Stories in Pictures

ROBERT W. WALKER
University of Illinois

Students at Oklahomas (Iowa) Senior High School study soils on land rented from the Chamber of Commerce. Soil profiling may return back to the classroom so students can identify soils and plan further practices. (Photo by John Peterson, Teacher of Agriculture, Oklahomas, Iowa)

L. W. Davis, Consultant, Affl-Chalmers, Milwaukee, Wisconsin, served as a guest speaker at a symposium on farm educational opportunities held at Montana State University. The symposium was sponsored by the Montana State College/FAA Chapter. Mr. Davis is a trustee of the National FAA Foundation. (Photo by Douglas D. Bishop, Montana State University)

Members of the Champaign (Illinois) FAA Chapter assist at the 4-H elevator ceremony at the county fair. The FAA Chapter also sponsored a youth tent at the fair to explain career opportunities in agriculture. (Photo by Roger French, Agricultural Occupations Instructor, Champaign High School)

Featuring — RESEARCH IN AGRICULTURAL EDUCATION
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Invariably reviewers of research in agricultural education pointedly allude to the fact that the professor's research is primarily graduate students. The corollary of this observation usually is the necessity for a greater commitment to and production of significant, well designed research by experienced agricultural educators, particularly those in colleges and universities. Hopeful expectations for remedying this state of affairs were aroused when substantial funds were first earmarked for research in the Vocational Education Act of 1965. Apparently the appropriation of special funds for research in agricultural education has not been accompanied by a perceptible shift from graduate students to professionals as researchers in agricultural education. So, for the foreseeable future at least, we must renew efforts to ensure that graduate students' research is not only competently conducted but also results in needed and noteworthy improvements.

Actually graduate students have some things going for them; they are closer than others as researchers. Most master's degree candidates are practicing teachers; in almost all cases doctoral candidates are the more imaginative and competent teachers who have had some left teaching, supervisory, or research education positions. This experiential background should serve them well in selecting urgent and troublesome problems for investigation. As one writer in this issue correctly points out, the standards and requirements for graduate research in most universities, particularly at the doctoral level, encourage in many cases inexcusably research that is as well designed and methodologically sound as that of the more experienced researchers.

The potential strengths are frequently offset, however, by factors that limit the impact of graduate students' research in contributing to sound theory or improved practice. By and large, graduate students' research is a series of independent and disconnected studies. In a real sense, limitations of time and money restrict problems.

(Continued on next page)

Guest Editorial

The Good Is the Enemy of the Better

"The good is the enemy of the better." These were the words used by Dr. Mohammed Noor, Dean of the Faculty of Agriculture in the Republic of the Sudan, as he adjourned the First World Conference on Agricultural Education held in Cape Town, July 28 to August 8, 1970. With these words, Dr. Noor restated the concern of urgency which has been expressed by participants from more than 100 countries. He added new phraseology to the two admonitions that had transcended the Conference, namely, that traditional methods and systems of organization often became the greatest deterrents to progress, and that it has now become necessary to devote as much attention to research in agricultural education as has been given to the technical specialties in agriculture.

Gordon J. Swanson is Professor of Agricultural Education and Coordinator of International Education, College of Education, University of Minnesota, Minneapolis.

(Continued on next page)
From the Editor . . .

which graduate students can feasibly investigate to these that may not be the most crucial or significant. Finally, the graduate student’s primary goal is reporting not implementing findings.

The responsibility for enhancing the contribution of graduate students’ research to change and improvement rests primarily with the faculty teachers, particularly those in the eight or ten major universities granting most of the doctoral degrees to persons whose interest is agricultural education. While capitalization on the resources which contribute to methodologically sound studies, faculty members need to concentrate on alleviating the lack of impact of graduate student’s research. Encouraging in-depth investigations of manageable and significant problems is a good place to begin. Perhaps major professors should take more seriously the conclusions, implications, and recommendations for future research which their candidates present, often at the insistence of the major professor, in the final chapters of the thesis or dissertation. These recommendations can very well be the takeoff points for additional research by faculty members and new graduate students, provided those researchers have an interest. The continued emphasis on research in technical agriculture and the adoption of technological improvements is no longer sufficient to result in a pattern of success. Many of the unsuccessful farms are as technically up to date as the successful ones. More important is a systems-analytic approach to farming and a systems-controlled efficiency. Accordingly, it is no longer sufficient for agricultural education to be a conveyor of approved practices; the field must redefine its instructional task and design a type of educational program which has always distinguished it from all other forms of education. Most of all it is hoped that the entire profession join in mobilizing more resources and more energy toward research in agricultural education.

In doing so, it may be necessary to accept the fact that the spirit of inquiry is not always gentle; research often yields conclusions which threaten the faith in which it is conducted. It is also possible, then, for the better to be the enemy of the good!

Guest Editorial . . .

included, however, are state and institutional expenditures in the backbone of the research in the field of agricultural education.

It is clear that newer federal expenditures for agricultural education have become too commonplace and too traditional. While the federal government continues to finance about 60 per cent of all research in technical agriculture, support for research in agricultural education is below 5 per cent.

Focus is thus placed on the second part of the admissible need to achieve balance between the research inputs in agricultural education and those in technical agriculture. The evidence of this becomes more obvious with each passing year. What is required is that faculty and students become aware of the potentialities of small cities of America, begin to observe a phenomenon that is increasingly predictable even before his arrival. In a pattern of repetitive consistency it is now possible to observe that some businesses and a few of the farms are highly successful while another category of businesses and most of the farms are a less successful category. In the successful category are the banks, the franchised food preparation businesses, and a few well known drug and grocery chains. In the less successful category are most of the hardware stores, the produce businesses, and many of the implement businesses.

What is the distinguishing feature which separates the successful farms and implement businesses from those in the less successful category? It is the utilization of a management information system together with a management evaluation system which often differs upon resource outside of the emphasis of a single business enterprise. Like a professional golfer, the successful farmer or business manager is accustomed to assessing his own performance as well as his own previsious performance. Only the second of these criterion measures can be established without the help of others. This keenness in this analogy is that par in golf is a static concept while par in business is a dynamic concept relying upon constantly changing efficiency factors and competitive influences.

What does this pattern of successful and unsuccessful businesses have to say to agricultural education and does it conduct? The continued emphasis on research in technical agriculture and the adoption of technological improvements is no longer sufficient to result in a pattern of success. Many of the unsuccessful farms are as technically up to date as the successful ones. More important is a systems-analytic approach to farming and a systems-controlled efficiency. Accordingly, it is no longer sufficient for agricultural education to be a conveyor of approved practices; the field must redefine its instructional task and design a type of educational program which has always distinguished it from all other forms of education. Most of all it is hoped that the entire profession join in mobilizing more resources and more energy toward research in agricultural education.

