

crowded life of Kafue City. It is unusual these days to find those who are leaving the bright lights of the city for the rural areas. Certainly a young couple willing to leave the city to seek a life in the rural areas should be encouraged.

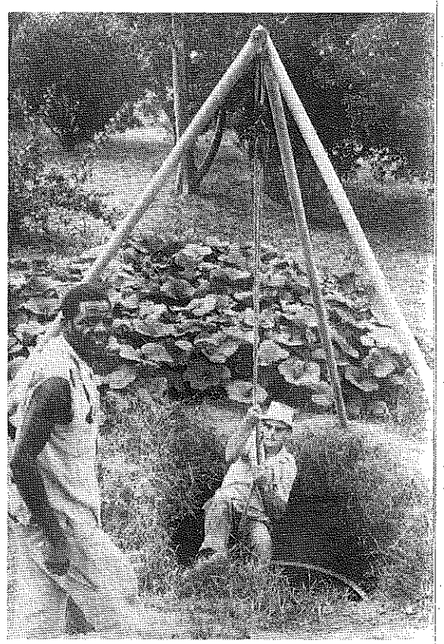
Nelson Chiliquela was finding it impossible to maintain himself and his family in his chosen area. He was starting a mission church, with no income from it. He lacked the skills of farming and had no capital with which to start a business. When the Hills arrived, he was sadly making preparations to leave his new church and return to the city. A visit to the Rural Council procured for him a trading license. A visit to a local bank procured a loan for him to start a small grocery. Some additional funds loaned to him from generous people in the United States helped him to feed his family and equip his shop. A walled off part of the front porch of the Hills' home provided him a place to begin to learn how to run a business and build up capital with which to build his own house and store on a nearby plot leased to him by the Settlement. Some instruction on business practices and records has helped Nelson have a sound basis for improving his business performance.

Nelson and his wife are making bricks in their spare time with which to build their new house and store; and the walls of the Hills' house have more than once known the joyful sounds of hymns of praise as together with the Chiliquelas they have been thankful. The Settlement has also recently leased a plot to Chiliquela's congregation and they are making plans to construct a church building there.

The first methane generator to be built in Zambia is producing methane gas from cow manure and water behind the Hills' house and is used in cooking their meals. Another type is under construction just beside it to utilize grass and leaves as raw materials to produce methane. It is hoped these experiments will produce a cheap, practical means of getting fuel for cooking and lights in the area which is fast becoming devoid of a wood supply. The gas is hot and burns with a deep blue flame. The generator is simple to build and maintain and might be of interest to some energy hungry Americans. In addition, simple solar cookers have been built to provide heat for baking bread, pies, and cakes. The baked goods, some of which are sold, have provided additional income to the families.

As Nega Nega grows and cash incomes come into being, a possibility is created for marketing vegetables. There is plenty of water for irrigation from the river bordering the Settlement so a stretch was made for some vegetable growers to settle on some of the land. One farmer was found to whom land was leased—a four-acre plot. A journey 300 miles north to the Copperbelt was planned to see if there was a graduate from Kalulushi Farm College (where the Hills spent their previous term in Zambia) trained in vegetable and poultry production, who could come and settle here. As this possibility was being discussed with some friends in the Hills' front yard one day, a young man came walking in, suitcase in hand, saying he was Pilgrim Hibajene; he had just graduated from Kalulushi Farm College, and was wondering if there was a place to settle in Nega Nega.

The Hills live in an old abandoned farm house on the Settlement which they refurnished a bit and find very comfortable. There is a small abandoned citrus orchard near the house and about 10 acres of good rich alluvial river land around it. A young man could live from the citrus while planting bananas, paw paw and vegetables and installing a surface irrigation system and settle in the Hills' house when they leave. After some discussion it was agreed that the Hills should hire Pilgrim for a few months until the neglected citrus were reclaimed and some vegetables growing. In the meantime, he could also begin to build a capital reserve. He would then gradually take things over and become a settler farmer in his own right. Under Pilgrim's careful attention the citrus are flourishing and providing enough income to cover his salary. Vegetables are growing and will soon be ready to harvest. Plans are made for planting bananas and paw paw when the rains



Larry Hills, agricultural missionary and the co-author of this article, is the one coming up out of the well after instructing Gilbert Limbua in the use of a well mould for concreting the well.

begin in six weeks or so. Pilgrim has a contagious Christian faith and is a welcomed new member of the community. Some other developments include: cattle improvement; organizing and training well-digging teams; assistance with arrangements through a local bank to secure financial support for new enterprises; a short course on operating and servicing motors for fishing boats; and use of a survey chain to lay out roads and house locations.

As the 18,000 acres of Nega Nega Settlement are divided up and people elected from the surrounding overcrowded Reserve areas gradually settle here, this story can be told over and over again with individual variations. Shoes appear on sore feet, and new clothes replace the tatters. Better houses are built, machinery is replaced or added to and crops flourish where weeds and brush once reigned. Water springs from new wells and songs of praise from happy hearts. Life has purpose and it is good. ◆◆◆

The Montana Agricultural Manpower Project

Max L. Amberson
and
Douglas Bishop
Department of Agricultural and
Industrial Education
Montana State University

The Department of Agricultural and Industrial Education has completed a study entitled the Montana Agricultural Manpower Project. This study, organized in 1970, was initiated to provide a statewide effort to determine the nature and extent of rural youth and adult education and employment opportunities uniquely associated with agriculture in production, processing, mechanics and service areas. The surveys were initiated to gather data to reflect a more precise picture of the educational needs and occupational opportunities available in Montana. The project was jointly funded by the Montana Agricultural Experiment Station and the Office of the Superintendent of Public Instruction. The Agricultural Committee of the Montana Chamber of Commerce provided technical assistance and encouraged the activities of the project.

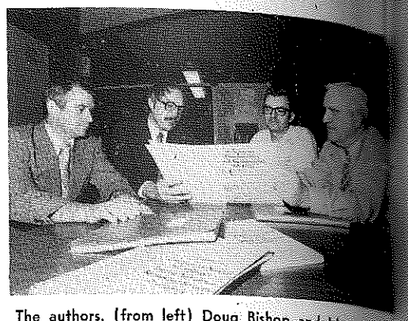
Initial Surveys—The initial survey of 2,213 Montana agri-businesses utilized an instrument designed and submitted to agri-businesses engaged in sales and service of agricultural equipment. This questionnaire requested information regarding job titles, vacancies and employment levels (managerial, skilled, etc.). The population selection of the agribusiness survey was made through the cooperation of Chambers of Commerce, vocational agriculture teachers, and county extension agents reporting agricultural equipment dealerships in their localities. These lists were augmented by the yellow pages of local telephone directories.

Some 7,225 Montana agricultural producers cooperated by providing information as to job titles, hiring problems, salaries and prerequisites on their farms and ranches. These farms and ranches were sampled by farm size and type of ownership (owner/operator, corporation, etc.). A list of participants in ASCS programs yielded 26,000 names of Montana producers. Of special interest to the survey were those producers who, in fact, hired help or paid wages of $150 or more to non-family members. This information was obtained from the Internal Revenue Service (IRS) which provided names of Montana producers who paid wages. The lists from the IRS and the ASCS were merged, resulting in a sample of 7,225 producers.

It was to the above sampled businesses and producers that the researchers returned to identify the knowledge, skills and attitudes (competencies) needed by workers employed in the various job titles.

