FFA Study Committee

This Special Study Committee met to review programs and activities of the Future Farmers of America and to make suggestions for possible changes, particularly in view of the expanded role of vocational education in agriculture to train for non-farm agricultural occupations. The result of their study was presented as recommendations to the National FFA Board of Student Officers and Board of Directors for consideration at their annual joint meeting in July.

Committee members, seated around the table, are (left to right) Walter Bomeli, Bangor, Michigan, past president of the National Vocational Agriculture Teachers' Association; Dr. E. M. Norris, head teacher trainer, Prairie View A. & M. College, Texas; Kenneth Kennedy, Cadiz, Kentucky, national FFA president; Dr. Ralph E. Bender, Chairman, Department of Agricultural Education, Ohio State University; Nels Ackerson, Westfield, Indiana, 1963-64 national FFA president; T. L. Faulkner, State Supervisor of Agricultural Education, Montgomery, Alabama; Phillip Alampi, Secretary of the New Jersey State Department of Agriculture; A. G. Bullard, State Supervisor of Agricultural Education, Raleigh, North Carolina; Neal Andrew, on leave as State Supervisor of Vocational Agriculture for New Hampshire, and Elvin Downs, State Supervisor of Vocational Agriculture, Salt Lake City, Utah. Mr. Faulkner served as Chairman of the Committee.

U.S. Office of Education personnel who served as consultants to the group are left to right, standing, Malcolm C. Gaar, A. W. Tenney, H. N. Hunsicker, E. J. Johnson, and Wm. Paul Gray.

Harris Named FFA Executive Secretary

C. Coleman Harris

C. Coleman Harris has been named State FFA Executive Secretary in Indiana. He was formerly teacher of vocational agriculture in Cass County, Indiana.

During the past year, Harris was a National FFA Fellow at the University of Maryland. In addition to graduate study, his year included experience in the National FFA Office where he worked closely with National FFA Executive Secretary, Wm. P. Gray, to gain understanding of the organization and functioning of the FFA.

Harris holds the B.S. degree in agricultural education and the M. S. degree in educational administration from Purdue University. While at the University of Maryland he continued study in agricultural education and educational administration and supervision.

Agricultural Education

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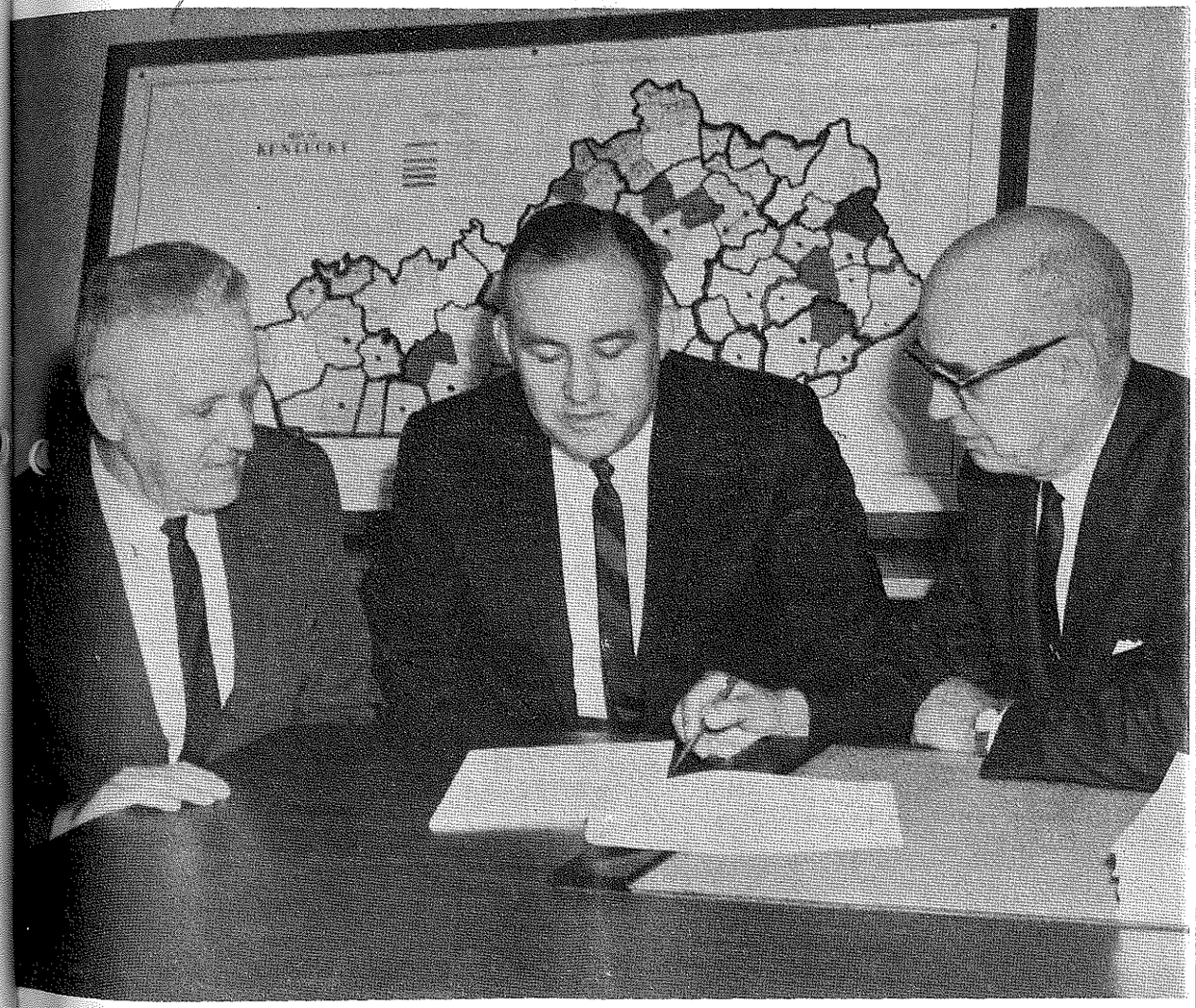

Discussing plans for a program of research and development that will support a continuing program of vocational agriculture in Kentucky.
Starting left, M. M. Botto, Frankfort, Director of Agricultural Education, Dr. Carl F. Lamar, University of Kentucky, Director of the State Research Coordinating Unit, and E. P. Hilton, Frankfort, Director of Vocational Education.

Featuring

RESEARCH

The professional journal of Agricultural Education. A monthly, managed by an editorial board and published at cost by Interstate Printers and Publishers, Danville, Illinois.

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Editorials

Will Research Solve Our Problems?

Finally, there are dollars available to actually support research and researchers in agricultural education. The word "finally" may not mean too much to the younger members of our profession. It is used here to indicate that after many years of talking, planning, hoping, and trying, there are some dollars available for research. Efforts at the national level for many years were so unfruitful until there was "one man, part of the time" assigned to research. Most of our state staffs have had specialists in many areas, but usually a researcher was not among these. Now, in these modern days, the demand is greater than the supply, which is good news for those few researchers in the market.

As indicated by the writers of several recent articles in this magazine in referring to new opportunities, a pertinent question to raise is, "Will we make most effective use of these opportunities?" This certainly applies in the area of research. Perhaps there is no area of educational endeavor today of which more is expected than the area of research. My guess is that we are expecting too much. More specifically, I believe that some are expecting research to solve problems that research cannot solve, no matter how well the research is conceived and done. See if you agree with some of these arguments.

One of the major concerns today of anyone in Agricultural Education who stops long enough to ask the question is "What direction should we go?" This is likely the Number 1 question for our profession. Yet, Direction-Finding is not a research problem. Surely, research will likely be needed to furnish some food for thought in seeking and finding the most promising directions for programs in the years ahead. The answer is one of what *should be*. This means a consideration of possibilities, alternatives, beliefs, and values. These matters are more in the realm of philosophy than in research. Answering such questions in finding direction is more nearly a problem of philosophical analysis than of research design. Agree?

More pressing than direction-finding for most of us in our day-to-day routine is finding a satisfactory answer to the problems facing us *now*. "I must answer this man now, I can't wait for research to give me the answer," said one state leader. I would suggest that research promises very little in the way of specific answers to a specific problem. In fact, this may be a good way to get poor research as well as poor answers. Again, research may be needed to use as a basis for answering some of the many questions facing us in such areas as Occupational Education. Research cannot supply the answers to most of the specific problems we face in our work. Agree?

Perhaps these two areas, that of long-range planning and meeting our everyday problems, will be enough to illustrate the limitations of research applied to Agricultural Education. Seeing limitations makes research no less important and needed. We desperately need research in most areas, I believe that there is little question about this. The purpose here is to suggest that we *not* expect research programs and projects to do things for us that we must do in other educational ways. Making decisions is a human matter, even if the facts used in arriving at the decision come from a computer. Agree?

Cayce Scarborough

Cayce Scarborough

Theory And Practice

You will notice that "Speaking of Pictures" feature appears on the back page again this month. Thanks to Gilbert Guiler, Ohio State University, for agreeing to serve as *Special Editor, Pictures*. In addition to this regular feature, Gil will be needing your cooperation for good pictures for the cover page. He, and I, will appreciate your help.

The *AVA Journal* had an inside track, and thus got a scoop on the appointment of a long-time friend, Alton Ice, as Assistant Executive Secretary of the AVA. A big job, especially now and the next few years. But Alton is a big man, not only physically but in every other way that I have known him. Our congratulations and best wishes.

The old Puritan verse was quoted in this column some time ago, to illustrate the exclusiveness that seemed to be desired by leaders and policy makers in vocational education through the years. Someone sent me this slightly different version:

We are the choice elected few
Let all the rest be damned
There's room enough in hell for you
We won't have heaven crammed.

Speaking of definitions, as we were last month in these pages, the AVA booklet "Definitions of Terms —" does not include the term Occupational Education.

Ray Clark and other reviewers of books in this magazine, use more words but may not say much more than the short one read recently for the book, *Diary of a Mad Old Man*. The entire review was as follows:

Records the desperate longing to feel alive that drives a dying man to indulge in such remnants of sexuality as are left to him. (The author died in July at the age of seventy-nine.)

(Continued on next page)

Theory and Practice

(Continued from page 99)

Still another type of "calling card" has been called to our attention by Harold Engelking, Supervisor, Illinois (and a Special Editor). It is billfold-size, using both sides as follows:

Card of Recognition

DURING THE SCHOOL YEAR_____
HAS ACCOMPLISHED AT LEAST FOUR OF THE SIX ITEMS LISTED ON THE BACK OF THIS CARD. THIS CARD IS GIVEN IN RECOGNITION OF HIS ACCOMPLISHMENTS AS A TEACHER OF VOCATIONAL AGRICULTURE

(Items Listed)

_____Adult and/or Young Farmers
_____Chapter Program of Work
_____SECTIONAL FOUNDATION AWARDS (5 or more)
_____State Farmer Applicant
_____Project Average (2 or more)
_____Active Advisory Council

"The hand that rocks the cradle" is also the one that, directly and indirectly, controls the income on many farms. The average housewife shopping for food is about as picky as picky can be, but then you expect your wife to be particular about what goes on your plate, too. So, it may pay you in the long run to observe what your wife and her counterparts like and dislike when they visit the supermarket or neighborhood foodstore.

— *The Agricultural Situation*

"They may look alike, yet one may score three times the production potential of the other." This was the caption beside two young dairy cows shown in a farm magazine. Similar articles have been written on the fallacy of looking mainly at appearances of beef cattle to identify "top" animals. How long are we to continue Judging Contests based upon looks, as part of our teaching programs in vocational agriculture? A number of leaders have suggested that production agriculture emphasis is out-of-date. How would you rate the traditional Judging Contest?

Thanks again for your letters and other communications.

Letters to the Editor

Dear Cayce:

Congratulations on the first two issues of *The Agricultural Education Magazine*. For a beginner in this office, it seems to me that you have started off in high gear and I want to express my personal gratification with the quality and variety of articles appearing in these two issues. I was quite pleased to see the article by Dr. Ekstrom in which he gave an historic sketch. I think your editorial in regard to the nature and purpose of the magazine also was very timely.

One thing that I noticed is a smaller number of pictures or illustrations in these first two issues. Does this mean that the previous Editor scraped the bottom of the barrel dry or that you have instituted a change of policy of being more discriminating on pictures or of reducing them drastically?

