NEWS TO ME

This notice was received too late to include in the list of Teaching Assistantships in the January issue. MICHIGAN STATE UNIVERSITY—Teaching Assistantship; 12 mo.; Sept.; ½ time; doctoral; $350-400; teaching and advising students in Ag Production; apply by July; Institute of Ag. Tech., 120 Ag Hall, M.S.U., East Lansing 48823.

Young blacks enter the 70's with a larger but still lagging share in the American economy. Young blacks have made gains in the amount of formal schooling completed. The proportion of blacks graduating from high school each year has been rapidly rising and the educational gap between blacks and whites is narrowing. But the unemployment gap between whites and blacks who leave high school each year has not closed. In 1960 the black unemployment rate was about twice the white unemployment rate, and in 1968 this rate continued to be about doubled.

Well over 1,000 people every year leave their own countries under a fellowship program for raising educational standards, spreading specialized skills and helping to promote appreciation of other cultures, in one of UNESCO's longest established yet least known activities. The program began in 1948, two years after the Organization was founded. Today, close to 1,200 fellowships are granted every year in fields ranging from electrical engineering to the creative arts, and for periods running from a few weeks to three years. Nearly half of these fellowships have been in the field of education, particularly teacher training and educational planning and administration. The United Kingdom is the country which accepts the largest number of Unesco fellows, followed by France and the U.S.

— UNESCO FEATURES

The number of workers in the prime 25-34 year old group will increase dramatically in the 70's. They will be better educated than workers of the same age group in the 60's. In 1965, 41% of the civilian labor force age 25-34 had 4 years of high school compared to 46% by 1975. Only 28% of the 1965 labor force had some college education compared to 33% in the 70's. Thus, there is a combined education total of about 10% greater in the 70's. Along with more education, these people will generally bring to the workplace higher occupational aspirations and expectations, more innovative and creative interests, higher mobility and an eagerness for greater participation in decision-making at the workplace.

—U.S. Manpower in the 1970's
—U.S. Dept. of Labor

U.S. exported a near-record $6.6 billion worth of farm products to foreign customers in 1970. This represents a fifth of world agricultural exports and, for U.S. farm exports, a rise of 16 percent from 1969.

Illinois is our largest single exporter of agricultural products, accounting for $650 million — nearly a tenth of the total. This state is first in soybeans, feed grains, protein meal and soybean oil, as well as an important shipper of wheat, lard, tallow, meats, and hides and skins. Ten states accounted for ⅗ of U.S. agricultural exports. They were: Illinois ($650 million), Iowa ($505 million), Texas ($422 million), North Carolina ($406 million), Kansas ($304 million), Arkansas ($296 million), Minnesota ($276 million) and Nebraska ($270 million).

For seven major agricultural products —wheat, rice, soybeans, tobacco, cotton, cattle hides, and tallow — our exports equaled one-third to two-thrids of the year's production. Production from about 1 of every 5 harvested acres goes abroad, and the U.S. farmer gets about one seventh of his income from these exports.

—The Farm Index
December 1970

The rate of productivity growth dropped in the late 1960's. Increasing productivity will reduce inflationary forces, increase our output of goods and services, raise purchasing power, and help raise living standards. The productivity of the U.S. worker is still the highest in the world. But the growth in U.S. productivity has generally been below competing nations such as Canada, France, Germany, Italy, Japan, Netherlands, Sweden and the United Kingdom.

The Department of Health, Education, and Welfare has been requested to prepare a memorandum on vocational education. Six basic questions were posed in the request:

1. What are the strengths and weaknesses of current vocational education programs? To what extent do the weaknesses reflect administrative shortcoming rather than unsatisfactory legislation?
2. What is the proper relationship between vocational education and other federal programs, particularly in manpower and higher education.
3. How can federal vocational education programs best reflect the administration's interest in (a) the 'income strategy,' (b) the New Federalism and (c) the blue collar worker?
4. To what extent could substantial improvements in vocational education be made within current levels of expenditures?
5. How can federal vocational education programs best serve as a catalyst for reform in the often moribound state vocational educational agency without violating the principles of the New Federalism?
6. How can the longstanding conflict that exists between HEW and the Department of Labor in this field be eased, and administration of federal vocational education programs be correspondingly simplified?

AGRICULTURAL EDUCATION

Agricultural Education

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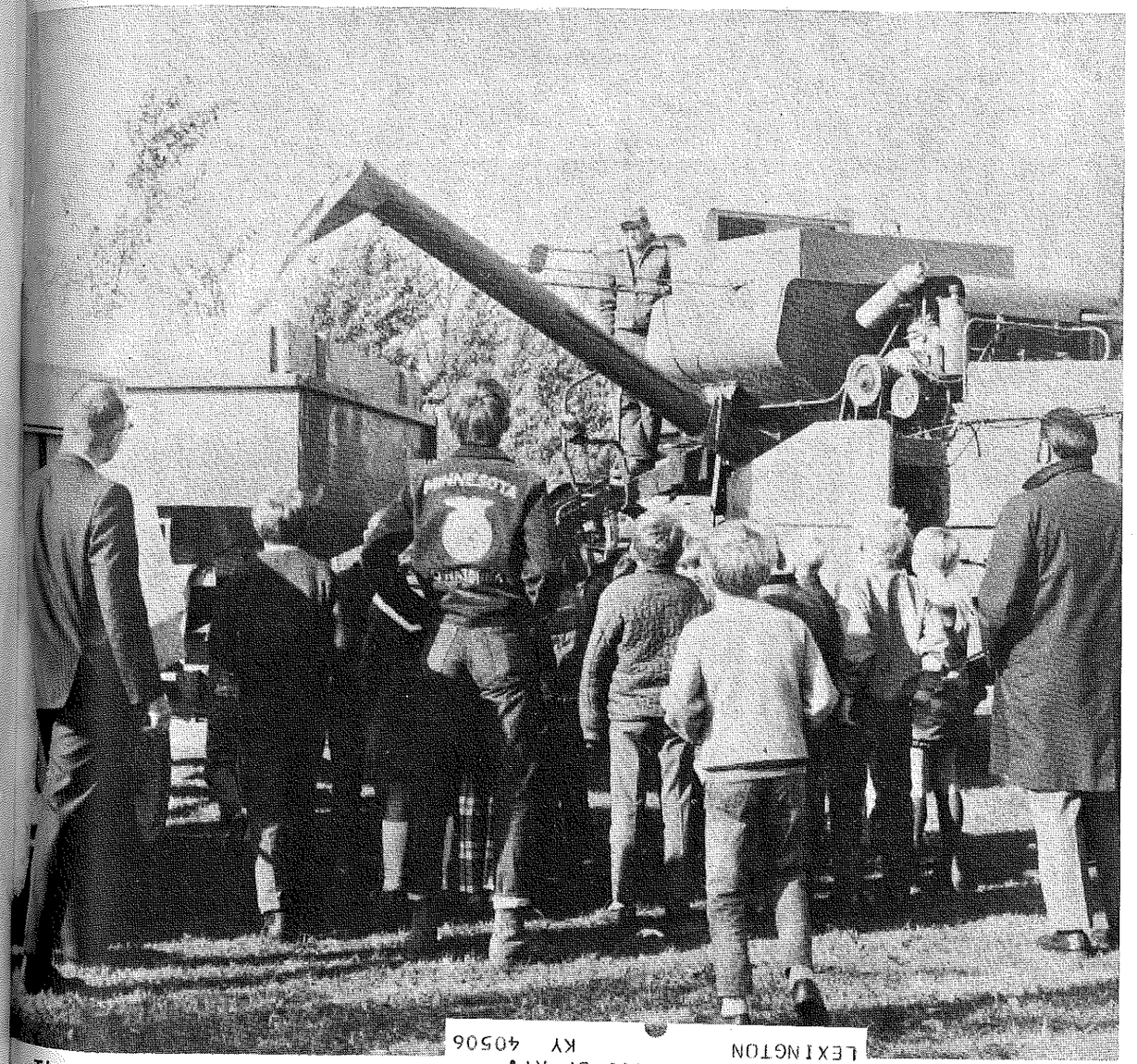

Theme —
ARTICULATION INTO THE TOTAL SCHOOL PROGRAM

The
Agricultural Education
Magazine

EDPRESS Vol. 43 June 1971 No. 12

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COVER PICTURE

Attentive and excited Lincoln Elementary School second and fourth graders witness corn harvest on the 14-acre tract adjacent to the school. High school agriculture students operate the school tract as a part of the vocational curricula. The elementary students watch grain being unloaded into a gravity box. Also in the photo are: (left to right) Don Barber, Vocational Agriculture Instructor; Bradley Ahrens, Regional Star Farmer; and Harold Kirkgasler, Elementary Principal. (Photo by Don Barber, Owatonna, Minnesota).

Editorials

Guest Editorial

The Articulation of Agriculture Into The Total School Program

Dr. Calvin Dellefield, Executive Director, National Advisory Council on Vocational Education, Washington, D.C.

Vocational agriculture has long been one of the key areas in vocational education. Some of vocational education's most outstanding people have been involved in making vocational agriculture one of the most organized and intelligently directed fields in vocational education. Despite its successes, vocational agriculture has suffered an image problem in recent years as industrial skills have become more visible to society than production agriculture. There has been much communication and discussion of this problem among people involved in vocational agriculture. Unfortunately, the discussion has been "intra-agricultural," i.e. it has come from agriculture teachers talking to farmers and farmers talking to businessmen involved in agricultural fields, and agricultural businessmen talking to legislators from farm states. This discussion and communication has been profitable in making the people directly involved in agriculture recognize the new problems and demands, but it has not solved the problems or met the demands because it has not extended to people in other fields. The theme of *Agricultural Education* this month, "The Articulation of Agriculture into the Total School Program" is closely related to the image problem to which I refer. It presents an opportunity and a challenge to vocational agriculture educators to go beyond the traditional boundaries of their programs and to demonstrate the relevance of agricultural education outside of production farming.

The first step in making vocational agriculture relevant to a larger and more technologically oriented group has already been taken by many of the leaders in vocational agriculture. I refer to the change in terminology from vocational agriculture to "agri-business." This change in semantics is a crucial first step in articulating agriculture into the total school curriculum. Agriculture per se implies production farming to most people; agri-business goes beyond that and captures the interest and imagination of a far larger group which is concerned with the business and industrial end of agriculture — with marketing, with environmental occupations, with agricultural supplies, agricultural products, agricultural services, forestry and ornamental horticulture. I strongly urge that teachers, supervisors and students begin to consciously use the term "agri-business" and to communicate to persons OUTSIDE the agricultural establishment that this change in semantics symbolizes agriculture's recognition that new, more modern techniques and fields must be included in the curriculum for secondary school students.