Additional Surveys — While the studies in agricultural mechanics and agricultural production were in progress, Dr. Alvin Donahoo, Executive Vice President of the Minneapolis Grain Exchange, in cooperation with the Department of Agricultural and Industrial Education, conducted studies in the grain, feed and seed business and agricultural sales and services (farm centers). Dr. Donahoo submitted the same competency statements to persons actually doing the job and to a number of educators involved in planning or teaching in the same areas.

Further research was undertaken in agricultural products and agricultural resources occupations in Montana.



The authors, (from left) Doug Bishop and Max Amberson, review agricultural competencies materials with Darrel Berkenpas and John Van Daveer.

After a survey of processors was garnered from the Directory of Montana Manufacturers, it was decided to investigate selected job titles in the meat, bakery, dairy and flour milling industries in Montana. Occupations not requiring an academic degree were reviewed in various government and private agencies and organizations in agricultural resources. Four resources job titles (civil engineering technician, soil conservation technician, dairy herd improvement supervisor and federal food inspector) were chosen for study.

The competency questionnaire required employees to rate job statements related to their particular jobs as to the task's importance. These ratings were tabulated by the computer, establishing their mean. The statements were then ranked in order of their importance. A total of 3,500 competency statements for 75 job titles were reviewed.

The more recent research (1975-1976) involves grouping the 3,500 identified competency statements into eight main cores and sub-cores (Animal Science, Plant Science, Mechanics, Agricultural Business Management and Marketing, Merchandising, Clerical, Leadership and Miscellaneous). Two summer workshops funded by the Education Professions Development Act (EPDA) enabled Montana vocational teachers to meet and review the competency statements for the purpose of revising the present state curriculum guides for high school vocational agriculture programs. The data from the Montana Agricultural Manpower Project has been used to develop a two-year Core Curriculum for High School Agricultural Education in Montana.

(Concluded on page 208)

Cooperative Agricultural Education— State Organized and Administered

J. C. Simmons
Supervisor
Louisiana

The cooperative program in vocational agriculture/agribusiness was initiated in the departments of vocational agriculture/agribusiness throughout Louisiana during the 1969-70 school year. This beginning did not result from an overnight decision. Many months of planning were put in by the state staff, teacher educators, and an advisory group for cooperative education in vocational agricultural education consisting of teachers representing all sections of the state.

All those involved in this planning were determined that this new phase in vocational agricultural education would not be an exercise in futility.

The terminology of Cooperative Agricultural Education (CAE) was used to designate the program.

District meetings were held for all teachers during the summer preceeding the 1969-70 school year for the purpose of presenting and explaining this innovation. School superintendents, supervisors, principals and guidance counselors were also in attendance.

Ten steps related to the cooperative program were discussed at each of the district meetings. The 10 steps are listed below.

1. Identifying occupational opportunities
2. Setting up occupational objectives
3. Setting up training objectives
4. Setting up the training program
5. Organizing for teaching
6. Teaching
7. Providing work experience
8. Supervising work experience programs
9. Evaluating off-farm agricultural programs
10. Promoting job entry and follow-up activities

Participants in these discussions included members of the state staff, teachers representing the advisory group, and teacher educators. An intensive effort was made by the panel and consultants to cover all possible problems that might surface in establishing the program in a school system and questions were encouraged from those in attendance. Since many teachers and school administrators were unfamiliar with this type program, this series of meetings proved to be very important in implementing the program. The preparation made by each participant was extensive and covered many points that resulted in well-established cooperative programs.

Teachers were encouraged not to start with a large number of students, but rather to begin with a small group and progress to larger classes as more was learned relative to administering the program.

The first instructional program in cooperative agricultural education was designed only for those students interested in receiving more training in off-farm agriculture (agribusiness). However, as it became obvious that this program was successful, many teachers advanced the opinion that this same type training should be applied to on-farm situations. The state staff met with a group of teachers from a predominantly dairy section of the state and compiled a training program for cooperative students in dairy farming.

The on-farm phase of CAE was initiated in the 1971-72 school year. Although dairy farming was the field in which it was begun, students are now placed in many other training stations classified as production farming.

From the very beginning of these programs, it was felt that guidelines must be established and followed by the students, teachers, and employers if the program was to be a success. In line with this, the following regulations were prepared:

A CAE Agribusiness student (center) and his vocational agriculture / agribusiness teacher (left) discuss the training he will receive with his employer. This work station is the meat market of a large chain grocery.

1. Training received by the student must relate to the student's occupational objective.
2. Work station must reflect the student's occupational objective.
3. Student must have satisfactorily completed Agriculture I and II (9th and 10th grades) as prerequisite to participating in the CAE program.
4. The on-farm or off-farm training site must be a farm or agribusiness other than one owned by parents.
5. The off-farm work station must be agri-related and evaluated to that effect. If there is any question on the situation, the State Department will assist in this determination.
6. The student must have approval of his parents or guardian (in writing) for such training.
7. The work station (training site) must provide full year practices.

(Concluded on next page)

CONTINUED COOPERATIVE AG EG . . .

8. A written, planned program for training must be developed and approved by the student, parent, school, and employer and submitted to the head of the vocational agricultural section of the State Department of Education.
9. Provisions should be made that if a co-op trainee is retained as a regular employee in the work station that this will not terminate the business as a continuing work station.
10. Enrollment must be for the full school year.
11. The student must have a passing grade in both classroom work and on-the-job training in order to receive full credit for CAE.

In addition, forms are provided to all school systems to be used in requesting permission to establish the program in an individual department. Also, individual student applications and work station description forms are provided. Both applications must be completed and submitted to the Section Chief of the Vocational Agriculture/Agribusiness Section, State Department of Education for approval.

Although there have been some problems relative to the program, school administrators have expressed their endorsement of cooperative agricultural education and have stated that the problems that have arisen are minimal. The major factor in their success, or failure, seems to be the placement of the right student in the right work station. It is recommended to the teachers that careful selection be practiced in this.

In one parish (county) system where four high schools with vocational agriculture/agribusiness departments are located, a total of 101 students were enrolled in CAE during the preceding school year. Fifty were in agribusiness and fifty-one in the on-farm phase. The teachers report they have received excellent cooperation from the employers of these students and emphasize that they feel this results from the adequate supervision they give their students and the proper placement of each student.

In summary, the cooperative agricultural education program in Louisiana continues to be an important part of the total program in vocational agriculture/agribusiness. The best evidence of this success is the large number of students who receive employment in their particular field of cooperative training upon high school graduation. Other students continue receiving this same type training upon enrollment in post secondary schools.

From the beginning, it has been emphasized to the teachers that they are, just as in any other phase of the program, the key to the success of cooperative education in their individual departments. ◆◆◆

CONTINUED THE MONTANA . . . PROJECT

Resource teaching units are in the process of being developed. Those completed are in Plant Growth and Development, Agricultural Chemicals, Crops, Soils and Range Management. These materials are competency based and deal with the actual tasks involved in jobs in agriculture. Reaction from participating vocational agriculture teachers in Montana has been extremely favorable.

Research is now available to persons desiring to establish curriculums in agriculture at all levels but more particularly at the post-high school level where there seems to be a void of germane programs in agriculture, considering the importance of Montana's agricultural industry.

Findings

Significant findings of the study revealed that affective behaviors such as personal qualities competencies, "willingness to work" and "ability to get along with others," were considered extremely important qualities, the development of which must be included in any educational program; that there is some disparity between what employees considered vital to their jobs and the importance of those activities evaluated by educators; and that agricultural mechanics competencies make up a large part of the knowledge and skills needed in agricultural employment and should be included in any educational program.

