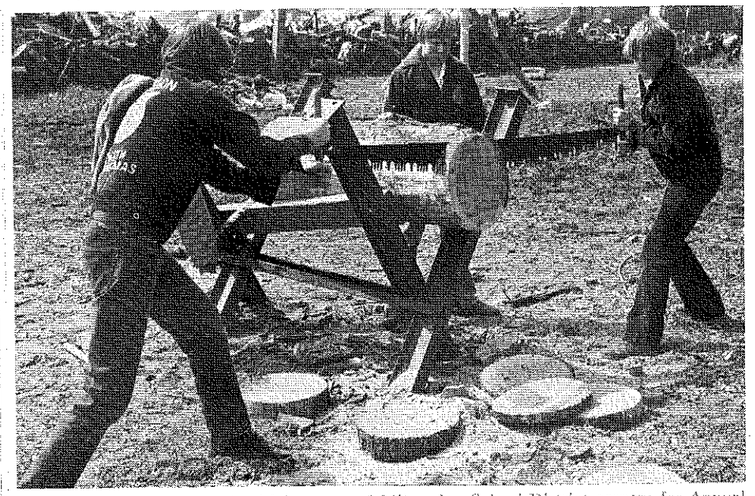
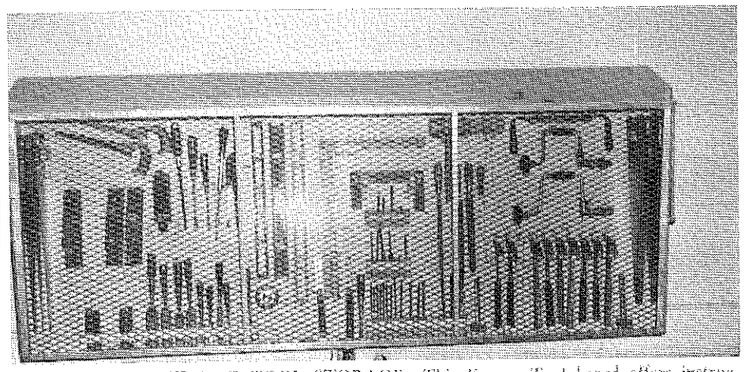
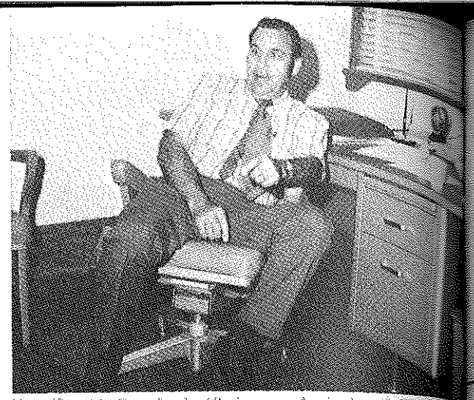
Clackmas High School, Oregon—Students preparing trailer to haul gear for summer field experience in forestry. Students spend three weeks at a mountain site gaining experience in forestry and natural resources. (From Gordon Galbraith, Specialist in Ag. Ed., Oregon State Department of Education, Photo by David L. Powell)



Forestry students at land laboratory of Milwaukee School District prepare for Annual Forestry Skills Roundup that involves a large portion of the more than 300 agriculture education students. (From Gordon Galbraith, Specialist in Ag. E., Oregon State Department of Education, Photo by David L. Powell)



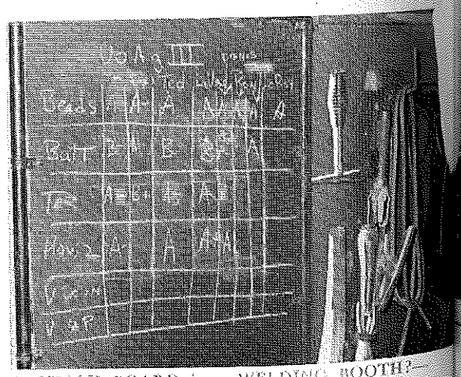
SAFE YET VISIBLE TOOL STORAGE—This Kansas Tool board offers instructors an idea that is both functional and attractive. (Photo from C. C. Eustace, State Supervisor, State Board for Vocational Education, Topeka, Kansas)



Dr. Harold Crawford, Chairman, Agricultural Education at Iowa State is noted for Unique Instructional Programs. (Photo by Richard Douglass)

Stories in Pictures

by Richard Douglass

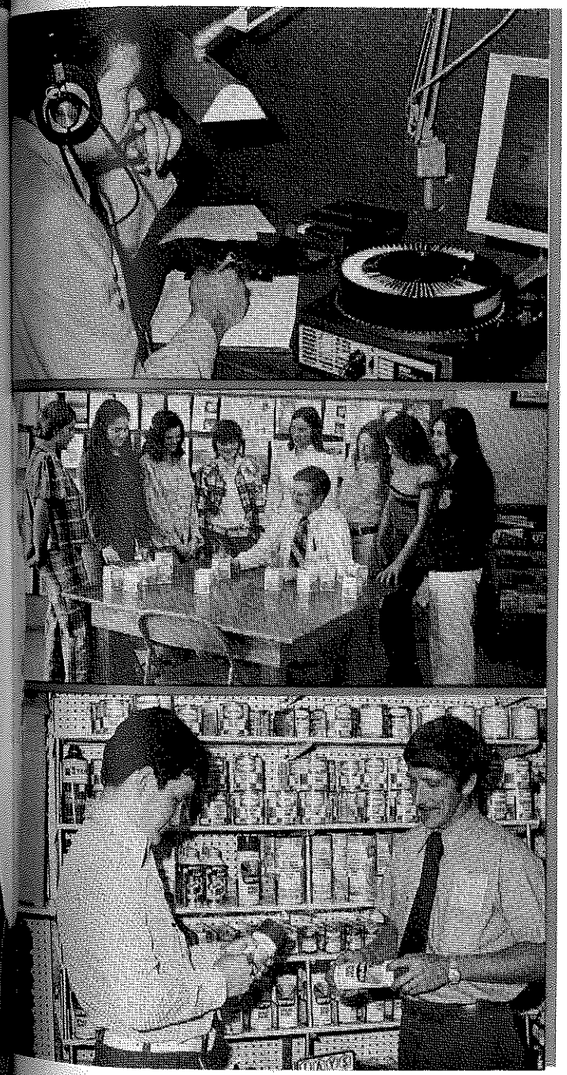


A CHALK BOARD in a WELDING BOOTH?—It was very useful when teaching welding. (Photo by Richard Douglass)

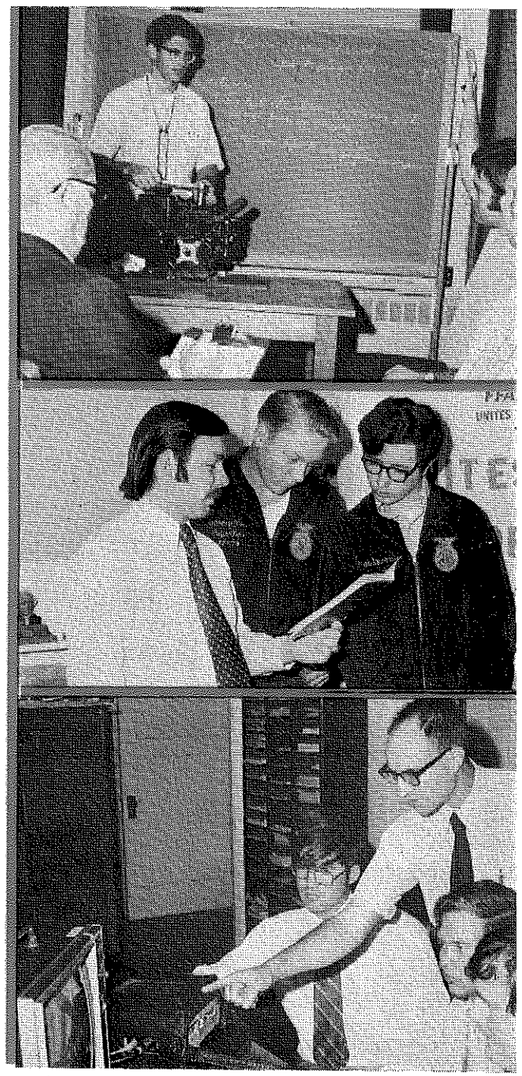
AGRICULTURAL EDUCATION

Agricultural Education

Volume 46 August, 1973 Number 2



TEACHER EDUCATION & SUPERVISION



Theme—CAREER EDUCATION: Being More Effective

The
Agricultural Education
Magazine

EDPRESS

Vol. 46 August, 1973 No. 2

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

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

COVER PHOTO

(Upper left) Individualized instruction is used to provide prospective teachers needed experiences beyond which can be provided in the classroom. Senior student Roger Scott participates; (Upper right) A basic activity in good Ag. mechanics teaching is demonstrating how to do the job. Nebraska's M. G. McCreight supervises this demonstration; (Middle left) Student teacher Ralph Cochran showing girls in plant science class the procedure for starting tomato plants in milk cartons; (Middle right) Student teacher, John Townsend reviews plans for completing the FFA program of work with two students; (Lower left) Instructor James Wells checks placement of the price tag with Phillip Sizemore, student, working part time in a cooperative agricultural experience program at Rogersville; (Lower right) Dr. Craig emphasizes a point in reviewing a video taped microteaching lesson with student teachers, left to right, Dan Pearman, Roger Scott and James Dyer; (Photos from William H. Coley, Supervisor, Agricultural Occupations, Tennessee State Department of Education).

Editorials

From Your Editor . . .

WHAT DOES "MORE EFFECTIVE" DENOTE?

Roy D. Dillon

As a teacher educator, I ponder the term "for more effective teacher education and supervision," and ask "What does this indicate that I, we, they, should be doing that we are not now doing, or should not do that we are now doing?" This seemingly complicated statement has a simple answer I believe —that being for teacher educators and supervisors to determine how to be sensitive to the pre-service needs of prospective teachers, and just as importantly, to the in-service needs of the employed teacher.