The second step in diffusing agricultural education into the total school program is to make certain that the change in semantics is more than just that. It must reflect a true change in curriculum which involves emphasis on emerging occupations and up-to-date technology in agriculture and related fields. Only when the curriculum planned for agri-business includes these new areas can it exist within the mainstream of school curriculum. This curriculum revision is justified by the benefits which disseminating agri-business throughout the school program will bring. The first benefit is the broadening effect it will have on the agri-business students themselves. Today, these students are not only going out into the fields, they are going into marketing, business, and mechanics. They need the cultural and educational background which many academic courses can give them to be successful in these areas. In short, the new agri-business graduate will not just be dealing with "his own kind." He will be dealing with businessmen and the general public in all areas; he needs early exposure to these people and he needs to share in the educational background they receive.

The second benefit of diffusing agri-business into the total school curriculum is the reverse type of exposure, i.e., exposure to agri-business on the part of academic and general education students. The need for this type of exposure is clear and was reflected in my earlier comment that as good as the communication has been in agri-business, it has been turned inward, where it is least needed. Until non-agri-business students are exposed to a new and dynamic agri-business curriculum, they will continue to think of agriculture as involving only wheat fields. And they will continue to reject agri-business as irrelevant to their lives.

Introducing agri-business into the total school program is not only an opportunity to mutually broaden the experience of agri-business and non-agri-business students. It is a concrete challenge to make agri-business modern, to make it relevant. Up until now, whatever success agri-business may have had, have been known only to agri-business people. But when curriculum becomes mixed and diffused, the successes of agri-business will be seen by the total school and community population. Diffusion means increased visibility and in the case of agri-business, it may mean visibility by a not totally sympathetic public. In this situation, agri-business must accept the challenge of showing its quality and its usefulness in technological society to a new public. Agri-business programs must keep up to date with labor market trends and teachers must renew their efforts to present meaningful and exciting programs utilizing the most modern techniques. A strong showing by agri-business will mean a new image and a new vitality for all of vocational education.

As the agri-business concept is added to the secondary school level in an expanding program, there must be a vertical expansion. Students at the junior high school and elementary school level can benefit from an introduction to the world of work in agriculture. In a rapidly changing technical and business world, farmers and businessmen need constant upgrading and retraining in the field of agriculture. The educational process has to be extended over a longer life span and include more individuals so they realize and comprehend the interrelationship of the agricultural sector with other parts of the national economy.

This month's *Agricultural Education* is testimony of the fact that agri-business educators are aware of the opportunity and challenge of diffusing agricultural education into the total school curriculum, not only on the secondary level, but also on the elementary level in the form of vocational orientation programs. On behalf of all vocational educators, I ask those involved in agri-business to take this opportunity and challenge seriously and use them wisely. The future not only of agri-business, but in some measure of all career education in the public schools, will rest largely with your efforts.

From The Editor

TELL THE STORY

Harry W. Kitts

The school year 1970-1 is drawing to a close. Have you taken time to reflect on your program, discuss it with your administrator and members of your advisory committee and plan changes for the years ahead? Have you adequately told the story of agriculture? Have you expanded your curriculum to serve everybody in your community? Have you provided your associates with the information and assistance they need to understand the importance of agriculture in their lives?

Agriculture should be integrated into the lives of people of all age levels. An FFA member can talk to a kindergarten class and guide a field trip to his farm where he shows them his young lambs or baby chicks. The science or home economics teacher can use the information needed to show that the proper use of insecticides, or application of fertilizer, is not necessarily harmful and is essential for sustained high yields of quality products. The science teacher can vitalize his classes by using the soil testing kit, or the milk testing material, to explain the chemical reactions that take place. Physics classes take on a practical meaning when students figure the drawbar pull on a plow or study the application of electricity to tractor engine operation. The English teacher may ask you for suggestions of topics on which vocational agriculture students in her class might prepare themes. You can check their writings for accuracy of technical information. Have you explained your program to, or had an FFA member tell, the junior high school students the opportunities for a career in an agri-related occupation? The guidance counselor may welcome this assistance.

Agriculture is the nation's largest industry. More people are engaged in agriculture than in the combined payroll of the automobile industry, the steel industry, transportation and public utilities. Does the social studies teacher know that while fewer people are engaged as farm operators, more people are becoming involved in the services, marketing, processing and sales of agricultural products, that agriculture purchases over 50 billion dollars worth of goods yearly, that productivity in agriculture has almost doubled that of non-farm industries in the past 25 years, that the average American spends only about 16½ per cent of his net income for food—the lowest rate in the world, and that exports of farm products alone provide about 1 million non-farm jobs?

Production agriculture — farming and ranching — will continue to be important in our economy with many people dependent upon the farmer and his operations. Without the food and fiber, the other aspects of processing and marketing would not be necessary. You have a responsibility to see that the story of the role of agriculture is told to everyone from the kindergarten through adult life. In many communities the banker, the petroleum products distributor, the retail store owner depend upon the agricultural segment of the local economy. You may be the only trained professional agricultural leader in your local community. You must cooperate with the county extension agent and other workers in the field of agriculture to spread the story of agriculture and its contribution to our economy. Agriculture, and especially farming, is not a dying industry. It is vital to our economy. When many of the operators are moving from the soil, and more individuals are employed in related fields of work off the farm, it is necessary that you provide information to all individuals — from the youngster knowing how the wheat field relates to the bread in his sandwich to the members of your service club who need the facts of the Agricultural Act of 1970 and its effect on farm organization and operation.

You are not expected to teach all of these groups but you should provide the information and suggest to others that they include such information in their activities. If you have restricted your activities to a small segment of the high school population, endeavor to reach more people so they understand the contributions agriculture makes to their lives and the opportunities for employment in the field of agriculture.

ARTICULATION THROUGH UNITED EFFORT

Wayne L. Sampson
Region III Vocation Director
State Board of Vocational Education and Rehabilitation
Springfield, Illinois

Vocational educators recognize the need for cooperation among the local educational agencies charged with the responsibility of providing total vocational programs to their students, kindergarten through adult. This responsibility is so great that even with complete cooperation and total mobilization of all available resources, it will be difficult to meet the ever-increasing need for vocational education.

In Illinois, as in many other states, four public agencies are involved in the development, operation and evaluation of total, comprehensive vocational programs. These include the elementary schools, secondary schools, area vocational centers and junior colleges.

The need for occupational information at the ELEMENTARY level is real, and with the legislation of the past few years, the opportunity for such a program exists. Providing occupational information at the elementary level in a form acceptable to youth of this age category makes it possible for students to choose areas of interest for further exploration from fact rather than fiction.

HIGH SCHOOL programs include both occupational orientation and preparation as well as training programs. This includes background preparation for gainful employment and training designed to provide student skills and work attitudes needed for entry level employment or further training.

As a supplement to the local high schools, AREA VOCATIONAL CENTERS fill a vital role in supplementing programs the high school cannot offer due to high cost involved, lack of adequate financing or a lack of a sufficient number of students at one attendance center. Operating in coordination with existing local programs, a more diversified occupational program may result.

Offering programs designed to train individuals for entry level employment or employment at the technical level, JUNIOR COLLEGES fill a void existing between secondary and baccalaureate degree level programs. Close student-faculty relationships, quality staffing and a student-centered approach make this a meaningful educational agency.

Each of these agencies has the capability of being a moving influence in society. By coordinating efforts, that possibility increases greatly. In order to better coordinate activities of grade school, high school, area vocational center and junior college departments of agriculture in Illinois, a series of "Articulation Conferences" were planned and conducted by the Applied Biological and Agricultural Occupations Consultants of the State Board of Vocational Education and Rehabilitation.

The objectives of the conferences were:

(1) To develop an understanding of the program offerings at the primary, secondary (local high school and area vocational center) and post-secondary institutions.
(2) To coordinate content of courses to insure effective and smooth transition of students from secondary to post-secondary programs, to provide for continuity of programs from local high schools to area vocational centers, and to provide guidelines for developing primary grade instructional units.
(3) To develop a systematic sequence of courses—kindergarten through adult (continuing education).
(4) To generate specific information for use by counselors and guidance personnel as well as grade school, non-vocational secondary and post-secondary instructors.
(5) To coordinate efforts in serving the adult populace of the area with all segments of educational services taking part.
(6) To coordinate and encourage youth group activities.
(7) To coordinate efforts in locating, educating and coordinating training station employers, and to coordinate, where feasible, experience program supervision.
(8) To establish a total, comprehensive, long range vocational education plan, kindergarten through adults, for the service region.
(9) To communicate to teacher education institutions their needs in personnel, so that curriculum at the senior colleges may be modified as needed to remain current.
(10) To establish a total vocational public relations program serving people.

Obviously, all the above objectives cannot be reached in one conference lasting only two and one-half hours. Many of the proposed objectives will be obtained only after local instructors, counselors, administrators and lay citizens spend countless hours of painstaking work gathering information, assembling data, developing new programs and evaluating and improving existing ones.

It was the hope of the state staff that as a result of the initial conference, involving agricultural instructors, guidance personnel, administrators and advisory council members, subsequent meetings initiated at the local level would be held to continue the articulation effort. An Agricultural Coordinating Council was proposed to serve as the administrative structure of further articulation. Agricultural instructors and selected administrative personnel would compose the membership of the Council. Its function would be to determine articulation priorities, organize committees, hear committee reports and work toward better articulated programs which would result in higher quality programs and better utilization of resources.

Realizing that time is a valuable resource to all educators, it was suggested that the research needed in order to make decisions be done by a series of ad hoc committees. The committees might be composed of representatives from the local education agencies, advisory councils, lay citizens or specialists.

Virtually every person within the geographic area covered by the council is a potential member of one or several of the ad hoc committees.

One such committee might be formed to study adult education programs currently offered in the educational service region. As a result of work done by this committee, it is feasible that the educational service region benefit due to reduced duplication of efforts by individual schools, better utilization of individual teacher specialties, and the development of a sequential series of adult courses leading toward specific occupational objectives of those served involving all local educational agencies. Each committee formed could study existing programs, identify existing or potential problems, and recommend courses of action to the Council. Depending entirely on local need, one or several committees could be established for specific tasks.

The geographic area served by such a Council, which has been referred to as either the local area or educational service region, must be determined locally. In Illinois, a junior college district may include two or more area vocational centers and several high school and/or grade school districts. In this case the junior college district might serve as the geographic base. However, there are several areas in the state served by no junior college, so local decisions must be made.

The Agricultural Coordinating Council concept is not the only answer to the need for better articulated programs. It is but one approach. The ultimate success of agricultural education in the future is dependent upon our ability to coordinate and articulate our individual efforts so as to provide the quality vocational training in agriculture needed to meet the needs of our students and the demands of agricultural industry. It is said that a young preacher once asked John Wesley how he could get the multitudes to come hear the gospel. Wesley's reply was, "Get on fire, and people will come to see you burn." If each of us were to "get on fire," the tremendous task we face would be accomplished.