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W. A. Clouseau (1st from left), Teacher of Agriculture at Bates Creek High School, Lebanon, Kentucky, asks about his project dealing with the development of programmed teaching units. Cusying in the background are Mr. Left to right: Dwight Cline, Supervisor of Agricultural Education, Kentucky Department of Education; Marshall Strine, Head of the Material Research Laboratory, Harold Stahl, Chairman of the Department of Agricultural Education, University of Kentucky, and James P. Mead, Coordinator of the Graduate Education in Agriculture, Kentucky Department of Education. (Photo by Floyd L. McClain, University of Kentucky)

GREAT RESEARCH IN AGRICULTURAL EDUCATION: A CRITIQUE

What is the role of research in agricultural education? If the object of such (educational) research is the development of coherent and workable theories, researchers are nearly as far from that goal today as they are from controlling the weather. If the goal of educational research is significant improvement in the daily functioning of educational programs, I know of little evidence that researchers have made discernable strides in that direction.

Examination of previous critiques of research, such as those by Carpenter and Rodgers, Warnbrood and Phlip, Love, and Hamlin, reveals that consistent major criticisms may be grouped into four areas: a hesitancy to tackle the real, substantive and critical problems facing the profession; a lack of involvement by teacher education staffs in long-range programmatic research efforts; a failure to utilize sophisticated research designs resulting in questionable validity of research findings; and little effort toward effective dissemination and implementation to make research findings off the shelf and into the classrooms.

I propose to examine these four criticisms in view of research studies recently completed, to note trends, and to suggest a future role for research in agricultural education.

SUBJECTIVE FACT

Agencies which fund research projects are seeking an impact on critical societal problems. A major educational research effort by Hamlin’s article in the September, 1966, American Vocational Journal was the need for significant research. Is the research being done in agricultural education significant in substance? Indicated below is the percentage of 161 studies completed in agricultural education in 1965-69 by program area categories. The 161 studies are those reported in the “summaries of studies series” compiled in the four regions.

Graduate Student Research

Research in agricultural education can now be characterized by separate, small, fragmented, individually centered projects. Love, in his critique of research completed in the North Atlantic region in 1965-66, found only 13 per cent of the projects completed by faculty researchers. A comparison of research funded by a particular agency with an analysis of persons completing research in agricultural education in 1965-69 indicates that only 11 per cent of those persons were graduates, with a greater involvement in research by teacher educators. Of the 161 studies completed in 1966-69, 11 per cent were staff studies, 32 per cent were doctoral dissertations, and 37 per cent were master’s projects.

It is recognized that many agricultural education researchers are involved in vocational education research for which they are not reported in the summaries of studies series. However, based on a projection of historical data, it is evident that the large majority of research in agricultural education will continue to be done by graduate students.

This situation is not without hope. The graduate student often is able to

(Continued on next page)
Agricultural Education
Encyclopedia of Educational Research


Research in agricultural education during the decade of the sixties is summarized and analyzed in the latest edition of the Encyclopedia of Educational Research. Similar compilations of educational research were published about once each decade as a project of the American Educational Research Association.

In this edition the authors summarize research in agricultural education according to the following categories: Organization and Administration, Studies of Agricultural Manpower, Curriculum Development, Instruction, Teacher Education, Special Emphasis Studies, Measurement and Evaluation, and International Agricultural Education. Eighty-three studies are cited. The authors are members of the faculty of the Department of Agricultural Education, University of Minnesota.

AGRICULTURAL OCCUPATIONS INTEREST SCALE

WILLIAM H. HAMILTON, Teacher Education Purdue University

Research with the Agricultural Occupations Interests Scale (see page 22 of this issue of The Agricultural Education Magazine) has indicated the instrument is psychometrically sound and is a useful tool for identifying student interests in agricultural education. The scale is also useful for identifying the strengths of individuals. This is the role of agricultural education.


(Continued on next page)

Agricultural Education Magazine

November, 1970

A Challenge

Research in agricultural education has continued at a steady rate over the year. Continued improvement will result if research in agricultural education can be continued at this rate. There is a need in continuing research toward the development and validation of new instruments. There is also a need for research in agricultural education.


(Continued on next page)
Some Observations About Agricultural Education

John H. Rodgers

John H. Rodgers is Professor of Vocational Education and Director of the Research Center for Vocational Education at Clermont University, Clermont, Ohio. Earl T. Carpenter is Associate Professor, Division of Educational Administration, Clermont University. They are authors of Review and Synthesis of Research in Agricultural Education (Second Edition). Center for Vocational and Technical Education, The Ohio State University, 1970.

John M. Rodgers

Earl T. Carpenter

Today's rapidly changing society affects every aspect of agricultural education. New problems arise faster than solutions to old ones are found. Fortunately, research in agricultural education is rapidly expanding. Over a thousand reports published between 1965 and 1969 were examined in preparation for the Second Edition of Review and Synthesis of Research in Agricultural Education. This publication is published by the Center for Vocational and Technical Education, The Ohio State University. The following reports to stateournations we consider most significant.

Manpower Needs

The Vocational Education Act of 1963 gave impetus to studies of manpower needs and employment opportunities, and the results have been advantageous incorporated into programs. Also, national efforts to study national standards and to evaluate the collection of data have resulted in a vast fact base for program planning and curriculum development.

Many state and local studies of on- and off-farm manpower requirements have been made. In Louisiana, a history of studies to ascertain off-farm opportunities has resulted in the establishment of a great amount of useful data for educational program planning in that state.

Many manpower-research requirements have also attempted to determine the competencies required of workers. Such information has contributed much to improving content. In addition, some interesting generalizations have been stated. For example, at least one study indicates that work in agricultural production requires more intelligence than does work in industrial industry. Several other ideas are supported by numerous studies.

Employers consider skills in human relations extremely important for job security and advancement.

Basic mathematical and linguistic competence is a more limiting factor than technical competence for entering and advancing in off-farm occupations.

Many small off-farm businesses are unbusiness and, employees acquire a wide variety of tasks.

Education is a great demand for workers capable of advancing to managerial or sales positions.

Desirable characteristics such as honesty, dependability, and initiative are of utmost importance in selecting new employees.

In general, employers cooperate with public educational programs and are willing to arrange on-the-job training by students.

These generalizations emphasize the importance of general education as well as vocational education. More important, however, is the philosophical question implied: Is not maintaining interest in agriculture on the part of people who may take advantage of general educational opportunities the most important function of vocational education? If so, the recent focus over providing specific training to meet the skill and technical-

1966 legalized the change.

According to W. Howard Martin, this change is inadequate. In his answer to a question from the American Association of Teacher Educators in Agriculture at Boston, Martin stated that "much of what has gone on ... since 1963 has failed to tune me in. It is too job-oriented ... too centered on parts of industry and so programmed by Big Brother."

Recognizing the need of young people for personal commitment, Martin suggested that a new, all-inclusive term broad enough to provide emphasis in agricultural production and marketing, natural resource management, environmental development, and agricultural research and service must be found. He recommended that a committee on agricultural education be formed and the detailed steps be taken at the Boston meeting for its establishment.

Job-specific education as opposed to broader-based educational education geared to the individual needs and interests of students is the most critical issue facing vocational educators in recent times. Much has been written about the need for advancement beyond entry-level jobs. The problem is especially crucial in agricultural education. Students with varied occupational objectives have learned specific agricultural skills which are of relatively little value in leadership and human relations.