I note in the August issue an article which uses the words in the title "Non-Farm Agriculture." I was in a national committee meeting recently in which this term "non-farm" was criticized. The suggestion given was that we should use the term "off-farm" instead. The point made by these leaders in agricultural education stressed the negative nature of "non-farm agriculture" and indicated that anything that deserves the term agriculture attached to it does in some way relate to the farm and that referring to it as "non-farm" does not accurately describe it. I am wondering if there is need for clarification on terminology here of a nature similar to that which is carried about the definition for "occupational education" and "vocational education."

With best personal regards and wishes for a very successful term as Editor, I am

Sincerely yours,
Harold M. Byram, Chairman
Agricultural Education
Michigan State University

Your encouragement needed and appreciated, Harold. Maybe we need to start a new column and call it TERMINOLOGY. — *Editor*

Dear Dr. Scarborough:

I have just read the July and August issues of *Agricultural Education Magazine*. Both issues are great. The articles by Earl Webb and Lawrence Drabick are among the best I have yet seen, and I hope you will see fit to devote another issue to philosophy soon. Particularly I want to compliment Drabick for his scholarly article in which he has made some outstanding contributions to our philosophy — although I don't agree with his conclusions.

Your criticisms of the FFA in the editorial are well taken and should lead into some healthy changes if continued. I, for one, vote to throw away the term "farmer" and, if necessary, start from scratch with a new organization. A sentimental and patriotically-orientated youth organization is as badly out of step with our times as Smith-Hughes. Both were fine in 1928 but would now be a waste of money.

Cordially yours,
Thomas K. Shotwell
Voc. Agri. Teacher
Charleston, Missouri

Ed. Note: Thanks very much. It is good to see someone compliment the author of an article with whom he does not agree!

Dear Cayce,

I like the freshness of approach you are using on the editorial page. Short, well written paragraphs make for easy reading. The "sermonette of the day", and "The Leader Who Failed" are remembered.

How would a "question and answer" page in the magazine go over? Readers would be encouraged to send in questions. The answers could be provided by some authority such as Dr. Hamlin. There are many questions with the new program and I thought this might be of value.

Sincerely,
Harold F. Engelking,
Supervisor, Illinois

Ed. Note: Thanks Harold. What do some of you think about the question and answer suggestion?

Dear Dr. Scarborough,

How happy and surprised I was when I opened the July issue of The Agricultural Education Magazine and see that you were selected as its new editor.

Congratulations and many wishes for your new job in your very busy life.

Sincerely yours,
Constantious Boukouvalos
American Farm School
Thessalonike, Greece

Editor's Note: Costas is an AgEd graduate from N. C. State and taught vocational agriculture in N. C. before returning to his native Greece. He was an inspiration to us all.

Sophisticated Research

At one of the national conferences on research, it was suggested that we should be more sophisticated in our research. Here we go again with need for clarifying terminology. Just what do we mean when we advocate that we be sophisticated? Pursuing this question has resulted in identifying only one characteristic. Statistics. Is this what we mean? I am not sure that we want to be sophisticated in our research, unless it means more than statistical treatment of data. Before we get on the bandwagon, note that one appropriate definition of sophisticated is, "deprived of native or original simplicity"! In all seriousness, if sophistication is a major objective in our research, a Guest Editorial is needed to explain what it is and how we get it or do it. You are invited to use this space.

Depends Upon—

Needed Research And Development

—Ability, Foresight, Imagination

Lloyd J. Phipps

LLOYD J. PHIPPS, Teacher Educator, University of Illinois

* Abstract of speech presented at National Seminar on Program Development of Research in Agricultural Education, Center for Vocational and Technical Education, The Ohio State University, Aug. 9, 1965.

Situation

We are entering a "golden age" of vocational and technical education. Whether or not we in agricultural education participate in this "golden age" and serve the welfare of mankind, as we can serve and as we should serve, will depend on our ability, foresight and imagination in research and development.

The President's Panel on Vocational Education gave agriculture educators and other vocational educators a mandate to research, develop and evaluate their programs. Because of the unfavorable image of agriculture, the Panel, in my opinion, was especially emphatic regarding the necessity to research, develop and evaluate the program in agricultural education. Congress legitimized the mandate of the President's panel through the Vocational Education Act of 1963 and further emphasized in the Act the necessity for research, development and evaluation of agricultural education by providing unprecedented amounts of monies for these activities in the Vocational Education Act of 1963, in other public school legislation and in such legislation as the Economic Opportunity Act.

Why do we have this sudden and unprecedented interest in research and development, including evaluation, in vocational education? Changes in America have created some compelling reasons. We in education may not be fully cognizant of the changes in the employment situation that are impinging on our society. We in agricultural education have been acutely aware for some time of the effect of automation in farming upon the manpower needs for production. We and other vocational educators, however, may not be fully acquainted with the growing impact of automation on all types of production. If we have been aware of the impacts of automation on nonfarm production, it is doubtful that we have been fully aware of their implications for agricultural education. Changes in nonagricultural manpower requirements in reality will create many opportunities for new educational services in agriculture and it has opened a "Pandora Box" of demands and opportunities for research, development and evaluation in agricultural education. Grant Venn says,[1]

"The impact of automation on the labor market has been profound. Automatic elevators have recently displaced 40,000 elevator operators in New York City alone. New equipment in the Census Bureau enabled 50 statisticians to do the work in 1960 that required 4000 such people in 1950. The check-writing staff in the Treasury Department has been reduced from 400 people to four. The airline flight engineer and the railroad fireman may soon disappear completely. Thirty thousand packing-house workers have been automated out of their jobs in the past few years. Enormous machines have helped reduce employment in the coal fields from 415,000 in 1950 to 136,000 in 1962. While construction work has leaped 32 percent since 1956, construction jobs have shown a 24 percent decline."

Ralph Bellman, a computer expert for the Rand Corporation, says,[2]

"Industrial automation has reached the point of no return. The scientific knowledge to automate American industry almost completely is already available and is certain to be used. Banks could cut their staffs in half easily by further automation; the steel and automotive industries could increase their use of automation a hundredfold. Lower and middle management as well as production workers will be displaced for there will be no need for decision making at that level. Unemployment resulting from automation would be greater right now except that many industries are holding back—at a sacrifice to their profits to avoid increasing the severity of the problem. Self-restraint on the part of industries cannot continue indefinitely. Automation itself will produce few jobs. Two percent of the population will in the discernible future be able to produce all the goods needed to feed, clothe, and run our society."

If the statement that misery loves company is true, we in agricultural education should be in very "loving company" with all other vocational educators in the next few decades. Some agricultural educators in the past decade have developed inferiority feelings because they were engaged in an educational field with rapidly shrinking job opportunities in farming. The recent studies identifying job opportunities requiring agricultural education in areas serving farming have increased morale and our feeling of worth materially. We cannot rest on our laurels, however, because many of these jobs will also disappear with automation.

Preparing for Jobs that do not Exist

Gordon Swanson, Professor of Agricultural Education and President of Phi Delta Kappa, made, in my opinion, a very cogent statement in the April issue of the *Phi Delta Kappan*. He said that in the future vocational educators should not be content with preparing persons to

(Continued, page 118)

[1] Grant Venn, *Man, Education and Work*, American Council on Education, Washington, D. C., 1964, pp. 8-9.

[2] C. B. Childs, "Is the Work Ethic Realistic in An Age of Automation?" *Phi Delta Kappan*, Vol. XLVI, No. 8, April, 1965, P. 373.

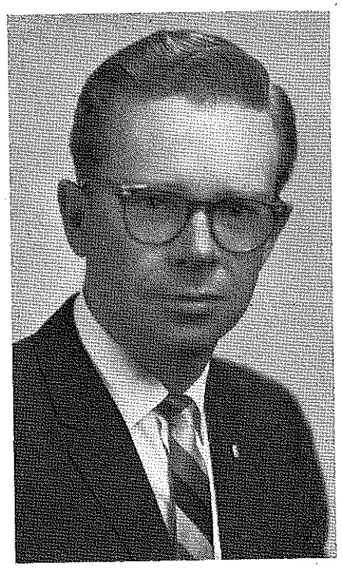
An Opportunity—

Research And Development In Agricultural Education

—An Imperative Need

DUANE M. NIELSEN, Director of Educational Research Department, Division of Adult and Vocational Research, Bureau of Research, U. S. Office of Education, Washington, D. C.

Editor's Note: This article was prepared earlier this year. The Occupational Research and Planning Program (ORP), formerly a part of the Division of Vocational and Technical Education, has become the Division of Adult and Vocational Research (DAVR) in the Bureau of Research, U. S. Office of Education. The branch structure and operating procedures within the DAVR are essentially the same as they were under the OPR Program. Any questions? They should be directed to Dr. Duane Nielsen, address shown above.



Duane M. Nielsen

Nearly half a century of vocational education in agriculture has verified the need for research and development activities in all phases and at all levels of program planning and operation. If vocational agriculture is to face effectively the challenges and opportunities which confront the program, research and development must permeate all aspects of its planning, organization, administration, operation and evaluation. Lacking this, the program can not achieve its potential.

Numerous research and development efforts have influenced vocational agriculture programs over the years. Increased activity, improved procedures and coordination characterize recent trends. However, such activities need to be greatly accelerated and intensified. Illustration I indicates some of the areas of concern and the magnitude of the task.

This illustration exposes the importance of research and development in the expansion and improvement of vocational agriculture. The three sides of the triangle represent the major components of occupational education: the vocational opportunity, the vocational student and the vocational program. The effectiveness of vocational programs is measured in the final analysis by the ability of the vocational product, the graduate, to perform successfully in a technological society. Research and development are imperative in this process.

Greatly expanded opportunities

Education Act of 1963 (P.L. 88-210) emphasizes the need for research and development and provides earmarked funds at two points in the Act.

One of these is the provision under Section 4(b) for ancillary services, including research and development. A minimum, matched expenditure of three percent of each State's basic allotment of funds must be made for such services. Many States are planning to go beyond this minimum and, through careful analyses of needs, coordination, and establishment of priorities, are generating promising programs of research and development based on this resource.

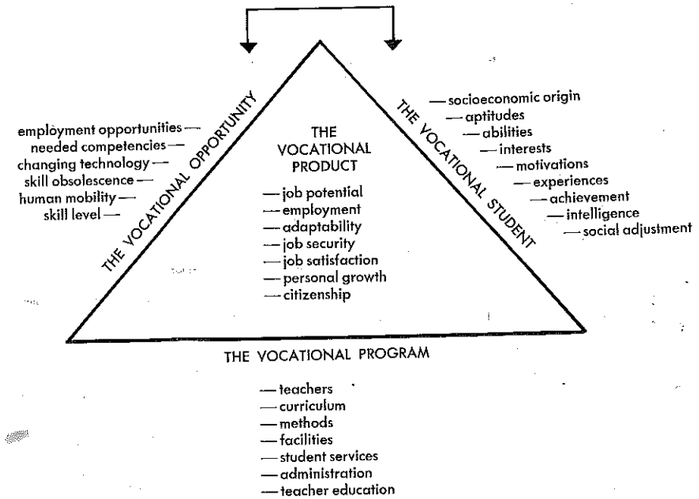
The second provision is in Section 4(c) of the Act which deals specifically with research, training, and experimental, developmental, or pilot programs:

"Ten per centum of the sums appropriated pursuant to section 2 for each fiscal year shall be used by the Commissioner to

(Continued on next page)

ILLUSTRATION I

IMPACT AREAS
RESEARCH AND DEVELOPMENT
IN VOCATIONAL EDUCATION



Duane M. Nielsen

(Continued from page 102)

make grants to colleges and universities, and other public or nonprofit private agencies and institutions, to State boards, and with the approval of the appropriate State board, to local educational agencies, to pay part of the cost of research and training programs and of experimental, developmental, or pilot programs developed by such institutions, boards, or agencies, and designed to meet the special vocational education needs of youths, particularly youths in economically depressed communities who have academic, socio-economic, or other handicaps that prevent them from succeeding in the regular vocational education programs."

The authorized appropriations for research and development under this Section of the Act are:

Fiscal Year	P. L. 88-219 Total Appropriation	Section 4(c) Research Training and Development Allotment
1965	$118,500,000	$11,850,000
1966	177,500,000	17,750,000
1967 and thereafter	225,000,000	22,500,000

To implement and administer this Section of the Act, the Office of Education has established an Occupational Research and Planning staff in the Division of Vocational and Technical Education, as shown in Illustration II. This staff has been organized into three branches, each responsible for activities in one of the substantive areas of research and development identified in Illustration I.