Judgments made by the teacher educator concerning what to teach in the pre-service teacher education professional courses must be carefully made, based on an accurate assessment of the competencies needed by the beginning teacher. With the limited time available for students to obtain the many professional competencies "good to have" to start a new job, in most cases the teacher educator must select competencies to include in pre-service courses from a larger list. In order to identify the most important competencies, and in the correct priority:

1. Listen carefully to student teachers in debriefing sessions held upon return from student teaching.
2. Listen to state department of education consultants who see teachers in the everyday operational setting.
3. Listen to first year teachers who are meeting in inservice classes.
4. Be available for conferences with undergraduates and teachers at and during times most convenient to these clientele groups.
5. Be interested in each person for him or herself.

The state consultant should make a concerted effort to observe each beginning teacher early in the fall, in order to identify teaching and management problems while they are still small. In many cases, state consultants and teacher educators can work closely together in planning and implementing in-service education activities to prevent and solve problems encountered by teachers.

The role of the teacher educator and state supervisor (consultant) becomes critical at this point in time, when the Career Education concept is being implemented into existing state educational systems, for it is to these two groups that local schools look for leadership. Are you mobilized to be up with the practitioner? —RDD

Guest Editorial . . . COMMUNICATION: VITAL TO INNOVATION

Hollie B. Thomas

Lloyd J. Phipps

Hollie B. Thomas and Lloyd J. Phipps
Agricultural Education Division
University of Illinois

Effective program development in agricultural occupations requires that many factors be considered by a teacher of agriculture who serves as a program developer. Communication channels must function properly if the innovative program developer is to get new programs developed within a reasonable period of time.

When the verbal channel of communications is closed it becomes difficult to communicate. Thus, the program developer loses much of his effectiveness in developing new programs or in even maintaining the programs that are already in existence. At best he loses two downs for every first-and-ten.

Reasons for this communications channel becoming unusable are numerous. Some are: (1) fear of superiors, (2) a feeling that the superior is incompetent, and (3) the feeling that the superior does not support the program the subordinate is promulgating. One way to approach the topic of communication is to look at some of the pitfalls or traps into which program developers get themselves which make verbal communication difficult, if not impossible.

Fear of superior. Where fear is involved the program developer finds himself putting off requests that should be made until it is too late for the request or it will take some special effort to be able to accomplish.

The agriculture teacher may wish to take a trip to an agricultural business firm to "kick off" an agri-business course or to develop interest in such a course. This field trip necessitates several arrangements to be made, permission from the administration must be obtained, a bus must be scheduled, the teachers of the classes that the students will miss must be notified for their upcoming absence. If the request for this field trip is delayed, this aspect of the program that the developer may have felt was very essential to the total program may not be supported by the administration because of the inconvenience that is caused by the shortness of time. The primary reason for fear is the pro-

(Continued on next page)

gram planner's confidence in his own ability to do his work or in his perception of the degree of value his program has. Of course, the administration can perpetuate this lack of confidence by challenging the judgment of the program planner even though it appears well based.

Through his own lack of confidence and the resulting procrastination the program planner develops hostility toward his superior because he feels that he is "never able to get what he wants" or "would not be able to get what he wanted if he had asked for it." These rationalizations help him to pass the blame for the situation on to his superior. Thus easing his conscience for not getting the job done as good as he thought it should be. Feeling a lack of confidence in his ability to support his program to the administrator verbally, he may revert to putting his request in writing. Questions that the superior may have are not answered unless he returns the note with his question one or more times. The answer to the problem here is not for the administrator to baby or coddle the program planner, rather it is for the program planner to gain confidence in his own judgment or to increase his own perception of the value of his program. This can only be done by the introspection of why he feels as he does and his own attempts to change his feelings about his superiors. Working out less important aspects of the program with the administration well in advance of the time it is desired will often assist in developing the needed confidence. The fear of asking for equipment, change of program, travel, and other aspects of program development is not uncommon among program developers of all ages.

Incompetent superior. The feeling on the part of the program developer that his principal is not competent results in the program developer attempting to circumvent the chain of command by going directly to the superintendent. This usually results in intimidation of the person who is being circumvented. Here the program developer may send notes to his principal and carbon copy the message to the superintendent. Frequently the intimidation will take the form of the program developer telling his superior how he should do his job or something he feels he should be doing. The conflict that results from this type of communication usually results in the absence of good verbal communication and the dependence on written communication. This is sometimes referred to as "blue-note" communication. "Blue-note" communication may be defined as a written communication which is written to one person and is carbon copied to another in order to bring pressure on the individual to whom the communication was addressed. This pressure usually results in intimidation and hostility, thus widening the communication's gap.

In contrast to the situation where fear was involved, in this case the program developer is completely confident in his ability to make judgments about what his program should be and how his program should be developed. The net result of this type of procedure is dependent on the personalities of the principal and superintendent. If the principal is somewhat deferent, he may be glad he is not bothered by the teacher with his ideas for program development. On the other hand, if the superintendent allows this to continue and the principal feels that the chain of command should be observed, a struggle is imminent. Where "blue-notes" are employed, friction is nearly always assured.

Nonsupportive superior. The feeling on the part of the program planner that his superior does not support his program results in resentment and frustration. Thus, the program planner may change his objectives by accepting those that he thinks his superior (principal) has, or he may take a new route such as trying to go to his superior's superior (superintendent) to get what he wants. Here again, the person being by-passed is likely to feel hostile toward the program whether the perceived feelings about what the principal was thinking were accurate or not. "Blue-note" communication may be employed in this situation also which adds to the hostility of the person who is being bypassed in the chain of command.

The best avenue in this situation is first to determine via verbal dialogue what the principal's feelings toward the innovative program being proposed are. This accomplished, the program developer knows what the principal's actual feelings are and thus avoids any suppositions about what the administrator is thinking. In all cases, care should be taken so that the program developer does not present the proposal for an innovative program such that the administrator has a yes-no choice before he understands the nature of the total program and the rationale for it.

If the program developer finds the administrator is not particularly in favor of the proposed program, he may choose to ask that he be allowed to write a proposal for the program which would include both rationale and information based on community data that support the need for such a program. When the proposal is completed, the program developer may ask that the administrator review and discuss it with him to make suggestions for improvement of the proposal. Thus, the administrator is asked to contribute to the proposed innovation rather than give his yes-no answer about the innovative program.

Conclusions. The alternative to "blue-note" communication or written request is a verbal dialogue between the program developer and his principal or vocational director. This is not to indicate that the program developer should never communicate via note or letter, rather that such communication should not be the everyday channel. Nor does it mean that the program developer should not discuss his program with the superintendent or the board of education. The program developer's immediate superior should, however, be aware that such communications are to take place and the topics to be pursued.

The essence of the three types of situations which may cause verbal communications to cease is that much, if not all, of the problem is in the perceived problems that did not exist. As a result of the program developer's reaction to perceived problems, the result may be the same as if the problem did exist.

Resentment created by dysfunctional communications between the program developer and his superior often "eats on" the program developer occupying much of his thought and thus limiting much of his productivity. Hence, little is accomplished in the development of an innovative program with only the required activities of the on-going program getting done as a result of this loss of energies. The program developer who finds himself in a situation in which the verbal communication between himself and his immediate superior has degenerated to the point that he cannot talk with him nearly any time he wishes should make a concerted effort to analyze the situation and take measures to correct it. ◆◆◆

CAREER EDUCATION — Implications For State Supervisory And Teacher Education Staffs

James E. Dougan, Director
Ohio Agricultural Education Service
Columbus, Ohio

James E. Dougan

Career education is a revolutionary approach to American education, based on the idea that all educational experience, curriculum, instruction, and counseling should be geared to preparing each individual for a life of economic independence, personal fulfillment, and an appreciation for the dignity of work. Its main purpose is to prepare all students for successful and rewarding lives by improving their basis for occupational choice through the performance of occupational skills necessary for employment or to continue their education.

Career education pervades all of education and everything we do is done, not for the sake of education, but for the sake of the student's career preparation. It is clear that career education is an idea whose time has come. In career education we are pleading for a new thrust; a change agent in education; not an enrichment of our present K-12 program, but a changed curriculum.

Until we bring career awareness down into the elementary grades—until we give young people the desire and motivation to aim for a career that excites them—until we prepare them to leave high school with a marketable skill or to continue their education—until we key all these activities to the labor market in terms of both demands and level of performance as it will exist when these students are ready to enter it, we will continue to shortchange both our students and our society.

The principle responsibility for planning and conducting the total career education program is with the public education system in partnership with business and industry, the community, and the home. There must be a federal, state, and local system of leadership and funding if the career education is to move ahead and accomplish this change in our educational system.

Our vocational program is the major component of the total Agricultural Education Career Development Continuum.

Since the vocational education program is the major component of the career education movement, it is necessary for supervisors and teacher educators in agricultural education to become actively engaged with the state vocational education staff and other state educational agencies in performing their role in developing and implementing a statewide career education program. The question is not—who is to assume the leadership in implementing career education in the Agri-business, Natural Resources, and Environmental Management; but rather, how soon are we going to do it and what are some high priority tasks that we as state staff personnel, including the assistance of teachers and individuals from business and industry, must perform if we are to move forward with the components of career education, including the major component, vocational programs that include all of the major occupational areas of the total agricultural industry.

The question is not — who is to assume the leadership in implementing career education in the Agri-business, Natural Resources, and Environmental Management; but rather, how soon are we going to do it.

State staff leaders in agricultural education should assist K-10th grade classroom teachers to implement career education by providing the following:

1. **Information regarding the Agri-business, Natural Resources, and Environmental Management industry that the K-6 teachers can utilize through classroom instruction, field trips, and use of resource people, so students will be aware that people work and earn a respectable living in this important segment of our society.**
2. **A curriculum guide with instructional materials that 7th and 8th grade teachers can use in a career orientation program to provide students with information in the major occupational areas of the Agri-business, Natural Resources, and Environmental Management cluster.**
3. **A curriculum guide with instructional materials that high school teachers can use in a career exploration program to provide 9th and 10th grade students who are not enrolled in an agricultural program, hands-on experiences related to the agricultural industry.**

Our vocational program is the major component in the total Agricultural Education Career Development Continuum.

There are high priority tasks that the state supervisory and teacher education staff need to consider if quality programs are to be maintained, extended, and expanded to serve the manpower needs in the total Agri-business, Natural Resources, and Environmental Management area. Some state staffs are well on their way to accomplishing these. However, they are:

1. Each state should develop a five-year plan that is realistic, practical, and includes quantitative and qualitative objectives for all programs that are the responsibility of the state staff.
2. Develop and put into operation, a career education continuum in Agri-business, Natural Resources, and Environmental Management,

(Concluded on next page)

for our respective states. This becomes our state model for a total career education program.