Of considerable significance is the success of the research model and the encouragement this affords vocational education materials developers to follow. A secondary objective of the Montana Agricultural Manpower Project was the documentation of a manpower survey research model. Methods used by the researchers proved to be successful and can serve as a system for others similarly charged with the responsibility of such research. ◆◆◆

CONTINUED TRAINING IN A SUPPLY . . .

or series of modules may be used whenever work experience best meets the needs of the student. In our school, the students, parents, and employer sign a work agreement which spells out the terms of the work experience. With the help of the employer, the teacher evaluates the student's progress and determines the level of achievement.

Conclusion

The modular system with job titles, the school supply store, and work experience programs are all effective tools in training students for the many careers in agricultural supplies and services. Offering training in this segment of agriculture is definitely worth considering in any agriculture curriculum, because many men and women work in off-farm agricultural occupations to provide the supplies and services that farmers need, and to transport and market the products of the farm.

Do you offer an Agricultural Supply and Service program? After all, it should be a student decision. ◆◆◆

ASSISTANTSHIPS AND FELLOWSHIPS IN AGRICULTURAL EDUCATION, 1976-77

Paul Peterson
Coordinator, Agricultural Education
California State Polytechnic
University, Pomona

The 1976-77 survey of the Publications Committee of the American Association of Teacher Educators in Agriculture reveals a continuing availability of assistantships.

Key to Listings:

Data provided are in the following order: Nature of assistantships (number available); number of months available during year; beginning month of employment; amount of work expected; monthly remuneration and other considerations such as remission of fees; whether aid is for master's, advanced graduate program, or doctoral students; source of funds; the 1976 deadline for application, and the person to be contacted. Slight variations in this pattern are due to the nature of the data provided by reporting institutions.

University of Arizona
Research assistantships (2); 9 or 12 months; June or September; one-half time, 20 hrs/wk.; $360; out of state tuition waived; master's; department budget; March 1 or 6 months prior to enrollment; Dr. Floyd G. McCormick, Professor and Head Department of Agricultural Education, University of Arizona, Tucson, Arizona 85721.

Arkansas State University
Assistantships (4); 9 months + summer; August 25, 1976; 20 hrs/wk; $200-$245, out of state fees waived; Master's degree; J. A. Hayles, Agricultural Education, Arkansas State University, State University, Arkansas 72467.

Clemson University
Research assistantship (1); 12 months; August; 20 hrs/wk.; $278/mo., reduction in fees; master's; university funds; April 1 application deadline; Earl T. Carpenter, Head, Agricultural Education, Clemson University, Clemson, South Carolina 29631.

Colorado State University
Research assistantships (4), research associates (2-4); 9-12 months; 8/20/76 or 1/20/77; 15-20 hrs/wk.; $400 to $650/mo. plus tuition waiver; Master's or Doctoral; Departmental and Contracts and Grants; July 15 application deadline; Dr. B. Harold Anderson, Head, Vocational Education Department, Colorado State University, Fort Collins, Colorado 80523.

Cornell University
Teaching assistantships (2), research assistantships (4); 9 or 12 months; 15 hrs/wk.; approximately $3,000 for 9 months or $4,128 for 12 months, fees and tuition are waived; State line and Hatch Act Research Funds; Master's and Doctoral students; March 15 application deadline; William E. Drake, 204 Stone Hall, Cornell University, Ithaca, New York 14853.

University of Illinois at Urbana-Champaign
Teaching assistantship (1); 9 months, one-half time; late August; 20 hrs/wk; approximately $500/month and waiver of tuition and most fees; doctoral or advanced certificate level; apply by March 15; Paul E. Hemp, Chairman, Division of Agricultural Education.

Research assistantships (1 or 2); 9 months; one-quarter time; late August; approximately 10 hrs/wk.; approximately $210/mo. and waiver of tuition and some fees; Master's level; apply by March 15; Paul E. Hemp, Division Chairman, Ag Educ, College of Educ Bldg., University of Illinois, Urbana, Illinois 61801.

Iowa State University
Instructorship (1); 12 months full-time; $1,000; in-state fees; doctoral program in Agricultural Education.

Instructorship (1); 12 months three-fourths time; $800; in-state fees; doctoral program in Agricultural Education.

Research assistantships (2); 12 months; one-half time; $375; reduced fees; master's or doctoral program in Agricultural Education; Agricultural Experiment Station; March 1 application deadline; Harold R. Crawford, Head, Department of Agricultural Education, Iowa State University, Ames, Iowa 50010.

Other assistantships (4) or instructorships pending upon project funding.

Kansas State University
Teaching assistantship (1); 9 months; June or September; one-half time; $333; reduced tuition; masters or doctoral; March 1 to Dr. James J. Albracht, Coordinator, Agricultural Education, Kansas State University, Manhattan, Kansas 66506.

Research assistantship (1); 9 months; June or September, one-half time; $333; reduced tuition; masters or doctoral; March 1 to Dr. James J. Albracht, Coordinator, Agricultural Education.

Louisiana State University
Assistantships (6); quarter time; August; 20 hrs/wk., most fees remitted; stipend for M.S. candidates $2830.00 and for Ph.D. Candidates $3100.00; March 1 application deadline; J. C. Atherton, Vocational Agricultural Education Department, Louisiana State University, Baton Rouge, Louisiana 70803.

University of Maryland
Graduate assistantship (1); 12 months; July 1, 1976; 20 hrs/wk.; annual remuneration for B.S. holder $3,720, for M.S. holder $4,356, plus remission of fees; doctoral students preferred but applications solicited from Master's or Advanced Graduate Specialist students; April 15 deadline; Dr. Clifford L. Nelson, Department of Agricultural and Extension Education, University of Maryland, College Park, Maryland 20742.

University of Massachusetts
Teaching assistantship (1); 9 months (academic year); September 1; 20 hrs/wk.; approximately $400/mo. plus waiver of tuition; qualifications — master's degree, teaching certificate, minimum of three years successful experience as a teacher of vocational agriculture, desire to enter a doctoral program in occupational (vocational) education with emphasis in agricultural education; Massachusetts Department of Education Grant; March 1 deadline; Dr. William L. Thuemmel, Head, Agricultural Education, Center for Occupational Education, 431 Hills House North, University of Massachusetts Amherst, MA 01002.

Michigan State University
Doctoral assistantships leading to degree (Ph.D. or Ed.D) of Agriculture Education or Vocational Education (1) half-time; 12 months; $4200-$6500; out of state fees waived; Dr. Eugene E. Trotter, Agribusiness and Natural Resources Education, Michigan State University, E. Lansing, Michigan 48824. *(Concluded on next page)*

This list of assistantships and fellowships in Agricultural Education is prepared annually by the Publications Committee of the American Association of Teacher Educators in Agriculture. Paul Peterson is Coordinator of Agricultural Education at California State Polytechnic University Pomona.

Paul Peterson

CONTINUED

ASSISTANTSHIPS AND FELLOWSHIPS . . .

University of Missouri
Assistantships (4); 9 months; August 1, 1976; 20 hrs/wk.; $370/mo., waiver of out of state tuition; masters, specialists, and doctoral programs; funded through State Department of Education; June 1, 1976 deadline; Dr. Curtis R. Weston, Coordinator, Agricultural Education, 435 General Classroom Building, University of Missouri, Columbia, MO 65201.