Although this article was authored by Sampson, he gives credit to G. Donavon Coil, Head Consultant, Orval C. Floyd, Harold Homann, and Allan Utech, Consultants, Applied Biological and Agricultural Occupations, State Board of Vocational Education and Rehabilitation, for their efforts in the planning, development and execution of the articulation conferences, as well as countless individuals at the local level whose efforts have made the conferences possible and successful.

WHAT SHOULD YOU TEACH?

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and

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What agricultural related subject matter units are taught at the high school level? How much instructional time is allocated to the teaching of the subject matter units, and categories of subject matter? How does the amount of instructional time allotted to production agriculture compare to the agricultural related occupations? Which national objectives for vocational and technical education in agriculture are high school vocational curricula directed toward attaining? These are questions raised by agricultural instructors regarding agricultural curricula.

The 1963 Vocational Act and the 1968 Amendments to the 1963 Act made it possible to broaden and strengthen the national vocational education program in agriculture. Occupational and educational needs of agricultural workers and the changes in agriculture made it necessary for the educational program in agriculture to be changed to reflect the needs of today's economy. These changes in agriculture and the changes in vocational education legislation are reasons why instructors raise the above questions.

A study[1] was initiated in Wisconsin to identify subject matter units taught, the length of instructional time allotted to a subject matter unit, and the extent of contribution of subject matter units toward attaining the national objectives of vocational and technical education in agriculture. Data were obtained by a mail questionnaire from a sample of Wisconsin vocational agriculture instructors and from a panel of agricultural education experts. The 131 subject matter units on the returned questionnaires were placed in sixteen categories for analysis purposes. Independent variables in the study included economic areas and instructor's tenure.

CURRENT OFFERINGS

Almost 85 per cent of the teacher's instructional time was allotted to teaching the following subject matter categories (Table 1): animal science, farm business management, agricultural mechancis, plant science, and soil science. If the subject matter categories of careers and leadership are included with the previously identified subject matter categories, it includes 90 per cent of the total instructional time in four year high school curricula.

Instructional time allotted to off-farm agricultural subject matter categories included off-farm agricultural mechanics, off-farm agricultural supplies, placement, advancement, and continuing education subject matter, human relations, and the balance to off-farm agricultural food and nonfood, off-farm agricultural resources, off-farm forestry, ornamental horticulture, and off-farm other agriculture.

TABLE 1

INSTRUCTIONAL TIME ALLOCATED TO TEACHING CATEGORIES OF SUBJECT MATTER

Subject Matter Category	Mean Per Cent
Animal Science	22
Farm Business Management	18
Agricultural Mechanics	23
Plant Science	13
Soil Science	8
Careers	3
Placement Advancement and Continuing Education	1
Human Relations	1
Off-farm Agricultural Mechanics	4
Off-farm Agricultural Supplies	1
Leadership	3
Other*	3

*Other includes off-farm agricultural food and nonfood, off-farm agricultural resources, off-farm forestry, ornamental horticulture, and off-farm other agriculture

Note — The total instructional time was 744 periods, and they were fifty to sixty minutes in length. N equals 148.

TEACHING OBJECTIVES

Each category of subject matter contributed to some degree toward attaining each of the six major national objectives as perceived by the agricultural instructors. The major contribution of animal science, farm business management, agricultural mechanics, plant science, soil science, and off-farm agricultural mechanics was made toward attaining Objective I (production agriculture competency). These subject matter categories also composed almost 85 per cent of the total instructional time indicating that the production agriculture objective was receiving the major emphasis in teaching. It must be remembered that the objective of secondary importance was Objective II (agricultural related occupations competency). Instructors indicated that off-farm agricultural supplies, off-farm agricultural food and nonfood, off-farm agricultural resources, and off-farm forestry subject matter categories contibuted at a major level toward attaining Objective II. It was also found that instructors assigned a similar level of contribution to a subject matter category in attaining the national objectives regardless of the economic area of Wisconsin or instructor's tenure in the present school system as an agricultural instructor.

When the agricultural instructors were compared to a panel of experts, it was found that there was a moderate congruency between the panel and the instructors regarding the extent of contribution made by categories of subject matter toward attaining the national objectives. Complete congruency (complete agreement) was found to exist regarding six categories of subject matter. Subject matter categories where there was a lack of congruency were mainly categories pertaining to agricultural related occupations competency.

WHAT DOES THIS SAY TO AGRICULTURAL EDUCATORS?

First — Current vocational curricula offerings in Wisconsin are primarily production agriculture oriented, and secondarily agricultural occupations oriented. This is illustrated by the instructional time allocated to production agriculture subject matter as contrasted to agricultural objectives receiving greatest emphasis, and the very low relationship between economic area and time allotted to categories of subject matter. There are 5 and ½ million men employed on farms and in agricultural business in the Midwest, and over one-half were employed in off-farm agricultural occupations.[2] More agricultural related occupations subject matter such as service department operating procedures, merchandising, advertising, salesmanship, marketing, business finance, accounting, hydraulics, and others must be taught in the curricula so that there are more competent men available for employment in agricultural related occupations.

Second — A strong production agriculture curriculum should be maintained in certain areas such as in the Midwest. Of the Nation's land in farms, one-third of the land is found in the twelve midwestern states of: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.[3] In this region we find that 85 per cent of the corn, 83 per cent of the oats, 55 per cent of the wheat, 75 per cent of the soybeans, 82 per cent of the hogs, 51 per cent of the milk, 82 per cent of the butter, 74 per cent of the cheese, and 60 per cent of all livestock are grown or raised.[4] This is the "breadbasket of the Nation," and there is a need for a strong production agriculture curriculum to train and educate competent young men for farming since the efficient production of food and fiber is essential for our growing population where fewer individuals are charged with this task.

Third — There is a need for a revision and expansion of pre-service and in-service agriculture teacher education programs to increase the teacher's competency in the agricultural related occupations. More agricultural course work and work experience which pertains to agricultural related occupations should be incorporated into the teacher programs. State curriculum guides or guidelines should be developed and/or revised to include more agricultural related occupations subject matter to aid teachers in curriculum development. Continued and increased emphasis is needed on graduate study for agricultural instructors to increase their competencies. In this study 27 per cent of the instructors held a master of science degree or its equivalent. Research has shown that teachers who hold master's degrees were more successful as teachers.

Fourth — Environmental factors such as small high school enrollment, location of the high schools in small municipalities, and one man agriculture departments limit the offering of a complete vocational agriculture curriculum at the high school level. Fifty-two per cent of the high schools offering agriculture had an enrollment of 400 students or less, and sixty-seven per cent of the high schools are located in a municipality of less than 2,500 people. The use of area secondary vocational centers with specialized agricultural curricula, multiple teacher departments, use of simulated work erperience when work in agricultural businesses is not available, and/or larger high schools will help alleviate these environmental factors.

Fifth — The subject matter taught represents only one part of the total vocational agriculture curriculum. More information is needed to adequately measure the total vocational agriculture curriculum. Additional research is needed to determine the effects of parts of complete agricultural curricula such as supervised occupational experiences, supervised occupational visits, counseling of students, FFA activities, and the subject matter concepts taught. Other high school courses enrolled in by high school students and extra curricular activities are influencing variables which need further study.

Sixth — We must remember that four units (years) of vocational agriculture in high school represents 25 per cent or less of the students total high school curriculum. We must provide a fundamental type of agricultural curriculum which complements the general education curriculum of high school students. Research has shown a good vocational agriculture curriculum will prepare students for employment in a gainful occupation in agriculture, enrollment in two year technical agriculture curricula, and for successful pursuit of higher education in Colleges of Agriculture.

[1]Fred John Pumper, "Determination of Subject Matter Units Taught in Wisconsin and the Extent of Contribution Toward Meeting the National Objectives of Vocational Agriculture." Dissertation, Ph.D. University of Wisconsin, Madison, Wisconsin. 1968. 229 pp.
[2]Midwest Association of State Departments of Agriculture, *Midwest Agribusiness. State Office Building*, Madison, Wisconsin, October, 1966, p. 7.
[3]*Ibid.* p. 1.
[4]*Ibid.* p. 26.

WHY THE LAND LABORATORY

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One of the decisions new teachers frequently face is whether or not to accept employment in a school with a land laboratory. In many cases they may have completed their student teaching experience in a school with a land laboratory or school farm, and in their brief stay developed mixed emotions as to its value, how it should function, and whether or not they wish to continue teaching with such a facility.

Land laboratories are acquired in a variety of ways, not all carefully thought out to indicate from an educational standpoint whether they are desirable facilities to have. In many instances they are inherited, donated, or land is made available from a future building site. Sometimes government agencies (e.g. military) release tracts at such a bargain as to be irresistable to school districts. In many cases, experienced teachers, at wits end to provide 'projects' for students, grasp the school farm as a panacea for providing supervised work experience activities. Often it does meet this function admirably. Occasionally a teacher who has always wanted to farm but could not afford it finds in the school land laboratory the answer to his desires. The school farm, perhaps unconscious to him, becomes his "thing" or hobby. He spends countless hours, works hard and bends every effort to make it a showplace, unaware of the trend or drift the total program of education in agriculture is taking in his department. Student teachers in such a situation may see the total picture more objectively than the supervising teacher himself because he is so close to the situation and too personally involved. The dilemma then revolves around what is the function of a land laboratory, why have one, who and how can it serve best.

TABLE 1

EFFECTIVENESS* OF SCHOOL FARM LABORATORIES** IN SEVEN REGIONS IN CALIFORNIA

Region	Number of Schools	Number of Schools with Land Lab.	RATING Above Average	RATING Average	RATING Below Average
1	50	31	18	7	6
2	45	19	9	6	4
3	54	46	8	30	8
4	46	29	10	9	10
5	38	13	4	2	7
6	33	11	5	4	2
7	46	18	7	9	2
Total	312	167	57	64	36

*The Bureau of Agricultural Education, California State Department of Education, lists in its publication, *The Objectives, Functions, Legality, Plans and Operations of School Farm Laboratories*, sixteen functions of a school farm laboratory. The first of these functions is to: Complement the work of the classroom by providing laboratory experiences for those principles studied in the classroom.

**Includes several Land Laboratories in community colleges as well as those in secondary schools as data was collected prior to July 1, 1969.

The answer seems relatively simple. Its function is an extension of the classroom and other learning activities indicated in the curriculum. It is not a place for students to have projects unless, of course, a student having a project there meets the criteria of extending classroom learning activities. Unless this criteria is continually tested and practiced, it can soon become a menagerie, a zoo, and not infrequently an eyesore to the community. Too many vo-ag students with no home facilities choose to fatten out an animal at the school farm when a well planned occupational work experience program would have given the student greater incentive and keener insight into agriculture.

The data presented in Table I were gathered just prior to the separation of community colleges from secondary schools in July 1969. The evaluator was the regional supervisor in each respective region, who was the person most knowledgable on a region-wide basis and best able to evaluate each school farm in relation to all the other school farms in his supervisory area.