This issue of job-specific versus student-centered programs becomes particularly serious when program objectives, program evaluation, and the curriculums on which vocations programs are based. If programs are to be evaluated on the basis of how many students accept and continue in entry-level jobs, job-specific programs will fare better. Proponents of student-centered programs who ignore research findings are generally in power at the federal and state levels. Agricultural educators are better able to determine these trends and use them to their advantage.

New directions in a variety of occupational programs are being offered at the high school and post-high school levels. Not only is special attention being given to on-farm opportunities, but new emphasis on off-farm aspects of agriculture is needed. The transition from "proficiency in performance in vocational occupations," including farming, seemed logical, and the Vocational Education Act of 1965 established for great value. It is also important to find out if this issue is affected by varying characteristics of students. Certainly, the job-specific orientation currently in vogue is refined by research on career development.

Teacher Education

Supervised teaching has been established as a pre-employment experience of benefit to teachers. The supervising teacher is a key individual influencing prospective teachers. As obvious as these facts are, little has been done to use them in improving teacher education.

Supervising teachers should be the target group for the most effective in-service education programs that can be developed, and they should be made aware of new instructional techniques, materials, media, and issues in education. The potential of this group is so great that every effort should be made to prepare them fully, and both increased status and financial incentive should be their rewards. If adequate training of supervisory teachers has occurred in any state, it is not known from the literature. It is obvious that this area is wide open for research and development.

A need for research to improve other aspects of teacher preparation is also evident. New and exciting methods, such as microteaching, the use of single-concept films to illustrate specific teaching techniques, and the use of computers in teaching coursework are widespread. The problem area of the value of the studies might have an impact far exceeding the sum of the individual investigations. Controlled research on the effectiveness of these and other new techniques must be made available.

Emerging Trends

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PREPARING STUDENTS FOR OFF-FARM OCCUPATIONS
AND ASSESSING APPROACHES TO TEACHING

JAMES T. HONNER and ROLAND L. PETERSON
University of Nebraska

Design for Nebraska Agricultural Education Project

Curricular Phase: Treatment Groups

<table>
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<th>Off-Farm Phase Treatment Groups</th>
<th>Traditional Curriculum</th>
<th>Curriculum Phase Treatment Groups</th>
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<tr>
<td>New Schools</td>
<td>Old Schools</td>
<td>Controlled Group</td>
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<tr>
<td>Principles Curriculum</td>
<td>(Number of schools)</td>
<td>Related Instruction</td>
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- if courses in related instruction are essential for entry into off-farm agricultural occupations, and
- if differences exist in achievement of students taught by principles versus problems approaches.

- Design

Twenty-four randomly selected Nebraska schools (excluding metropolitan schools) comprised the sample. Students in grades 10, 11, and 12 constituted the subjects. Sixteen of the twenty-four schools offered vocational agriculture courses prior to this study. The remaining eight schools initiated a program of vocational agriculture when the study began.

- For Phase I (Off-Farm Agriculture Phase) the twenty-four schools were randomly assigned into four treatment groups: related instruction (79 students), directed work experience (47 students), a combination of related instruction and directed work experience (34 students), and a control group (31 students). The experimental design utilized was a 2 x 2 x 2 x 2 analysis of covariance with repeated measures on the third factor. One factor was the presence or absence of related instruction; the second factor was labeled directed work experience; and the third factor was the year of the project. The design for the study is indicated by the accompanying table.

- Findings: Phase I

The three instruments used to determine the most effective treatment in preparing high school students for entry into off-farm agricultural occupations were the "Test on General Information for Prospective Workers," the "Work Opinion Inventory," and the "Off-Farm Agriculture Occupation Opinion Inventory.

An analysis of these three measures revealed no statistical difference among the various treatments combinations in regard to the most effective way of educating high school students for off-farm agricultural occupations. The only significant value revealed that subjects with no exposure to the net operating margin of the business from quarter to quarter. A management handbook with quantitative examples derived directly from the simulation model and including suggested teaching activities was developed for teachers participating in the experiment.

The study involved 36 teachers of agriculture and 564 high school vocational agriculture students in Pennsylvania. Eight of the teachers were randomly assigned to receive the instructional materials on an individual basis in their school. Half of the teachers in each of the two distribution groups received the computerized alternative methods of disseminating agricultural business management instructional materials to teachers of agriculture.

- Procedure

The Purdue Farm Supply Business Game provided the nucleus of the instructional materials. This computer simulation model focuses attention on the decision skills pertaining to the knowledge of economics involved in the management of a retail farm supply store. The student's objective in managing the simulated business is to increase the net worth and to increase the worth scores. Other descriptive data were obtained by having the teachers complete an evaluation form after teaching the unit.

- Findings

- Teachers' achievement and game net worth test scores were not significantly different between the workshop and the individual methods of disseminating instructional materials and between the printout analysis by teacher alone and the printout analysis by project director and teacher.

- Students' achievement test scores for teachers who received the instructional material on an individual basis in their school were significantly higher than students' achievement test scores for teachers who received the instructional material in a workshop.

There was no significant difference in students' game net worth test scores between the workshop and individual distribution methods.

- Students' achievement and game net worth test scores were not significantly different between the printout analysis by teacher alone and the printout analysis by project director and teacher.

- Teachers' posttest scores on attitude toward the concepts of "price" and "computer" were significantly higher than their pretest scores.

- Students' achievement test scores were significantly higher in classes: of less than fifteen students; composed of students all of one grade level; without our education students; taught by teachers less than thirty years of age.

Donald G. Sargent is Chairman of the Agriculture Division, University of Minnesota Technical College, Crookston, Minnesota. His Ph.D. was earned at The Pennsylvania State University in June 1976. Dr. Sargent's dissertation was entitled "An Experiment Evaluating Methods of Dissemination of Business Simulation Instructional Materials to Agriculture Teachers."
Disseminating Instructional Materials

(Continued from page 115)

and taught by teachers who supervise students in off-farm work experience programs.

Implications

The unit did not result in higher student learning. However, nearly all teachers placed five telephone calls to the project director during the teaching of the unit should be considered.

In this study, a follow-up visit by the project director during the teaching of the unit may be more effective than visits to teachers in their classrooms. A number of implications relative to the design and implementation of educational games is clearly more significant than students who play the game individually.

The study utilized the Solomon Four-Group design and was conducted in 36 New York State high schools offering a course in farm production and management. Data were analyzed using a multiple classification analysis of variance.

Findings

I was unable to find significant differences to support the hypotheses, but students in the experimental group thought they learned more from this method of instruction and overall student interest was very high. I am convinced, based upon a questionnaire administered to students and teachers involved in the study, that a teacher using the game and not restricted by the confines of a uniform experiment should be able to capitalize on this high level of student interest.

Hypotheses

I discovered that there was no shortage of intuitive and hypothetical support for these hypotheses, but that there were still a real need for more empirical information concerning games as a teaching device. This need seems particularly urgent in the agricultural education study which consisted of developing a farm management game and then experimenting with it to see how it would be received.