Montana State University
Assistantships (2); one 10-month, one 12-month; September 1; 12 hrs/wk. usually teaches one 2 qtr. hr. credit class; $3,200/year (teaching), $4,200/year (research), ½ fees waived; M.S. degree in Agricultural Education or Industrial Arts; College of Agriculture Experiment Station; August 1 deadline; Dr. Max L. Amberson, Head, Agricultural & Industrial Education Department, Montana State University, Bozeman, Montana 59715.

North Carolina Agricultural & Technical State University
Graduate assistantships (1-3); 9 months; September 1; 10-20 hrs./wk.; $200-$300/mo.; Master's degree; August 15 deadline; Dr. A. P. Bell, Head, Department of Agricultural Education or Dr. A. W. Spruill, Dean, Graduate School, North Carolina Agricultural and Technical State University, Greensboro, N. Carolina 27411.

North Dakota State University
Graduate research assistantship (1); 12 months; July 1; one-half time; $3,900; fees waived; Master's program; Experiment Station funds; March 1 deadline; Dr. Donald Priebe, Chairman, Agricultural Education Department, North Dakota State University, Fargo, ND 58102.

Ohio State University
Research associates (3-6); 9-12 months; July 1 or later; one-half time; $450/month; waiver of fees; master's and doctoral with preference for doctoral; apply by April 1; Ralph E. Bender, Chairman, Department of Agricultural Education, Ohio State University, Columbus, Ohio 43210. (Some of these associateships provide experience in the development of curriculum materials with Dr. Harlan Ridenour as well as some research contributions.)
Other associateships are available through the Center for Vocational Education. Contact Dr. Robert E. Taylor, Director.

Oklahoma State University
Teaching assistantships (2), research assistantships (1-2); 10 months; September; 20 hrs/wk.; Minimum of $375 per month, plus out of state fee waiver; primarily for doctoral students; August 1 deadline; Dr. Robert Terry, Professor and Head Department of Agricultural Education, Oklahoma State University, Stillwater, Oklahoma 74074.

Pennsylvania State University
Assistantships (6); 12 months; Begin June 14, 1976, September 6, 1976, December 6, 1976 and March 14, 1977; 20 hrs/wk.; $488/month plus remission of fees; available for either master's or doctor's degree; State, vocational and industry; February 15 deadline; Dr. Gene M. Love, Head, Department of Agricultural Education, 102 Armsby Building, University Park, PA 16802.

Southern Illinois University-Carbondale
Assistantships (5-6); 12 months; July 1; 20 hrs/wk.; $330/month and waiver of tuition; Master's only; State and external research grants; March 1 deadline; Eugene S. Wood, Chairman, Department of Agricultural Industries, Southern Illinois University at Carbondale, Carbondale, Illinois 62901.

Texas A&M University
Teaching assistantships (3), non-teaching assistantships (3), research assistantships (1); 9 months; September 1; one-half time; approximately $3600 (increases with semesters hours completed for doctoral students); tuition waived for out-of-state students; Master's or Doctor's; Graduate College and Texas Agricultural Experiment Station; Dr. Earl H. Knebel, Head, Department of Agricultural Education, Texas A&M University, College Station, Texas 77843.

Utah State University
Graduate assistantship (1); 9 months; October; $3,000 (tuition & fees are not included); a graduate assistantship is offered to someone working towards his master's degree in agricultural education; funded by the College of Agriculture; July 31 deadline; Dr. Gilbert A. Long, Head, Department of Agricultural Education, Utah State University, UMC 48, Logan, UT 84322.

Virginia Polytechnic Institute and State University
Graduate teaching assistantship (2); 9 or 12 months; July 1, 1976 or September 1, 1976; 20 hrs/wk.; $390-$430/month; M.S. or Ed.D. degree; University funds; March 1 deadline; Dr. James P. Clouse, 101 War Memorial Gym, VPI&SU, Blacksburg, VA 24061.

University of Wisconsin-River Falls
Graduate assistantships (4); academic year September-May; September; 12-15 hrs/wk.; $280 per month plus remission of out of state fees; master's degrees; March 1 deadline; Dr. Marvin D. Thompson, Chairman, Department of Agricultural Education, University of Wisconsin, River Falls, Wisconsin 54022.

CONTINUED

A FOLLOW-UP . . . COMMUNITY COLLEGES

In an attempt to determine the effectiveness of their training, the students were asked to rate the necessity of their training in receiving their present position. Twelve percent said it was required, while 22.03 percent said it was of some help, 13.56 percent found it no help and 27.12 percent said it did not apply to their job.

From the survey and the literature reviewed, the following recommendations were given to Wyoming community colleges:

(1) Each college should conduct follow-up studies annually to determine needs of students and for evaluation of the program.
(2) Consideration should be given to eliminating some required courses.
(3) Work should be started to allow community colleges to teach veterinary courses as a regular part of the curriculum.
(4) Wyoming community colleges should continue to emphasize production agriculture with attention to agribusiness.
(5) The community colleges should continue to offer two-year terminal programs as well as four-year transfer curriculums.
(6) Community college instructors must continue to update their material, improve their methods, and acquaint students with rapid technological changes in agriculture. ◆◆◆

LETTERS TO THE EDITOR

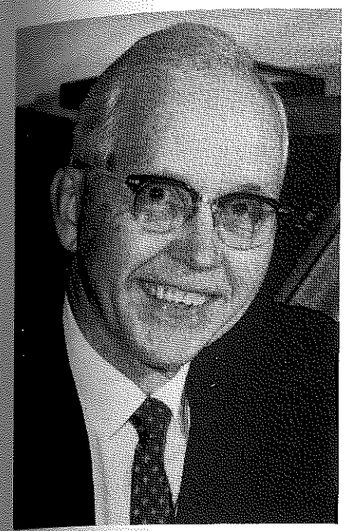
Write!

Letters are welcomed. A 300 word limit is suggested. Letters must be signed and your complete address provided.

Leader in Agricultural Education:

GEORGE F. EKSTROM

by
*Bob R. Stewart**

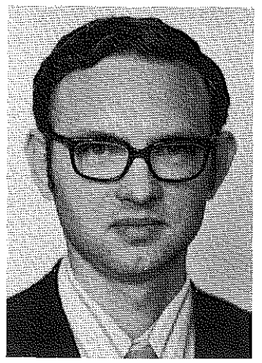


A leader in agricultural education truly describes the life of George F. Ekstrom during the forty-seven consecutive years that he actively served the profession. The career of this distinguished teacher, supervisor and teacher educator began in 1920 at Lamont, Iowa when the young graduate of Purdue University, with a degree in agricultural education, became the teacher of vocational agriculture. In 1923 he moved to Jesup, Iowa where he taught vocational agriculture and also served as high school principal. His keen interest in teaching, his desire to help others and his dedication to agricultural education prompted him to prepare for further service. He received the M.S. in vocational education from Iowa State University in 1933 and the Ph.D. in agricultural education from the Ohio State University in 1938.

In 1927 George Ekstrom was named state supervisor of agricultural education in Iowa. He remained in the position until 1938. During his tenure as supervisor, he was responsible for the improvement and expansion of the secondary and adult education programs in vocational agriculture and the development and growth of the FFA. In fact he helped to organize the FFA in Iowa and served as the first state advisor for the Iowa Association.

Dr. Ekstrom served as Assistant Professor of Agricultural Education at the University of Minnesota from 1938 to 1946. During this time he shared his experience and imparted a measure of his dedication to the young men preparing to be teachers in the state and authored some fifteen articles for the *Agricultural Education Magazine,* as well as serving as a regional representative and business manager for the publication. In addition, he also authored eight special articles or bulletins.