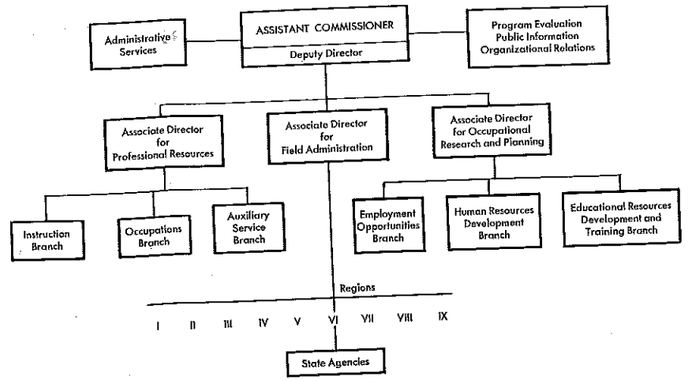
The *Employment Opportunities Branch* is primarily directed to the demand side of vocational and technical education. Its major thrust is toward assessing the employment opportunities and competencies needed for successful entry, persistence, and advancement in the world of work.

The second, the *Human Resources Development Branch,* is focused on the supply dimension—the vocational student, his origin, characteristics, aspirations, motivation and their implications for program development.

The third, and perhaps more de-

ILLUSTRATION II

DIVISION OF ADULT AND VOCATIONAL RESEARCH



cational Resources Development Branch. It is concerned with developmental or pilot programs and their evaluation, research and experimentation in curriculum development, instructional methods, organization, administration, teacher training, facilities, and the preparation of administrative and research personnel.

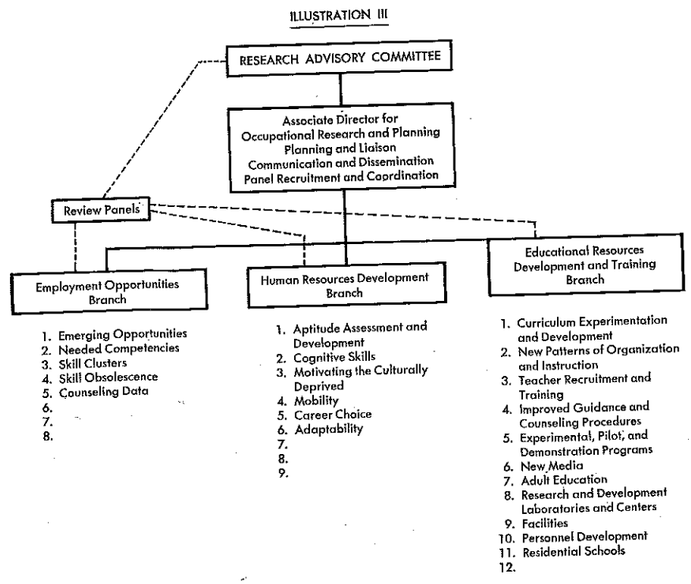
The Review Panels

Illustration III identifies some of the areas of concentration within each of the three branches. This illustration also shows the relationship of review panels to the program. Three review panels, drawn from vocational education and related disciplines, have been appointed. Proposals submitted for funding under the program are reviewed by the appropriate branch staff, other specialists and, in most cases, by a review panel. On the basis of this evaluation, proposals are either approved in whole or in part, disapproved, deferred for further evaluation, or recommended for revision and resubmission.

The proposals already received, and related efforts within the pro-

(Continued, page 116)

ILLUSTRATION III



In Alabama

Employment Opportunities In Off-Farm Agricultural Occupations

R. A. BAKER, Teacher Education, Auburn University, Alabama

Since the passage of the Smith-Hughes Act in 1917, programs of instruction in vocational agriculture have been largely designed to train persons for production agriculture. Rapid technological advances in agricultural production have caused shifts in jobs formerly conducted on the farm to those performed off the farm.

With the passage of Vocational Education Act of 1963 and the significant contribution that vocational agriculture can make to the preparation of competent people for agricultural occupations, a study was conducted in Alabama to determine:[1]

1. The agricultural businesses, industries and services by main product or service categories.
2. The existing off-farm agricultural occupations by main product or service categories.
3. The nature and extent of employment opportunities in off-farm agricultural occupations.
4. The occupational characteristics of off-farm agricultural occupations.
5. The methods used by businesses, industries, agencies and services in recruiting employees.

Sample and Procedure

In order to resolve the research problem the study involved the collection and a non-statistical analysis of data relative to the occupations being held by individuals in agricultural businesses, industries and agencies of an off-farm nature in twenty counties of the state.

The twenty counties included were selected at random from a population stratification by vocational agriculture supervisory districts. A research sample of 638 businesses and industries to be contacted by 100 teachers of vocational agriculture was selected at random from 1680 agricultural businesses and industries operating in the twenty selected counties.

Findings

The following findings were regarded as of major importance:

1. There were seventeen different types of off-farm agricultural businesses, industries and services operating in the twenty counties. Occupations were clustered by the main product or service categories as shown in Table 1.
2. The businesses, industries and services employing the largest total number of persons were, in descending order, agricultural chemical manufacturers and wholesales, lumber and wood products, dairy products manufacturers and distributors, meat processing and wholesales, feed manufacturers and wholesales, poultry and poultry products processing and sales and farm supply retail stores.
3. Of the total number of persons employed by firms in all main products or service categories, twenty per cent were engaged in off-farm agricultural occupations.
4. The main products or service category firms with less than twenty per cent of the total employees engaged in off-farm agricultural occupations were, in descending order, food processing and distribution, dairy products manufacturers and distributors, meat processing and wholesales, agricultural chemical manufacturers and wholesales and lumber and wood products.
5. There were 184 different off-farm agricultural occupations found in the twenty counties.[2]
6. Starting and top salaries seem

(Continued on next page)

Table 1. Number of Firms Operating in Twenty Selected Alabama Counties by Main Products or Service Categories

Main Product or Service Category	Number of Firms
Agricultural Chemical Manufactures and Wholesales[1]	65
Dairy Products Manufacturers and Distributors	87
Crops Processing, Sales and Warehousing	92
Farm Machinery and Equipment Retail Sales and Service	82
Farm Service[2]	44
Farm Supply Retail Stores[3]	203
Feed Manufacturers and Wholesales	63
Flower Production and Sales	213
Food Processing and Distribution[4]	85
Government Agricultural Services[5]	.....
Livestock Sales and Service[6]	181
Lumber and Wood Products[7]	153
Meat Processing and Wholesales[8]	71
Nursery Production, Sales and Landscaping Services	129
Ornamental Plant Service and Turf Care[9]	62
Pest Control Service	93
Poultry and Poultry Processing and Sales	87
Total	1,680

[1] "A Study of Employment Opportunities in Off-farm Agricultural Occupations in Alabama." Staff study by the Agricultural Education Service, Alabama State Department of Education, Montgomery, and the Department of Vocational, Technical and Practical Arts Education, Auburn University.

[1] Herbicides, insecticides and gum and wood chemicals
[2] Does not include government agricultural service
[3] Includes hardware stores non-metropolitan areas
[4] Includes canned, frozen, flour, meal and crop oil mills
[5] Includes state and federal agencies
[6] Includes stockyards, hatcheries and special services
[7] Includes lumber yards, pulp mills, logging, pulp-wood contractor, saw mills, special products mills and forest nurseries.
[8] Includes meat packing plants and freezer plants.
[9] Includes parks, cemeteries, golf courses, country clubs and others.

R. A. Baker

(Continued from page 104)

to compare favorably with other occupations requiring comparable training and experience.

7. A majority of the firms contacted depend primarily on present employees, friends and persons in similar businesses in locating persons to fill position vacancies.
8. Data collected from employers project an eight per cent increase in number of opportunities available in off-farm agricultural occupations five years hence in the twenty counties.
9. Data indicate very little (if any) increase in opportunities in semi-skilled level occupations.
10. Employers prefer employees with farm or rural background.

Conclusions

On the basis of the data collected, the following conclusions seem appropriate:

1. Based on the expressed opinions of employers approximately one-fourth of total persons employed in businesses, industries and services associated with agriculture need an agricultural background or training.
2. Vocational agriculture should strive to improve its communications with businesses and industries that provide supplies and services to farmers and other producers of plants and animals.
3. Vocational agriculture should include instruction to acquaint students with the existing employment opportunities, occupational characteristics and the pre-employment educational needs for off-farm agricultural occupations.
4. Local departments of vocational agriculture should determine the number of employment opportunities available in their service area.
5. Teachers of vocational agriculture should assume the responsibility in the placement of high school vocational agriculture graduates.

[2] A listing of the occupations may be obtained by writing the Department of Vocational, Technical and Practical Arts Education, Auburn University, Auburn, Alabama.

Off-Farm Agricultural Occupations Materials Available

The Center for Vocational and Technical Education at the Ohio State University is making available at cost, curricular and program developmental materials in off-farm agricultural occupations. These materials contain two types of publications: (1) Materials pertaining to program development, occupational experience programs, occupational guidance, and summarization of research findings available as individual items and (2) Course outlines and modules for teacher use, to be distributed as complete packaged sets.

	Approximately
Policy and Administrative Decisions in Introducing Vocational and Technical Education in Agriculture for Off-Farm Occupations	$ .50
Vocational and Technical Education in Agriculture for Off-Farm Occupations	.50
Summary of Research Findings in Off-Farm Agricultural Occupations	.60
Planning and Conducting Occupational Experience Programs for Off-Farm Agricultural Occupations	1.20
Horticulture — Service Occupations (Course outline and twelve modules — average per module is 40 pages)	5.25
Agricultural Supply — Sales and Service Occupations (Course outline and twelve modules — average per module is 45 pages)	5.00
Agricultural Machinery — Service Occupations (Course outline and sixteen modules — average per module is 30 pages)	6.50
Organizing to Provide Agricultural Education for Off-Farm Occupations	.25

Initial orders submitted through head state supervisors and head teacher educators will be honored first. However, individual orders from teachers will be filled as they are received.

Center for Vocational and Technical Education
Ohio State University
980 Kinnear Road
Columbus, Ohio, 43212

Personality Plus

Success in the farm recreation business depends heavily on the sincere desire of the management to serve people. It demands a manager who has the patience to put up with and cater to the wishes of a wide variety of customers.

It also requires a manager who is:

—willing to learn from experience in a new venture and tailor his facilities and services to the market;

—able to deal fairly but firmly with his customers in cases of vandalism, littering, theft, fire and rowdiness;

—able to advertise and promote his business; and

—able to spend enough money to set up an efficient, profitable operation. — *The Farm Index*, Aug. 1965.

BOOK REVIEW

CAREERS IN AGRIBUSINESS AND INDUSTRY. Stone, Archie, The Interstate Printers and Publishers, Danville, Illinois. 1965, pp. xi plus 291. Price $4.75.

The book is written for young people to assist them in choosing a career. It describes many of the non-farm agricultural businesses and industries of the nation and lists different kinds of jobs in these industries.

Training and experience needed for employment in these occupations are described in general terms. It is obvious that total curricula and course outlines could not be described for the multitude of jobs covered by this publication. However, sufficient description of requirements is presented to enable the student to intelligently select courses which would contribute to the vocational objective.

While there is relatively heavy emphasis on jobs for which college graduation would be required, description of the functions performed by the industry is sufficiently comprehensive to indicate job opportunities for high school or community college graduates.

Archie Stone is professor emeritus, State University of New York.

Raymond M. Clark
Michigan State University

The Sampling Problem In Research Design

J. ROBERT WARMBROD, Teacher Education, University of Illinois

J. Robert Warmbrod

Teachers, supervisors, and teacher educators conducting research in agricultural education seldom, if ever, have the time, money, or inclination to study the entire population about which data are needed or about which inferences are to be made. The teacher of agriculture wishing to estimate the percentage of adult farmers in the community who have attended adult classes, the supervisor seeking data indicating the proportion of all high school graduates who have completed at least one year of agriculture, and the teacher educator perplexed with designing a study to estimate the number of workers employed in nonfarm agricultural occupations are all faced with a common problem of research design: *How large a sample of the population must be studied if reliable conclusions are to be drawn and relevant generalizations formulated?*

Two facets of sampling will be dealt with in this article. First to be considered will be the determination of size of sample, and second, the method of selecting the sample. It is the intent of the writer to outline, in nonstatistical language, some general guidelines which researchers in agricultural education, particularly teachers, can follow in designing studies involving sampling. No attempt has been made to treat all of the problems of sampling that will be faced even by the inexperienced researcher. In fact, this article will be limited to a discussion of sampling techniques applicable to research designed to estimate the percentage of a population which possesses some characteristic or falls into some defined class or category. Basic to the discussion which follows is the assumption that simple random sampling will be used in selecting the sampling units of the population to be studied.