Table I does not present clear-cut substantiating evidence in favor of the effectiveness of school farms in meeting their purposes. Collectively and in almost all individual regions, over half of the land laboratories were rated average or below in relation to their effectiveness in extending classroom learning experiences.

TABLE 2

SIZE OF SCHOOL FARM LABORATORIES IN SEVEN REGIONS IN CALIFORNIA

Region	No. Schools Land Lab.	Total Acres	Avg. No. Acres per Land Lab.
1	31	923	29.8
2	19	815.5	42.9
3	46	202	4.39*
4	29	128	4.41
5	13	108	8.3
6	11	22	2.0
7	18	386	21.4
Total	167	2,584.5	15.47

*If the four largest land labs are eliminated it reduced average size to 1.71 acres.

As indicated in Table 2, a larger farm laboratory does not necessarily make it a better one. In fact, much of the evidence points to smaller school farm laboratories being more effective or at least performing its function equally well. If this is the case, reduction in cost, operating expenses, ease of maintenance, etc. seem to follow.

If the underlying purpose is to extend classroom activities by use of a land laboratory, it should be done as economically and efficiently as possible and without undue burden to the community. Guidelines for acquiring a land laboratory or in developing it if one already exists might include the following suggestions:

1) An advisory committee to share the responsibility, lessen the pitfalls, and link the program with the community.
2) Keep it small. From 2 to 5 acres is sufficient to perform all functions and make it manageable. Occasionally larger sizes (up to 10+ acres) may be suitable for special needs.
3) Contiguous to the school grounds or at least within walking distance. Eliminate bussing and other transportation problems if possible.
4) Provide for financing from district funds. If it is designed to support itself, it loses its educational purpose and endangers the basis for all future decisions regarding its operation.
5) Hire a caretaker at least part time. The teacher of agriculture should be the manager *not* the worker.
6) Keep it an attractive showplace. It should look better than most farms in the district. Landscape it, eliminate weeds, waterholes, gravel the roadways, etc. A power sprayer to seed, spray, whitewash, spray cattle, etc. is an invaluable piece of equipment linked to both education and maintenance.
7) Do *not* keep breeding stock on it. In summertime livestock should be off facilities in order to dry out, free itself of flies and eliminate chores so the teacher can be out supervising student projects and work stations where work experience students are located.
8) Keep the number of buildings to a minimum. Make them multifunctional and designed so the teaching function and facilities for livestock and agricultural machinery can be used together.

Suggested activities for using a school farm laboratory are:

1) For teaching operation and maintenance of agricultural equipment.
2) Demonstration plots, fertilizer trials, pruning young trees, vines and ornamentals (pull out trees, etc. after serving their purpose), development of forestry plots and wild game management programs.
3) Short feeding trials of livestock, 60-90-120 days. Use large numbers perhaps carload lots so the operation is based on commercial standards. Involve classes in financing, insurance, and other management decisions and problems.
4) Demonstration of livestock skills such as marking, docking, castrating. Practice livestock selection and judging using animals indicated under suggestion 3 and 4.
5) Gathering place for livestock prior to fairs. Have students bring in their individual animals several days before leaving for shows, county fairs. Give a local exhibit to other high school classes and practice showmanship before other students. All animals are then ready to leave at the same time and have had a chance to get accustomed to crowds.
6) An attraction for visitors and guests. Use the laboratory during Farm-City Week, open house, etc. The land laboratory should be a place students are proud of and one their parents and administrators like to show to guests.
7) Opportunity for production projects for urban youth.
8) Work experience projects for the handicapped and disadvantaged.
9) Expedite learning by reducing the number of field trips that ordinarily would be taken away from the school.
10) Make cooperative type programs accessible to students.
11) Centralize all phases of the teaching program to increase efficiency of the faculty.

Vocational agriculture teachers listed the following ways to improve their present school farm laboratories:

1. Provide more security to help eliminate damage and destruction of present property.
2. Fence farm laboratory to permit pasturing with livestock and help eliminate losses.
3. Construct storage facilities for feed, fertilizers, spray materials and tools.
4. Develop nature trails as rural recreation demonstration facility.
5. Provide permanent housing for farm laborers.
6. Insulate water pipes to prevent freezing.
7. Build ornamental horticulture facilities to include glass house, lath house, head house, composting bins and provide storage space for cold frames and demonstration plots for turf grass.
8. Hardsurface driveways and walkways to farm buildings and supporting structures.
9. Install permanent irrigation system.
10. Add land to present laboratory to make it more functional and permit more student use.
11. Establish a school farm laboratory fund to provide for annual improvements and to repair and replace equipment as necessary.
12. Add test plots of various kinds to stimulate learning.
13. Establish summer classes so farm laboratory has year around use.
14. Landscape facilities to make farm laboratory attractive and enhance learning by doing at the same time.
15. Level land to utilize more effectively for truck crop projects and other general uses.

To increase community interest in the school farm laboratory, instructors suggested:

1. Publicize what is being done with the farm laboratory in the way of student use through demonstration plots; show how it supplements classroom and laboratory practices.
2. Invite news media to visit the farm so feature stories may be prepared.
3. Inform service clubs of need for funds to support individual and group projects on the farm.

4. Get students involved in utilizing facility. As student interest increases, the need for more land for livestock and crop projects will become apparent.
5. Maintain the general appearance so school faculty, administrators, and others will be proud of what is being accomplished.
6. Maintain accurate records on activities conducted on the school farm laboratory, including cost data for production items. Use this data to show the need for financial support.
7. Add equipment whenever possible to improve learning.
8. Increase services to the community by inviting parents and community leaders to the campus during Farm-City Week, or during National FFA Week. Hold a barbecue for the benefit of service clubs, young and adult farmers at the school farm laboratory.
9. Invite elementary teachers to bring their classes to visit livestock, crops, and other items of interest to youth so more students are utilizing the facility to its greatest potential.

Teachers should look for new dimensions in developing and using land laboratories. In areas involving natural resource management environmental control and so on, mobile laboratories may serve as a means of extending classroom activities. For example, a large vehicle fitted with wildlife specimens and other renewable resources could move from school to school to provide facilities each individual school could not provide.

Each teacher of agriculture must continually ask himself if he is concentrating all his efforts on the land laboratory and forgetting the community. In the final analysis the whole community can be a land laboratory, and this existing resource provides true-to-life meaningful experiences for students simply by taking advantage of the multitude of resources in each community. However, land laboratories do have the tremendous advantages of convenience, student pride in their program, a unifying symbol, and most important, a place where principles taught in the classroom can be immediately applied every day.

FORESTRY IN THE HIGH SCHOOL PROGRAM

Jewell Mooney
Vocational Agriculture Instructor
Lutesville, Missouri

With the changes in the philosophies and goals of vocational agriculture, instructors find themselves confronted with the increasing pressures of "keeping up."

Forestry is one of the fields where there is need. Forestry programs have been offered to post high school groups as well as to high school students with varying degrees of success.

The school that has a forestry laboratory is fortunate. All that is needed in addition is interested students and a qualified instructor. This last ingredient is probably the most difficult to come by. Many instructors of vocational agriculture have had some experience in timber work, but there is a difference in coming in contact with a sawmill or cutting firewood for the home fires and teaching forestry to high school students.

The first course in forestry management offered at the Woodland School Vocational Agriculture Department was developed with the help of the District Farm Forester. He was interested in the opportunity offered at Woodland for training boys in timber management. It was decided that the senior class in vocational agriculture would participate in the course.

The first experiences involved classroom work with the students being asked to bring in samples of leaves for identification. Along with this activity the various products made from different kinds of trees were discussed.

From the classroom, the group moved to the 80 acres of timber on the school farm where trees were identified by bark and leaves and the various products made from trees again were emphasized. It was found after a preliminary survey of the 80 acres that several trees needed to be cut as they had reached their proper maturity.

At this time, the students moved back to the classroom to study the methods of measuring and marking trees to be cut. The students were asked to make their own cruising sticks for estimating number of logs in a tree and for taking diameter readings. After a thorough discussion of how to use the cruising sticks, the class moved back to the timber area to begin the estimation of the amount of lumber in the 80 acres.

Another area of forestry management program is fire prevention. Here the local towerman and other foresters were asked to help with the teaching. These people had firsthand knowledge gained by actual experience and were willing to be of assistance. Along with firefighting the students learned to use the "Little Beaver" tree killer. This is a motor driven device that is carried on one's back and has a flexible shaft with a cutter on the end resembling a power grinder.

The timber management course would not be complete without the planting of trees to take the place of those that have been cut. The development of wild life areas will be included in the total program of timber management.

The forestry program has been interesting and rewarding. Our department has won the Missouri Forestry Award, the Sportsman Award, and the Missouri Conservation Commission Award. This would not have been possible without the cooperation of such men as the local forester, the local towerman and the district Farm Forester.

As a result of our programs we are planning to have one or more students work with the Conservation Commission in a work experience program. This will be a new experience for our area and it is hoped that the program can be expanded as we continue our work.

EDUCATION FOR HIRED FARM LABOR

Frank Bobbitt
Teacher Education
Michigan State University
East Lansing, Michigan

Developments of recent years indicate a major shift in the amount and quality of labor required on farms. Traditionally farmers have obtained hired labor from an abundant supply of individuals with low skill levels either as migrants or from the local community. These individuals were employed in situations which generally required a "strong back" but no real need for a "strong mind." They were employed to do hard physical work; however, it was work in which little skill training was necessary in order to meet the requirements of the job. In the past the labor supply has been generally adequate to meet the need of farmers. Events of recent years such as the cutback in imported labor, social reaction to the plight of farm workers and attempts at unionization, with the accompanying farmers reaction to these developments, have provided a different picture of the farm labor situation. Farmers have reacted to current developments by rapidly mechanizing their operations. The headlong gallup by farmers toward mechanization presents a problem of many facets.

Full mechanization will displace a large number of workers who now depend upon work in farming. The farmer who recently may have been faced with a shortage of the type of labor he wanted will be faced with more acute labor shortage as his demand shifts from relatively unskilled labor to skilled labor. Thus a paradox has developed in which large numbers of individuals who now depend on farm employment for income are displaced while the farmer, who to overcome the dependency on large amounts of farm labor is mechanizing, very likely will encounter even greater difficulty filling the skilled jobs created by mechanization.

What is the present rate of mechanization in farming? In 1968 1% of apples for processing was harvested by machine. In 1975 it is estimated 50% of the apples for processing will be machine harvested. It is estimated that one machine will replace 9 workers. It has been estimated that by 1975, 300,000 seasonal jobs will be eliminated on fruit and vegetable farms alone. From these examples two specific questions arise. First, what is to happen to the displaced worker? He is already classified as among the least skilled and least able to adapt to new modes of life of any group in our society. What happens to his children, his community, his family life and his future when this door to employment is closed? Secondly, where does the farmer recruit operators for machines that can displace men at the rate of 9:1? What are the sources of this type of worker? Will the grower find some untapped skilled labor pool from which he can persuade individuals to come work for him?