3. Develop a state Manual of Operation that identifies the objectives of the state program, the leadership role and responsibilities of the state staff, a description of each of the major instructional programs, program objectives, instructional procedures, physical facilities, instructional materials, a task analysis or duties and responsibilities of vocational agriculture teacher or teachers conducting each program, and criteria, standards, and guidelines for the operation of each high school, post high school technician training, and adult preparatory and supplemental programs.
4. Develop state curriculum guides for each of the major instructional programs. These guides should be used by local schools to develop the course of study which the teacher uses to develop the daily teaching program. The state curriculum guides should include the following five aspects of curriculum development:
   a. listing of the student performance objectives
   b. current, up-to-date technical information
   c. identification of actual student participating experiences
   d. instructional materials and other resources
   e. appraisal or evaluation procedures for determining the degree of a student's knowledge and performance abilities
5. Develop and conduct research for the purpose of program planning on a statewide basis
6. Develop a plan for administration and supervision of the state program that will improve present programs, extend programs to serve more people, and expand programs to serve new and emerging occupational areas. This plan should include the appraisal of the major components of the program.
7. Practically all programs in agricultural education should be at least 48 weeks in length and therefore, extended beyond the regular school year. However, extended service for teachers to conduct these programs must be based on the following criteria:
   a. All students must participate in all phases of the educational program being conducted during the extended service time.
   b. The experiences involving knowledge, performance skills, and abilities to be gained by the students must be essential to the success of the students' entry into the occupation for which they are preparing.
   c. The instructional program for the students cannot be conducted during the time school is in session because the participating experiences do not exist at that time.
   d. The instructional program must be conducted by, and the student performance experiences supervised by a qualified competent teacher.
8. Plan and conduct a pre-service and in-service program that will provide competent teachers for each of the major instructional areas on the basis of pre-determined level of performance abilities.

To accomplish the above top priority tasks, the state staff must consist of individuals who:

1. Are dedicated and enthusiastic agricultural education leaders,
2. Have outstanding administrative and management abilities,
3. Can not only identify concerns at the state and local level, but are willing to work for solutions of the concerns.

The state staff in agricultural education, with the assistance of teachers, business, and industry, can and should develop and conduct a comprehensive career education program in Agribusiness, Natural Resources, and Environmental Management. ◆◆◆

Themes For Future Issues

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

BOOK REVIEWS

AGRICULTURE IN OUR LIVES by Alfred H. Krebs. Danville, Illinois: The Interstate Printers and Publishers, Inc., 1973, Third Edition, 733 pp., $6.95.

The content of this book is well written and easy to understand. It contains material and information that could be used very effectively by Junior High, High School students, or people in an urban area that want to learn more about agriculture.

The contents are presented in a way to help the readers understand the importance of and to appreciate today's agriculture. The material is very up-to-date and this would be a book that more people, both urban and rural, could use in their library.

Dr. Krebs is very capable and has kept up-to-date on agriculture. With his farm background, he understands problems that face the rural youth and can present the material so it is very useful.

This book could be used very effectively as supplemental reading in a vocational agriculture class. It contains information that FFA members can take and apply to everyday life. People with a love of country life would find the reading very interesting.

Clifton R. Braker
Oklahoma State University

TRENDS IN AGRICULTURAL TEACHER EDUCATION – "10 YEARS LATER"

Ralph A. Benton
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Ralph A. Benton

Ten years have elapsed since the passage of the 1963 Vocational Education Act which called for up-dating existing programs and urged that new and innovative programs be adopted in all of vocational education, including agriculture.

A recently completed study[1] indicates that changes are being made by many teacher training institutions to provide pre-service teachers with some understanding and expertise in the newer kinds of agricultural programs being offered in public schools.

Production Agriculture

All 40 of the agricultural education departments contacted, both in person and by mail, are continuing to give a solid base in teaching production agriculture. The minimum average number of semester hours required in agricultural subjects is 47.9 with a minimum average of 8.5 hours in animal science, 9.3 hours in plant and soil science, 6.7 hours in agricultural economics, and 8.7 hours in agricultural mechanics. This permitted 14.7 hours of agricultural electives up to the 47.9 total minimum hours required.

Agricultural Specialties

Because changes are occurring in high school vocational agricultural programs across the nation with emphasis on semester courses and on special programs, i.e., power mechanics, ornamental horticulture, small animal care, etc., and also because of the increase of multi-teacher departments, an inquiry was made of what teacher training departments are doing in providing extra training in these specialty areas.

A specialty is loosely defined as an area of study in which the major portion of the elective hours are used in gaining more knowledge, skill and/or experience in that field. This may be accomplished through course work, laboratory experiences, or by means of an internship, or by a combination of these methods. This is in addition to the broad base usually required for training in basic production agriculture.

Seventy percent of the teacher training departments contacted do not require their agricultural education majors to develop an agriculture specialty, twenty percent do, and ten percent give their majors the option of doing so or not.

Education Requirements

An average of approximately 9.0 semester hours were required in non-vocational education courses. Educational psychology was the single most required course by 85.0 percent of the 40 teacher training departments. It was found that in 89.4 percent of the departments the education courses were taught by College of Education staff.

Vocational Education Requirements

All 40 departments required courses in vocational education, including methods and student teaching, for an average of 17.6 semester hours. Of this number an average of 3.26 hours were devoted to methods.

It was assumed that all methods and procedures necessary to teaching any of the special programs would be included in this course. However, one third (32.5%) taught a separate methods course in agricultural mechanics.

A little less than one-half (45.0%) gave some instruction in the methods of organizing and operating a cooperative work experience program in ag-related businesses.

Student Teaching

Student teaching in an assigned public school under the direction of an experienced vocational agriculture teacher was required by all departments. The time spent at the center ranged from a low of six to a high of 18 weeks with an average of 9.6 weeks in student teaching. Credit hours given for student teaching averaged 8.2 semester hours.

Summer Experience

Some agricultural education teacher training departments required of, or make optional to the student, from one to four weeks of experience in his student teaching center prior to student teaching. This may be in the late summer or after the public school has opened and before university classes begin on campus. This is largely an orientation period for the student teacher and can be a meaningful experience.

Forty-two and one half percent of the departments in this study required a summer experience, 7.5 percent made it optional, and the other 50.0 percent made no provision for it. The average length of time for those participating was slightly over two weeks.

Conclusions

This study revealed that agricultural education teacher educators are interested in and are making efforts to keep their training programs abreast of changing patterns and emphases in agricultural education. Those located in the more populous states with large centers of population concentrations are giving training in the operation of cooperative work experience programs, the operation of agricultural specialty programs, and some attention to urban agriculture.

Several universities are involved in innovative programs in teacher education. Representative of these are (1) methods of teaching the handicapped; (2) developing programs for agricultural career experiences for all grades; (3) preparing vocational agriculture teachers by prescription, i.e., by developing proficiency in a pre-determined number of essential teaching behaviors; (4) expanding the use of behavioral objectives in teaching plans and procedures; and (5) establishing a pre-student teaching internship.

Several teacher training departments are instituting practices or methods that are new for them but which have already been put into practice by other departments.

Finally, there is a real sense of interest and need among those visited for a better means of communication among teacher training institutions regarding what is being done to improve the training of vocational agriculture teachers. ◆◆◆

Agricultural education teacher educators are interested in and are making efforts to keep their training programs abreast of changing patterns and emphasis in agricultural education.

1 Benton, Ralph A., "A Study of the Methods and Procedures Used in Training Teachers of Agricultural Occupations." Department of Agricultural Industries Publication No. 8, February, 1973.

INTERNSHIP IN VOCATIONAL AGRICULTURE: A New Approach To Pre-Service/In-Service Education

Bennie L. Byler, Assistant Professor
Department of Agricultural Education
Iowa State University, Ames

Bennie L. Byler

The Department of Agricultural Education at Iowa State University has recently developed an Internship Program which is designed to provide our fall and winter quarter graduates in agricultural education an opportunity to receive four months of structured experiences as a certified instructor teaching high school vocational agriculture.

> The Internship Program is designed to provide interns in agricultural education with opportunities for more realistic application of those ideas, concepts, principles and practices dealt with in the undergraduate teacher education program.

Traditionally, the completion of the teacher education curriculum coupled with successful completion of a brief student teaching period for secondary teachers of vocational agriculture was assumed to develop adequately the competencies needed for a beginning teacher. With the increasing emphasis for a comprehensive program of vocational agriculture, alternate and/or supplementary avenues to preparing competent teachers must be examined. The Internship Program is designed to provide interns in agricultural education with opportunities for more realistic application of those ideas, concepts, principles and practices dealt with in the undergraduate teacher education program.

The Internship Program was developed during the fall and winter of this year, 1972-73 and began officially on March 1, 1973. A limited number of agricultural education students who graduated the fall or winter quarter at Iowa State University were selected, counseled and then interviewed by participating high schools. The final selection of the intern was made by the superintendents and vocational agriculture instructors of participating high schools.

Implementation of Internship Program

The Internship Program began officially in March, 1973. Since the program is new, a limited number of high schools were selected to participate in the program for this year. The high schools selected to participate were Lake City Public Schools, Lake City, Iowa and Sac City Public Schools, Sac City, Iowa. The training period is for a minimum of four months (March 1 through June 30) and the interns are under the supervision of the Agricultural Education Department staff at Iowa State University. The internship carries with it an official appointment as a vocational agriculture instructor to the faculty of the participating high schools. The responsibilities of the intern are equivalent to approximately fifty percent of a full-time vo-ag instructor. Interns are paid approximately fifty percent of the beginning monthly salary for a full-time instructor.

Concurrent seminars and individual conferences are utilized to analyze experiences gained in terms of implications for more effective teaching of vocational agriculture.

Advantages of Internship Program for Interns

The interns are provided an opportunity to receive experience in teaching vocational agriculture as a certified instructor. This permits more realistic experiences than those provided during the brief student teaching program. The intern works closely with the local vo-ag instructor providing experiences in working as an instructor in a two-teacher department.

Interns are given an opportunity to gain additional experience in classroom teaching, (two or three classes) on-farm supervision, assisting in the coordination of the occupational experience program, FFA activities, and summer program. Although many of these activities are provided during student teaching, the responsibility assigned to interns in carrying out these activities is much greater.