It was hypothesized that: If students are taught to think critically about participation in an educational game, they will show significantly higher achievement on a point test than students who did not participate in the game; if students of lower scholastic performance participate in an educational game, their achievement scores will be significantly higher than students with comparable average performance; and if students play the game in groups of two or three students, then their mean achievement will be significantly higher than students who play the game individually.

The study utilized the Solomon Four-Group design and was conducted in 36 New York State high schools offering a course in farm production and management. Data were analyzed using a multiple classification analysis of variance. (Continued on page 19)

Preparation Students for Off-Farm Occupations and Assessing Approaches to Teaching

(Continued from page 114)

related instruction factor scored higher on the "Work Opinion Inventory" than did those with related instruction. On all four measures of the follow-up work group with work experience and related instruction was the lowest of the four comparison groups. Differences were not statistically significant.

A follow-up job questionnaire revealed striking similarities between the off-farm agricultural occupations and the non-agricultural occupations employees in types of employment, job satisfaction, salary, and job mobility. Follow-up observations revealed that after receiving instruction in one or more of the four treatment groups, students were most frequently employed in a non-agricultural occupation. The questions asked were the students taking each course and the percentage of the students who could not answer in the traditional manner.

Conclusions

There was no most effective approach in teaching for off-farm agricultural occupations. A combination of both related instruction and work experience was most effective in teaching for off-farm agricultural occupations. (Continued on page 117)

Preparation Students for Off-Farm Occupations and Assessing Approaches to Teaching

(Continued from page 114)

related instruction factor scored higher on the "Work Opinion Inventory" than did those with related instruction. On all four measures of the follow-up work group with work experience and related instruction was the lowest of the four comparison groups. Differences were not statistically significant.

A follow-up job questionnaire revealed striking similarities between the off-farm agricultural occupations and the non-agricultural occupations employees in types of employment, job satisfaction, salary, and job mobility. Follow-up observations revealed that after receiving instruction in one or more of the four treatment groups, students were most frequently employed in a non-agricultural occupation. The questions asked were the students taking each course and the percentage of the students who could not answer in the traditional manner.

Conclusions

There was no most effective approach in teaching for off-farm agricultural occupations. A combination of both related instruction and work experience was most effective in teaching for off-farm agricultural occupations. (Continued on page 117)
Costs to Students for Technical Education in Agribusiness

DOUGLAS PATTERSON
University of Florida

Douglas Patterson is Assistant Professor, Agriculture and Extension Education, University of Florida, Gainesville. This article reports one phase of his doctoral dissertation on "An Analysis of Costs and Benefits for Technical Agribusiness Education," which was completed at the University of Illinois, June 1970.

The total costs to students for two years of technical education in agribusiness were calculated by combining estimated foregone income and estimated costs of education. The estimated total costs for students were calculated to be $7,781 for agricultural supply students and $1,509 for agricultural mechanics students.

Summary

The costs of additional education must be given serious consideration by the high school graduate contemplating future participation in agribusiness occupations. In analyzing the costs of education, consideration should be given to potential income for the enrollment period as well as cash outlay for fees, books and supplies. Consideration should also be given for factors that may vary among various programs as well as among institutions. In many programs, substantial money may be saved during the on-job-training phase of the program.

The length of enrollment is the major factor in calculating costs to students for technical education. The costs to students for two-years of technical agriculture education in this study was approximately $8,000.

Are Educational Games Effective in Teaching?

(Continued from page 117)

The study of economics of the factors of the post-secondary agriculture education in Illinois. The major focus of the study was to analyze the cost to students for technical agriculture education. The study concentrated on graduates of post-secondary agriculture mechanics programs and agricultural supply salesmen programs.

Technical agriculture graduates estimated the income they earned while enrolled in the technical agriculture programs. The mean income earned by students while enrolled in agricultural programs was $2,512. All graduates of the technical agriculture programs surveyed received an income while in the supervised occupational experience phase of the technical education program. Supervised occupational experience is a required part of the technical agriculture program in each of the junior colleges contacted.

Income Foregone

Data obtained from employees who had received no post-secondary education were used in estimating the amount of income foregone by students enrolled in programs of technical agricultural education. An average monthly income of $616 was calculated for agricultural employees with no post-secondary education during the first twenty-two months of employment.

An estimate of the total potential income of the students was calculated for the enrollment period was calculated by multiplying the average monthly

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Are Advantages Attributed to Area Schools Valid?

RICHARD H. EDSELL
State Board for Vocational Education
Denver, Colorado

Much emphasis is now centered on the area vocational school as a means of expanding educational opportunity. Several states are developing area vocational education programs in their states to achieve this goal. Much emphasis is being placed on the area vocational school as a means of expanding vocational education for secondary school students. Specialized vocational agriculture programs are included in the curriculum of area vocational schools. There has been much speculation about the effect area vocational school programs have on vocational students in participating local schools. This study was conducted to investigate various aspects of that problem.

Procedure

From a review of literature relative to the area vocational school concept, advantages attributed to vocational programs in area vocational schools over programs in local schools were developed. From these advantages, six major hypotheses were formulated which were designed to ascertain if the advantages attributed to area vocational education programs held when vocational agriculture programs in area vocational schools are compared with vocational agriculture programs in local schools.

Two area vocational schools in Ohio and the participating local schools offering vocational agriculture in each district were purposively selected for study. Selection criteria included the length of time the area vocational schools had been in operation, geographic location, and socio-economic characteristics of the two districts. Two participating area vocational school districts, which had not yet organized an area vocational school, were selected as comparison groups for each of the two area vocational school districts.

The comparison districts were selected to match as closely as possible the population, type of agriculture, and socio-economic characteristics of the area vocational school districts. Data relative to the hypothesis were obtained from 31 counselors, 446 faculty members, 51 vocational agriculture teachers, and 546 vocational agriculture students. Three responses as well as data on enrollments and dropouts were obtained from two area vocational schools, ten participating local schools, and twelve non-participating local schools in the participating districts.

Enrollment Trends

Hypothesis I. Vocational agriculture programs in area vocational schools increase the number (and percentage) of students in area vocational agriculture in area vocational school districts over the number (and percentage) in comparable areas.

The data tended to support the hypothesis. More specialized courses were available and more students enrolled in specialized vocational agriculture programs in area vocational school districts than in non-participating local schools. Teachers of specialized courses were more qualified. More student activity and more occupational experi- ences than those at participating local schools.

 dropout rates than non-participating local schools. Vocational agriculture teachers in area vocational schools had more practical educational experiences than did teachers in area vocational schools.

Dropout Rates

Hypothesis II. Vocational agriculture programs in area vocational school districts have a lower percentage dropout rate than do vocational agriculture programs in high schools in areas not served by area vocational schools.

The data did not support the hypothesis. Dropout rates (including transfers to area vocational schools) from area vocational agriculture were a percentage of total agriculture enrollment in participating local schools, and lower rates of vocational agriculture programs in high schools in areas not served by area vocational schools.

Vocational Guidance

Hypothesis V. A greater quantity and a better quality of vocational guidance is provided in vocational agriculture programs in area vocational schools than are available to students in participating local schools.