In the past, agricultural educators have been concerned with providing education for individuals who planned to farm. In recent years the emphasis in agricultural education has broadened to provide education for people to enter nonfarm agricultural occupations. However, there seems to have been little concern for preparation for hired farm occupations. With the advent of increased mechanization on farms the problem of training and retraining rural people as workers on farms becomes important. In the future, as has been indicated, many farm workers are going to be displaced because of mechanization. This suggests that a large number of individuals in rural areas will be out of work and, if the concept of farm labor is valid, they will also be without the necessary skills either to fill skilled jobs on the farm or move to non-farm occupations. Currently in Michigan several programs are in operation to assist in retraining rural adults. One of these projects conducted in cooperation with the Grand Rapids Michigan School Board, Michigan Department of Education, United Migrants for Opportunity Inc. and The Rural Manpower Center at Michigan State University is designed to assist unskilled migrant laborers become tractor operators. Programs under the Manpower Development Training Act are providing skills to rural people through their Dairy Herd Technician Course and Power Mechanics Courses. Individuals who are enrolled in these courses were primarily rural unskilled workers. However, upon completion of the courses there has been a high demand from employers for their services. The demand has also been reflected in the higher wages offered to graduates.

The programs mentioned above are effective in retraining adults, however, at present there are not enough to meet the needs of displaced farm workers or farmers requiring specialized skills.

The challenge to agricultural educators appears to be clear. More programs must be provided for retraining displaced farm workers. Emphasis must be placed on developing educational programs that will provide a maximum of transferability of skills from one occupation to another whether it be in farming or in a non-farm occupation. Also, existing programs in vocational agriculture must become more concerned with training students to meet the new and emerging skilled occupations within farming. Agricultural educators should avoid the dichotomy of providing educational opportunities for those who plan to own and operate farms and those who plan to enter non-farm agricultural occupations. Opportunities must also be provided for developing skilled farm labor.

INTERRELATING AGRICULTURE INTO THE TOTAL SCHOOL PROGRAM

Herbert Bruce, Director
Instructional Materials Laboratory
University of Kentucky, Lexington

A two-year pilot program was conducted in two high schools in Kentucky presenting an interdisciplinary approach in vocational education. This effort featured cooperation on the part of teachers representing four vocational services, the guidance counselors and the principals. Agriculture was one of the four vocational services involved. The 57 students enrolled the first year definitely needed exposure to the world of work, but were not enrolled in regular vocational programs.

The major objective of the program was to develop in students the attitudes, knowledges and skills common to several vocational areas which would assist them in making a sound beginning in the world of work. An attempt was made to attain the objective through classroom teaching, introduction to various occupations, observation of jobs and on-the-job training. The first year of orientation and observation was designed to prepare students for part-time (eight to fifteen hours per week) occupational experience which was to be done the second year. The students during the second year were on their own to a great extent. They met with a teacher one hour per week to make plans for getting the right kind of experiences and to prepare for these experiences. The teacher was also responsible for supervising the student during his on-the-job training.

Student receiving supervision in the stockroom of a department store.

COURSE OF STUDY

The course of study for the first year of the program consisted of orientation, grooming and dress, applying for a job, salesmanship, health and safety, business organization, labor laws, taxes and social security, and human relations and personality development. The students were exposed to the opportunities in the world of work that related to Business and Office, Home Economics, Agriculture and Distributive Education. These four areas were represented by a team of teachers from each school. In addition to instruction by the vocational teachers, the guidance counselors provided occupational information and part of the course instruction through group and individual counseling.

Each student observed four businesses during the year. Prior to each observation, time in class was devoted to preparing students for the experience. Evaluation of the visits was made after each observation. Following the fourth observation, each student selected a place for his on-the-job training.

RESULTS OF THE PROGRAM

Fifty-one of the 57 students completed the two year pilot program. These students and teachers thought the first year was the strongest part of the program. This involved team teaching, a broad course of study, orientation and observation of the world of work, and career planning. The students' criticism of the second year was that the one hour per week with teachers was not adequate to prepare them for their on-the-job training.

In summary the major strengths and weaknesses of the program were:

Strengths

1. Team teaching
2. Orientation to the world of work
3. Observation of jobs
4. Guidance (Group and Individual)
5. Development of favorable student attitudes toward work

Weaknesses

1. Not enough classwork the second year
2. Lack of supervision for on-the-job training
3. Lack of depth of training in technical skills

RECOMMENDATIONS

The following recommendations were made:

1. The second year (on-the-job-training) be dropped.
2. Offer the program for 9th grade students and emphasize orientation and observation.
3. Following the orientation and observation, guide students into a vocational program in the high school or in an area vocational school so they may get training in a specific area.
4. Use a team teaching approach by involving the vocational teachers in a school.
5. Follow a broad course of study similiar to the one described in this article.

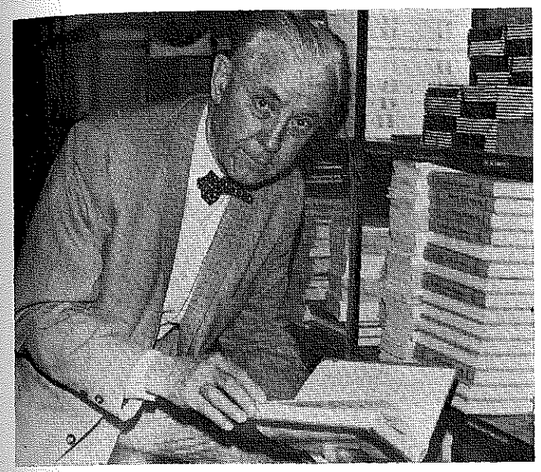
There are times when the regular vocational agriculture programs in a high school does not meet the needs of all students who desire vocational training in agriculture. One of the important reasons may be a lack of student interest as a result of a poor guidance program, a lack of knowledge about vocational agriculture by students, lack of information by parents, or a poor vocational agriculture program in the school. Regardless of the reasons, some students should be enrolled in vocational agriculture who do not enroll.

If the vocational agriculture teacher is involved in this program, he will have an opportunity to orient students to the broad field of agriculture and to guide interested students into vocational agriculture. If the teacher is not involved, some potential agriculture students will continue to enroll in other programs rather than vocational agriculture.

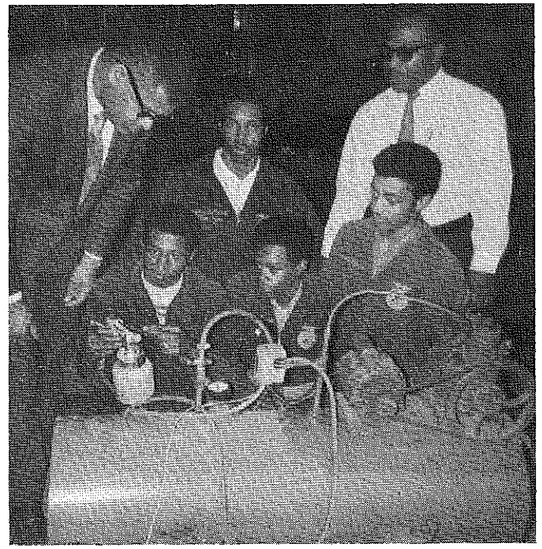
Student receiving office experience in a newspaper office.

Stories in Pictures

ROBERT W. WALKER
University of Illinois



Russell L. Guin, Chairman of the Board, Interstate Printers and Publishers, Inc., Danville, Illinois, is respected and admired by agricultural educators for his ability to select and publish appropriate instructional materials. Wherever teacher educators get together, whether at conventions or seminars, they meet Mr. Guin and receive a friendly greeting. Has he said to you, "Now let me think, I recall this about you . . .", and then he continues to demonstrate his ability at recalling a situation or an event in which you took part. (Photo by Robert W. Walker).



Fred Jackson, left, principal of Wesley Ray High School, Angie, Louisiana, listens to students explain the operation of a paint sprayer. The compressor unit was constructed in the agriculture department shop under the direction of Freddie Jefferson, vocational agriculture teacher. Construction materials included a discarded 40 gallon electric water tank, a one-half horsepower motor and 4 legs from a washing machine and a compressor from a refrigerator. Purchased supplies included copper tubing, pressure gauge, pressure switch, fan belt and pulley. Total cost $9.27. Approximate value $125.000. (Photo by J. C. Simmons, Area Supervisor).

Harold Byram, Michigan State University, left, talks of his retirement plans with Clarence Bundy, Iowa State University, during the 1971 Central States Seminar in Agricultural Education in Chicago. In the spring of 1929, Mr. Bundy did his student teaching under the supervision of Dr. Byram at Kelley, Iowa. (Photo by Robert W. Walker).

ADULT EDUCATION IN AGRICULTURE

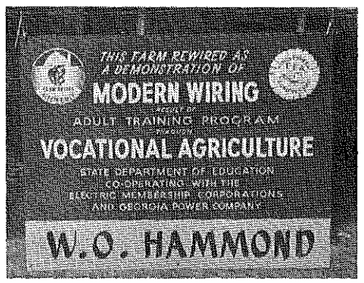
R. E. Powell, Assistant Supervisor
Agricultural Education
State Department of Education
Athens, Georgia

Listed in the Georgia Plan for local school systems is this statement, "the thrust of the amendments is directed toward the responsibility of education to prepare persons for life." Work represents the central focus of man's life. No industry has changed more rapidly nor has new technology come faster anywhere than to the broad field of agriculture.

The people who will produce the needed food and fiber in the future need to be better trained than ever before. Our food and fiber needs are increasing, while the number of persons producing, percentage wise, is decreasing.

Adult farmer education becomes more important as agriculture becomes more complex. In Georgia, local vocational agriculture teachers project in their annual programs of work, course offerings for adults in their respective communities. There are community-wide facilities such as the Vocational Farm Mechanics laboratory, food preservation centers, and livestock exhibit barns, where varying kinds of training programs can be offered.

We have in Georgia 22 area adult teachers of vocational agriculture who devote approximately 65 per cent of their time to teaching adults. More than ⅓ of their time is devoted to training in areas other than production agriculture, particularly in the broad area of Agri-Mechanics.



Cooperative programs with other agencies receive proper credit and publicity.

These area teachers have their headquarters at the District Vocational Agriculture office. They are assigned a given number of regular teachers of vocational agriculture and school systems with whom they work.

In 1969-70, three of these men located in the Northeast Georgia district, taught 87 courses, consisting of 301 meetings, where 1,552 adults were enrolled.

Course offerings in Farm Electrification, Chain Saw Operation and Maintenance, Farm Water Systems, Electric Motors and Controls, Controlling Diseases and Parasites of Beef Cattle, Feeding Beef Cattle, Farm Income Tax and Social Security are the kinds of courses being taught to those adults who attend because they are interested and have a problem in, or related to, the courses offered.

The regular teacher of vocational agriculture chooses the course offering after reviewing local needs with his advisory committee for his program. Usually a local school administrator is a member or attends these planning sessions with the teacher and the advisory committee, and together they recommend choices for usually two of these course offerings per department per year.