The interns do earn money while developing valuable skills and teaching abilities. In addition, the interns are permitted to earn approximately 6-9 graduate credits while employed as an intern.

Advantages of Internship Program For Participating High Schools

The interns are certified vocational agriculture instructors and are expected to perform duties and responsibilities equivalent to approximately 50 percent of a fulltime vocational agriculture instructor. This provides an opportunity for the local vo-ag instructor to expand and improve his program to meet the needs of a greater number of young people and adults in the community. The interns are utilized to expand the vo-ag program rather than merely relieve the present vo-ag instructor of 50 percent of his responsibilities. The teaching and related responsibilities given to the intern are over and above those activities presently being performed by the local agriculture instructor. If the intern is given responsibilities of teaching classes presently being taught by the local ag instructor, then the local ag instructor is expected to accept responsibilities in other areas of teaching and related activities. This includes activities and responsibilities that the local vo-ag instructor could not perform without the assistance provided by the intern.

Summary

The Internship Program thus far has proven to be very successful and quite beneficial. This program has the potential for providing a more capable vocational agriculture instructor when he enters the teaching profession on a full-time basis.

Plans are now being made to continue and expand the Internship Program for 1973-74. Our goal is to place ten of the eighteen or twenty students who will qualify and are interested in participating in the Internship Program for next year. ◆◆◆

DEVELOPING INSERVICE PROGRAMS— Based On Teacher Competency

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Ithaca, New York

R. H. Ely

Occupational educators generally agree that inservice education is not only valuable but necessary. Preservice preparation of the occupational educator is rarely, if ever, ideal; social and educational change results in some professional practices being relatively ineffective, if not obsolete, in a short period of time. Other factors such as bolstered morale, a forum for the exchange of ideas with colleagues, etc. argue for an inservice program that will keep the teacher abreast with today's explosive developments in substance and teaching technology. Irregardless of the merits of an inservice program, many institutions have a captive audience due to certification requirements, occupational teachers' interest in securing graduate degrees, etc. Our job as teacher educators should not be one of simply developing an inservice program that attracts participants, but that of developing *the* inservice program most needed to improve the performance ability of occupational teachers.

> Our job as teacher educators should not be one of simply developing an in-service program that attracts participants, but that of developing the program to improve the performance ability of occupational teachers.

Historically, the determination of inservice education requirements has been a cooperative effort of teachers, state education department personnel, and teacher educators. I believe in this tripartite effort, but I also argue for a more effective means of allowing the individual teacher to express his personal needs. At Cornell, we're utilizing the Professional Improvement Committee of the Association of Teachers of Agriculture in New York (ATANY) as a vehicle through which all teachers of agriculture can express their need for inservice courses or programs. The principle disadvantage of this method of inservice needs identification is the inability to ascertain desired course content. If 20 teachers of agriculture indicate a need for a course entitled 'Leadership in Occupational Youth Organizations,' it's safe to wager that their depth of experience and training in organizing and leading youth organizations spans a wide spectrum. How does the teacher educator cover the basics without being redundant? How does he cover new and innovative developments without overwhelming the lesser trained and experienced teacher? He obviously can't completely eliminate the basics nor can he afford to ignore the new and innovative; what is needed is a procedure that will allow the teacher educator to ascertain the content that should be built in a course prior to final planning and development of the course.

Allowing the teacher educator to know the competencies of individual occupational teachers who will participate in a course or program is the proposition inservice educators should consider. The Cornell Agricultural and Occupational Education Division is addressing this problem by attempting to develop a model (professional competencies only at this time) to more precisely identify inservice needs. Basically, the model is concerned with the occupational teacher's ability to identify his own performance capabilities.

The proposed model will be developed and tested as follows:

Step 1: Development of a form containing the performance elements (skills, tasks, competencies) of the occupational teacher's professional role.

Step 2: Administration of the form to secondary level occupational teachers to determine their perceived performance level on each performance element as well as the importance of each performance element to the teacher in his professional role.

Step 3: Occupational education experts will then rate the observed performance level of the secondary level occupational teachers.

Step 4: The analysis will include a comparison of the occupational teacher's perceived performance level appraisal with the performance level as rated by the knowledgeable occupational educator who observes the teacher's performance. In effect, an attempt is being made to indirectly rate the teacher's performance ability on all of these professional performance elements associated with secondary level occupational education.

Step 5: Inservice education programs will be based on the occupational teachers performance ability (lack of) in conjunction with consideration for the importance of each performance element to each individual teacher.

If this method of determining inservice needs proves valid and reliable, the inservice educator will be able to turn to his prospective students when he asks such questions as 'What courses should we teach?', 'What content should be included/excluded from this course?'. The students answers would be based, not on what the student thinks he would like to take, but, on what the student needs to improve his performance in his local situation. ◆◆

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TRAINING PROGRAMS FOR SAFE TRACTOR AND MACHINERY OPERATION

In the late 60's, the federal government established a labor order that identified 16 hazardous occupations in agriculture. These occupations were declared "off limits" to youngsters under sixteen working off the home farm or for someone other than their parents.

The developers of the regulation felt that 14- and 15-year-old youths with proper training could be exempted from a portion of the hazardous occupations order. These exemptions can be obtained by the successful completion of training programs, and apply to the following sections of the order:

(1) Operating a tractor of over 20 PTO horsepower, or connecting or disconnecting an implement or any of its parts to or from such a tractor.

(2) Operating or assisting to operate (including starting, stopping, adjusting, feeding or any other activity involving physical contact associated with the operation) any of the following machines:

(i) Corn picker, cotton picker, grain combine, hay mower, forage harvester, hay baler, potato digger or mobile pea viner;

(ii) Feed grinder, crop dryer, forage blower, auger conveyor or the unloading mechanism of a non-gravity type self-unloading wagon or trailer;

(iii) Power posthole digger, power post driver or non-walking type rotary tiller.

Two training programs have been developed, one for safe tractor operation and one for safe farm machinery operation. Students are to receive classroom instruction and laboratory instruction in the safe operation of tractors and machinery.

Essential topics identified in the tractor safety program are:

- Understanding the importance of tractor safety
- Controlling movement
- Hitching to tractor - operated equipment
- Operating under field conditions
- Operating under highway conditions

Also recommended in the tractor safety program are topics on:

- Understanding pre-operating procedures
- Making adjustments to meet operating needs
- Starting and stopping tractor engines
- Unhitching equipment
- Refueling

At the conclusion of the training period, the students must pass a written examination to indicate that they are thoroughly familiar with the operational and safety procedures involved in tractor operation. Students are also required to take an operational test to demonstrate that they can operate a tractor in a safe and practical manner.

After the student has participated in the instructional period and demonstrated his competency by both written and operational tests, he is issued a certificate that indicates his eligibility for exemption from the hazardous occupations order relating to tractor operation. Vocational agriculture teachers can get these certificates from their state supervisor.

This training program to assist students in obtaining exemptions has been an option of vocational agriculture teachers since 1969. Unfortunately, relatively few programs have been offered. The lack of wider development of the program has raised concern among safety experts regarding vocational agriculture's ability to do the job.

Many 14- and 15-year-olds come to vocational agriculture with relatively good tractor operational skills, but most of them could profit from the safe tractor and machinery operation training program. These students must pass both the written and operational parts of the qualification program, but they need not put in two hours of operation under the eye of the vocational agriculture instructor. Certification from the parent that the students has in fact had x hours of tractor operation time should suffice.

For students who have not had much experience in tractor operation, other arrangements must be made. The school land laboratory is a good place for them to get some experience. Also, nearby farmers might cooperate by allowing their land to be used for this purpose.

The school land laboratory or the land contracted from local farmers should be treated as an extension of the school. Liability for accidents is the same as for the classroom or shop. Instructors should allow students to begin their operational experience only after they have completed the written part of the training program and received demonstrations on machinery operation.

Instructors may use the more experienced students as aides to monitor the progress of trainees after the initial trial runs have taken place. The entire two hours of operational experience need not be under the constant eye of the instructor, but he should make periodic unscheduled visits to the training site. Of course, more supervision is desirable, but practical limitations on an instructor's time are obvious. Good pre-instruction, the use of teacher's aides and unscheduled supervisory visits should provide opportunities for students to get the practical operating experience they need to complete the program.

The operational test can be carried out by enlisting the support of local farmers and dealers to supply the necessary equipment and manpower. Several schools might go together to test their students. The local 4-H agent may also want to qualify his students, and could assist in setting up the test.

Only a few suggestions have been given on methods of conducting the training program, but the intent is to show that it is no different than what normally goes on in vocational agriculture. Instructors should fit the program to their own style and local program to meet the needs of young people who want this type of training.

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LEADING TEACHERS AND TEACHING LEADERS

The Role of The Agricultural Supervisor and Teacher Educator In Career Education

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If career education is to develop beyond infancy, supervisors and teacher educators must provide leadership to assure that local teachers are prepared to cope with this emerging concept. Teacher training institutions and supervisors must provide both pre-service and in-service education for the local agricultural teacher. The local teacher must be trained for at least two basic functions: (1) to restructure agriculture courses to implement the principles of career education, and (2) to serve as a leader and resource person in integrating career education into the total school curricula.

Career education's goal is to make work possible, productive, and meaningful to every individual. The concept that career education is a comprehensive effort, involving the total educational process from kindergarten throughout adulthood, affords numerous challenges and opportunities for teachers, supervisors, and agricultural teacher-training institutions.

The supervisor and teacher-training institution must supply leadership in helping the local agricultural teacher assume his new role. They must provide in-service training to answer at least the following questions: (1) What is career education? (2) How does the local agricultural teacher infuse career education into his courses and programs? (3) Where and how does he obtain, develop, and use curriculum materials in career education? and (4) How can the local agricultural teacher serve as a leader and resource person to help implant the principles of career education into the total school system?

Local teachers need data on changing work force demands; a system should be developed by teacher educators and state supervisors to provide such data.

For the agricultural teacher to successfully implement career education, he must have a clear understanding of it. Hoyt[1] has defined career education as, "the total effort of public education and the community aimed at helping all individuals to become familiar with values of a work oriented society, to integrate these values into their lives in such a way that work becomes possible, meaningful, and satisfying to each individual." Workshops, seminars and other avenues should be provided to assure that the local teacher has a sound understanding of the philosophy, concepts, components, and phases of career education.