The evidence tended not to support the hypothesis. There were lower counselor-student ratios in area vocational schools than in participating and non-participating local schools. Vocational agriculture teachers and supervisors in area vocational schools tended to rate the vocational guidance provided in area vocational schools higher than that provided in participating local schools. The vocational guidance provided in participating local schools was rated lower than in area vocational schools.

Characteristics of Students

Hypothesis IV. Students who enroll in area vocational schools in area vocational schools have distinct and identifiable characteristics which distinguish them from students enrolled in participating local schools.

The data tended to support the hypothesis. Students in participating local schools were more likely to have higher grades in all subjects, a lower percentage placed in special education, and to graduate after high school. A higher proportion of students in participating local schools were vocational agriculture students, and more were enrolled in agricultural courses than those who were the fathers of vocational agriculture students in participating and non-participating local schools.

Vocational agriculture teachers in area vocational schools tended to have more practical education experience than did faculty members in participating local schools. Faculty members in participating local schools, however, tended to have more practical education experience than did vocational agriculture teachers in participating local schools.

Conclusion

Vocational agriculture teachers in area vocational schools and participating local schools have similar characteristics. The differences between the two groups are not significant. Vocational agriculture students in area vocational schools and participating local schools have similar characteristics. The differences between the two groups are not significant.

Specialized Instruction

Hypothesis VII. Area vocational schools offer better specialized vocational agriculture programs than do local high schools.

The data did not support the hypothesis. More specialized courses were available and more students enrolled in specialized vocational agriculture programs in area vocational school districts than in non-participating local schools. Teachers of specialized courses were more qualified. More student activity and more occupational experiences than those at participating local schools.

Some Recommendations

The specific types of schools included in the study should be taken into account when considering the general applicability of the findings. Based on the findings of the study, the following recommendations are suggested.

1. Coordination, cooperation, and consultation between vocational agriculture programs in area vocational schools and participating local schools are to be expected, it is essential that vocational agriculture teachers in local schools be involved in planning and developing programs in area schools.

2. Special efforts must be made by school officials in area vocational schools and participating local schools to ensure that all students who desire to do so have the opportunity to participate in educational opportunities in their homes. Schools in area vocational schools are also largely offering more realistic placement programs and less time per session, focusing more effort on placement preparation, than did counselors in participating and non-participating local schools.

3. Image

Hypothesis VI. The image of vocational agriculture is higher by supplemental members and vocational agriculture students in area vocational schools and participating local schools than by students and participating local schools.

The data partly supported the hypothesis. Faculty members in area vocational schools generally rated vocational agriculture programs as higher by students and participating local schools.

4. Counselors in area vocational schools need to expand and improve occupational career information services to area vocational schools. The major role of counselors in area vocational schools is to provide vocational and occupational guidance and counseling services.
Input-Output Relationships for Adult Farm Management Programs

GEORGE H. COPA
University of Minnesota

What factors account for variation in outputs among programs for adult farm management education? One cannot fail to agree that the answer to this question has implications for decision makers, by teachers and administrators in planning, operating, and evaluating these programs.

If educational programs of the same type differ in their output, the logical question which follows is "To what significant ways do the programs differ?" This study looked at the inputs into the adult farm management programs in Minnesota as the potential source of variation in their output.

Production Function Approach

The adult farm management programs were viewed as productive units having certain inputs moving through a process and resulting in an identifiable output. This is a production function approach, a concept common to economics and industry but relatively new to education. The approach identifies the identification of inputs and outputs of a given process. A production function mathematically defines the relationship between inputs and outputs and between inputs themselves. It has the potential to answer questions such as: How should changes be made in inputs to most effectively increase output?

An input-output approach to providing this answer for educational systems, the production function approach is still in its introductory stages. Before its application for a given educational system can proceed and reach its full value, certain input and output data must be identified and quantified. Since in a given program the inputs and outputs are identified and quantified, the inputs and outputs are defined. The study reported in this article attacks the problem of identifying the important inputs to the educational farm management program in Minnesota and the application of the production function approach to this program.

Program Inputs

Inputs into the adult farm management program were divided into educational and non-educational categories. The educational inputs were subdivided into two groups related to quantity and quality. Educational quantity-related inputs referred to those inputs associated with the amount or intensity of education during a given cycle through the farm management program. The related feed were number of farm families enrolled, percentage of classroom instructional time spent in instruction, average number of farm families visited, number of contact hours of farm management-related inputs, number of family enrollees, and total hours of instruction per family enrolled.

Educational quality-related inputs referred to those inputs commonly associated with the instruction of instructional methods, quality-related inputs were instructor's salary per family enrolled, instructor's travel and subsistence per family enrolled, percentage of families of families enrolled who complete a record analysis, number of years of vocational agricultural education, age of agricultural, and classroom and instructor's educational level. The non-educational inputs were also divided into two categories: participant-related and non-participant-related. The participant-related inputs refer to those inputs which the farm family brought with them when entering and which they retained during the farm management program. The value of a participant-related input variable for a given participant was the mean on the input variable for participants in the program. Examples of inputs in this category are mean total farm capital, mean total liabilities, mean farm units, and years of previous farm record analysis.

The non-educational environment inputs were made up of those environmental inputs not provided by the farm management program. The inputs fitting into this category were annual precipitation, number of frost free days, and soil productivity index. These measures the general productivity level of the farms within the area served by each program since they are primary determinants of farm performance, crop yields, livestock enterprise combinations, and cropping program risk.

Program Output

The selected output measure for an adult farm management program was mean labor earnings for the year 1967. Thirty-two programs were included in the analysis. Each of these programs had ten or more farmers enrolled. Mean labor earnings was selected as a feasible measure of output using three selected measures of financial return: "cash flow" as a monetary measure was quantifiable. Second, it was a valid measure of the participant's relative position in the farm management programs since all participants contributed a major objective of the farm management program as the economic success. Since both of a participant's income was a measure of the participant's success. One factor which enhanced the validity of the mean labor earnings measure was that it was not directly constrained by wage requirements. 

Seven input variables proved to be most important in predicting program outputs. These inputs were mean index of crop yield (a measure of crop yield), mean index of income per $100 feed (a measure of livestock efficiency), number of frost free days, number of visits per family, percentage of clear instructional time spent in farm management instruction, age of agricultural classroom, and instructor's salary per family enrolled. The last three input variables were negatively correlated with the output measure, a significant and negative correlation coefficient was found for each of the input variables. The mean index of crop yield and income per $100 feed were positively correlated with the output measure, a highly significant positive correlation coefficient was found for each of these input variables.

Analysis

The adult farm management program was investigated for the year 1967. Thirty-two programs were included in the analysis. Each of these programs had ten or more farmers enrolled. Mean labor earnings was selected as a feasible measure of output using three selected measures of financial return: "cash flow" as a monetary measure was quantifiable. Second, it was a valid measure of the participant's relative position in the farm management programs since all participants contributed a major objective of the farm management program as the economic success. Since both of a participant's income was a measure of the participant's success. One factor which enhanced the validity of the mean labor earnings measure was that it was not directly constrained by wage requirements. 