It is the responsibility of the local regular teacher to arrange for a meeting place, laboratory facilities, demonstration site, etc. in addition to organing and inviting the class group.

An example of such a course offering is a class on Farm Structures (Pole Frame) where two 2-hour meetings are held in a classroom setting with an area teacher, teaching such things as planning, design, type, strengths of lumber, pole sizes, prevailing wind directions, location, load limits of both live and dead loads, kinds of fasteners, laying out a building, etc.

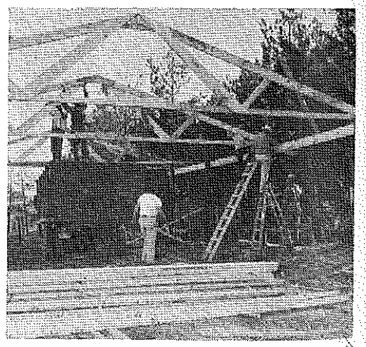
Two additional classes (usually a day plus preparation planning time) are devoted to the actual construction of a building on some class member's farm. The entire class is invited to participate and usually at least one-half of the class group will spend a part of the day at the demonstration site assisting in the work, while other members of the class and even some who do not attend, come by later to view the project.

A large share of the success for adult work in Georgia is due to our area adult teachers who serve two basic purposes. *One,* to teach adults in problem areas which farmers have and *two,* to give specialized technical training to the regular teachers. In addition, these area teachers offer in-service training in their area of speciality to local teachers during the summer months. This qualifies the local teacher to better teach his all-day students the jobs dealing with the areas aforementioned.

One of the critical problems with adult instruction is teacher preparation. By the nature of the area teachers set-up, he is in position to be trained more extensively and completely than the local teacher. Too, he is afforded more time for good preparation.

With the work load of all-day classes, other school responsibilities, student visitation, FFA, contests, etc., local teachers do not have adequate time to do high quality preparation and teaching in adult education.

Our adult work needs to be high quality, top level or not at all. We maintain the need is there and we will strive to meet that need.



Construction of a pole type barn by adult class members.

CONTINUING EDUCATION FOR THE AGRICULTURAL OCCUPATIONS

Leon A. Mayer
Division of University Extension
University of Illinois
Dixon, Illinois

Vocational education in agriculture embarked on a new venture in 1963 in an endeavor to provide occupational education for all of the agricultural occupations. The Vocational Education Act of 1963 provided new dimensions, new opportunities, and new incentives for agricultural educators to improve and expand existing programs and to develop new programs of occupational education in agriculture. Included among these many opportunities was the opportunity and the challenge to provide adult education of a continuing nature for the agricultural occupations.

The record of agricultural educators since 1963, in the development of pre-employment occupational education programs for the agricultural occupations, has been impressive. Agricultural educators have been involved in the development of similar pre-employment programs for several non-agricultural occupations which require some knowledge of agricultural subjects.

A progress report on efforts of agricultural educators to provide appropriate adult education opportunities for persons who have already entered an agricultural occupation is not very impressive. The pre-1963 effort to provide a few adult farmer and young farmer courses has continued. However, essentially nothing has been attempted in the providing of adult or continuing education for the non-farm agricultural occupations.

What kind of a rationale can we use to justify the development of continuing education for the agricultural occupations? How can we use this rationale to develop a commitment for moving in this direction?

The basis of this rationale is that agricultural education must come to grips with the notion of individual worth and personal fulfillment. Each individual not only has tremendous capability for development or fulfillment, but each person is also worthy of educational efforts designed to help him to develop. Success in an occupation, or advancement in a career, are important factors in personal fulfillment. Adult occupational education of a continuing nature, which is provided as a follow-up to pre-employment occupational education, can contribute toward success in an occupation, career development, and consequent fulfillment of the individual. Agricultural educators have known for a long time that adults can learn. The technological revolution has not spared the agricultural occupations — workers in agricultural occupations become obsolete as do workers in other occupations, unless appropriate in-service training opportunities are provided. The economic returns on investment are good in adult education designed to develop people.

As a matter of public policy, the vocational education legislation, from the Smith-Hughes Act to the present, has directly encouraged adult education, or has been capable of a broad enough interpretation so as to permit adult occupational education.

How can a teacher of agricultural occupations in a public school or in a junior college proceed to develop continuing education?

Some of the good program planning procedure which has been successfully used on pre-employment programs can also be applied to the development of occupational education of adults who are already engaged in an agricultural occupation.

An advisory committee should assist in the determination of needs for adult occupational education. Various groups to be served should be identified. Local citizens should be involved in the development of policies for agricultural education which would permit and support efforts to include adult education for the agricultural occupations as a part of a total comprehensive program.

In-service training needs of workers may have common elements in several agricultural occupations. Workers who are assigned supervisory tasks, or who aspire to be supervisors, will probably need competencies which would be quite similar for each of several agricultural occupations. People engaged in sales work may need similar in-service training, regardless of the occupation or company with which they are affiliated. Some of the competencies needed by adult workers in non-farm agricultural occupations are similar to some of the competencies needed by adult farmers. Therefore, in the interest of efficiency, continuing education programs for the agricultural occupations should be planned so as to group persons from several occupations who have similar educational needs.

However, specialized continuing education programs, perhaps of a technical nature, may also be needed. Here again, workers from several occupations should be grouped, if possible. The agricultural occupations teacher in the high school and in the junior college may need to utilize his advisory committee for agricultural education to re-evaluate previous efforts in adult farmer education programs. Especially in communities which have had a long history of systematic adult farmer education, it may be that the traditional adult farmer courses no longer meet the needs of some of our better farmers. Farmers who have been the faithful attenders at almost all of our traditional adult farmer courses and county extension programs report that much

of the content presented is a rehash of previous programs. Therefore, these more advanced farmers, products of our good agricultural education programs, need and want some higher level programs.

Farmers from this advanced group have been enrolling in increasing numbers, mostly as auditors, in credit courses in agriculture offered in their localities through University Extension. However, in many cases, these credit courses are too formal and too rigidly structured to meet the needs of these advanced farmers. What might be more appropriate would be for the local junior college to offer a program of courses specifically designed to meet the needs of these advanced farmers within their district. It is likely that some of these higher level technical programs may meet the needs of certain technical workers in non-farm agricultural occupations. Possibly these advanced farmers and non-farm agricultural workers could be enrolled in the same course.

Local high schools within the junior college district might continue to offer their traditional adult farmer programs; however, special efforts should be made to enroll the farmers which they have not previously reached within their school district.

Local high schools which limit adult farmer offerings to courses which include a variety of topics might consider a more systematic approach. An advisory committee can assist in identifying the needs for a total comprehensive program of adult farmer courses. A systematic long-term program should be planned. Two or three courses might be scheduled for offering each year so that over a three or four year period, each course in this comprehensive program might be offered at least once. At the completion of this three or four year sequence of courses, the program should be repeated. However, the local advisory committee would be used to periodically evaluate the long-term program and recommend adjustments in the program in accordance with changing local farming conditions.

If an agricultural occupations teacher can allocate one evening per week for adult farmer education, he can conduct a systematic, comprehensive program of the kind suggested; however, he must schedule the program so that only one course at a time is offered. In multiple teacher departments, work load could be scheduled which would include the organizing and teaching of adult farmer courses.

The agricultural occupations instructor will need to identify and arrange to use some specialized part-time teaching staff in addition to the full-time high school and junior college agriculture faculty. Programs jointly sponsored by the high school and by the local junior college may have merit. As a matter of necessity, high schools, the local junior college, the Cooperative Extension Service, and University Extension should systematically coordinate the total continuing local agricultural education effort.

The task of providing continuing education for the agricultural occupations is indeed a formidable task. It it a worthwhile venture. It is a challenge which agricultural educators are capable of meeting. Time is wasting — let's get on with the job.

THE SYSTEMS APPROACH TO CURRICULUM DEVELOPMENT

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Kansas State University
Manhattan, Kansas

The use of the systems approach is an effective method to use for curriculum development. A systems approach is based upon behavioral objectives* and includes the development of efficient plans for the accomplishment of the objectives. The curriculum which is developed should include the hypothesis that it is the best curriculum which could be developed at this particular stage in time. The curriculum is tried and tested and the evaluation instruments adequately measure the accomplishments of the behavioral objectives by the students.

*Observable performance which is required for gainful employment in an occupation.

Furthermore, the curriculum is the result of the best knowledge available regarding existing programs in the planned area. It is assumed that careful consideration was given to the societal and cultural needs of the students. The suggestions by representatives of the occupation in which the students will be employed were significant in the planning of the curriculum.

To plan an effective instruction program three major dimensions must be considered: the student; the teacher; and the instructional materials.

The *student* dimension involves a consideration of all of the students in the curriculum. There will be as many individual learning styles to consider as there are students in the class. There may be a difference in what the student needs to know and what the student thinks he needs to know to properly function in an occupation in our society. The student needs certain technical and attitudinal abilities to properly function in an occupation. A student must also have a commitment to the occupation, and show an interest in and need for instruction. The student can be expected to be loyal to the teacher and to the instructional program if it is well developed.

The *teacher* input is the most important single contribution in the instructional process. The teacher input involves not only competence in teaching and technical competence; it also includes a sincere and dedicated effort to provide the best instructional program which is possible. The teacher makes certain that the units and problems of instruction are relevant to individual needs and the occupation for which the student is preparing.

The teacher should select the available methods and media which would best develop the abilities needed by the students. Each of the methods and media available have unique advantages and disadvantages.

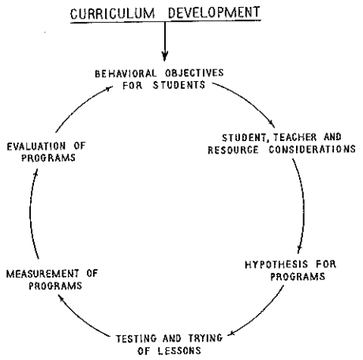
The *instructional materials* dimension is another important consideration in the instructional process. Time and money largely dictate the use of these materials. Unfortunately, some of the best media are very expensive. On the other hand, transparencies are a great improvement over lecture presentations because they add the dimension of sight to that of sound in the learning process at little expense, and thereby improve the efficiency of the learning process.

The community can be an effective and inexpensive input in the instructional process. Resource persons are usually available and willing to help in the instructional programs. Firms, businesses, and industries in the community are available for offering occupational experiences for the students. Advisory committee members can provide advice and instructional materials for use in the educational program.

The instructor must use appropriate testing instruments in the instructional program. The physical nature of the psychomotor abilities of the students are easier to measure than are the affective abilities. The quality of the psychomotor abilities can be measured by quality and time considerations, whereas the attitudinal nature of the affective abilities may have to be subjectively measured at a later date. Cognitive abilities can be effectively measured by pencil and paper tests, especially if these tests have appropriately established norms.