Teachers must be given help in locating, evaluating, and purchasing curriculum materials appropriate for implementing this new concept. They should be given guidance in developing new materials and utilizing them in their own courses and programs. New types of instructional materials must be made available to the agricultural teacher for implementing career education. Instructional materials that can be used to teach about agriculture and agricultural occupations are needed, as well as materials for teaching agricultural occupation skills.

Teacher educators and supervisors should see that needed materials are provided and that the teachers are adequately prepared to use the various materials. Greater utilization of independent study materials will be necessary because of the increasing diversity of student backgrounds and student interests. Supervisors and teacher educators must see that such materials are secured, adapted for use in their localities, and adopted into the local programs.

The local teacher must be trained (1) to restructure agriculture courses to implement agricultural education, and (2) to serve as a leader and resource person in integrating career education into the total school curricula.

Teacher educators and state supervisors in agricultural education should develop a system for providing teachers with current information regarding the changing work force demands. These include changes in number and location of employment opportunities and changes in the type of preparation needed for the occupations. This should be presented to the teacher with enough lead time to enable him to utilize it in counseling and teaching his students and to permit him to introduce it into the pre-vocational facets of the agricultural education program.

Agricultural education teacher-training institutions should provide service courses to introduce non-agricultural teachers to agriculture and agricultural occupations. Successful career education in the local school requires an understanding and appreciation of agriculture and agricultural education by educators outside the vocational agricultural classroom.

Not only is in-service training essential, but teacher-training institutions must provide training for new teachers that will give them the knowledge, skills, and attitudes appropriate for discharging career education programs. Moderate change in teacher education program emphasis and minimal change in program content will be needed.

The basic strengths of the agricultural teacher education programs should not be neglected. Many of the unique

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ESTABLISHING NEW DEPARTMENTS AND PROGRAMS OF APPLIED BIOLOGICAL AND AGRICULTURAL OCCUPATIONS

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Allan L. Utech

Don't let the title scare you! The name Applied Biological and Agricultural Occupations is the Illinois answer to the need for a change in identity. We once used the term "Vocational Agriculture" until it no longer fitted the need.

There are thousands of boys and girls in Illinois who are not enrolled in Agricultural Occupations today who should be. That fact is disturbing to some of us. There are hundreds of schools that should be providing programs but aren't.

The majority of these schools and students so identified are in the urban areas but not exclusively so. Where they are and who they are isn't important as long as we recognize that every student with an interest in a career in any of the 01.00 O.E. Code areas should have the opportunity to enroll in an agriculture program in their local school. Our programs in Illinois permit the student in the smallest school and the student in the largest school these rights and privileges.

The program initiator has a number of problems in getting next to those who can implement a new Applied Biological and Agricultural Occupations program in a school that has never had one. It is a slow process since it involves changing people's minds. If you are successful in this, the next step would be to answer the question, "How do we get started?"

My answer to this question is outlined as follows:

Procedures (not necessarily in order)

1. Establish an Advisory Council of representatives of all the 01.00 0. E. Code areas. Look to sub-committees for action.
2. Establish a Department of Applied Biological and Agricultural Occupations as a full fledged partner with Industrial Oriented, Health Oriented, Business Oriented, etc.
   a. The department will then be listed in the student handbook.
   b. The department and program identity is important to enrollment of students.

Every student who has an interest in a career in any of the 01.00 O. E. Code areas should have the opportunity to enroll in an agriculture program in their local school.

   c. Parents, faculty and community need the identity a department provides.
3. Select instructors (when there are no recognized Applied Biological and Agricultural Occupations instructors on the staff.) The most obvious answer at this point would be to refer school people to an appropriate teacher training institution. There are a number of reasons why this isn't feasible. The main reason is that there are limited funds for adding additional teachers.
   a. Identify one individual with competencies and interest in the Applied Biological and Agricultural Occupations area to head up the program. This individual would help to give the program the identity needed. He or she would do the leg work necessary to make a program successful. If the school is an Area Center, this selected instructor must be recognized as a specialist.
   b. Take another look at the present teaching staff.

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Some of Chicago's Austin High Ornamental Horticulture students, potential "Purebred" Agricultural Occupations Instructors, being instructed by "Retread" Science Teacher, Walter Klimek (not shown).

Newly identified teachers from subject matter areas other than agriculture, after having in-service workshops, are teaching agriculture courses with a great amount of enthusiasm and success.

BETTER TEACHERS THE KEY TO BETTER CAREER ORIENTATION AND OCCUPATIONAL EDUCATION IN AGRICULTURAL MECHANIZATION

Thomas R. Stitt

Robert L. Wolff

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Teacher Training in the Past

Teacher education in agriculture, agricultural mechanization, and agricultural engineering programs at the various universities and colleges have traditionally been responsible for both the pre-service and in-service education of agricultural occupation and community college teachers in agricultural mechanization.

Teachers have for the most part received relatively little formal training in agricultural mechanization and even less in career orientation when compared to the task they face in organizing and conducting a sound career oriented program.

Present and Future Needs of Teachers

Teachers currently in the field and those who will be joining the ranks in the future at both the high school and community college level are faced with new and varied responsibility. The most obvious of these include:

1. **Teachers are required to provide agricultural occupations students with background information and insight in the careers associated with the agricultural mechanization industry.**
2. **Teachers are required to be knowledgable and coordinate and teach highly specialized technical information related to the job entry requirements of students.**

The time has come when teacher training programs must supplement existing training programs to insure a cadre of qualified professional teachers to teach career oriented occupational education programs. The Agricultural Industries Department at Southern Illinois University, Carbondale has adopted several new programs to supplement existing teacher development in agricultural mechanization for agricultural occupation teachers.

Undergraduate Summer Internship

In light of current needs, the Agricultural Industries Department has developed an active agricultural mechanization related intern program for prospective teachers. Each prospective teacher is encouraged to enroll in Agricultural Industries 359. The course is offered each summer for three to five hours credit, preferably during the junior year. Students are responsible for the identification and location of a training station in addition to the development of measurable objectives and competencies. The student then formulates a training agreement with a chosen industry. Objectives and experiences are developed in line with department guidelines and subject to the approval of the undergraduate summer internship supervision.

These internships provide an opportunity for students to interview, observe, work in cooperation with, and learn by performing the task of employees in the cooperating business. In an agriculture machinery and equipment business the student becomes involved in various degrees of participation with the owner, set-up man, parts man, mechanic, shop foreman, manager, bookkeeper, salesman and the company's field representative. Each job is then closely reviewed by studying the requirements and interaction within the business and with the customer.

The undergraduate summer internship supervisor strives for three on-sight visitations. Location of training station has a large effect on achieving this goal.

Each student keeps a log of observations and activities performed and then submits a final report upon his return to campus.

Structured Occupational Internships

With the development of each new program there must be provisions to accommodate those teachers currently practicing in the field. Agricultural Industries 512, "Structured Occupational Internship for Experienced Teachers," is such a transitional program. The course was first initiated as part of a Division of Vocational and Technical Education funded project. It has been continued during the past five years by the department.

The primary objective of the program is to provide experienced teachers with insight into a specific agricultural business. Agricultural occupation teachers spend Phase I working and analyzing the various ramifications of an agricultural mechanization business. Selected guest speakers from the business community are invited in as guest speakers. In Phase II of the program teachers work in a selected business. The teachers through a process of observation, interview, or participation in the respective job, develop an awareness of the job or jobs that are related to the business. These situations are custom tailored with emphasis on knowledge or skill development depending on the needs of the teachers. Phase III brings the teacher back to the campus to compare information with other teachers and develop curricula and materials for the home school program.

In-Service Training in Cooperation with Industry

Under the "financial squeeze" it has been difficult for many colleges and universities to keep "tooled up" in the most current developments in agricultural mechanization; SIU is no exception. At the present time the agricultural

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(McCarty & Patterson—from page 39)
features of agricultural education are especially appropriate for career education. The advocates of career education call for relevancy in all education, community resource utilization, directed occupational experiences, preparation for occupational clusters, and career focusing at all educational levels; all of which have long been fundamental aspects of agricultural education. These key components of the agricultural teacher's preparation must never loose their emphasis.

Additionally, there are new areas in which teacher educators and supervisors need to be active in the preparation of agricultural teachers for implementing career education. Teachers must be prepared to select performance objectives that reflect the intent of their programs. Performance objectives for occupational awareness must be significantly different in content and concept from performance objectives for occupational orientation programs which must, in turn, be different from those in the occupational preparation program.

If the middle school or junior high school is to be effective in its role of occupational orientation and exploration, specially prepared agricultural educators must be made available. Implementation of this stage of the career education concept pre-supposes a high degree of occupational knowledge on the part of the educator. Therefore, teacher educators must respond to this situation by preparing a significant proportion of agricultural teachers specifically for the pre-vocational phase of the educational program.

Agricultural teachers must be prepared to work co-operatively with academic teachers and counselors. Articulation of agricultural courses and programs with those in the academic realm is essential to the successful implementation of career education. Articulation is also necessary to increase the educational alternatives for the student, to make academic courses more relevant, and to assist the student in career planning and career preparation. Each of these goals is fundamental to the concept of career education. Agricultural teachers should be provided the skills and knowledge necessary to work with academic teachers and counselors in articulating courses and planning inter-disciplinary programs.

Agricultural teacher educators must also be involved in the preparation of administrators and supporting staff for career education. Supporting staff for career education includes vocational counselors, community resource specialists, interdisciplinary program coordinators, and occupational specialists for elementary programs. Each of these positions needs persons who are knowledgeable in agricultural occupations. Local administrators and supervisors must be prepared to assist teachers in implementing career education. The agricultural teacher cannot successfully fulfill his role in career education unless he has the understanding and support of his administration.

Summary

As schools seek to establish career education programs, they find that teachers are hardly prepared to cope with the new concept. Teacher educators must respond to the needs of the public schools and direct their attention toward preparing teachers to implement career education at all levels.

Agricultural teachers are as well or better prepared to implement career education than any other group of educators. Historically, agricultural teachers have been taught to stress community involvement in education, realistic and relevant education, preparation for clusters of occupations, directed occupational experiences, and vocational preparation from middle school through college. Each of these aspects are salient features of career education.