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The partial positive relationship between number of farm visits per family and mean labor earnings is implied that programs with more on-farm visitation had higher mean labor earnings. The partial positive relationship between age of agricultural classroom and mean labor earnings is implied that older agricultural classrooms were associated with programs having higher labor earnings. The negative relationship between mean labor earnings and program enrollment indicated that programs with more enrollment had lower mean labor earnings. The partial negative relationship between mean labor earnings and program enrollment is implied that programs with more enrollment had lower mean labor earnings.

Findings and Implications

One of the major objectives of this study was to identify the most important input variables for variation in output of adult farm management programs in Minnesota. The seven variables identified accounted for 73.6 percent of the variation. Analysis of the results indicated that only one year's operation was investigated, only the between program variation was investigated, and correlation analysis does not establish a cause and effect relationship.

The analysis revealed the program-generated multiple linear regression techniques were used to identify the most important programs which contributed to the financial success of the program. The regression model was developed for a given educational environment input, those specific programs which contributed to the financial success of the program. The regression model was developed for a given educational environment input, those specific programs which contributed to the financial success of the program. The regression model was developed for a given educational environment input, those specific programs which contributed to the financial success of the program. The regression model was developed for a given educational environment input, those specific programs which contributed to the financial success of the program. The regression model was developed for a given educational environment input, those specific programs which contributed to the financial success of the program. The regression model was developed for a given educational environment input, those specific programs which contributed to the financial success of the program. The regression model was developed for a given educational environment input, those specific programs which contributed to the financial success of the program.

No number of farm visits per family was included in the analysis. The implication that programs with more on-farm visitation had higher mean labor earnings is implied that programs with more on-farm visitation had higher mean labor earnings. The partial positive relationship between age of agricultural classroom and mean labor earnings is implied that older agricultural classrooms were associated with programs having higher labor earnings. The partial positive relationship between age of agricultural classroom and mean labor earnings is implied that older agricultural classrooms were associated with programs having higher labor earnings. The partial positive relationship between age of agricultural classroom and mean labor earnings is implied that older agricultural classrooms were associated with programs having higher labor earnings. The partial positive relationship between age of agricultural classroom and mean labor earnings is implied that older agricultural classrooms were associated with programs having higher labor earnings. The partial positive relationship between age of agricultural classroom and mean labor earnings is implied that older agricultural classrooms were associated with programs having higher labor earnings. The partial positive relationship between age of agricultural classroom and mean labor earnings is implied that older agricultural classrooms were associated with programs having higher labor earnings. The partial positive relationship between age of agricultural classroom and mean labor earnings is implied that older agricultural classrooms were associated with programs having higher labor earnings. The partial positive relationship between age of agricultural classroom and mean labor earnings is implied that older agricultural classrooms were associated with programs having higher labor earnings. The partial positive relationship between age of agricultural classroom and mean labor earnings is implied that older agricultural classrooms were associated with programs having higher labor earnings. The partial positive relationship between age of agricultural classroom and mean labor earnings is implied that older agricultural classrooms were associated with programs having higher labor earnings.
What is the relationship between a teacher's knowledge of subject matter and level of students' achievement? Do students whose vocational agriculture instructors possess a high level of knowledge of specific subject matter achieve at higher levels than do students whose instructors possess low levels of knowledge of the subject matter? Do teachers increase their knowledge of subject matter as they teach and does this change have an effect on student achievement? What is the relationship between a teacher's knowledge of subject matter and students' achievement when different instructional approaches and media are used?

THE STUDY

In an attempt to provide answers to these questions, a random sample of 44 Iowa vocational agriculture instructors and their students was selected. Each instructor and his students were randomly assigned to one of eight treatment groups: audio-tutorial, demonstration, field trip, independent lesson plan, single concept film, transparency, video-tape, and a control group with no teaching in the traditional manner. Included in the study were 2,503 vocational agriculture students in grades 9 through 12.

Subject matter included in the study was that which would be typically taught in each of the grade levels studied. Units of instruction at the high school level included animal health, commercial fertilizers, small gasoline engines, and farm credit.

An objective pretest and posttest was developed for each of the instructional units and administered to students in each of the classes by the school guides. Likewise, a test over each of the subject matter areas was developed for instructors and administrators to them by the guidance directors before and at the end of the study. Instructors were placed in three equal groups (high, medium, and low) based on their pretest scores and differences between pretest and posttest scores. The study covered a period of three weeks.

Student Achievement and Instructors' Knowledge

Data presented in Table 1 reveal the differences between the mean pretest scores for students whose instructors were grouped according to instructors' knowledge of the subject matter. In three of the five subject groups, high and medium instructors' students had the highest mean scores in the medium group had the greatest difference between the highest and lowest mean scores. In all of the five subject areas, the small gasoline engines subject matter areas, students whose instructors were in the low group had the least amount of change.

Table 1

<table>
<thead>
<tr>
<th>Subject Matter Area</th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal health</td>
<td>11.28</td>
<td>11.21</td>
<td>10.02</td>
</tr>
<tr>
<td>Commercial fertilizers</td>
<td>8.58</td>
<td>8.65</td>
<td>8.68</td>
</tr>
<tr>
<td>Small gasoline engines</td>
<td>12.21</td>
<td>12.75</td>
<td>12.55</td>
</tr>
<tr>
<td>Farm credit</td>
<td>5.96</td>
<td>6.01</td>
<td>5.91</td>
</tr>
<tr>
<td>Compositional subject matter</td>
<td>10.69</td>
<td>11.27</td>
<td>8.28</td>
</tr>
</tbody>
</table>

The differences in students' pretest and posttest scores were analyzed according to instructors' knowledge of the subject matter. These differences in posttest scores among students grouped according to their instructors' knowledge of the subject matter were considered in the analysis of variance. Significant differences among instructors' change in knowledge were determined by the significance level of Student's t-test at the .05 level.

CONCLUSIONS AND RECOMMENDATIONS

The findings of this study suggest that teacher education programs for prospective teachers of vocational agriculture may be successful in producing teachers who are adequate to the needs of the students in the technical areas of agriculture. The results of this study support the findings of other studies that the use of technology in the classroom is an effective way to teach the subject matter to students whose instructors are in the lower knowledge areas.
Concerns and Expectations of Area Occupational Education Programs

JOHN R. CRUNLINGTON, Virginia Polytechnic Institute
and
JOE P. BAIL, Cornell University

The possibility that area vocational schools would develop in many states is now a reality. They have now become a reality. The time has come to lay aside arguments for and against vocational schools and devote time and effort to constructing successful programs in area schools.

Many of the educational values that an agricultural education program can provide communities within an area school's boundaries were pointed out in the February, 1969, issue of The Agricultural Education Magazine. We cannot afford to develop the high-quality agricultural education programs in area schools or permit others to develop them and then tell us how to conduct them.