Size of Sample

A teacher of agriculture in making a comprehensive study of the local community is interested in determining, among other things, the number of workers employed in nonfarm agricultural occupations in the community who have attended adult classes provided by the school. The teacher asks how many farmers in the community must he interview to arrive at a reliable estimate. Interestingly enough, the teacher must answer some questions before an answer can be provided for his question.

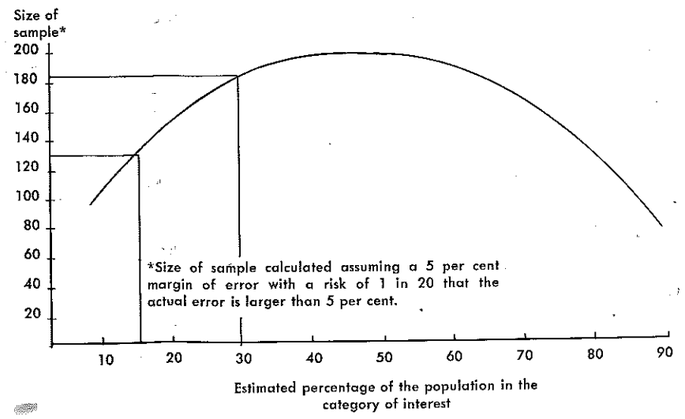
First, he must define the population with which he is concerned. He must be asked what he considers to be the community and how many farmers there are in the area defined as the community. The teacher replies that he is concerned with all farm operators in the school district and that he has an up-to-date list which indicates that there are 400 farm operators in the school district. Next the teacher must be asked how accurately he wishes to estimate what percentage of the farmers have attended adult classes. He states that he would be satisfied if the percentage is correct within five percent; that is, if the sample of farmers interviewed shows 25 percent to have attended adult classes, the percentage for the entire school district is sure to lie between 20 and 30 percent. Here the teacher is specifying the degree of precision desired for the estimate, or stated another way, he is indicating what margin of error he is willing to accept in the estimate.

It should be pointed out that absolute accuracy to within five percent cannot be guaranteed except by interviewing every farmer in the school district, for even when a very large sample of farmers is interviewed, there is always a chance of getting an unlucky sample which is in error by more than the desired five percent. So the teacher must answer another question: What risk is he willing to take that the actual error (in estimating the percentage of farmers who have attended adult classes) is larger than the desired five percent? The teacher replies that he is willing to take a 1 in 20 chance that the actual error is larger than the desired margin of error.

The teacher must be asked one additional question. Strangely enough he must now "guess" or estimate the percentage of farmers in the district who have attended adult classes. The teacher will probably reply that if he knew this he would not have to conduct the research. However, the teacher indicates that he doubts whether less than 15 percent or more than 30 percent of the farmers in the school district have attended an adult class.

It is now possible to indicate how many of the 400 farmers the teacher should interview. Figure 1 has been

(Continued, page 107)



J. R. Warmbrod

(Continued from page 106)

drawn to indicate the size of sample needed in this particular case. From Figure 1 it can be seen that if the actual percentage were near 15 percent he should interview about 125 farmers. However, if the actual percentage were nearer 30, approximately 180 farmers should be interviewed. It should be noted that as the estimated percentage of the population falling into the category of interest (in this case the percentage of farmers who have attended adult classes) increases to 50 percent, the size of sample also increases and reaches a maximum at this point. Therefore, the teacher should interview some 180 farmers if he wished to estimate, within the limits of error and risk of getting an unlucky sample indicated previously, the percentage of farmers in the school district who have attended adult classes.

Factors Influencing Size of Sample

This example illustrates that sample size is influenced by the estimated percentage of the population falling into the category of interest. It should be noted from Figure 1 that the curve indicating the size of sample is symmetrical around the point where the estimated percentage of the population in the category of interest is 50 percent. Hence, the research need be concerned only with half of the curve. If the estimated percentage of the population in the category of interest is 70 percent, then the size of sample would be the same as when the estimated percentage is 30 percent. That being the case, the succeeding discussion will be concerned with the estimated percentage of the population in the smaller category — a percentage which will always be 50 percent or less. Caution should be exercised, however, when the estimated percentage of the population in the smaller category is less than 10 percent. In these cases, the sample size should be increased since larger samples are needed for precise estimates when the percentage of the population possessing an attribute is extremely low.

Two additional factors influence sample size. As the degree of precision desired in the estimate increases, so does the size of sample

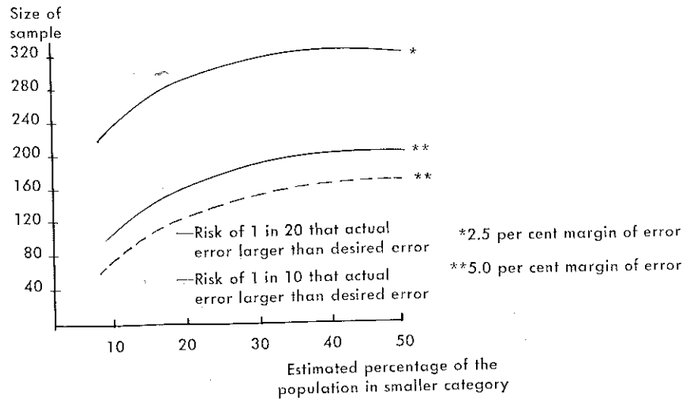


Figure 2. Size of Sample Needed for a Population of 400 with Varying Margins of Error and Risks that Actual Error Exceeds the Desired Margin of Error

Size of Sample Needed for Estimating the Percentage of the Population in a Selected Category (Assuming a Five Percent Margin of Error)

Number of Sampling Units in Population	If willing to take a risk of 1 in 20 that actual error is larger than five per cent and the estimated percentage of the population in the smaller category is:					If willing to take a risk of 1 in 10 that actual error is larger than five per cent and the estimated percentage of the population in the smaller category is:				
	10*	20	30	40	50	10*	20	30	40	50
100†	59	72	77	79	80	51	65	71	73	74
200	84	112	125	132	133	68	96	110	116	118
400	106	156	183	196	200	83	126	151	164	168
600	116	179	215	234	240	89	141	173	189	195
800	122	194	237	259	267	92	150	186	206	212
1000	126	204	251	277	286	94	156	195	217	224
1500	131	219	275	306	316	97	165	209	234	242
2000	134	227	288	322	333	99	169	217	243	252
2500	136	232	296	333	345	100	172	222	249	259

* Caution should be exercised when the estimated percentage of the population in the smaller category is less than 10 percent. In these cases, the size of sample should be increased since larger samples are needed for precise estimates when the percentage of the population possessing an attribute is extremely low.

† When the population is 100 or less, the entire population should be studied.

seen that if the allowable margin of error or degree of precision is 2.5 percent instead of 5.0 percent, the size of sample should be almost doubled (assuming, in both cases, a risk of 1 in 20 that the actual error is larger than the desired margin of error). The risk the researcher is willing to take in getting an unlucky sample also influences sample size. The size of sample can be reduced if the researcher is willing to take a greater chance of getting an unlucky sample. If the researcher is willing to take a chance of 1 in 10 rather than a chance of 1 in 20 of getting an unlucky sample, the size of sample could be reduced slightly. (Figure 2)

Table I has been calculated to indicate the size of sample needed when studying populations of various sizes. The sample sizes were calculated assuming an acceptable margin of error to be five percent.

Reading from Table I, the teacher in the preceding example should interview 183 of the 400 farmers, if he was willing to take a risk of 1 in 20 of getting an unlucky sample. If he was willing to take a chance of 1 in 10 of getting an unlucky sample, he could reduce the sample size to 151.

Suppose a teacher wished to estimate the percentages of all high school graduates during the past 10 years completing one or more years of agriculture who are now in each of the following categories: post-high school education, farming, nonfarm agricultural occupations, military service, and occupations not requiring a knowledge of agriculture. The teacher has identified 500 graduates as the population to be studied. He estimates that no more than 40 percent of the graduates will be found in any one of the categories. Reading from Table I

(Continued, page 114)

C. E. Richard

Study Indicates . . .

Vo Ag Tends To Hold High School Students

—In Virginia

B. C. Bass

C. E. RICHARD and B. C. BASS, Teacher Education
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How frequently have you heard a former high school student say that his teacher of agriculture persuaded him to continue in school when otherwise he would have stopped? A study was made in Virginia to determine the relative importance of vocational education in agriculture as an influence that prevents students from dropping out of school.

Data for this study were gathered during the spring of 1965 by means of an open-end questionnaire. This instrument was administered by teachers of vocational agriculture to high school juniors and seniors enrolled in their classes.

Findings

Completed questionnaires were received from 1,859 students. A total of 1,527 (82 per cent) indicated they had never seriously considered stopping school, 324 (17 per cent) reported they had seriously considered stopping school, and only 8 (less than one half of one per cent) did not respond to this question. This means that more than four-fifths of the students who participated in this study decided very early in life that they would continue their education at least through high school.

The summary of responses in the accompanying table reveals that the individual student's "own desire to continue my education" was the most important influence causing these students to continue attending school. It is not known how many of the students had been influenced in this decision without recognizing the influencing factor or factors.

The largest number of students who recognized influences which caused them to continue attending school, other than their desire to continue their education, gave credit to advice received from their respective parents. A total of 310 (11 per cent) reported advice received from their respective parents was the most important reason they continued to attend school and 1,037 others (56 per cent) reported that advice received from their respective parents was the second most important reason they had continued in school.

Each of the other ten reasons listed had influenced a large portion of the students as the third or fourth most important influence which caused them to remain in school but relatively few of the students reported any one of these as the first or second most important influence. However, this does not mean that any reason listed was unimportant as an influence which caused the students to continue attending school.

It is noteworthy that the program of vocational agriculture, the FFA, and the teachers of agriculture combined had influenced more than half of the students to remain in school.

Summary

Because more than four-fifths of the students who participated in this study had not seriously considered stopping school and because nine-tenths of them reported that their own desire to continue their education was either the most important or second most important reason they had continued to attend school, it was concluded that the desire for education was the most important influence which prevented these students from becoming school drop-outs.

A majority (56 per cent) of the students reported that advice received from their respective parents was the second most important influence which caused them to continue attending school. This is a tribute to the parents and was expected because a child normally spends more time with his parents than with any person outside of his family.

(Continued on next page)

Rank of Twelve Reasons Given by 1,859 High School Juniors and Seniors in Virginia for Continuing to Attend School

Reasons	Rank as an Influence											
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th
I am now in school because:												
1. Of my own desire to continue my education ...	1454	222	40	17	14	—	2	1	1	—	—	—
2. Of advice from one or both parents	310	1037	124	50	21	13	6	4	—	2	—	1
3. The Voc. Agr. program is offering training which will help me later	47	169	299	156	61	44	32	27	17	25	14	11
4. I like what I have learned in subjects other than Agriculture	24	47	118	93	62	50	37	31	26	21	22	27
5. The FFA has provided experiences I need	23	60	184	114	87	32	38	30	23	13	22	14
6. Of advice from a relative other than my parents	18	84	351	105	47	33	25	9	14	12	20	11
7. What I learned in Voc. Agr. stimulated me to seek information about occupations other than farming .	13	53	144	89	78	63	29	26	27	23	16	16
8. Of advice from my teacher of Agriculture	11	53	111	81	76	41	29	23	23	24	16	9
9. Of advice from my principal	8	20	60	29	24	25	16	23	13	19	50	48
10. Of advice received from my guidance counselor	7	29	122	67	50	37	20	15	13	14	19	15
11. Of advice received from another student	5	30	104	56	36	20	29	29	21	20	19	40
12. Of advice received from a teacher other than my												

David Williams

Research Shows—

Farmer-Owned Co-Ops In Teaching Programs

—In Kansas

Ray Agan

DAVID WILLIAMS, Vo Ag Teacher, Arkansas City, Kansas
and
RAY AGAN, Teacher Educator, Kansas State University

With the passage of the 1963 vocational education act there was presented a more clear-cut answer as to whether or not the teaching of farmer cooperatives was an important part of the curriculum in vocational agriculture. A study* made of the vocational agriculture departments in Kansas revealed that the teaching about farmer-owned cooperatives was indeed considered by them to be a part of the curriculum. It was pointed out by the sample of 32 instructors who were interviewed that the change from small family farms to large scientific farming businesses has brought about an increase in the number of farmer-owned cooperatives. An increasing number of teachers were found to be including instruction about farmer-owned cooperatives in each year's curriculum of vocational agriculture with a definite increase in the amount of time devoted from the freshman through the senior year.