However, there are some new roles that agricultural teacher educators and agricultural supervisors must play to assist the agriculture teacher in the full implementation of career education. They must provide the agriculture teacher with new program concepts, new teaching skills, articulation skills, and new instructional materials. New teachers should receive this preparation through their pre-service programs; but intensive inservice programs must be initiated to prepare the currently employed teacher. ◆◆◆

1 Hoyt, Kenneth B., Rupert N. Evans, Edward F. Mackin, and Garth L. Mangum, *Career Education—What It Is and How to Do It*, Salt Lake City: Olympus Publishing Company, 1972. p. 1.

(Utech—from page 40)

Who among them is interested and has the competencies to become a part-time, full-time and/or a team teacher?

c. Use individuals identified from among the community resource to supplement and complement the regular teaching staff.

4. Establish 9th and 10th grade orientation and preparation courses.
   a. *Survey* courses including all 01.00 areas.
   b. The training provided would include:
      1. Classroom
      2. Shop
      3. Laboratory
      4. Greenhouse
      5. Schoolgrounds and other plots
      6. Home experience (neighbor, uncle, etc.)
      7. Youth organization (Green Thumb Club, FFA Affiliate; Horse Science Club, FFA Affiliate; etc.)
      8. Record keeping
5. Establish 11th and 12th grade programs.
   a. Students with specialty interests and needs could attend an Area Center program.
   b. Students not interested in specialty programs at the Area Center should have the opportunity to enroll in Applied Biological and Agricultural Occupations courses at their local school.

This procedure as outlined can work and is working. Newly identified teachers from subject matter areas other than Agriculture are teaching courses with a great amount of enthusiasm and success. Most of them had been teaching in areas of science. We are providing them with workshops and a variety of courses to do a complete retread job from the academic to occupational orientation.

One of these days we may have qualified "Purebred" Agricultural Occupations Instructors to recommend for these new positions. If we do, they will probably come from those departments that we have been able to start with the "Retreads." This may be sometime in the future. In the meantime think of the thousands of students who will have benefited from some new directions in Agricultural Education.

STATE PROGRAM PLANNING SYSTEM

Jay Wood
Program Director
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Olympia, Washington


Jay Wood

In Washington State considerable progress has been made in relation to coordination of vocational programs in the secondary schools. In the last three years, through a cooperative effort by the Coordinating Council for Occupational Education and the Superintendent of Public Instruction, a state planning system has been developed. Upon the advice of state advisory committees and within the requirements of P. L. 90-576, each school district is required to have in operation an annual and a five-year plan, if they desire to use state and federal funds to support their local Vocational programs.

The purpose of the ANNUAL PLAN is to describe all vocational education programs, services and activities expected to be carried out during the next school year. The ANNUAL PLAN includes such information as:

I. Identification and Description of Persons to be Served in Vocational Education Programs.
II. Description of how Basic Standards for all Vocational Education Programs will be Met.
III. Description of Vocational Education Instructional Programs, Activities and Services
IV. Narrative Description of New Classes. Planning for New Vocational Education Classes and Programs.
V. Documentation of Costs for Inauguration of New *Classes* for purpose of Applying for State Weighted Support for Vocational Education.

Additional specific Criteria for meeting these standards are determined by the unique characteristics of the service area in which the program is developed. Any instructional program which is to be approved as vocational must meet the basic standards for all programs *and* the specific criteria of the service area, i.e., (a) Agricultural Education, (b) Business and Office Education, (c) Distributive Education, and Diversified Occupations, (d) Home and Family Life Education, (e) Trade, Technical, and Health Occupations Education.

The Special Criteria for approval of Agriculture Education consists of:

A. Enrolled students carrying out a supervised work experience program.
B. The Vocational Agriculture Teacher being on an extended contract covering the summer program.
C. A chapter of FFA being organized and maintained as an integral part of the instructional program.


State advisory committee for Agricultural Education membership consists of teachers, administration, and agriculture businessmen. Left to Right: Marv Evers, Bob Corless, Gene Barnhart, Kent Anderson, Pat Alleyn, Vic Anderson, George Roberts, Fred Valentine, Ken Milholland, Roger Lampitt, Jack Zimmer, John Youngquist, Mike Blakely, Ray Meenach, Jay Wood, Gene Forrester.

Summary

Through the Washington State planning system that local districts follow, it is possible for the state staff to analyze and identify program changes, enrollments, socio-economic conditions, employment opportunities, goals, philosophy of district, future trends and directions, and the comprehensive plan of action that is being considered by each district.

State advisory committee input plus dedicated state staff are making this plan work for the betterment of students in vocational education. ◆◆◆

BOOK REVIEWS

HORTICULTURAL SCIENCE, by Jules Janick, San Francisco, California: W. H. Freeman and Company, 1972; second edition, 586 pps., $12.00.

The second edition of this book is an effort to incorporate some of the new changes in horticulture which have occurred since the early 1960's.

The book is broken down into three separate but interacting parts. Part one deals primarily with the biology of horticulture, beginning with the classification of plants and including structure, growth, and development of horticultural plants. The information provided in this part deals in depth on each of these areas.

Part II contains 6 chapters relating to the technology of horticulture. Beginning with a discussion on controlling the plant environment, it carries the student chapter by chapter to the actual marketing of horticulture crops, including the preparation and preserving for marketing.

Part III, The Industry of Horticulture, deals with four distinct areas of horticulture — the first being the geography of horticulture, dealing with locations and their climatic effects on crops. The chapter deals with temperature, moisture, and light in relation to geography. Chapter thirteen, termed Horticultural Production Systems, describes the varying production areas which are included under the broad area of horticulture. The fourteenth chapter identifies the horticultural crops in their particular area of contribution to society. The chapter deals with fruit, nut, beverage, spice and drug, vegetable, and ornamental crops.

The last chapter gives evidence of the horticulture industry's esthetic value to society as a whole. All areas of the book were well illustrated by drawings and pictures which are a must in horticultural science.

Jules Janick has developed a most readable and interesting introduction to horticulture for any person wanting to know the industry. Mr. Janick's background in horticulture as well as his ability for communicating his knowledge through writing shows solid understanding for one of the fastest growing areas in this nation's industry.

In this reviewer's opinion, this book was written as an introduction to horticulture on the college or unversity level. However, with instructional guidance and explanation, the book would be adequate for the upper class students in the secondary level.

Wesley Holley
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WHAT EVERY SECONDARY SCHOOL VOCATIONAL AGRICULTURE STUDENT SHOULD KNOW ABOUT THE LITERATURE OF AGRICULTURE

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There is a tendency among educators at all higher levels to look back with critical eyes toward those who have previously taught the students who now come to them. "Why don't these kids come to us better prepared?" is a frequent lament. Among this group of "head shakers" can be found university agriculture librarians and their staffs. At least this particular representative of that body has found himself voicing such sentiments as: "What kind of high schools do these people come from where they didn't learn more about how to write term papers and to find library materials?"

This article is written in an effort to suggest to secondary vocational agriculture teachers that their college bound students will be more successful in the pursuit of knowledge when they arrive at a university if they become familiar with the types of materials available for study in their field and how to get at them. Those who will follow careers associated with agriculture which do not require further study beyond high school should also profit from knowing that agriculturally related agencies are continually issuing bulletins, magazines, and other materials which can be obtained easily and cheaply. Students could be encouraged to build up files of materials on topics which interest them for use in their further education or to increase their effectiveness on the job.

Perhaps vocational agriculture teachers feel that asking students to write term papers is not their responsibility. If English teachers require papers for which a wide choice of topics is possible, wouldn't it be a good idea to let pupils know that there are many interesting facets of agriculture about which written material is frequently published? Such a suggestion might prove to be the way to solve the problem of what to write about. If no such paper is required, asking students to find articles about agriculture in the *Reader's Guide to Periodical Literature* would be a fruitful exercise particularly for those headed for college.

At present, many school libraries are contributing very little to the success of the vocational agriculture program.

Teachers might also call their students' attention to magazines worth knowing such as *Successful Farmer, Farmer's Digest, American Farmer,* or *Farm Journal.* They should also let them know about the state and regional commercial magazines issued for their area. *Ohio Farmer, Missouri Ruralist* and *Prairie Farmer* are examples of such publications. Then too, students should be aware that all fields of agriculture have periodicals for persons interested in reading about a particular facet of the subject. Among these are: *Crops and Soils, National Livestock Producer, Dairy Record,* and *Better Fruits, Better Vegetables.* Finally, they should know that most breeds of animals and most crops have journals which are issued by and for people interested in the production and marketing of them.

Publications of the United States Department of Agriculture should be known to secondary vocational agriculture students. The recent issues of the USDA *Yearbooks* are remarkably inexpensive, well illustrated, and interesting hardback books. They should be a "gold mine" of ideas for students who have to think up term paper topics. The annual *Statistics of Agriculture* which the department publishes would also be a good tool for term paper writers to know. The vocational agriculture teacher might see to it that his students had a chance to order government documents from the relevant price lists published by the Government Printing Office or from the *Catalog of Available Publications* put out by USDA. The Agriculture Department publishes a *Bimonthly List of Publications and Motion Pictures,* and the Printing Office puts out a brochure called *Selected U.S. Government Publications.* Many of the items listed are free, and most sell for less than $1.00.

This ordering of publications can also be followed through for bulletins issued by state agriculture extension services and experiment stations. Lists of such materials can be obtained for the state in which one lives and for any other state that he might choose to contact. Home state publications are usually free to residents and can be obtained frequently from county extension agents; other states' bulletins are usually inexpensively priced.

When students learn about such publications, they can be encouraged to read them and to learn how to summarize briefly the information they contain. College bound students should thus be better scholars when they enter on the final phases of their formal education. In addition, every student should gain through experiences with the literature of agriculture a richer, broader knowledge of the field and its related aspects. Any student should learn in this way how to keep up to date in any area that might interest him. Who knows? Perhaps a student packing his "gear" for college as he begins his difficult freshman year will be able to take along with him material for a paper on crossbreeding. Perhaps a vocational agriculture teacher may help to sustain a life long interest in grape growing through leading a student toward bulletins and articles on the subject. Perhaps knowledge of marketing publications will help some "smooth operator" to increase his money making ability in dealing on the commodity market. ◆◆◆

THE LIBRARY: A Key To Improved Vocational Agriculture Programs

Mary Ruth Brown
Head Librarian
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Mary Ruth Brown

Agricultural literature contains numerous articles, speeches, essays and reports concerning agricultural education at the high school, technical school or college level and what the goals of the agricultural program are or should be. In only a few of these publications can be found any mention of the library and its relationship to agricultural education.