PROGRAM DEVELOPMENT

Before we find ourselves spending time treating problems arising from the development of programs which should be focused upon positive program development. We can therefore prevent some problems experienced in area schools in the formative stages. One approach is to answer this question: What are the current concerns and expectations of lay and professional people regarding occupational education in area schools? A study was initiated in 1968 at Cornell University in cooperation with the New York State Vocational Education Department to research this problem. The study was broad in scope, encompassing all the occupational education programs in area schools in a twelve-county area in New York. The findings of this study have strong implications for agricultural education programs in area schools.

To identify the concerns, expectations, and degree of aspiration fulfillment of those associated with area programs, samples of 79 students attending area schools, 77 parents of students, 71 occupational teachers, 73 administrators and guidance counselors, 77 school board members, and 67 potential employers were contacted in eight area school districts to provide an inventory of the current status of the area school district. The inventory questions and method of data collection were based on 27 guidelines for use in strengthening present and future area occupational education programs. This article presents these guidelines and several of the major findings and conclusions of the study.

CONTINUING EDUCATION

The emphasis upon continuing education prompted the question to state departments regarding their plans for further education. Thirty-five percent of the students had no plans for further education; 35 percent planned to attend a four-year college; 30 percent planned to enter a two-year community college; 27 percent planned to pursue apprenticeship, night school programs, or to continue school training in the military service. Forty percent did not respond to the question. The fact that more than 30 percent of the students plan to continue formal education is significant.

These findings imply that any occupational program must be closely aligned with job opportunities in the labor market and that programs must be realigned with course offerings in the two-year community college or technical school. Unless we in agricultural education consider this in program development, students will be limited in their ability to secure employment or continue their education.

CONCERNS AND EXPECTATIONS

Two major objectives of this study were to identify concerns and expectations which lay and professional people have with area occupational education programs. Each of the respondents was asked to indicate on the questionnaire whether a statement reflected a concern of his with the area program, if the statement was a concern, respondents were then asked to indicate whether it was a major or minor concern. The following are statements which were indicated as a major concern by 50 percent or more of each respondent group.

Students

- Whether a student will be prepared to enter a job at an entry level upon completion of the program.

- Whether the area occupational center will help graduates find jobs.

- Opportunities for job placement after program completion.

- Attitude of component school guidance counselor toward the area occupational program.

- Adequacy of guidance counseling for prospective educational students.

Administrators and Guidance Counselors

- Why student drop out of the area occupational education programs.

- Availability of work experience programs.

- Not enough emphasis placed upon occupational education programs.

- Whether a student will be prepared to enter a job at an entry level upon completion of the program.

- Type of training experiences being offered.

- Ability to obtain qualified teachers.

- Not enough emphasis placed on occupational education programs.

The quality of students entering the occupational education programs. Less than half of every sample group expected that occupational programs would be provided only at the eleventh- and twelfth-year level. Five statements ranked consistently highest in expectations of area occupational programs. These statements were: that occupational programs meet the employment needs of the students; that occupational programs meet the needs of the employers for trained workers; that the local administrators and area administrators have regular lines of communication to develop programs of component schools and area centers are coordinated; that area centers were adequately equipped, modern, adequate facilities and equipment. Using a three-point scale, the fulfillment of the respondents' expectations were rated a higher level of fulfillment than (Continued on page 129)
The Role of the Vocational Agriculture Teacher

Considerable concern has been expressed over the changing role of the vocational agriculture teacher. This article reports part of a study that attempted to deal with this situation: Is what behaviors should vocational agriculture teachers engage in?

The Study

A questionnaire was developed which included thirty activities in which teachers might engage. Respondents were asked to indicate whether they felt that vocational agriculture teachers should or should not engage in each activity.

There were seven groups of respondents: vocational agriculture teachers, of the teachers, distributive education teachers, trade and industrial education teachers, non-vocational teachers, principals, and superintendents. One hundred randomly selected individuals from each of these groups were surveyed during the spring of 1967. Eighty-five per cent of the questionnaires were returned. Participants were equally divided among the states of Florida, Georgia, Kentucky, and North Carolina.

The study was undertaken on the assumption that an analysis of this nature would be of value to those who are presently concerned with teacher education and supervisory responsibilities. The study is an attempt to evaluate further the role of the vocational agriculture teacher. While much remains to be known with respect to teachers of vocational agriculture, nothing more is definitely associated with their positions. Similarly, little about vocational agriculture is inadequately understood or subject to more speculation in view of the changes taking place in the program.

Findings

Presented in the table are the thirty role activities with the percentage of all respondents who felt that vocational agriculture teachers should engage in each activity. The activities are grouped according to function. In the questionnaire the group headings were not presented and the activities were randomly arranged.

Note that several of the activities were not considered appropriate by a majority of respondents. Furthermore, some activities were considered very appropriate. Special attention is called to the three adult education activities. At best, adult education is considered a marginal role by the respondents.

Implications

Teacher educators and supervisors should be able to utilize the findings to better understand what teachers and administrators expect of vocational agriculture teachers. Vocational agriculture teachers should find the results helpful in understanding their own roles. The results are one attempt to clarify further the role of the vocational agriculture teacher. Careful consideration and serious discussion should be underway to consider some of the inconclusive results, especially in areas such as adult education.

One important implication that should not be overlooked by vocational educators is this: Teachers are influenced greatly by peers, and persons behave as they are expected to be. Therefore, if local teachers and administrators feed a role that is inappropriate, the vocational agriculture teacher may have difficulty performing the role, even though in some cases he may feel he should. Before teacher educators and supervisors evaluate a teacher's performance of the role they feel he is supposed to, they should try to determine the local conditions of influence under which the teacher is behaving. The agriculture teacher may no longer be able to perform some roles because of changes in expectations at the local level.

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Concerns and Expectations of Area Occupational Education Programs (Continued from page 127)

students. Expectation fulfillment for the other respondent groups were lower and similar:

CONCLUSIONS

Concerns identified by lay and professional groups revealed that further improvement in area occupational programs can be made. The following conclusions reflect these concerns:

- Evaluation techniques specifically applicable to area occupational programs need to be developed and tried out in actual situations.
- Guidance personnel services for the area and component schools need to be expanded to fulfill their proper role in serving vocational education students.
- In-service educational programs for occupational teachers need to be provided and utilized.
- A systematic public information program must be developed to provide information on the area occupational program to parents and other lay people in the community served by the area center.
- Efforts must be made to maximize teacher-parent contact in an area program.
- Efforts must be made to install a

The Agricultural Education Magazine

LEWIS C. FORREST
North Carolina State University

LEWIS C. FORREST is Instructor, Department of Agricultural Education, North Carolina State University, Raleigh. The research reported in this article was completed pursuant to a contract with the U.S. Office of Education through the Center for Research, Development and Training in Occupational Education at North Carolina State University.

November, 1970

The authors' intention for preparing this review and synthesis was to produce "a document of value to teachers, school administrators, supervisory personnel, and teacher educators as well as researchers." It was also intended "to serve as a convenient source for obtaining an overview of research related during the last three years in agricultural education." More than 1,000 manuscripts were considered; approximately 500 had a direct influence on the review and are included in the bibliography.