A goal for the measurement of student performance might be for zero defects, but when time and cost considerations are added this may not be possible. The conditions for the measurement of student performance should approximate those which exist in the actual job as closely as possible.

After the instructional program has been developed the next step in the curriculum development process should be to try it out. During the testing period no major changes would be expected in a curriculum which has been carefully developed. However, minor changes would be in order if the changes increased student motivation or made the program more relevant to actual occupational situations. Other considerations which could involve



A SYSTEMS APPROACH MODEL

minor changes in the curriculum are: the timeliness of the instruction of selected tasks; the frequency of the performance of occupational tasks; and the spacing of the instruction of tasks which have special interest to the students.

As a result of the testing of the curriculum, some findings and recommendations would evolve and would be used in its revision for the following year assuming that this is the best curriculum which could be developed at the particular time and place and would be used again each year.

At the end of the course an evaluation should be made of the curriculum to see if the students accomplished their behavioral objectives. Conferences should be held with the employers to see how the graduates had performed on the job. A conference with the graduates of the program will give an indication of how successful they thought the course was, and if they were experiencing satisfaction in their occupation. These conferences could point out any obvious weakness which might exist in the instructional program.

Other considerations for the evaluation of the curriculum should include an analysis of the cultural and societal changes that occurred during the year which might affect the students and the industry involved in the educational program. Relevant technological changes which may have evolved should be incorporated into the instructional program. Other educational programs should be visited and consideration given to the inclusion of desirable features which would be appropriate.

In conclusion, if satisfactory behavior is to be developed by the students as a result of the curriculum, careful planning must precede the actual instruction. Individual student and occupational needs must be blended into an attractive and efficient package which imparts to the student as many cognitive, affective, and psychomotor abilities as possible. The objectives of the instructional programs should be clearly defined and easily measured.

The instructional program should involve a mutual commitment by the students and the instructor in the accomplishment of the objectives, and the best instructional materials which are available should be used. The program should be evaluated and revised at the end of each year.

BOOK REVIEW

ADULT EDUCATION IN AMERICA by Ralph C. Dobbs. University of Missouri — Columbia, Missouri: Litho Printers, Cassville, Missouri, 1970, 336 pp., $5.25.

This book is divided into five parts that adequately cover adult education in America. It is an attempt to assemble a series of related studies, articles and commentaries to allow the adult teacher, leader, agency or participant to see more clearly man's need for continuous learning experiences. It may well become a text for reference as well as for reading. Part one directs attention to defining and comprehending adult education. Part two focuses on analyzing adult learning principles. Six interesting chapters were developed which includes in depth principles of learning.

Part three deals with adult education research such as: adult education research for a changing world; adult education research and you; self-perceived educational needs of adults; and an analysis of adult aspirations in urban communities.

Administering effective adult education programs for extension, community, and/or area vocational programs are explored in part four. Part five provides the reader with information exploring implications for adult education as modern man prepares to travel in a space-age society.

The contributors and the editor of this book are eminently qualified by training and experience. Each has distinguished himself as an author, teacher, scholar and researcher. This book is written in a manner to claim the attention as a classroom text, wherever adult education is taught. This book should be available as a reference book on the shelves of libraries throughout this country and especially yours as an adult educator.

Charles SaLoutos
Wisconsin State University
—Platteville

ORGANIZATION AND CONDUCT OF ADULT EDUCATION

S. A. Gilliam, Principal
G. W. Carver High School
Pinetops, North Carolina

For a number of years the author has felt that Carver School was not meeting the challenge of providing a program of Adult Education that would interest more adults. The real concern of teaching is to direct the growth and development of each individual along desirable lines that will fit him to become a happy, well-adjusted, contributing member of society. Even though many teachers at Carver School met the state certification standards, they still lacked the professional outlook and competency necessary for teaching adults.

The first step to evaluate the existing program was to make a systematic examination of library materials dealing with adult education programs. Secondly, a check list with items arranged under two general headings — characteristics and activities of adult education was completed by each teacher in Carver School to determine the needs of Carver teachers in adult education.

The author assumed that an in-service program in adult education would improve instruction, and consequently improve the development of the people involved. It is further assumed by the writer that the in-service adult education program would meet the needs of all teachers seeking help and advice from many sources in meeting the increasing responsibilities.

The objectives of the program were:

1. To gather information on adult education.
2. To gather information on the needs of Carver teachers in dealing with adults.
3. To discover alternative procedures for organizing a faculty for an in-service adult education program.
4. To identify a variety of teaching methods and demonstrate the use of these methods which teachers should use in teaching adults.
5. To develop a positive attitude toward the use of diverse methods and materials in adult education instruction.

There are differences of opinion as to what adult education is and what it should do. These differences are gradually decreasing, however, as adult education matures. This can readily be understood when one recalls the fact that as a formal and organized activity, adult education is comparatively new, and that it is carried on in many different ways by different agencies.

Bryson[1] defines adult education as all activities with an educational purpose carried on by people in the ordinary business of life who use only part of their time and energy to acquire intellectual equipment.

Morgan, Holmes, and Bundy[2] contend that adult education may be thought of as the conscious effort of a mature person to learn something new. It should be made clear that the concept of adult education held by most people excludes full-time school and college work which lead to a diploma or degree even though the student may be mature. The concept also excludes all the incidental learning that takes place in connection with the routine activities of everyday living.

Morgan, Holmes, and Bundy[3] state that adult education takes advantage of the older person's superior ability to solve problems which require reason and judgment. Adult education ties in with the experience of adults, with their behavior patterns, with their basic loyalties, with their aptitudes, and with their environment. Adult education tries to discover what kinds of materials mature people can best learn and by what procedures they can learn most effectively. Adult education is also concerned, as is education at other levels, with the problem of determining the true objectives of the material to be taught.

Smith, Krouse, and Atkinson[4] define adult education as education ranging from the basic skills of reading, writing and arithmetic to the discussion of social and economic problems.

Well informed people say that every community should have a program of adult education as an integral part of the educational activities of the school, and that various other agencies in the community should cooperate in support of programs of education for adults.

The school today can go a long way toward providing more opportunity for democratic participation. Whether a teacher is new to the school or is an "old timer," whether he is a beginning teacher or one of long experience, there is a need for an effective adult education program. Secondly, programs of adult education need to be more concerned about the problems of all adults. Too many adults appear to be under strain attending class, and are not able to respond in class. Particularly is there a need for setting up situations which will remove tension-producing stimuli and foster a more wholesome resolution of personal conflicts. A well-planned program in adult education will go a long way in meeting this need. In the third place, existing programs of adult education need to increase their effectiveness in helping adults solve everyday problems. In the fourth place, the possibility of growth in adults is of a high order, awaiting wise, intelligent guidance through helpful and stimulating experience.

In light of the information found in this community, the following recommendations are submitted:

1. That the school inform the public regarding objectives of adult education program.
2. That the primary purpose of adult programs be geared to assisting adults.
3. That the adult education program provide opportunities for participation by all those affected by the program.
4. That adult programs grow out of felt needs identified by adults who will participate.

If educators are to realize the real potential of adult education, the adult learning process must become a creating, releasing experience rather than a dulling series of passively attended indoctrination exercises.

[1]Bryson, Lyman, *Adult Education*. American Book Company, 1936. p. 208.
[2]Morgan, Barton; Holmes, Glenn E.; and Bundy, Clarence E., *Methods In Adult Education*. The Interstate Printers and Publishers, Inc., 1963. p. 13.
[3]Ibid., p. 17.
[4]Smith, Edward W.; Krouse, W.; and Atkinson, Mark M.; "Adult Education." *The Educator's Encyclopedia*. Prentice Hall, Inc. 1961. p. 809.

MODELS FOR SECONDARY AGRICULTURE OCCUPATIONS PROGRAMS

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Since the enactment of the 1963 Vocational Act, new program models have been suggested that deviate from the traditional Vo-Ag I, II, III, and IV. The 1968 Vocational Amendments reemphasize the need for innovative models that will allow a teacher of agricultural occupations (synonymous to vocational agriculture in this article) to meet the educational needs of all youth who have an interest in agriculture. New models need to be developed that allow a student to have the opportunity to formulate his own occupational objective and then pursue a course of study that will lead to entry level occupational proficiency.

Models that have been developed present operational problems that prevent their implementation by a single teacher of agriculture. By investigating Binkley's[1] review of program models it may be observed that each model channels students through the same funnel through their sophomore or junior year in high school, thus limiting the flexibility of the programs for both the students and the teacher. The students are forced to study areas of agriculture in which they have little or no interest. This procedure results in discouraging students who have an interest in only one area of agriculture from enrolling in courses in agriculture. The teacher is limited in the number of new courses or occupational options that he may offer by the two or three courses which he is compelled to teach each year under models that have been proposed. Thus, if a teacher is to implement a broader program of agricultural occupations, the only possibility that seems feasible is to increase the number of teachers.

High school students are interested in specific areas of agriculture and can profit from specialization as early as the sophomore year. Also, upon entry into the agricultural occupations program students have varying degrees of sophistication in knowledge and skills needed by an agricultural worker. These differences in knowledge and skills possessed by students indicate the need for more than one introductory course.

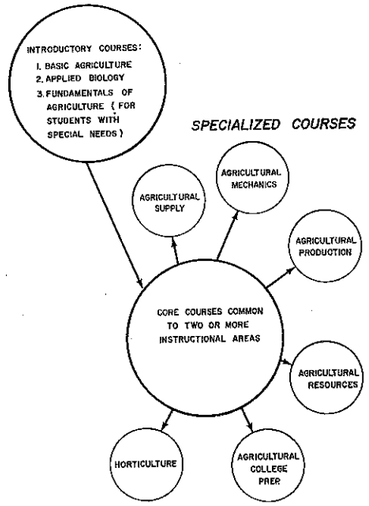

FIG. 1. ORGANIZATIONAL MODEL FOR PROGRAMS IN AGRICULTURAL OCCUPATIONS

The proposed model, presented in Figure 1, was designed to enable a single teacher to implement a total program in agricultural occupations that can be expanded into a multiple teacher department. Proponents of this model contend that:

—An introductory course in agricultural occupations is an essential part of the total program. Where possible, introductory courses should be offered for students with special needs, students whose interests lie in the applied biological science, and students whose interests are in production agriculture.
—The student should be allowed to, and in fact will be able to, identify his occupational objective.
—Some courses offered at the sophomore, junior, or senior level can be taught on a three-year rotation.
—Many courses of one semester or longer in length can be identified as common to two or more areas of specialization.
—Specialized courses are required for some areas of specialization.
—Concurrent work experience is desirable and should be related to the student's occupational objective.

Based on these components, this model allows the student to enter the agricultural occupations program by enrolling in an introductory course designed to meet his needs. Having completed the introductory course, the student may select his occupational objective and proceed by taking courses from the core of common courses which will lead to occupational proficiency in his area of specialization. The student who is unable to determine his area of interest may enroll in core courses common to most of the occupational areas until he has identified an area in which he has interest.