A school library or materials center can play an important role in the development of an outstanding agricultural program. However, the library will be of little value unless it contains at least a minimal collection of the books and periodicals necessary to keep teachers and students aware of advances in the agricultural field. The selection of this literature should be made by the librarian and teacher working together, since the teacher is more aware of current literature which will meet the needs of his particular students. This does not mean that there should not be a classroom or departmental collection of selected, key reference materials. The resources of the library should supplement those available in the agriculture department.

If a student goes into farming or an off-farm agricultural occupation immediately after completion of high school he will be expected to obtain information for himself without supervision. To a great extent his growth and success will depend on his ability to keep abreast of the changes in his field. Owing to the high cost of publishing, he will have access to only a limited amount of current literature unless he is experienced in using a library. This also holds true for those who continue their education in a technical school or college. The easiest place for a student to gain such experience is the high school library. The students' proficiency in using this library will depend as much on the teacher as on the librarian.

The library has several advantages which should not be overlooked by teaching personnel. It provides the mechanics for locating reference materials by the use of indexes and a systematic card catalog. It provides the means of acquiring material through interlibrary loans from other libraries. In most cases a library collection is less costly to acquire and keep up than classroom collections because of book company discounts, available storage space, and trained personnel whose responsibility is to acquire, process and care for these materials.

Another important consideration is that materials in a central library location are available to all students, not just those in a specific subject field. Hopefully, the proximity of literature on agriculture would interest more students in an agricultural career.

At present, many school libraries are contributing very little to the success of the vocational-agriculture program. The measure of the contribution made by a library is determined by the degree of communication and cooperation between teachers and librarians. Suggestions for strengthening the library's participation can be grouped into four main areas.

Agricultural Literature

The vocational-agriculture department has its own classroom collection of the best books available in the field; therefore, the school library should concentrate on acquiring supplementary materials and books too expensive to buy in quantities. This collection should include books, periodicals, pamphlets, bulletins, audio-visual materials, etc., on all phases of agriculture and its related fields, including career opportunities. As the scope of the agriculture program broadens, the library collection should also broaden to encompass learning materials in these areas.

This would require involvement of both teacher and librarian in book selection, which in turn, would tend to keep the librarian informed of needed materials too costly for the agricultural budget. However, this does not mean that the library would buy books to be placed in the vocational-agriculture department.

To prevent duplication of effort by teachers and librarians the library could subscribe to more agricultural journals, preferably those of a general nature. This would leave the teacher free to spend agricultural funds on more specialized or advanced journals in the field. Since the library is generally expected to keep a file of career information, the teacher could pass such material on to the librarian and thus build one outstanding career file available to all. In schools lacking a guidance counselor, the librarian should make an attempt to acquire all information available on scholarships, grant-in-aid, etc., for those students wanting to continue their education in technical school or college but unable to do so without financial assistance.

Cooperation

It is traditional that a short course in library use be taught in English or history classes, but it could be taught effectively in vocational-agriculture. The teacher would assist the librarian by assigning reference work to be done in the library. Such a program would help to inform the agriculture teacher of materials available in the library as well as teach the students how to use this material.

In most fields, periodicals are utilized as the best means of keeping up-to-date on new methods and ideas, current research, etc. If teachers do not keep periodicals longer than two or three years because of the space problem they could possibly make arrangements for non-current issues to be placed in the library either permanently or until they are no longer of value.

Many libraries are considered materials centers with collections of filmstrips, pictures, maps, transparencies, etc., and therefore, should have better facilities for caring for such materials than is available to an individual department of instruction. In such schools the agriculture department might easily

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shift part of the responsibility for visual aids to the library, borrowing the material as needed.

Reference Services

In addition to reference assistance to individual students, librarians might prepare bibliographies on specific agricultural subjects for the teacher. Included in these bibliographies would be only that material available in the school library.

Literature needed by the agriculture department for short periods of time could be borrowed on interlibrary loan when not available in the school library. This includes not only monographic works but also articles from journals. Requests for material on interlibrary loan must be by specific author and title, never by subject. In most cases, these loans must be obtained through the library.

Since the librarian is often asked for suggestions on leisure reading material, the opportunity exists for guiding students into reading more books on agriculture. These books could be either fiction or biographies.

Publicity

If attendance is used as criteria, it may safely be said that the library is one of the most popular rooms in the school. This means that nearly all students spend at least some time in the library. Working together, the teacher and the librarian could interest more students in the agriculture field by having materials available presenting it as an attractive career with many opportunities.

These materials would include career books and pamphlets, pictures, maps, charts, book jackets and other audio-visual aids. Methods of publicizing agriculture and its related areas could include bulletin board displays, book displays and exhibits of projects carried on in the agriculture department.

As the librarian and teacher work together closely, other avenues of library participation will probably emerge. In summary, utilization of the library as an important resource center for vocational-agriculture will increase or decrease in direct relation to the presence or lack of communication and cooperation between these two important members of the school faculty. ◆

COLVIN JOINS EDUCATIONAL GROUP


Thomas Colvin

Thomas "Tommy" S. Colvin of Baton Rouge and Shreveport, Louisiana, has been named Research and Development Specialist for the American Association for Vocational Instructional Materials (AAVIM). AAVIM is an interstate organization comprised of 43 member states whose purpose is to develop instructional materials. Headquarters are at Athens, Georgia.

Colvin's primary responsibility at AAVIM will be in the research and development of vocational educational instructional materials. They will include textbooks, training manuals, slides, filmstrips and audio-visuals. Some are teaching references. Others are self-study materials designed for students.

(Stitt & Wolff — from page 41)
mechanization industry is physically and technically best equipped to provide specialized technical instruction in this area. The Agricultural Industries Department at SIU/Carbondale has arranged and is in the process of coordinating additional specialized training sessions in various areas of agricultural mechanization for high school and community college teachers.

Industry has been very generous in offering their facilities and technical assistance in an effort to up-grade the technical competency of teachers through intensive technical training sessions. During the summer of 1972 a group of community college teachers attended an intensive one-week technical session on diesel injection systems. The session was arranged for community college instructors and conducted in the Robert Bosch facilities in Chicago. Currently in cooperation with the Division of Continuing Education at SIU/Carbondale the Agricultural Industries Department is organizing an intensive one-week session for agricultural occupation teachers in internal combustion engines and their components. Teachers participating in the session will organize the material, knowledge and skills acquired in a manner that it can be included in their own agricultural occupation program.

To encourage agricultural occupation teachers to participate in the intensive technical sessions in cooperation with industry, the Agricultural Industries Department has developed a course (Agriculture Industries 420; 2 to 6 credits) that teachers may elect to take under the supervision of a graduate faculty member and was primarily designed to meet the current and future technical needs of agricultural occupation teachers in Illinois.

The Results

Cooperative training programs in Illinois have provided extremely fruitful experiences for both prospective and practicing teachers. Some of the most notable improvements in the competence of teachers are:

1. **Improved technical skill and knowledge**
2. **Development of a better understanding of career requirements and opportunities in agricultural mechanization**
3. **Development of a better relationship with industry resulting in a most valuable resource to career education**
4. **Development of a better understanding of on the job training. This enables teachers to develop on the job training experience programs for their own students.**

Developing cooperative training programs through the University is not an easy task. Offering college credit for work experience programs especially at the graduate level is a new concept in graduate training. Change is often difficult to implement at the University, but it can be done as it has at SIU/Carbondale. Furthermore, the challenge of cooperative training programs with industry requires more than mere classroom teaching on the part of teacher trainers. This is new and requires additional effort. However, the time has come when teacher trainers must practice the basic philosophy that has been professed in vocational education from its conception. That is, the best learning experiences are developed through doing. ◆◆◆

Alvin H. Halcomb
Subject Matter Specialist
Agribusiness Education Supervision
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CAREER EDUCATION IN SECONDARY PROGRAMS


Alvin H. Halcomb

The January and February issues of the *Agricultural Education Magazine* have spotlighted Career Education: Elementary Programs, and Career Education: Junior High Programs. Articles have been printed that describe different aspects of Career Education. This writer attempted to explain briefly how Alabama has implemented this program in the junior high programs by exposing the students to the broad world of work during the seventh and eighth grades and narrowing down to sixteen occupational objectives or clusters during the ninth and tenth grades.

During the tenth grade, which is usually considered to be in the secondary program in Alabama, all agribusiness students study basic subject matter and develop shop skills in three major occupational clusters. These clusters are: (1) Agribusiness, (2) Mechanics and Metals, and (3) Building Construction.

The Agribusiness cluster includes a study of ornamental horticulture, natural resources, forestry, agricultural products and supplies, livestock and crop production, and pre-professional agriculture.

Composing the Mechanics and Metals cluster are such areas as power mechanics and metalworking (bench metals, arc welding, oxy-acetylene welding).

Areas of instruction in the Building Construction cluster are woodworking, carpentry, electricity, masonry, and plumbing.

Throughout this tenth grade course, much emphasis is placed on job opportunities. These job opportunities are explored and discussed along with the unit being studied, not in a block of time set aside or apart from the unit of instruction. Oh yes, the tenth grade course is entitled **Career Guidance and Basic Vocational Education II.**

Upon completion of the tenth grade, students are required to declare an occupational objective for specialized study during the eleventh and twelfth grades. A choice can be made from any of the following sixteen occupational objectives: general farming, livestock production, crop production, agricultural supplies, agricultural products, natural resources, forestry, ornamental horticulture, general agricultural mechanics, power mechanics, electricity, building construction, masonry, woodworking, metalworking, and pre-professional agriculture.

Students who select occupational objectives other than those offered by the local agribusiness program may be directed into an Area Vocational Center or some other vocational service for advanced study. Several area vocational centers also offer specialized courses in the field of agribusiness.

Students cannot be expected to wisely select an area for specialized study unless they have been properly oriented or exposed to the basic and exploratory courses in the lower grades (7-10). A good job of career guidance must be done in order for students to determine their likes and dislikes concerning different occupations and occupational areas.

Many methods and techniques are utilized in providing specialized study. Students may obtain study guides (worktext type) from the state office pertaining to their occupational objective. Other instructional materials, along with practical shop work, field trips, resource people, films, etc., are used. In many cases, school facilities such as greenhouses, school farms and shops are used to provide work experience. Where possible, students are placed with cooperating farmers, business and industries for their valuable training. Many students obtain work experience at home.