In 1946 he was named Professor of Agricultural Education at the University of Missouri — Columbia. During his first semester in the new position, he had responsibility for teaching and supervising all the agricultural education courses and student teaching as well as serving as the new editor for the *Agricultural Education Magazine.* His administrative abilities came into play and C. V. Roderick, a Missouri supervisor, was employed in mid year to assist with the undergraduate program. In 1967 George Ekstrom was named Professor Emeritus of Agricultural Education at the University of Missouri. During his span at Missouri, 689 persons were certified to teach vocational agriculture, and he served as advisor for 31 doctoral and 179 masters degree recipients. Seventy-one percent of those certified were initially placed as teachers of agriculture.



Bob R. Stewart

*Bob R. Stewart is Associate Professor, Agricultural Education, University of Missouri, Columbia.

Numbers, of course, do not tell the story. Missouri is proud of the program of vocational agriculture as it has matured and changed under the influence of people who were influenced directly and indirectly by this leader of agricultural education.

While at Missouri, this dedicated educator contributed not only to the development of people and programs but also to the literature and organizations so important to the profession. He co-authored with McClelland the book, *Adult Education in Vocational Agriculture,* assisted with the AVA publication, *Your Public Relations, A Guide for Vocational Educators,* and authored a total of 26 articles for professional journals. In addition he prepared the topic "Agricultural Education United States" for Volume 1 of the 1954 edition of *Encyclopedia Britannica.* During the years 1950 to 1964, he was a member or chairman of AVA Agricultural Education Division committees for all but three years. He influenced programs nationwide during this time by serving on the research, teacher education, standard and policies, and program committees. In addition he served as chairman of both the Central States Seminar on Agricultural Education and the Central States Regional Research Conference as well as a three-year term as National President of Alpha Tau Alpha.

Following formal retirement, he continued to serve the profession. He authored *Historical Developments of Agricultural Education in the United States Prior to 1917* in 1969 as a U.S. Office of Education Research Project. In addition, he compiled *The History of Agricultural Education at the University of Missouri* and a history of Alpha Tau Alpha while serving as historian of the honorary fraternity.

(Concluded on page 214)

A GUIDE TO RESEARCH COMPLETED AND IN PROGRESS IN AGRICULTURAL EDUCATION

J. David McCracken
Associate Professor
The Ohio State University

Many leaders in education have voiced concern about the length of time between the conduct of research and the use of it to improve practice in schools. In agricultural education, the Research Committee of the Agricultural Education Division of the American Vocational Association has been involved in improving communications to the profession about research.

Compilations of Research

In 1975 for the first time in recent years, a national compilation of research completed and in progress was prepared. This compilation has been mailed to each head teacher educator and each head state supervisor of agricultural education. In addition, previous regional summaries of studies were identified and their future availability was insured by submitting them for inclusion in the ERIC System. Table 1 provides the order numbers for regional summaries identified from 1966 to date. The 1974-75 national compilation has been submitted to the ERIC Clearinghouse for Career Education and will be available from that source in future years.

Studies in Progress

In 1975, input was received by the Research Committee from 14 states concerning research in progress for 1975-76. The research and development efforts currently underway involve 35 staff studies, 35 doctoral dissertations, and 12 masters or specialist studies. Studies are reported which were submitted by the states in response to a mailing to head teacher educators and head state supervisors during Summer 1976. Studies are reported alphabetically by state. Readers desiring further information should contact the persons named as the principal investigators.

STUDIES IN PROGRESS, 1975-76

Colorado

Sabol, Joe. "Competencies Needed for Successful Employment in Sheep Production." Dissertation, Ph.D. Colorado State University, Fort Collins.

Illinois

Daniels, James. "Attitudes of Selected High School Educators Toward Enrolling Physically Handicapped Students in Regular Shop Courses." Dissertation, Ed.D. University of Illinois, Urbana.

Reynolds, Carl. "A Comparison of Agricultural Education Students and Students in Other Agriculture Curricula and Factors Related to Their Curriculum Choice." Dissertation, Ed.D. University of Illinois, Urbana.

Indiana

Clanin, Edgar E. and Gottschalk, Daniel. "An Analysis of the Employment of Patterns of Purdue Agricultural Education Graduates from 1950-1973." Staff Study, Purdue University, West Lafayette.

Copes, Marvin and Richardson, Bill. "The Predictability of Career Choices of High School Seniors." Dissertation, Ph.D. Purdue University, West Lafayette.

Hamilton, W. H. "Agricultural Education Apprentice Program." Staff Study, Purdue University, West Lafayette.

Hamilton, W. H. "Preparation of Training Materials on Agricultural Safety and Health." Staff Study, Purdue University, West Lafayette.

Howell, David and Hamilton, W. H. "Identification of the Occupational Competencies Needed in the Area of Agri-Chemicals." Staff Study, Purdue University, West Lafayette.

Richardson, Bill and Howell, David. "Development and Field-Testing of Audio-Visual Material for Thirteen Units of Leadership Instruction." Staff Study, Purdue University, West Lafayette.

Richardson, Bill and Kline. "Development of a Generalizable Evaluation Model for Vocational Teacher Education." Staff Study, Purdue University, West Lafayette.

Iowa

Archer, Thomas M. "Philosophy and Practice: Iowa Area School Agricultural Programs." Dissertation, Ph.D. Iowa State University, Ames.

Clausen, Otto C. "Evaluation of Agricultural Education Curriculum by Graduates." Master's Thesis. Iowa State University, Ames.

Gliem, Joseph A. "Effectiveness of a Student Reference in Teaching Safety to High School Vocational Agriculture Students." Dissertation, Ph.D. Iowa State University, Ames.

Kaas, Duane A. "Experimental Evaluation of Alternative Methods of Teaching Plant Material Identification." Dissertation, Ph.D. Iowa State University, Ames.

Leising, James G. "Assessment of Philosophic Constructs and Purposes of Iowa Vocational Agriculture Programs." Dissertation, Ph.D. Iowa State University, Ames.

Lindahl, Thomas J. "Employment Qualifications of Post Secondary Teachers of Agriculture in Iowa Area Schools." Dissertation, Ph.D. Iowa State University, Ames.

Silletto, Thomas A. "Farm Accident Survey for 1975 and Implications for Educational Programs in Iowa." Dissertation, Ph.D. Iowa State University, Ames.

Kentucky

Iverson, Maynard. "Competencies Required in Small Fruit Production." Staff Study, University of Kentucky, Lexington.

Tulloch, Rodney, W. "Competencies Required for Vegetable Production." Staff Study, University of Kentucky, Lexington.

Mississippi

Brown, Ronald A. "Career Orientation for High School Student Leaders in Agricultural Occupations Programs." Staff Study, Mississippi State University, Mississippi State.

Carter, John K. "A Study of Vocatonal and Pre-Vocational Educators' Perceived Competence Level in the Operation and Use of Audio-Visual Media in Teaching." Master's Thesis, Mississippi State University, Mississippi State.

Johnson, Rufus Wayne. "An Analysis of Mississippi Secondary Guidance Counselors' Awareness Concerning Career Opportunities in Agricultural Education." Master's Thesis, Mississippi State University, Mississippi State.

Nebraska

Dillon, Roy D. "Identification of Applied Biological Science Interests of 5th, 8th, and 11th Grade Students in Nebraska." Staff Study, University of Nebraska, Lincoln.