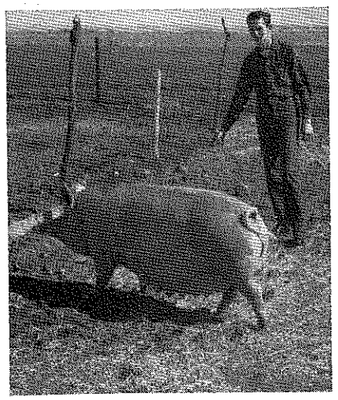
Amount of Class Time

The average amount of time reported by the instructors for the in-class teaching of farmer-owned cooperatives was three hours in the freshman year, six hours in the sophomore year, seven hours in the junior year, and eight hours in the senior year. The main source of reference material was the supply of pamphlets furnished by the farmer cooperatives. Motion pictures were used by 63% of the teachers.

In-class teaching, however, becomes a small part of the program of instruction related to agricultural cooperative businesses. The methods of study for farmer cooperatives in addition to supervised study and classroom discussion included a liberal use of resource people, usually from the local farmer-owned cooperatives. Learning-by-doing activities such as visits to the local farmer cooperatives and field trips related to cooperatives' activities were also widely used. Student-owned and/or operated cooperatives supplemented the individual instruction and supervised farming program of each future farmer. The instruction given in this manner ranged all the way from simple cooperative ventures to bona fide junior cooperatives, buying and selling, paying patronage dividends, being managed by a board of boy directors, and following the "Rochdale Principles of Cooperation." Instructors who used such methods voiced an opinion that this was an essential part of the instruction in order to teach the value of organized self-help. Eighty-seven percent of the teachers used student-owned and/or operated cooperatives of various capacities. Livestock chain cooperative was the most popular enterprise, being used by 50% of the teachers.

Competition also was a part of the instruction in farmer-owned cooperatives. These were felt to be a very good motivation tool. All of the teachers included in the study participated in the cooperative quiz contest and the cooperative activity contest sponsored by the Kansas Cooperative Council. Fifty-three percent of the departments also competed in the cooperative speech contest sponsored by the Council.

Teachers were enthusiastic about the teaching of farmer-owned cooperatives and felt it was justified by the fact that nearly every rural Kansas community has at least one such farm organization in its surrounding vicinity.



The livestock chain co-op was the most popular learning-by-doing activity used by Kansas teachers in the teaching of farmer-owned cooperatives as an agricultural farm business.

* Williams, David L., "A Study of the Teaching of Farmer Cooperatives in Vocational Agriculture Departments in Selected High Schools of Kansas," Master of Science Report, 1965, Kansas State University, Manhattan.

C. E. Richard and B. C. Bass

(Continued from page 108)

The participating students indicated that their teachers and the courses they had taken in high school had been important influences in causing them to continue their education. Outstanding in this respect were the teachers of vocational agriculture and the programs they conducted.

Vocational education in agriculture had exerted great influence in causing the students who participated in this study to continue attending school. Its influence was exceeded only by the desire of the students to continue their education and the advice the students received from their respective parents.

F. K. T. Tom

Some Available—

Programmed Instruction In Agriculture Limited

—Study Shows

J. A. Scanlon

F. K. T. TOM, Professor, and JAMES A. SCANLON, Graduate Assistant, Cornell University

Since B. F. Skinner's[1] article, "The Science of Learning and the Art of Teaching," introducing the concept of machine teaching appeared in *Harvard Educational Review* in 1954, the professional literature in education has been flooded with articles and research reports on programmed instruction. L. F. Hanson, editor of *The Journal of Programmed Instruction*,[2] speaks of ". . . the normal 50 year lag for educational innovation." This is certainly not the case with programmed instruction. A recent bibliography[3] published by the U. S. Office of Education reports 190 pieces of original research on various aspects of programmed instruction. More than 165 of these appeared since 1959. *Programs, '63*,[4] another U. S. Office of Education publication, lists 352 programs available in ten general subject matter areas. This is almost a 300 percent increase over the 122 programs reported in *Programs, '62*.[5]

That programmed instruction is an effective method of teaching is no longer a question. Students do, indeed, learn from programmed materials, and they learn as efficiently as they do from conventional classroom presentation of the same materials. There seems to be no limit to the amount or type of subject matter which can be learned from programs, nor to the kind of student who may utilize programs. The great strength of a program is that it permits the student to learn a subject efficiently by himself. It is this great strength that makes programmed instruction seem so applicable to our changing program of vocational agriculture.

Survey Made

With the flurry of activity centered around programmed instruction evident in related fields of psychology and education, the authors were certain the status of programmed instruction in vocational agriculture. It was reasoned that teacher training institutions in agricultural education would be the logical focus of this work. A survey was made of all head teacher trainers in agricultural education in the United States, the purpose being to determine the degree to which professional workers in agricultural education have had, are having, and/or plan to have experience with the use of programmed instructional materials in vocational agriculture.

Seventy-five head teacher trainers were contacted and 66 replies were received, an 88 percent return. Only four out of the 66 responding institutions (University of Minnesota, Purdue, Pennsylvania State and Cornell) reported having completed program learning studies in vocational agriculture. Seven such studies were reported. Five institutions (Cornell, Ohio State, Pennsylvania State, Rutgers and University of Tennessee) reported a total of seven studies currently in progress while six institutions (Colorado State, University of Maryland, Mississippi State, Cornell, Clemson and Texas Technological College) reported plans for undertaking studies on programmed instruction within the next year. Three institutions (Colorado State, Ohio State, and University of Illinois) reported having made programmed units available to teachers, and four (Cornell, Michigan, Ohio and Texas Tech) reported plans for making such units available by September 1, 1965. Only one institution reported it had recommended commercially available programs to vocational agriculture teachers, and these programs were produced by the Illinois Vo-Ag Service.

On the basis of the findings of this survey, the authors conclude that vocational education, as a group, are inexperienced in writing and using programmed materials in vocational agriculture. Perhaps the time has come to devote more time and effort to developing in members of the agriculture teaching profession, first, improved knowledge regarding the benefits of programmed learning, and second, greater competency in the difficult task of writing effective programs.

Availability of Programming Instructional Materials

A factor which has severely limited the use of programmed instruction in vocational agriculture is the absence of well-constructed programs, on agricultural subjects, suitable for classroom use. A study of several references which show commercially available programs in all subject matter areas, including *Programmed Learning: A Bibliography of Programs and Presentations Devices*,[6] reveals that there are no programs especially for agriculture. There are a few, however, that may be used for supplemental or individual instruction, such as electricity, pipefitting, figuring board feet, and sheet metal layout.

Illinois Vo-Ag Service, 434 Mumford Hall, Urbana, Illinois, has published six short programs in scrambled book form and a self-testing device to use with these programs. These programs are *Digestion in Animals, Improving Animals Through Breeding, General Facts on Livestock Feeding, Minerals for Livestock, Corn Production* and *Parliamentary Procedure*. Michigan State University has a program, "Understanding Soil Management Groups," based on Michigan soil conditions, a linear type program, became available in May 1965. Cornell University's two mimeographed programs, "Figuring Board Feet" and "Taking a Farm Inventory," became available this fall. The first is generally applicable, but the latter is developed around the *Cornell Farm Inventory Book*. Colorado State University reported that it has made available to teachers of agriculture the following programmed units: *The Digestive System of Ruminants, Parliamentary Procedure, Identification of Wheat Varieties* and *Soils and Soil Formation*. Texas Technological College reported plans for making available a programmed unit in agricultural mechanics on welding.

F. K. T. Tom and J. A. Scanlon

(Continued from page 110)

What Does the Research Show?

The authors were able to locate only five completed reports of research studies on programmed instruction in vocational agriculture as taught on the secondary school level. Legg[7] compared the effectiveness of programmed instruction versus the lecture-discussion method in teaching agricultural finance and credit, and found the lecture-discussion slightly superior. McClay,[8] in a modified replication of the study conducted by Legg, found that although students in the lecture-discussion method made higher scores than those in the programmed instruction method, the difference was not statistically significant. Zarraga[9] used both the linear and the branching types of programmed material on farm business management with and without review examinations. He found the branching program with review examinations superior to branching without review examinations, and branching programs with review examinations superior to linear programs with review examinations. Hannemann[10] in studying the effectiveness of teaching parliamentary procedure through the use of programmed instruction, found this to be an effective method of teaching. He also found little relationship (correlation + .37) between the time required by the students to complete the program and their scores on the criterion examination. In an experiment involving two groups, one which took a regular correspondence course in greenhouse management and the other which studied the same subject in accordance with programmed instruction techniques, Dittenhafer[11] found no significant difference in the average final test scores for high school students or adult garden club members in both groups.

Summary

Programmed instruction will bear some close scrutiny by agricultural educators. To be sure, it has its limitations, like any other teaching method and can never replace a good teacher in the classroom. It does have potential for individualized instruction, supplemental or special interest pursuits and the teaching of subjects with which the classroom teacher is either unfamiliar or lacking in proficiency. As effective programs are developed and tested in basic vocational agriculture subjects, they will be incorporated into the teaching curricula.

For the researcher, programmed instruction provides a means of controlling the "teacher variable" in classroom experimentation. Programs do not have personality and therefore do not vary from day to day or school to school as teachers do. As research in all fields of education becomes more theory oriented, it will become the responsibility of the agricultural educator to contribute to the development of teaching and learning theory by conducting experimental research in the various areas and under conditions unique to the expanding program of vocational agriculture. Programmed instruction and other new instructional media may be the tools with which we can facilitate much of this research.

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BOOK REVIEW

THE MAJOR ISSUES CONFRONTING UNDERGRADUATE EDUCATION IN AGRICULTURE. Brown, Arthur. Delaware Valley College of Science and Agriculture, Doylestown, Pennsylvania. 1965 pages xii plus 116. Price $1.25.

This is a monograph which was originally written as a frame of reference for the main body of a doctoral dissertation. The author has attempted to illustrate the contrasting points of view of people concerned with undergraduate education in agriculture. He has presented points of view of administrators, teachers, businessmen, students and alumni relating to the major educational issues involved.

While all of the material in this book is devoted to the function and program of colleges of agriculture and does not include curricula for training teachers of vocational agriculture, it still has a definite relationship to programs of vocational agriculture at the teacher training level. Teacher educators and supervisors of agricultural education programs will be interested in studying this report and in helping to reach decisions concerning appropriate curricula for training of teachers of vocational agriculture including training of teachers for nonfarm agricultural occupations and in helping to determine the relationship of offerings of colleges of agriculture to the needed training programs in vocational education.

Raymond M. Clark
Michigan State University

Lawrence W. Drabick

N. C. Study—

Teachers Not Overloaded With Extra Duties

—During School Day

LAWRENCE W. DRABICK, Researcher, North Carolina State University

This paper is addressed to the use which the teacher of agriculture makes of his in-school time. It is a response to frequently expressed concern that the agriculture teacher is excessively subject to noneducational demands as he fulfills his teaching role.

The sample from which these findings were drawn consisted of one quarter of the agriculture teachers in North Carolina. It was chosen systematically by selection of the *nth* teacher on an alphabetical list. Data were gathered by means of a mailed questionnaire to which returns were practically 100 percent.

Data were obtained separately for white and Negro teachers on the assumption that there would be differences in the manner in which the two groups spent their in-school time. In fact, only one of the comparisons to be presented differed statistically beyond the .05 level. While the accompanying tables show data for the two groups separately, this is a matter of convenience rather than analytical necessity.

Directions mailed with the questionnaire stipulated that the teacher should respond in terms of that part of the day during which school officially was considered to be in session. Therefore, it is emphasized that the findings of the study are in no way a reflection of the complete range of professional activities in which the teacher of agriculture engages.

The Nature of Teaching Assignments

Most of the teachers polled were required to teach only classes in agriculture, Table 1. A number also were responsible for study halls, while a few white teachers taught nonagricultural subjects as well.

As a result of the concentration on teaching agriculture, most of the respondents never met with other than agriculture students, Table 2. Despite this condition, many of the teachers did meet nonagricultural students, perhaps in study hall, with more than 11 per cent of the white teachers indicating that such students constituted in excess of 30 per cent of their total.