Before going further, the titles of the upper grades should be given. The eleventh grade is called **Specialized Agribusiness and Rural Industry;** the twelfth **Advanced Agribusiness and Rural Industry.** Students may change their occupational objective if they so desire from one year to the next. They are encouraged to make a wise choice initially and stick with it for the two-year period.

At the completion of this study, students are ready to enter the world of work at the job-entry level or continue their training in a post-secondary institution.

The concept of career education is not as new as some might think. It has been in practice a long time. The "shingle" just wasn't tacked up until recently. ◆◆◆

BOOK REVIEW

THE FARM MANAGEMENT HANDBOOK, W. P. Mortenson, Ph.D., R. A. Luening, M.S., Interstate Printers and Publishers, Inc., 19-27 N. Jackson St., Danville, Illinois, 1972 copyright, 5th ed., 488 pages, price $6.00.

The content of "The Farm Management Handbook" is very easy reading in that it has a steady flow and deals in very common terms. It is up to date and concerns itself very much with the everyday dealings of the family type farm.

The first few chapters of the book dealt in a realistic way with the family orientation of farming, the need for early training, opportunities on the farm compared to city life, types of farming in the U.S., and ways of getting started in farming. These chapters were written in terms which were very relative to high school students and young adults considering farming as an occupation.

Part Two of the book deals with the three basic decisions to be made in organizing and managing the farm business: what to produce, how to produce, and how much to produce. It also covers farm ownership, credit, and farm buildings.

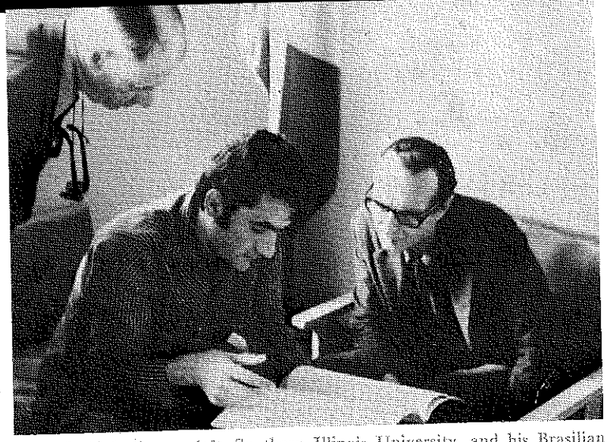
I feel that Part Three which concerns marketing would be ideal material for reference in teaching agri-business in vocational agriculture classes as the subject is covered in the prospective of the total marketing functions. It is not a one-sided picture of the farmer receiving an unfair percentage of retail good prices. It deals with the real problems within our marketing systems.

Part Four of the book gave the reader some other important considerations in farming such as conservation and water management, record keeping, insurance, landscaping, farm organizations, and planning for the future.

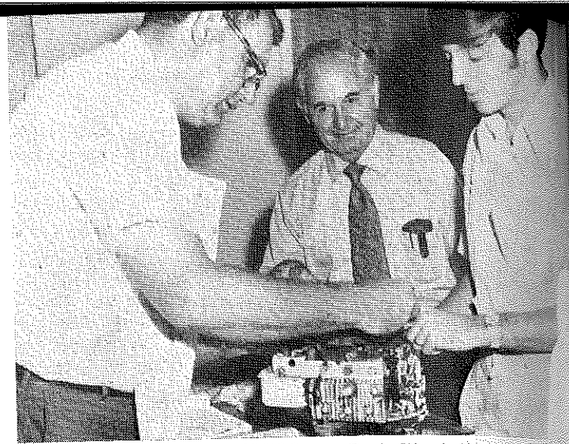
I feel that parts of the book would fit very well as text for high school vo-ag classes. It could also serve as valuable reference material for adults.

I particularly liked the author's theme which labeled farming as a family occupation.

Larry Winnett



J. J. Patterson, left, Southern Illinois University, and his Brasilian counterpart Helio Bemfica, review plans for an in-service educational program with Aomir Florin, center, coordinator of in-service agricultural education. (Photo by Dick Welton, UNDP project, Brasil).

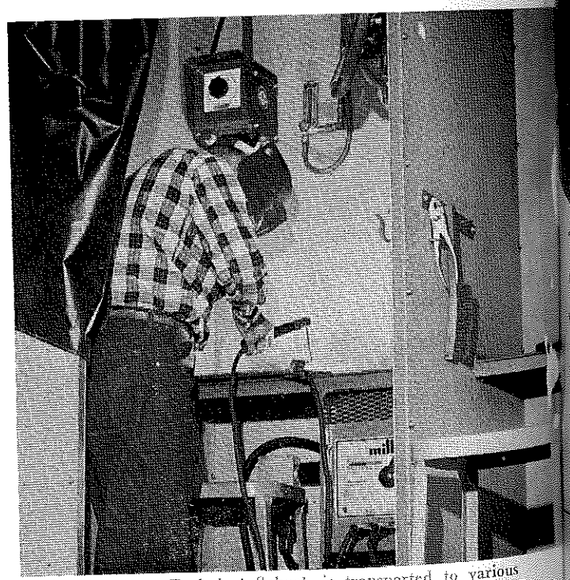


SMALL ENGINE WORKSHOP — Fred Wunderlich, center Birmingham Electric and Battery Company, instructs J. W. Meigs Centreville, and Charles Harrell, Springville in repair of small ga engines, featuring "hands on" experiences, in trouble shooting disassembly, repair and reassembly of 2 and 4 cycle engines. (Phot from Cecil Gant, Alabama State Department).

Stories in Pictures

by Richard Douglass

Alpha Tau Alpha Wives Organize and meet regularly at the University of Nebraska. The purpose is for fellowship, and instilling a greater insight into the role of an agriculture teacher's wife in a rural community. Mrs. Roy Dillon, wife of the ATA Advisor, is the faculty sponsor. One program was "What The Community Expects of the Vo-Ag Teacher and His Wife." (Photo by Richard Douglass.)



This 37 foot long mobile welding trailer, owned by the Southwest Wisconsin Vocational-Technical School, is transported to various locations in the five-county district. The trailer can accommodate eight arc and oxy-acetylene welders and four M.I.G. and T.I.G. units simultaneously. Inside the mobile welding unit, a Production Agriculture student is busy practicing stick-electrode welding techniques. The trailer contains its own power, storage space, and heating and ventilating units. (Photos from John F. McNett, Supervisor of Production Agriculture, Fennimore, Wisconsin).

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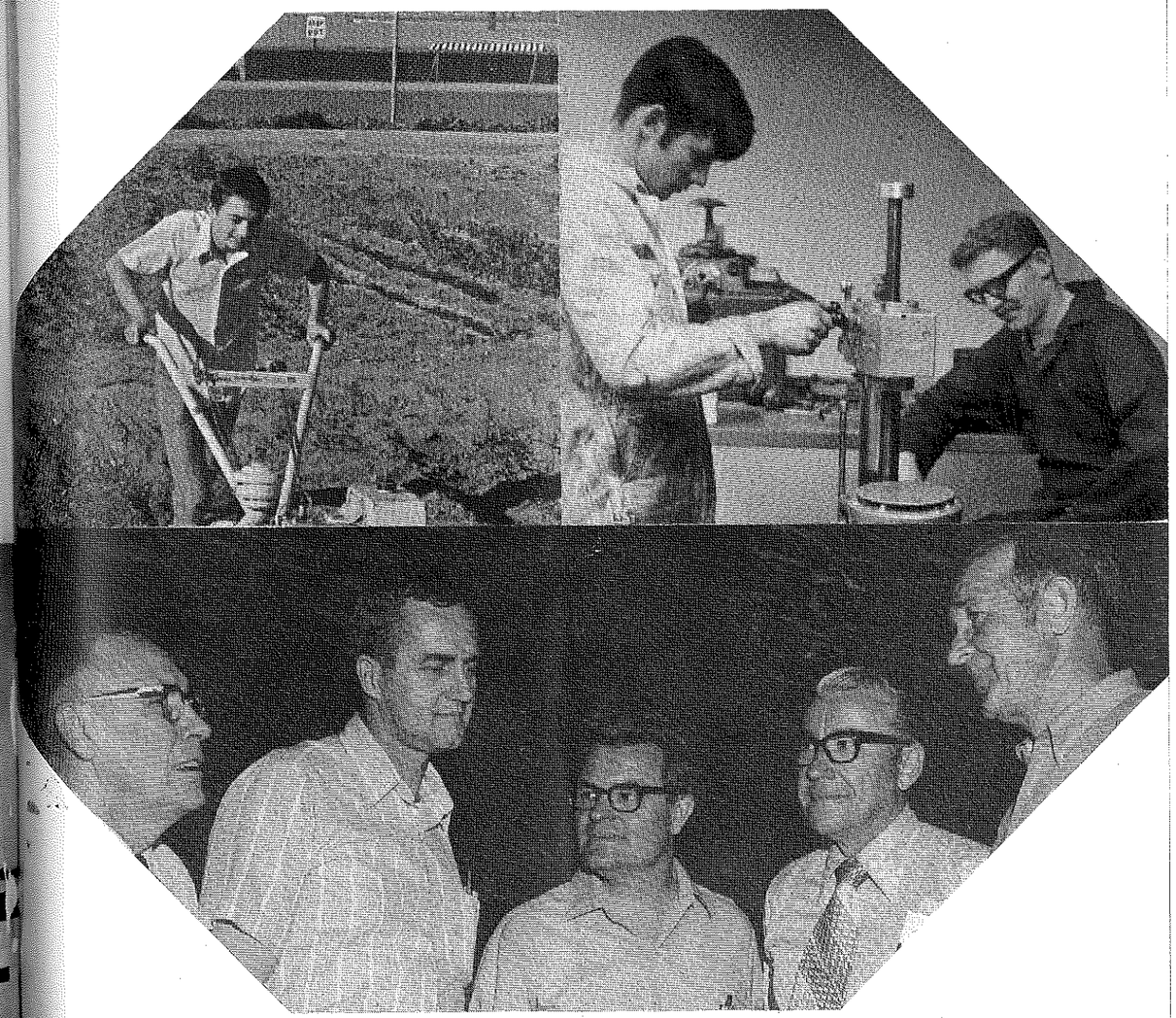

Theme—CAREER EDUCATION: Articulation Among Local, Area, and State Programs