Dillon, Roy D. "Employment Opportunities and Competency Needs of Agricultural Processing Workers in Lancaster County, Nebraska." Staff Study, University of Nebraska, Lincoln.

Douglass, Richard L. and Horner, James T. "Approaches to Occupational Education and Teacher Preparation for Rural Development." Staff Study, Department of Agricultural Education, University of Nebraska, Lincoln.

Douglass, Richard L. and Horner, James T. "An Evaluation of Mediated Career Information for Modifying Aspirations, Knowledge and Attitudes Toward the World of Work." Staff Study, University of Nebraska, Lincoln.

Douglass, Richard L., Bringelson, Richard A., and Horner, James T. "An Evaluation of the Effectiveness of Mediated Agricultural Mechanics Materials." Staff Study, University of Nebraska, Lincoln.

New York

Dolbeck, Keith A. "A Student Resource Guide on Beekeeping." M.P.S. Degree Project, Cornell University, Ithaca.

Lindsay, Glen W. "An Analysis of Selected Instructional Units in Forestry." M.P.S. Degree Project, Cornell University, Ithaca.

Van Riper, James. "Making Hay Crop Silage Decisions." M.P.S. Degree Project, Cornell University, Ithaca.

Ohio

Alvarez, Moises. "Evaluation of Rural Development Programs in Developing Counties: An Appraisal of Supervised Credit Programs." Dissertation, Ph.D. The Ohio State University, Columbus.

Asche, Wayne E. "Teacher Morale in Vocational Education." Staff Study, Kent State University, Kent.

Asche, Wayne E. and Schuman, Frederick E. "An Integrated Approach to Course of Study Development in Production Agriculture." Staff Study, Kent State University, Kent.

Bender, Ralph E. "The 1975 Occupations of Recent Graduates of Vocational Agriculture in Ohio." Staff Study, The Ohio State University, Columbus.

Bender, Ralph E. and Yoder, Edgar. "Development and Implementation of Internship Programs in Agricultural Occupations for Present and Prospective Teachers of Vocational Agriculture." Staff Study, The Ohio State University, Columbus.

Byrd, J. Rickey. "Identification of Appropriate Tasks Performed by 4-H Paraprofessionals and Volunteer Leaders with the Georgia Cooperative Extension Service." Dissertation, Ph.D. The Ohio State University, Columbus.

Geesey, Richard. "A Criterion-Referenced Evaluation of the Effectiveness of the Use of a Tree Identification Workbook in Teaching Dendrology to Vocational Agriculture High School Students." Dissertation, Ph.D. The Ohio State University, Columbus.

Householder, Larry. "Perceptions of Selected Groups Concerning the Role of the Local Supervisor of Vocational Agriculture in Vocational Education Planning Districts in Ohio." Dissertation, Ph.D. The Ohio State University, Columbus.

Keefer, Wayne. "An Analysis of Factors Influencing Length of Tenure of Extension Agents Employed by the Virginia Polytechnic Institute and State University Extension Division between July 1, 1966 and June 30, 1974." Dissertation, Ph.D. The Ohio State University, Columbus.

Langbrake, Wayne R. "Cost-Effectiveness Evaluation of Selected Secondary Vocational and General Education Programs." Dissertation, Ph.D. The Ohio State University, Columbus.

Lovingood, Miles. "Agricultural Mechanics Competencies Needed by Vocational Agriculture Teachers in Farm Power and Agricultural Construction and Maintenance." Dissertation, Ph.D. The Ohio State University, Columbus.

McCracken, J. David and Hampson, Michael N. "An Empirical Determination of Tasks Essential to Performance in Agricultural Production." Staff Study, The Ohio State University, Columbus.

McCracken, J. David and Hampson, Michael N. "An Empirical Determination of Tasks Essential to Successful Performance in Animal Production and Management." Staff Study, The Ohio State University, Columbus.

McCracken, J. David and Newcomb, L. H. "Development and Field Testing of Improved Instructional Units for Adult Class Instruction in Agriculture," August 1, 1974-July 31, 1975. Staff Study, The Ohio State University, Columbus.

McCracken, J. David and Yoder, Edgar. "Determination of a Common Core of Basic Skills for Agribusiness and Natural Resources," June 15, 1974-September 14, 1975. Staff Study, The Ohio State University, Columbus.

McGhee, Max B. and Warmbrod, J. Robert. "Evaluation and Field Test of Curriculum Guides in Career Education." Staff Study, The Ohio State University, Columbus.

Miller, Raymond A. "An Evaluation of the Living Learning Program for Undergraduates in Agriculture and Natural Resources at The Ohio State University." Dissertation, Ph.D. The Ohio State University, Columbus.

Moore, Gary E. "Some Measures of the Teaching Effectiveness of Entry-Level Professionally and Modified Professionally Prepared Teachers of Vocational Agriculture." Dissertation, Ph.D. The Ohio State University, Columbus.

Myers, Donald K. "An Evaluation of the Introduction of an Agronomic Innovation Among Ohio Farmers." Dissertation, Ph.D. The Ohio State University, Columbus.

Roediger, Roger D. "Teacher Perceptions of the Adequacy of Instructional Materials in the Vocational Program Areas of Production Agriculture, Agricultural Business, and Horticulture." Dissertation, Ph.D. The Ohio State University, Columbus.

Rohrback, Keith V. "Manpower and Competency Needs of Self-Managerial Personnel in the Food Processing Industry of Franklin County Ohio." Dissertation, Ph.D. The Ohio State University, Columbus.

Shannon, Theodore P. "The Correlation of Personal Preference and Self-Concept Scales with Demographic Data to Determine Characteristics of Vocational Non-Degree, Pre-Service, Workshop Participants." Dissertation, Ph.D. The Ohio State University, Columbus.

Starling, John T. "Farm Business Analysis of Programs Conducted by Teachers of Agriculture." Staff Study, The Ohio State University, Columbus.

Symons, William B. "Learner Performance with Alternative Methods of Evaluating Mastery of Small Engine Instruction." Dissertation, Ph.D. The Ohio State University, Columbus.

Taylor, Calvin. "The Representativeness of Public Participation in the Maumee River Basin Level B Planning Processes." Dissertation, Ph.D. The Ohio State University, Columbus.

Vaughn, Paul R. "Perceived Competencies in Advising and Supervising FFA Activities and Related Factors Associated with Three Groups of Vocational Agriculture Instructors in New Mexico." Dissertation, Ph.D. The Ohio State University, Columbus.

Waddy, Paul H. "A Description of 4-H Community Development Programs in Selected States." Dissertation, Ph.D. The Ohio State University, Columbus.

Waktola, Aregay. "Assessment of the Development, Diffusion, and Adoption of Package of Agricultural Innovations in Chilalo, Ethiopia." Dissertation, Ph.D. The Ohio State University, Columbus.

Warmbrod, J. Robert and Wilson, Richard H. "Mobility of Vocational Agriculture Teachers in Ohio: 1970-75." Staff Study, The Ohio State University, Columbus.

Yoder, Edgar P. "A Cost-Effectiveness Analysis of Selected Vocational Education Programs." Dissertation, Ph.D. The Ohio State University, Columbus.

Young, Richard E. and Cunningham, Clarence J. "Extension Output Measures as Identified by Extension Clientele." Staff Study, The Ohio State University, Columbus.

Zainuddin, Alang. "The Relationship of Personal Variables to Role Performance of Members of Village Development Committees in Four Peninsular Malaysian Villages." Dissertation, Ph.D. The Ohio State University, Columbus.