TABLE 2. PER CENT NONAGRICULTURAL STUDENTS ARE OF TOTAL, BY PER CENT OF TEACHERS REPORTING

Per cent of nonagricultural students	White teachers (N=94)	Negro teachers (N=27)
None	78.8	96.3
1 - 20	2.2	3.7
21 - 30	7.4	0.0
31 and more	11.6	0.0

Looked at another way, the majority of the teachers used all of their classroom time to present agricultural subjects, Table 3, but a minority used some classroom time to present nonagricultural subjects. As in the preceding analyses, there was more diversity among white than Negro teachers.

TABLE 3. PER CENT OF CLASSROOM TIME USED FOR NONAGRICULTURAL SUBJECTS, BY PER CENT OF TEACHERS REPORTING

Per cent of classroom time used for nonagricultural subjects	White teachers (N=94)	Negro teachers (N=28)
None	70.2	92.8
1 - 10	3.2	0.0
11 - 20	15.9	3.6
21 - 30	4.3	0.0
31 and more	6.4	3.6

In summary, the teaching assignments of most agriculture teachers were in the field of agriculture and involved presentation of agricultural course materials to agricultural students. However, about 25 per cent of the white teachers had teaching obligations outside the field of agriculture wherein they met nonagricultural students. The difference in per cent of classroom time for nonagricultural subjects was significant beyond the .05 level for the two teacher groups.

Assigned Nonteaching Duties

It is customary to assign certain nonteaching duties to teachers as part of their general responsibility within the school system. These activities may include hall duty, monitoring the cafeteria, supervision of afternoon bus loading and the like. Agriculture teachers are not immune to such obligations, as shown in Table 4. For the majority such activities did not seem burdensome, but for a few they constituted a considerable portion of the "school week." White teachers particularly were represented in the higher hour categories, in part perhaps reflecting a tendency for these teachers to substitute for the principal during his necessary absences from the school.

Service Activities

The teacher of agriculture, because of his unique abilities and the facilities at his disposal, traditionally has been expected to perform some service activities for the school, as well as for certain nonschool agencies. Such activity has

(Continued on next page)

TABLE 1. CURRENT TEACHING ASSIGNMENTS, BY PER CENT OF TEACHERS REPORTING

Teaching assignments	White teachers (N=97)	Negro teachers (N=28)
Vocational agriculture only	74.2	92.9
Vocational agriculture and study halls	20.6	7.1
Vocational agriculture, study halls, and/or other subjects	5.2	0.0

Lawrence W. Drabick

(Continued from page 112)

been a frequent matter of concern for the teacher who sees it both as an intrusion upon his educational function and as a personal imposition. Civic responsibility to the school and the community probably justifies some time spent in such activity, perhaps even during the official school day, but there is a question of the amount which may be considered legitimate.

Service activities for the school, such as care of the school lawn or repair of broken equipment, constituted a continuous drain upon the in-school time of the agriculture teachers in this sample. Upwards of one-third reported engagement in this type of activity during school hours at least several times weekly, Table 5. The white teacher was somewhat less prone to be called upon for this type of service, but the difference was not great. For most teachers, the number of in-school hours used to perform school service activities was relatively small, Table 6. But for a number sufficiently large amounts of in-school time were so used as to constitute a probable hazard to effective performance of the educational function.

Non-School Activities

Nonschool agencies also request the teacher to use some in-school time to perform services for them, such as calibrating equipment, making butterfat tests, or providing student muscle. Respondents in this survey indicated that for a quarter of them such requests occurred several times weekly, Table 7. The majority found such requests occurred routinely although for most the hours so used were limited, Table 8.

Attitudes Toward Noneducational Obligations

To test the attitude of respondents toward the noneducational activities in which they are obliged to participate, they were requested to indicate the extent to which they believed these should be part of the agricultural program. Findings are shown in Table 9. While the majority indicated that the present amount of such activity was about right, it is of interest to note the discrepancy between the percentage of those who would like to engage in more of this type of activity

(Continued on next page)

TABLE 4. HOURS PER WEEK FOR ASSIGNED NONTEACHING ACTIVITIES, BY PER CENT OF TEACHERS REPORTING

Hours per week	White teachers (N=91)	Negro teachers (N=28)
Less than one	32.9	39.3
1 - 3	27.5	28.6
4 - 5	13.2	21.4
6 - 7	15.4	3.6
8 and more	11.0	7.1

TABLE 5. FREQUENCY OF SERVICE ACTIVITIES FOR THE SCHOOL, BY PER CENT OF TEACHERS REPORTING

Frequency	White teachers (N=93)	Negro teachers (N=28)
Daily	3.2	17.9
Several times weekly	25.8	17.9
4 - 5 times monthly	35.5	25.0
12 - 15 times annually	23.7	28.5
Almost never	11.8	10.7

TABLE 6. HOURS PER MONTH FOR SCHOOL SERVICE ACTIVITIES, BY PER CENT OF TEACHERS REPORTING

Hours	White teachers (N=87)	Negro teachers (N=26)
Less than 1	17.2	19.2
1 - 2.9	43.7	30.8
3 - 5.9	20.7	30.8
6 - 8.9	11.5	3.8
9 - 11.9	4.6	0.0
12 or more	2.3	15.4

TABLE 7. FREQUENCY OF NONSCHOOL SERVICE ACTIVITIES, BY PER CENT OF TEACHERS REPORTING

Frequency	White teachers (N=95)	Negro teachers (N=27)
Daily	3.2	3.7
Several times weekly	23.2	22.2
4 - 5 times monthly	35.7	44.5
12 - 15 times annually	20.0	18.5
Almost never	17.9	11.1

TABLE 8. HOURS PER MONTH, NONSCHOOL SERVICE ACTIVITIES, BY PER CENT OF TEACHERS REPORTING

Hours	White teachers (N=93)	Negro teachers (N=28)
Less than 1	23.7	17.9
1 - 2.9	24.7	32.1
3 - 5.9	29.0	28.6
6 - 8.9	10.8	3.6
9 - 11.9	7.5	10.7
12 or more	4.3	7.1

TABLE 9. ATTITUDE TOWARD EXTRA ACTIVITIES AND DUTIES, BY PER CENT OF TEACHERS REPORTING

Attitude	White teachers (N=96)	Negro teachers (N=29)
Far fewer	8.3	13.8
Few less	36.5	20.7
Same amount	54.2	65.5
Few more	1.0	0.0
Many more	0.0	0.0

Lawrence W. Drabick
(Continued from page 113)

as opposed to those who desired less. By and large, it would appear that many teachers believe that their programs would benefit by use of less in-school time for performance of noneducational activities.

Summary and Conclusions

This study of a sample of North Carolina agriculture teachers indicated that for most of them the school hours of the day were spent in teaching agriculture to agricultural students. This was true for both white and Negro teachers. However, there was a small minority, particularly among the white teachers, which had classroom obligations other than teaching agriculture and which met with nonagricultural students for these purposes. While the numbers who engaged in such activities were small, the time used in this way, and the percentage of total students who were non-agricultural, was large for a few teachers.

Most teachers of agriculture found themselves obligated to perform some nonteaching duties within the school system. For the majority, these activities used relatively few hours; hours which more than likely came out of the teacher's lunch period or were spent in homeroom administration prior to and following classroom activities. But for almost a quarter of the white teachers this type of activity consumed in excess of five in-school hours weekly.

Service activities, both for the school and for nonschool agencies, were common to most teachers. Negro teachers perhaps did a bit more of the former and a little less of the latter, but the differences were insignificant. For a few teachers, service activities claimed a considerable number of in-school hours; but for most, the time so used could be considered in the nuisance category.

Common teacher complaints that nonagricultural activities are of sufficient scope to interfere with the program of agriculture are not borne out by the findings of this study. For a few teachers the complaint would be valid, but for most the demands made upon their time by nonagricultural activities cannot be considered serious interference with the educational program. The teachers seemed implicitly to recognize this as more than half said that they believed the amount of such activity to be about right.

However, it would be remiss to conclude this paper without pointing out the possibility that nonagricultural and noneducational activities have the potential to cut into the agricultural educational program. Scarcely a teacher is free from some demands upon his in-school time for service-type activities. While for only a few is the amount of time spent in any one kind of service burdensome, the accumulation of time spent in the various service activities could be considerable. That this factor is recognized by the teachers seems inherent in their attitudes toward these duties. Most would like to see less rather than more of these duties in their programs. It would be a mistake to write off this desire as an expression of selfishness. Most teachers wish to do the best possible job of teaching agriculture and they have an accurate perception of the fact that excessive demands upon their time for other purposes would prevent them from obtaining that goal.

BOOK REVIEW

THE UNDERACHIEVER: CHALLENGES AND GUIDELINES, C. Burleigh Wellington and Jean Wellington, Rand McNally and Company, Chicago, Illinois, 1965, 122 pp., Paperbound.

Teachers of vocational agriculture who sincerely believe in the dignity and worth of the human personality will want to read this book. It is likely that all teachers have some underachievers in their classes. The authors look at underachievers as pupils of above average ability whose academic achievements are substandard. This is in sharp contrast to defining underachievers as those who are culturally and socio-economically deprived.

This book provides penetrating insights into the underachiever's state of mind, his personality, and his aspirations. The authors reject the notion that underachievers are dissimilar and must be treated merely as maladjusted children. Some common characteristics of underachieving youngsters are presented, based on research conducted by the authors and others. Programs to help underachievers individually and collectively, in school and at home, are elaborated, and special recommendations are offered.

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J. R. Warmbrod
(Continued from page 107)

(assuming a risk of 1 in 20 of getting an unlucky sample), he would find that the size of sample should be between 196 and 234, the sample sizes for populations of 400 and 600, respectively. Since the population with which the teacher is dealing consists of 500 sampling units, the desired sample size would be approximately 215, one-half the difference between 196 and 234. Similar interpolations can be made when the size of population of concern is not listed in Table I.

Method of Selecting the Sample

The preceding discussion is based on the assumption that the units of the population to be studied are selected by simple random sampling. There are two essential features that must be observed when selecting a simple random sample. First, the population of concern must be defined and subdivided into parts which are called sampling units. In the example cited, farm operators were chosen as the sampling units. The sampling units must together comprise the whole of the population and they must be nonoverlapping. The usual procedure is to list each sampling unit comprising the population and to assign a number to each. It is important that each sampling unit be listed only once and that each be assigned a different number. The researcher is now ready to draw a sample of the size required for a particular study.

The second essential feature of simple random sampling is that the sample be drawn in a manner such that each sampling unit has an equal and independent chance of being selected. The most convenient means of selecting the sample is the use of a table of random numbers which can be found in almost any statistics book. Using a table of random numbers is a sophisticated way of "drawing numbers from a hat." If a table of random numbers is not available the sample could be selected by actually drawing numbers from a hat. If this procedure is used, it is imperative that after each draw the number drawn be replaced before the next number is selected. *If this procedure is not followed, each sampling unit will not have an equal chance of being selected on each draw—an essential feature of simple random sampling.*

Continued on page 115)

NFA-FFA Working Together In Maryland

J. C. KING, Vo Ag Teacher
Princess Anne, Maryland

J. C. King

The basic difference between the Future Farmers of America and the New Farmers of America was a division brought about by segregated practices in some American schools. The New Farmers were restricted to the Southeast Region of the United States, including states north to Delaware and west to Texas. The Future Farmers included membership throughout the United States and some of its possessions. Although the two groups functioned as separate organizations, their purposes were identical. Each organization was concerned chiefly with the development of agricultural leadership, cooperation and citizenship.

The New Farmers of America, an organization of Negro boys studying Vocational Agriculture, was organized at Tuskegee Institute, Alabama in 1935. Maryland Chapters affiliated with the National organization of New Farmers of America from its beginning until 1963. During this period, Maryland's Negro youth accomplishments were many, such as (1) becoming established in farming, (2) developing leadership abilities, (3) improving home surroundings, (4) developing talents and, (5) producing better crops and livestock. At the National Convention held annually in Atlanta, Georgia, Maryland received honors and awards in various areas such as: livestock judging, establishment in farming, public speaking, talent, quartet, and participation in the national chorus.