The following major headings indicate how studies were grouped (for analysis: Philosophy and Objectives; Manpower Needs and Employment Opportunities; Teacher Education; Learning Processes and Teaching Methods; Instructional Materials and Devices; Curriculum Development; Administration and Supervision; Educational Programs; Facilities and Equipment; Student Personnel Services; and Evaluation. Many of these areas were subdivided and within the limits of those written.

The authors have done an excellent job of fulfilling their objectives by summarizing the research in a narrative form which is extremely readable and interesting. This method of presentation very quickly places you in the thick of the studies reviewed. The set and array of significant studies in each area. The authors' conclusions and recommendations are meticulously arranged and appropriate times. The findings of many studies are presented in sufficient detail, enabling the reader to determine if he wishes to read in its entirety.

Two lessons on employment opportunities; and nine project planning. Each lesson is to four pages in length and contains subject matter, a listing of necessary materials, an operational procedure, references, and review questions. Each lesson has illustrations or photographs. Because of the limited space per lesson a great depth; subject matter has not been covered. Additional information could be supplied by the instructor during demonstrations and discussion periods. The text would be most helpful in junior and senior classes for beginning welders.

The balance of subject matter between arc and oxyacetylene welding might be appropriate for some programs. The units on welding opportunities and metallurgy are at the end of the book.

The book is easy to read and colorful, which will increase its acceptance by many students. An instructor guide is available for use with the test for $1.00. The authors were aiming at the beginning student. I suggest you review the book to see if they hit the target.

William H. Kelly
University of Minnesota


Welding Processes includes thirty-four lessons on oxyacetylene welding; four lessons on TIG, MIG and other welding techniques; seven lessons on metallurgy; and two lessons on employment opportunities; and nine project planning. Each lesson is to four pages in length and contains subject matter, a listing of necessary materials, an operational procedure, references, and review questions. Each lesson has illustrations or photographs. Because of the limited space per lesson a great depth; subject matter has not been covered. Additional information could be supplied by the instructor during demonstrations and discussion periods. The text would be most helpful in junior and senior classes for beginning welders.

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Martin B. McMillan
University of Minnesota


The first half of the book is devoted to the family decision to move to a developing country; the logistics and red tape necessary to get there; what to expect in the foreign country concerning housing, communication, health care, school, work, travel, entertainment, and personal freedom; and the advantages and disadvantages of overseas assignment for the family and one's career; and some suggestions concerning successful working and living in a developing country.

The second half of the book includes fact sheets about eighty-two developing (undeveloped) countries. The fact sheets contain information about the climate, economics, language, religion, travel, holidays, and schools for American children, embassy and consulate addresses, and additional reading recommendations.

The book is the result of a funded research project for which questionnaires from 500 university faculty members and 315 wives provided much of the material for the book. The subject is well covered. No problems concerning going to an undeveloped country to work have been overlooked. However, generalized statements about many countries are difficult.

The book is a must for university families who will be moving to a developing country. It is especially true if the trail has not been broken by people they know. The sources for further information are included, because they are difficult to find elsewhere.

Martha B. McMillan
University of Minnesota


Welding Processes includes thirty-four lessons on oxyacetylene welding; four lessons on TIG, MIG and other welding techniques; seven lessons on metallurgy; and two lessons on employment opportunities; and nine project planning. Each lesson is to four pages in length and contains subject matter, a listing of necessary materials, an operational procedure, references, and review questions. Each lesson has illustrations or photographs. Because of the limited space per lesson a great depth; subject matter has not been covered. Additional information could be supplied by the instructor during demonstrations and discussion periods. The text would be most helpful in junior and senior classes for beginning welders.

The balance of subject matter between arc and oxyacetylene welding might be appropriate for some programs. The units on welding opportunities and metallurgy are at the end of the book.

The book is easy to read and colorful, which will increase its acceptance by many students. An instructor guide is available for use with the test for $1.00. The authors were aiming at the beginning student. I suggest you review the book to see if they hit the target.

William H. Kelly
University of Minnesota


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Martin B. McMillan
University of Minnesota

From the Book Review Editor's Desk


This is the seventh updating of an important encyclopedia of farm management information. It is designed especially for "farmers, county extension workers, vocational agriculture teachers, and others engaged in agricultural businesses." If you have not seen a copy, you should order one for reference with your farm


Although the publisher, this is a fully updated edition. It is part of the outboard motors is written by the authors and deals with the upper half of the outboard sector, covering the inboard types in depth. The book includes a chapter on the deep-coastal boats and much information on the subject. It is well worth the price.

Students of boating will find this book a valuable reference.

James W. Wall
Executive Secretary

The Twenty-Second Annual Convention of the NVATA will be held at New Orleans, Louisiana, December 5-9. The Fontainebleau has been designated as the headquarters hotel for NVATA and the Agriculture Education Division of AYA. Over 700 agriculural educators, wives, and guests are expected to register.

Three general sessions will be held. Each of the six regions will hold two sessions to attend to items of regional concern. Regions II and IV will elect new Vice Presidents.

Featured speakers will include Dr. Lee Hamblett, Associate Commissioner; Fred Swift, Publisher, Successful Farming Magazine, who will appear at the Sunday evening breakfast.


Fifteen teachers of vocational agriculture will attend the convention with all expenses paid by the New Holland Division of Sperry Rand, United States Seed Corporation, and The Charles Pfizer Company. Associations that have reached 100 percent membership in NVATA will receive special recognition as will the state presidents of the associations that have attained excellence in certain designated areas. An Exchange of Ideas Contest will be held, and the twelve winners will walk away with valuable prizes. The idea must be exchanged with a teacher from outside the state.

A new President and two new Vice Presidents will be installed at the final session.

The Fourth National Young Farmer Educational Institute will be held in Wichita, Kansas, October 4-6. An interesting program including speeches, panels, and tours is planned for young farmers and their wives attending the institute. Teachers of agriculture professionals, to be attended. For information concerning the National Institute contact: Dale Adell, Chairman, Executive Committee, Young Farmer Educational Institute, Rural Route 1, Glen Elder, Kansas 67446. Phone (913) K15-5366.
Stories in Pictures

ROBERT W. WALKER
University of Illinois

Agricultural Education

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Vocational agriculture students at Mayville, Wisconsin, construct multi-purpose livestock feeders from used tire tires. To build, remove one side of the tire by cutting all the way around about five inches from the bead, turn the tire inside-out and pull the resulting bowl-shape through the other bead to a platform made of scrap lumber. (Photo by Jake W. Sontze, Vocational Agriculture Teacher, Mayville, Wisconsin)

Contrary to the small gasoline engine, current held during FHA Work at the Pennsylvania State University attempt to cut both placed in the angle by constructing. (Photo by Rodney W. Tozzi, The Pennsylvania State University)

Students not enrolled in the horticulture class at Cherryville, North Carolina, High School use their study period to get experience in horticulture. They are supervised by William M. Edwards, Teacher of Agriculture. (Photo by W. T. Ellis, North Carolina A&T State University)

Featuring — INNOVATION IN AGRICULTURAL EDUCATION