Oklahoma

Ahn, Woo-Seing. "Proposed Topics for a Program in Vocational Agriculture for Young Adult Farmers in Korea." Doctoral dissertation, Oklahoma State University, Stillwater.

Gifford, Jimmy L. "The Present and Desired Involvement of Teachers, Supervisors, and Teacher Educators in Selected Aspects as Perceived by the Respective Groups." Doctoral dissertation, Oklahoma State University, Stillwater.

Green, Herschel L. "An Appraisal of the Effectiveness of Selected Practices and Procedures in the Recruitment of Agricultural Education Students." Doctoral dissertation, Oklahoma State University, Stillwater.

Jones, John D. "Vocational Agriculture Teacher Perceptions of Competencies as a Basis for In Service Education." Doctoral dissertation, Oklahoma State University, Stillwater.

Key, James P. "A Career Development Program in Agricultural Occupations for Advantaged and Less Advantaged Rural Youth." Staff Study, Oklahoma State University, Stillwater.

Price, Robert R. "The Development and Testing of Coordinated Individual Study Units for Teachers of Adult Vocational Students." Staff Study, Oklahoma State University, Stillwater.

Titsworth, Tobie R. "A Survey of Salaries and Working Conditions of Vocational Agriculture Teachers in the United States." Doctoral dissertation, Oklahoma State University, Stillwater.

Villarta, Frederico. "Projection of the Management by Objectives System for the Bureau of Animal Industry Livestock Extension in the Philippines." Specialist Study, Oklahoma State University, Stillwater.

(Concluded on next page)

CONTINUED A GUIDE TO RESEARCH . . .

Rhode Island

Larmie, ———. "Application of Mediated Self-Instruction Programs for Use with Extension Adult Audiences." Master's Thesis, University of Rhode Island, Kingston.

Roberts, ———. "Dairy Herd Analysis, Utilizing the Computer to Derive Selected Matings." Master's Thesis, University of Rhode Island, Kingston.

Texas

Webb, Earl S. "Competencies of Teachers in Agricultural Mechanics and Scientific Agriculture." Staff Study, Texas A & M University, College Station.

Webb, Earl S. "Problems Encountered by First-Year Teachers of Vocational Agriculture." Staff Study, Texas A & M University, College Station.

Utah

Hunsaker, Teryl. "To Determine the Attitude of Various Clientele Groups Toward Vocational Education." Master's Thesis, Utah State University, Logan.

Manwill, Marion. "Individualized Instruction for Agribusiness in Vocational Agriculture." Master's Thesis, Utah State University, Logan.

Smith, Keith L. "Migration Patterns of Vocational Agriculture Graduates in Utah." Master's Thesis, Utah State University, Logan.

Virginia

Crunkilton, John R. "The Extent to Which Teaching Techniques or Methods are Taught in Undergraduate 'Methods' Courses in Agricultural Education in the U.S." Staff Study, Virginia Polytechnic Institute and State University, Blacksburg.

Lee, Delene W. "Developing Performance Objectives, Criterion — Referenced Measures and Performance Guides for Timber Harvesting Occupations." Staff Study, Virginia Polytechnic Institute and State University, Blacksburg.

McMillion, Martin B. "Factors Associated with Teacher Practices and Student Participation in Supervised Occupational Experience Programs in Agriculture in Virginia." Staff Study, Virginia Polytechnic Institute and State University, Blacksburg.

Miller, Larry E. "Relationship Between Selected Variables and Morale of Virginia Teachers of Agricultural Education." Staff Study, Virginia Polytechnic Institute and State University, Blacksburg.

Oliver, J. Dale and Lee, Delene W. "Development of a Catalog of Performance Objectives, Criterion-References Measure, and Performance Guides in Timber Harvesting Occupations." Staff Study, Virginia Polytechnic Institute and State University, Blacksburg.

Table 1

WHERE TO FIND PREVIOUS SUMMARIES OF STUDIES IN AGRICULTURAL EDUCATION

On Microfiche in the ERIC System

	Region			
Year	Central	North Atlantic	Pacific	Southern
1966-67	ED 022 058	—	—	—
1967-68	ED 024 831	—	—	ED 024 833
1968-69	ED 036 642	—	ED 036 635	ED 038 543
1969-70	ED 047 107	ED 047 108	ED 047 110	ED 047 109
1970-71	ED 057 252	ED 061 415	ED 061 447	ED 061 446
1971-72	ED 076 800	ED 107 904	ED 078 164	ED 079 472
1972-73	ED 103 694	ED 107 903	CE 004 209 (1972-1974)	CE 004 552
1973-74	CE 004 449	CE 004 605		CE 004 553

Documents with ED numbers may be found in any complete ERIC collection of ERIC microfiche or ordered from EDRS, P.O. Box 190, Arlington, Virginia 22210. Documents with CE numbers are being processed and will soon be assigned ED numbers. Researchers should examine future issues of *Research in Education* concerning their availability.

CONTINUED LEADER IN AG ED

As is fitting for such a distinguished career, George F. Ekstrom received many honors and citations for his contributions. Among these were the National FFA VIP Award, the Honorary American Farmer Degree, The Honorary State Farmer Degree in Missouri, Minnesota and Iowa, the NVATA Distinguished Service Award, the AATEA Distinguished Service Award and was listed in *Who's Who in America*.

It is truly most fitting that we recognize this gentleman and scholar as a leader in agricultural education. ◆◆◆

DATES AND EVENTS

Southern Agricultural Education Conference
Buena Vista Hotel, Biloxi, Miss.
April 6-9, 1976

BOOK REVIEWS

THE GREEN REVOLUTION IN INDIA: A PERSPECTIVE, by Bandhudas Sen. New York: Halsted Press, 1975, 118 pages. $7.95

Eight years after the introduction of the new high yielding varieties of wheat and rice in India, Sen examines the changes which they have brought to Indian agriculture. A balanced appraisal is presented of the effect of the high yielding varities on the adoption pattern, interfarm disparities, employment, mechanization and land reform problems.

Sen found that India has had an increase in food grains over the past eight years. The water resources have been the major limiting factor in preventing this increase from being greater. The predictions of tractors replacing labor have been unfounded, but also the expectations concerning a reduction in unemployment and poverty were unwarranted. The small and medium sized farms were the ones which have predominately adopted the new varieties but they were also the ones with irrigation available.

Agriculture's growth in the past was limited by an absence of crop varieties that would respond to fertilizer. Varieties are now available which do respond to fertilization and the need now is for a massive investment in irrigation, according to Sen.

Bandhudas Sen received his Ph.D. in agricultural economics from the University of Wisconsin, Madison. He has taught at the Birla College of Agriculture in West Bengal, and he was a guest lecturer at the Postgraduate Department of Agriculture at the University of Calcutta. As an agricultural economist he has participated in a study of factors associated with regional differences in agricultural productivity which was jointly sponsored by the Ministry of Food and Agriculture in India, the U.S. Department of Agriculture and the Agency for International Development. He is presently with the AID Mission in New Delphi as an agricultural economist.

The book is an excellent reference to be used at the post secondary level. It is well written and provides many insights relating to the problems which need answers to make the high yielding varieties provide the "Green Revolution" in India. I would recommend this book to anyone interested in international agricultural development. Having had experience working in a developing country myself, I too have had great interest in the high yielding varieties and their future.

David L. Howell
Purdue University
West Lafayette, Indiana

QUALITY OF HORTICULTURAL PRODUCTS, by V. D. Arthey, Chipping Campden, Gloucestershire, Halsted Press, John Wiley & Sons, 1975, 244 pages. $16.75.