In the summer of 1962, Mr. H. M. McDonald, past State Supervisor of Agricultural Education, appointed a five-man committee of advisors to assist him and Mr. Glenn W. Lewis, past State FFA Executive Secretary, to work out plans for merging of Maryland Chapters of N. F. A. and F. F. A. The committee was represented by both N. F. A. and F. F. A. advisors, and held four meetings during a period of one year making plans for the smooth blending of the two organizations. The committee agreed that Maryland should have only one organization of boys studying Vocational Agriculture; that N. F. A. be discontinued and all former members become F. F. A. members; that a date be set to declare all N. F. A. Charters void and to issue each former N. F. A. Chapter an F. F. A. Charter; that each former N. F. A. Chapter become a part of the federation wherein it is located.

The plans were approved by the Maryland Association of Future Farmers of America, Maryland Association of New Farmers of America and the Maryland Vocational Agriculture Teachers Association. On November 16, 1963, Mr. H. M. McDonald, past State Supervisor of Agricultural Education, declared the twelve charters of New Farmers of America of Maryland void and each former N. F. A. chapter received an F. F. A. charter with the same rights as other chapters comprising the Maryland Association of Future Farmers of America.

Two Years Experience

During the years 1963-65 in which Maryland Vocational Agriculture students have functioned as one organization, there has been much evidence of growth and progress. During the Maryland F. F. A. Convention, June 26, 1964, Mr. Ernest Cullen, past State F. F. A. Executive Secretary said, "because of combining N. F. A. and F. F. A. Maryland Association membership has increased by 25%." Former N. F. A. members have participated in all activities of the state program of work. A talent group, former N. F. A. members from the Somerset Chapter won the state talent contest and represented Maryland by participating in several sessions of the 1964 National N. F. A. Convention. The Maryland F. F. A. program was also enhanced by: (1) closer evaluation of programs, (2) increased participation in regional and state contests, (3) promotion of interest in F. F. A. state degrees, (4) understanding human relations and (5) developing leadership potentials.

I have mentioned some of the activities which I consider assets to our F. F. A. as results of blending. I am certain that throughout Southeast United States other states will be making similar steps in the future. We feel that our organization has been greatly strengthened by the combined talents, contributions and cooperation of the two groups.

J. R. Warmbrod
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Summary

Much of the research in agricultural education, particularly survey research, will involve sampling. Sampling is advantageous to a study of the entire population in that sampling results in reduced costs, is faster, makes possible a greater scope of research, and may result in more accurate results by allowing a greater concentration of personnel and resources to the problem being studied.

The size of sample must be carefully determined if reliable estimates are to be made. Before the size of sample can be determined, the researcher must answer three questions, the answers to which influence the size of sample needed.

What percentage of the population do you think falls within the category of interest? Here the researcher is asked to "guess" what he is conducting research to find out. But this "guess" is necessary if guesses are to be replaced, through research, by reliable estimates.

How accurate do you wish the estimate to be? The researcher must specify the degree of precision desired in the estimate.

What risk are you willing to take that the actual error of estimate will be larger than the degree of precision specified? If the researcher is not willing to take a risk in getting an unlucky sample, his alternatives are clear — either study the entire population or abandon the study.

Sampling units comprising the sample should be selected by the technique of simple random sampling which insures that each sampling unit in the population has an equal and independent chance of being selected for study.

Duane M. Nielsen

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fession, reflect the increased tempo of research and development activities in agricultural education. The Agricultural Education Research Committee, and the professional organizations of vocational agriculture teachers, teacher educators and supervisors, are demonstrating increased leadership in this regard. However, much more needs to be done. The following is a partial list of areas in which additional research and development activities are needed.

Occupational Opportunities Assessment

* Employment opportunities
- — present and emerging occupations for which vocational and technical agricultural education programs should be available.
- — current and projected numbers of employees in these occupations by job title and other essential classifications
- — estimated annual entry opportunities
- — projected attrition and expansion

* Job characteristics
- — competencies needed for successful entry, persistence, and advancement
- — activities and duties of the employee
- — salary and benefits
- — prerequisites to employment—background, experience, formal education, age, licensing or certification, labor laws, union requirements
- — continuing education or retraining needs of those employed
- — logical job clusters for training purposes

Human Resources Development

* Socio-economically handicapped youth
- — ethnic and environmental conditions which have caused these youth to be socio-economically handicapped
- — factors effecting motivation of socio-economically handicapped to pursue training for gainful employment and to seek employment

* Motivation
- — motivating the potential dropout to continue in school and achieve to his highest potential
- — effective methods of reaching and serving the dropout
- — encouraging students to aspire to prepare for levels of employment commensurate with their abilities and interests
- — improvements of community attitudes toward vocational education as preparation for employment

* Geographical mobility of the worker
- — factors which affect decisions of employees to move and seek employment in new situations
- — preparation of students for mobility
- — preparation of rural people for employment and living in an urban environment

* Adjustment to change
- — coping effectively with career changes throughout life
- — psychological factors which affect flexibility in anticipating and accepting change in employment situations
- — characteristics of the *older worker* which seem to influence satisfactory adjustment to retraining ing and job replacement

* Career choice
- — nature of a career choice
- — determining the potential occupational aptitudes, abilities, and persistent interests of students (assessment, testing, guidance)
- — relationship between parental and student attitudes toward the status of different careers and the individual's career choice
- — identifying persons who can benefit from vocational education in agriculture and types of training that would be most beneficial

* Employability
- — basic skills which are transferable from one occupation to another or which function in clusters
- — psychological adjustments required of persons when they leave the protective situation offered by a training program and face the competitive working world
- — extent to which those trained achieve successful entry, persistence and advancement in employment

Educational Resources Development and Training

* Curriculum experimentation and development
- — core content common to various occupational categories
- — content and organizational patterns effective in preparing disadvantaged youth for successful entry and persistence in employment
- — curricula for new and emerging occupational fields
- — relationships between curriculum and dropout ratio
- — content and structure for various levels of instruction

* Instructional methodology and media
- — relative effectiveness of various systems of supervised work experience for differing occupations
- — communicative effectiveness of teaching materials
- — identifying and compensating for individual differences in learning situations
- — programed instruction as an instructional media
- — influence of various instructional patterns on skill acquisition and retention
- — relationship of differing approaches, techniques, and media to behavioral and attitudinal patterns
- — procedures for evaluating student progress
- — optimum mix of theory and practice

* Personnel recruitment and development
- — sources of personnel appropriate to specific staffing needs
- — profile characteristics of successful agricultural educators
- — recruitment techniques
- — core competencies basic to the agricultural education field

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Duane M. Nielsen

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- — effective patterns of preservice and inservice personnel development by area of responsibility
- — personnel demand estimates by area of responsibility
- — optimum occupational experience and methods of securing
- — technical and professional preparation program in priority areas
- — status, motivation and adequacy of performance

* Program organization and administration
- — availability of agricultural education programs
- — procedures for extending programs and establishing new programs
- — articulation of preparatory with continuing education programs
- — effective methods of organizing, administering and supervising programs of vocational agriculture
- — socio-economic returns from investments in agricultural education
- — liaison and cooperation with related professional disciplines and administrative units
- — involvement of appropriate representation from the world of work in program development and operation
- — level of education in which particular agricultural education should be operative
- — appropriate role of ungraded programs, secondary schools, technical institutes, junior colleges, colleges or universities
- — integration of vocational and academic programs and relationship to "status"
- — success characteristics of foreign vocational agriculture programs
- — methods of forecasting local, regional and national manpower needs and utilizing these projections in designing and operating vocational agriculture programs

* Vocational guidance and counseling
- — educational and occupational aspirations of youth
- — nature of career patterns
- — process of occupational choice
- — achieving compatability between preparation and student potential in choice and in content selection
- — placement and followup of graduates
- — effective vocational guidance and counseling procedures
- — instruments, techniques and materials

* Instructional facilities
- — facilities and equipment necessary to prepare persons to enter and advance in various occupations
- — efficient provision and utilization of instructional facilities

Major Role

The primary role of the research and planning program is to shorten the time lag between innovation and utilization, between idea and response. Six primary program functions are being implemented:

1. *Coordinate*: by bringing together the educational research and planning efforts of the National and State levels of vocational, technical, and occupational education, those of the various departments and agencies in Washington, of our Government and those of other countries, and of public and private institutions, foundations, and the business community.
2. *Stimulate*: particularly by promoting State and local participation in vocational education research and program planning.
3. *Educate*: by providing consultation, pilot programs and research and development centers, as well as seminars, conferences, workshops, and meetings for present and prospective vocational and technical education personnel.
4. *Support*: by funding research, training, and experimental, developmental, or pilot programs.
5. *Communicate*: by disseminating research and planning information.
6. *Implement*: by interpreting and utilizing research findings for the development of new and effective programs.

Quantity and Quality

The quantity and quality of needed research, experimental, training, developmental and demonstration programs can not be achieved in an environment isolated from on-going agricultural education programs. Neither can it be performed without tapping the resources offered by related disciplines. In many instances it will be necessary to utilize the unique talents of psychologists, sociologists, economists, other educators, and representatives from agriculture, business and industry. Team efforts, involving appropriate specialists, will provide the critical means necessary for generating innovation.

The Challenge

Any operating program which fails to delegate an adequate portion of its resources to research and development automatically restricts its effectiveness. Knowledge and experience gained from the past are extremely valuable in program planning and operation, but the real challenge lies in making *a bold, creative and honest appraisal of what the present and future demands.* A portion of this challenge is the responsibility of each member of the agricultural education profession.

Sending Proposals

Proposals should be sent to the Division of Adult and Vocational Research, Bureau of Research, U. S. Office of Education, Washington, D. C. 20202. They should be prepared and submitted in accordance with OE-4262, *Conditions and Procedures: Grants for Research, Training, Experimental Developmental, or Pilot Programs in Vocational and Technical Education,* copies of which are available from the same office. This document also includes the criteria used in reviewing proposals.

Editor's Note: As indicated at the beginning of this article, changes have been made in the administrative structure, making Illustration II, page 103 out-of-date. A major result is that Research in Vocational Education is no longer in the Division of Vocational and Technical Education, in fact, not even in the same Bureau. Research in all areas is now in a separate Bureau of Research.

Lloyd J. Phipps

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fill jobs; they should create job opportunities.[3] I assume that he meant that we can create job opportunities by preparing persons for jobs that do not now exist and by helping these persons to develop and obtain employment in these areas.

Staking Claims

In planning comprehensive research and development programs in agricultural education to adjust, along with other vocational fields, to the changing manpower requirements of America, we should also be cognizant of the new look in vocational education resulting from recent legislation.

1. At present and in the future various teachers in other vocational fields and even nonschool agencies may "stake claims" to educate persons for jobs we consider agricultural.
2. We are also in a position to "stake claims" for educating persons for jobs which other vocational fields and nonschool agencies have considered as their "backyard."

Working with Others

We need comprehensive research and development programs to determine what we can do best and what help we can obtain from others, or in other words what they can do better than we can do. The problem of educating for gainful employment in America is so critical that society is going to demand that the specialized talents of various vocational teachers be utilized in the ways that will produce the most good for the greatest number. If we really take seriously the task of educating people for all jobs below the professional level, we will have inadequate staffs in all areas of vocational education for the foreseeable future, and longer. It also appears to me that if we accept the challenge of providing the kinds and types of instruction for gainful employment for all jobs requiring knowledge and skill in plant and animal science and related disciplines that exist or can be created that we will have a chronic shortage of vocational educators, with special competencies in agricultural subjects, because of the increasing demands for their services.

Through research and development programs we need to learn where the special talents of present and future vocational agriculture teachers may best be used. There are many tasks in vocational education that teachers of agriculture because of their training are better qualified to do than any other vocational teacher. We need to identify, develop, and obtain utilization of these special talents in the schools' total vocational educational programs.

Changing Attitudes of Society

In planning comprehensive research and development programs, we also need to be aware of the changing attitudes of society. The pendulum is definitely swinging in America and among educators toward a more favorable attitude regarding vocational and technical education. Whether or not we profit from this changing attitude will depend to a large extent on our research and development programs. Rationalizations for not changing vocational agriculture will only lead us down the path of disaster. In my opinion the best way to protect and extend our quality program of vocational education for farming, and I believe it is essential for society that it be protected and extended, is to become identified with that type of vocational education dedicated to the preparing and upgrading of persons to meet the changing and emerging jobs resulting from automation. Many persons, including many agricultural educators, have not recognized the new and changing nonproduction job opportunities in plant and animal science, in both rural and urban areas, that should receive our attention because no other vocational group is interested in preparing persons for these jobs, or are as well qualified as agricultural educators for providing effective and efficient programs. These emerging and changing jobs are not in farming or related to farming, but they are applied plant and animal science jobs.

Programs Needed

As implied in the previous remarks we need to get into the technical education. An extremely important segment of vocational and technical education in the future will continue to be the education of production workers. It is doubtful that a program in the future, however, will receive maximum public support if its total function is the education of production workers. The attention of the populace is going to be focused on changing and emerging jobs. These jobs are probably going to be in five areas:

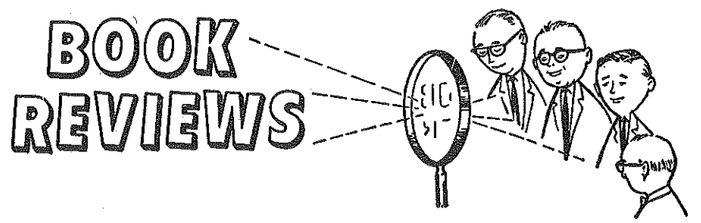
a. Research
b. Teaching
c. Learning
d. Services
e. Recreation

It does not take much imagination to recognize that a large and important segment of the total job opportunities in these five areas will require vocational education in agricultural subjects (or applied biological science). The future for agricultural education will be challenging and exciting if we can develop research programs that will chart the course for the cultivating of the opportunities and responsibilities that are on the horizon.

1. If we are to serve society as we should and as society needs to be served, an immediate step is the changing of the image of agricultural education. We have vocational agriculture departments that have broadened their objectives and program, but the teachers, guidance personnel, parents and laymen in these communities still view their vocational agriculture program as a program designed exclusively for educating for gainful employment in farming. The program has changed but the image has remained static. Research and development programs may be utilized in changing the image of vocational agriculture.
2. We need to learn how to broaden agricultural education so that it will be serving all who need, for gainful employment, knowledge and skill in plant and animal science and related disciplines.
3. We need to learn how to provide effective education in agriculture, broadly defined, for the everyday affairs of living. This is an educational service to society that will become of increasing importance as all types of work are reduced through automation. It is also important because until the image of vocational agriculture is drastically changed, it is needed as a feeder program for vocational education in agriculture.
4. We need to learn how, as mentioned previously, the specialized talents of vocational agriculture teachers may be utilized profitably and effectively in the schools' total vocational education program in teaching the content uni-

[3]Gordon Swanson, "Action in Vocational Education Considered as Social Protest." *Phi Delta Kappan*, Vol. XLVI,

BOOK REVIEWS



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RURAL YOUTH IN A CHANGING ENVIRONMENT. Ruth Cowan Nash, editor. The National Committee for Children and Youth, Inc., Washington, D. C., 1965, pp. viii + 345. Paperback, Price $2.50 plus $.25 postage.

This is the 13th in a series of publications reporting on prepared papers, findings and conferences of the National Committee for Children and Youth. This report includes full texts of major addresses by Winthrop Rockefeller, Dr. Paul A. Miller, Dr. Russell G. Mawby, and Brooks Hays, as well as summaries of other addresses by authorities concerned with rural youth.

It also includes an analysis of a survey, "A Study of the Problems, Attitudes and Aspirations of Rural Youth" by Dr. William Osborne. Prepared charts and graphs are used to assist the reader in understanding and assimilating the data.

The purpose of the National Conference and this subsequent Report is discussed in the Introduction as, ". . . to determine the best possible courses of action that can be taken to prepare young people growing up in a rural environment to adjust and to compete in a changing society."

In order to develop effective education programs, the vocational teacher must develop a better understanding of the goals, problems and attitudes of contemporary rural youth. This book, along with others in the series, should assist him in achieving this objective.

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Lloyd J. Phipps

(Continued from page 118)

versal to all types of vocational education for gainful employment.

5. We also need to learn how the specialized talents of other vocational teachers, guidance counselors, nonvocational teachers, administrators and persons from industry may be utilized to decrease the heavy burden of teachers of agriculture.
6. We need to learn how to serve effectively disadvantaged youth and adults. We also need to learn how to serve effectively the upper end of the continuum, or advantaged youth and adults. Agricultural educators have an enviable record of providing effective vocational education for the disadvantaged, the poor, and the down-trodden segments of society. Agricultural educators have had more experience and more success in this field than most

AN INTRODUCTION TO AGRICULTURAL BUSINESS AND INDUSTRY. Weyant, J. Thomas, Norman Hoover and David McClay. Interstate Printers and Publishers, Danville, Illinois, 1965. Teacher's Guide 113 pages, $2.25, Student Text 239 pages, $2.92. Single copy prices, quantities are less.

Vo-Ag teachers should applaud these "twin" publications of student text and teacher's guide. In these days of a recognized expanded scope of agricultural occupations, vo-ag curriculums are modernizing to include more specific instruction in the areas of career choices and non-farm agricultural occupations. "An Introduction to Agricultural Business and Industry" supplies much needed resources for student and teacher. The fact that it resulted from a three year pilot study in which teachers incorporated this subject into their courses of study lends some authority to the content and methods in the publications.

Five instructional units constitute the theme of the text, each unit consisting of problem areas further subdivided into key questions for which basic information is supplied. The unit titles are: I. Exploring Careers, II. Preparing for Employment, III. Human Relations, IV. How Businesses are Organized and V. How Businesses are Operated.

The student text should be most attractive to students. It is written in second person (directed to the student), the level of language is most appropriate, and some excellent pictures are utilized. Moreover, the tone of the writing is positive and optimistic in a rational way.

Special mention should be made of the important role that supervised practice, (including work experience in any agricultural occupation) is given in the publication. The student is led to see how supervised practice serves as an integrated, vital part of the educational program. Likewise, the part that the FFA serves in the educational process is portrayed most effectively.

The teacher's guide is geared to the textbook and provides specific suggestions for the content and methods to be used with each question listed in the text. Appropriate supplemental references and audio-visual aids are also listed.

The teacher's guide suggests that approximately four weeks of time be spent in each year of Vo-Ag on the content of the text. It also recognizes that some of the units could be taught in other vo-ag classes or by "team teaching".

T. R. Miller
North Carolina State University

VOCATIONAL AND PRACTICAL ARTS EDUCATION, Roy W. Roberts, Second Edition, Harper and Row Publishers, New York, 1965, pp. x plus 596, $8.50.

In this second edition, Professor Roberts has expanded and updated the original volume, bringing in current and significant developments comprising a fresh view of the whole field of vocational education and the practical arts. The book is especially designed for use in teacher education programs and in programs for school administrators who have or may have responsibility for planning, organizing and administering vocational education and practical arts programs of less than baccalaureate level. It is also useful as a source of information to administrative personnel and all teachers of vocational education and practical arts.

The first four chapters of this 20-chapter volume deal with introductory aspects and the origins, history and development of vocational and practical arts education. Two chapters are given to federal aid for vocational education and its administration. Additional, separate chapters deal with vocational education in agriculture, distribution, office occupations, industry, vocational guidance, and technical education. Industrial arts, vocational rehabilitation, vocational education in other nations, manpower development, and organizations and agencies of concern to vocational educators are topics elaborated in other chapters. A final chapter provides a summary, presenting important principles which are grouped into three divisions — organization, administration and instruction. Statistical tables and public laws for vocational education are presented in the appendix.

The author, Professor Roy Roberts, retired in 1965 as head of the Department of Vocational Teacher Education at the University of Arkansas.

Hilding W. Gadda
South Dakota State University

FFA LEADERSHIP TRAINING KIT. The Interstate Printers & Publishers, Inc., Danville, Illinois, 1965. Price $1.90 (10% discount on 2 or more).

A revision of the FFA Leadership Kit which has been on the market for many years. The kit consists of a folder for each officer. A special sheet is included in each folder describing the duties of that officer, and suggesting specific activities he should perform. Additional sheets in the folders are designed for each officer to fill out for his own office. For example, the president is asked to list the desirable characteristics of a chapter president; important points to observe when conducting the meetings properly. The treasurer deals with budgets, financial records and the like.

Each of the folders contains an FFA quiz; suggestions for growth through leadership; leadership evaluation; and "Ten Commandments of Human Relations."

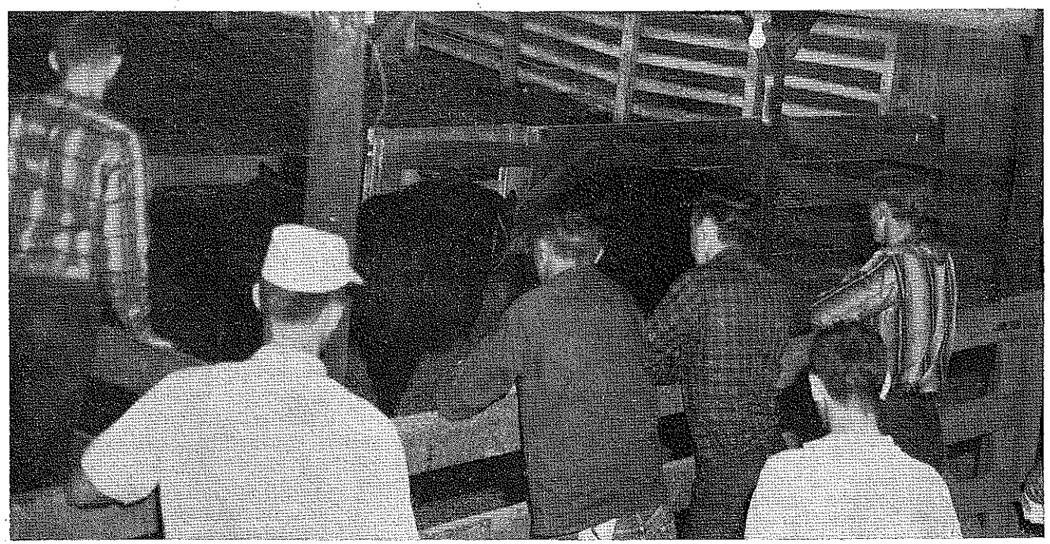
The kits should be valuable for training of local chapter officers and for use in regional and state FFA Leadership Training Programs.

Raymond M. Clark
Michigan State University

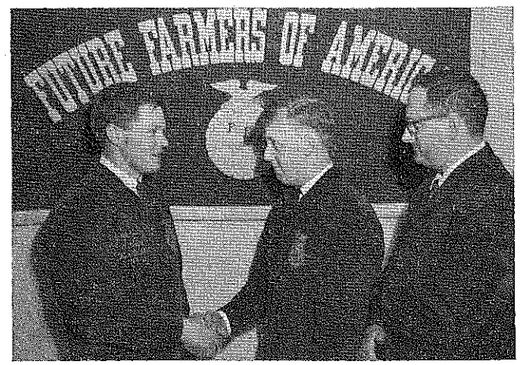
Ohio Young Farmer Wives show baking awards at Young Farmer and Wives Camp.

Stories in Pictures

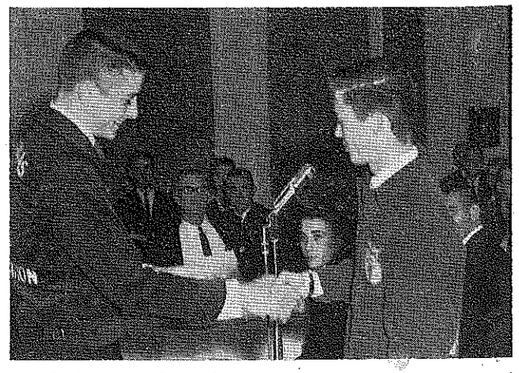
Pictures are needed for "Stories in Pictures" (this page). Dr. Gilbert S. Guiler, photo editor, requests pictures from readers of this magazine. Please send your pictures to him at 2120 Fyffe Road, The Ohio State University, Columbus, Ohio.



A group of high school vo-ag students study herd sire selection at the Beef Farm, University of Arkansas, Main Experiment Station.



David Mosher, Greenwich (Center) receives certificate and checks for $200 and $100 from Joseph Perrigo, Weare, New Hampshire, National FFA Vice President, for being named State FFA Star Farmer of 1965. Bruce Emanuel (at right) Greenwich, teacher of agriculture and FFA adviser to Mosher looks on during ceremony at 40th Annual FFA Convention at Walton, New York, PHOTO BY Charles Anna, Alexander



Awards for outstanding achievement are presented at the annual Arkansas Association FFA Awards dinner.

Photo — R. C. Haynie

Agricultural Education

Volume 38 DECEMBER, 1965 Number 6

Four Michigan Teachers of Vocational Agriculture preparing a unit of instruction on small gas engines.

Featuring

Planning Local Programs