The author has devoted a chapter to each of the following areas of quality: Standards and Legislation, Quality Characteristics, Nutritional Value, Color, Texture, Condition, Size, Shape, Form and Style, Yield, Flavor, Defects, Plant Health, Processing Qualities, and Seed Quality.

The chapters deal with the topics in depth with numerous tables that detail quality standards of measures. A number of figures are used to illustrate important points.

The author, V. D. Arthey, graduated from Reading University in 1956. He completed his Master of Science and Ph.D. degrees at Wye College, University of London in 1958 and 1961, respectively. Since 1962, he has been with the Campden Food Preservation Research Association and is now Head of the Agriculture Department and is responsible for work and quality appraisal.

The textbook is directed mainly to the professional concerned with product quality. It does, however, have value as a reference to others interested in the field of horticulture.

William H. Hamilton
Purdue University
West Lafayette, Indiana

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)

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. Freemon and Company (1973)

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

PRODUCING VEGETABLE CROPS; By George W. Ware and J. P. McCollum, The Interstate Printers & Publishers, Inc. (1975)

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

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

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

SOIL MICROBIOLOGY: A CRITICAL REVIEW; By N. Walker, A Halsted Press Book (1975)

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

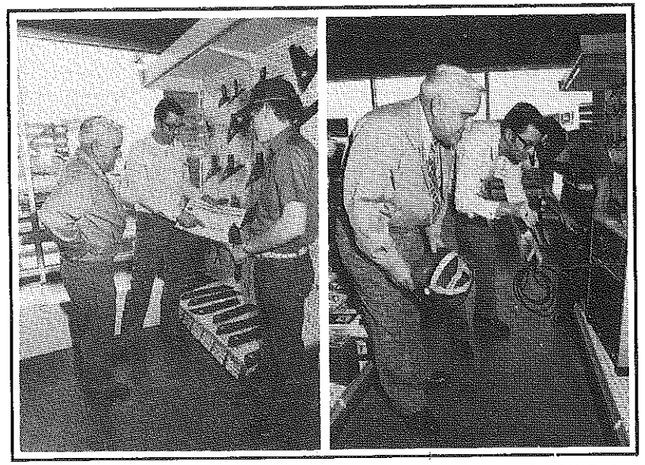
WESTERN FERTILIZER HANDBOOK; By Soil Improvement Committee California Fertilizer Association, The Interstate Printers and Publishers, Inc. (1975)

THE FOOD AND HEALTH OF WESTERN MAN; By James Balmert Mount, A Halsted Press Book (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

STORIES IN PICTURES

by Jasper S. Lee

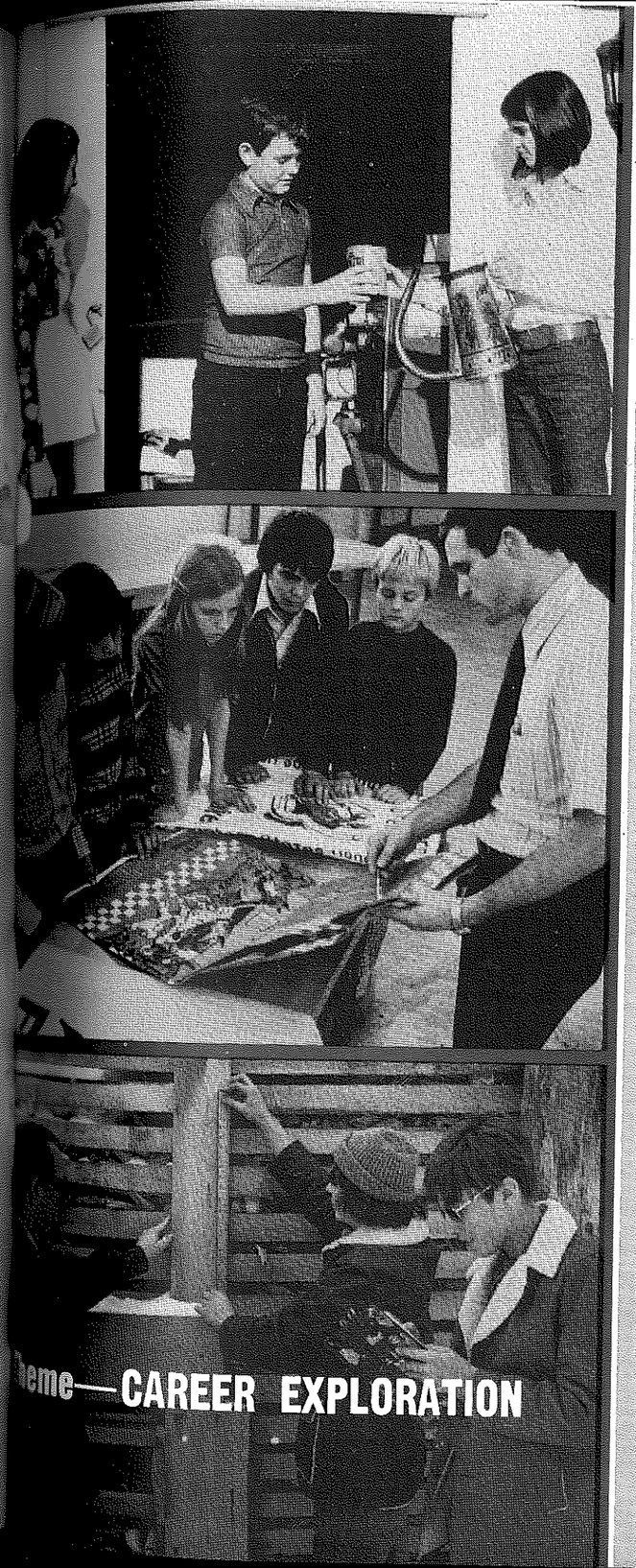


SUPERVISED OCCUPATIONAL EXPERIENCE PROGRAM IN AGRICULTURAL SUPPLIES AND SERVICES — These two photographs depict an important triangle in experience programs: the vocational agriculture teacher, the student, and the supervisor in the training station. Here, Duane Berkenpas (left), owner of Gallatin Equipment Company, Bozeman, Montana, is shown discussing supplies and equipment with John Van Daveer (center), vocational agriculture instructor at Belgrade (Montana) High School, and Bill Rash, student at Belgrade High School. (Photographs from Max Amberson, Montana State University)

ELECTRICAL POWER IS AN IMPORTANT SUPPLY — Students enrolled in vocational agriculture at Linn (Missouri) High School are being guided through the headquarters of Three Rivers Electric Cooperative by Charles Struemph (right), member service advisor for the Cooperative. (Photo from James A. Bailey, Missouri Department of Education)

LUMBER IS AN IMPORTANT SUPPLY — Dan Zimmerman (right), a vocational agriculture student in Montana shown here at his training station, is discussing lumber with a customer. (Photo from Max Amberson, Montana State University)

FFA CONTESTS REQUIRE CONCENTRATION — These photographs show individuals competing in the recent National FFA Judging Contests. The photo on the left shows a contestant in the Agricultural Mechanics Contest. The center photo shows a contestant judging ready-to-cook broiler-fryers in the Poultry Judging Contest. The photo on the right shows a contestant judging a market sheep. (Photographs from Dan Reuwee, The National FFA Center)



Theme—CAREER EXPLORATION

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AGRICULTURAL EDUCATION

Volume 48 Number 10

April 1976