In most situations it will be necessary to implement this proposed model in a series of steps. Where an on-going program exists, the upper level students will have had much of the material that might be included in a semester-type course. Thus the fourth year of the present program presents the logical place to begin to divide the program into meaningful semester-length courses which would be open to all students who have completed an in-

troductory course. These courses would not be offered the following year, thus allowing the teacher to introduce two new semester length courses, and again dividing a second year into two semester courses. By following these procedures the proposed model could be implemented over a three-year period.

Introductory courses must be offered every year to provide a constant input of students. If several introductory courses are offered to meet student needs, it will be necessary to employ a second teacher of agricultural occupations.

Viable programs of agricultural occupations can be developed if agricultural instructors are innovative in developing and implementing new models of instruction. This will enable them to break away from the traditional model developed for production agriculture that has stifled the broadening of many programs of agricultural occupations.

New state plans for vocational education developed under the federal guidelines point out the inevitability of developing programs for students with special needs and, at the same time, increasing the number of students enrolled in the various occupational programs. Thus the impetus for program development has been provided.

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[1]Binkley, Harold, *Pilot Programs in Agricultural Occupations*. Bulletin of the Division of Vocational Education, College of Education, University of Kentucky: Lexington, 1967.

TEACHING RELEVANT JUNIOR HIGH VOCATIONAL COURSES

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University of Nebraska
Lincoln, Nebraska

As teachers plan meaningful programs of vocational education there is a need to develop relevant vocational exploratory programs at the junior high school level. These courses should explore the world of work, identify the kinds and levels of occupations that exist and are emerging, and the competencies and inputs needed in representative jobs.

It is realistic to expect that a junior-high age student can explore occupations in the work world, and after structured exploratory experience, make a tentative choice about an occupational area he may pursue in the secondary school program.

School dropout studies show that planned vocational education programs will retain potential dropouts in school. In addition, early counseling and systematic course planning will enable students who may not start or complete college to gain marketable vocational skills while in high school.

This study, to determine how many Nebraska teachers of vocational agriculture were presently teaching junior high vocational courses, and their course objectives, was based on 103 responses, representing 93.6 per cent of the Nebraska secondary schools which conduct vocational agriculture programs.

Eighteen, or 17.4 per cent, of the agriculture teachers are conducting a junior high school class at the 7th or 8th grade level.

The major objectives of the semester or year courses being offered, listed in the order of the frequency mentioned, were designed for students to:

1. List and describe opportunities in agricultural occupations.
2. Study livestock science.
3. Study plant science.
4. Demonstrate basic agricultural mechanics skills in woodwork, leather craft, tractor safety and mechanical drawing.
5. Study earth science.

The findings indicate there is little concerted effort by the teacher of agriculture to structure junior high school courses toward occupational exploratory objectives.

In schools where all, or almost all, junior high age students who may enroll in high school classes can be enrolled, the structuring of the junior high course to include basic plant and animal production principles and practices allows the teacher to plan secondary school courses which reach longer range objectives than would otherwise be possible, and may increase the number, kinds, and quality of agricultural competencies the students can gain while in high school.

The preparation and learning experience program of high school students will be more meaningful to them if they have made tentative vocational decisions through structured exploratory experience while in junior high.

The teacher of agriculture can provide classroom instruction which will involve the student in identifying and describing those agricultural occupations on-and off-the-farm in which there are employment opportunities. Students can be placed in a supervised exploratory experience program where they would devote from one to two hours observing a particular worker in the community, ask questions and obtain pertinent information about that job. Each student would plan in the classroom ahead of the observation period. While observing the worker, the student would be under the supervision of the businessman, in a 1:1 relationship with the worker. Classroom activity concurrent with the supervised observation experience would enable students to discuss what they observed with fellow students, hear other students' experiences, and form a basis for tentative vocational choice.

Up to one semester could be devoted to the exploratory experience program, including classroom activities. Careful preplanning is necessary in the classroom and also with the businesses and workers to be observed, so the student's time is efficiently used obtaining the information he has planned.

This concept of supervised exploratory experience in agricultural occupations may be used in other occupational areas. A school may want to rotate students through a series of six-week exploratory programs, where the student can look into one or more of: trade and industrial occupations, health occupations, business and office occupations, and home economics related occupations.

BECOMING AWARE

Stephen A. Craig
Exploratory Agriculture Instructor
Tipton, Indiana

Today, in our streamlined world of conveniences, the need is not as great to return to farming as it was ten to fifteen years ago. Many individuals do not realize how many people are involved with getting that piece of meat or glass of milk to their table. They take many of the products and conveniences for granted. Tipton, Indiana is a rural community, yet there is a need to discover the elementary part of agriculture. This is a part of the agriculture program of Tipton Community Schools. The phrase, "becoming aware," comes to mind when I think of this program for seventh and eighth grade boys. Seeing an appreciation of agriculture in the eyes of my students is the greatest reward I have gained in my two years of teaching agriculture.

Junior High students can live in a vacuum of appliances and technology. At Tipton, I attempt to acquaint students with the fundamentals of agriculture. With both rural and city students the discussion of farming is insufficient. The emphasis is "agriculture is more than farming," a slogan on the wall above the chalkboard. The curriculum covers many aspects of agriculture, including horticulture (covering lawns to trees and shrubs); landscaping (we have done four homes in Tipton); the principles of engine operation; agricultural careers; conservation; meats along with discussion of animals and crops which include breeding, care and management. It is essential that all young people be exposed to the units of instruction being offered in our Junior High Program.

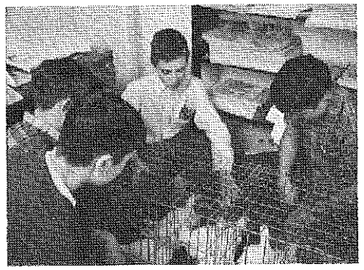
The class is exploratory and permits student participation. Taking turns in the watering and the management of the greenhouse is one of the jobs the students share. They plant seeds, root cuttings, and transplant seedlings. Future plans include an outdoor laboratory where students will care for a small garden and shrubs. Another project is that of the incubator which even though students have seen chicks hatch earlier, gives a deeper understanding for the entire class. The chicks are used to discuss breeding and reproduction, feeding, management, care and the selling of meat products and eggs.

The junior high situation is not typical of the conventional high school agriculture class because attempts are made to have all students become acquainted with their environment. It seems that elementary grades discuss conservation or hatch chicks but the junior high school students are ready for a more indepth study.

The Tipton Exploratory Agriculture Program is in its fourth year. There have been growing pains. In the first year, students who wished to take agriculture were put together and the second man in the High School Agriculture program spent two periods at the Junior High. The following year a third agriculture teacher was assigned to the Junior High full-time. Students enrolled in agriculture for nine weeks or half of a semester. The past two years all boys have agriculture one year before they leave the two year junior high school. Changes are occurring. Materials on meats might involve the girls in home economics or nutrition of animals might be combined with health and home economic classes in the future.

On the land adjacent to our new Middle school, we will develop an outside laboratory to instruct students in vegetable gardening or work with shrubs and turf that will be used on school property. Tipton Community has a nature center which is used intensively for our study of conservation. The students plant pine trees at the 4-H grounds and other needed areas in the community on Earth Day. Field trips interest students and acquaint them with agriculture first hand. Places that have been and will be visitel are a commercial poultry farm, the sewage disposal plant, a meat packaging plant, and modern hog facilities.

The High School FFA has given valuable assistance. In the fall, all the Junior High boys go to the high school to try their skills at judging livestock in the all-school judging contest. During FFA week, chapter members come to the junior high classes and tell about their individual programs and their involvement in FFA. This proves to be a real stimulant to enroll for the high school program. The Junior High program provides a feeder system and trains students in basic agriculture.



Students have the responsibility to water, feed and care for the chickens. They see the efforts to get fried chicken to the dinner table.

OCCUPATIONAL EXPLORATION -- AN ASPECT OF VOCATIONAL EDUCATION

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The Ohio State University
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Current social, economic, political, and technological trends have accentuated a need for systematic programs of occupational exploration in elementary and secondary schools. Planning and preparation for many present day occupations require deliberate individual action based upon knowledge of educational and employment opportunities and requirements.

Individuals frequently must make career decisions before having opportunity for adequate exploration of occupational alternatives. Elementary and secondary students are becoming deprived of knowledge of their own parent's occupation because of physical and conceptual distances. Lack of this fundamental connection with the world of work divests individuals of the opportunity to form constructive attitudes about the desirability of vocational competence and economic independence. Without knowledge of the nature of the world of work and its requirements, or information on the wide range of occupational opportunities and requirements, the individual is in a poor position to make wise career decisions.

Given the opportunity to gradually and systematically evaluate interests and abilities against occupational opportunities and requirements, the individual is more likely to make a realistic connection between school and work, narrow his occupational choice, and plan his own secondary and post-secondary educational program. This evaluation process is beneficial to all individuals; but persons classified as disadvantaged lack work models and are in special need of assistance in making these connections, choices, and plans.

Availability of funds from federal legislation and private foundations has caused a proliferation of career development programs at all educational levels. Numerous names have been assigned to these programs; however, as a rule a descriptor such as "acquaintance" usually is associated with the elementary school; "orientation" with the middle school and lower junior high school; and "exploratory" with the upper junior high and senior high school.

Current Program Status

To be successful, occupational exploration will need to permeate the entire school program and environment, requiring total understanding and dedication by all vocational and general educators. The author reviewed research, programs, and literature relating to the history, rationale, and structure of occupational exploration at all educational levels[1] to formulate the following conclusions:

1. Limited research is available on specific occupational exploration programs; however, considerable material was found in the area of vocational development which indirectly applies to world-of-work activities.
2. Occupational exploration programs for the junior high school educational level are the most numerous and highly developed, probably due to the belief that programs at this level are the most productive in relation to the resources available for developmental purposes.
3. Junior high school occupational exploration programs are composed of separate occupational information courses or are interdisciplinary in nature. The newer programs seem to favor the interdisciplinary approach to provide occupational exploration.
4. Emphasis in occupational exploration appears to be on the development of world-of-work programs and activities at the elementary school level.
5. Elementary occupational exploration programs tend to be highly guidance-directed and interdisciplinary in structure.
6. There is a critical shortage of professional educational staff who understand the career development process and have the necessary expertise to direct occupational exploration program activities.
7. The majority of the programs reviewed were based upon the developmental or self-concept theory of vocational development.
8. The trend is toward comprehensive vocational education programs or master plans for education. These programs include association with the world of work in the elementary schools, orientation to the world of work in the middle school, exploration of the world of work in Grades 9 and 10, and in-depth exploration of job clusters and skill development in the 11th and 12th grades.
9. Occupational exploration projects are being developed for all educational levels as a result of the Exemplary Programs and Projects section of the 1968 Vocational Education Amendments.
10. Many occupational exploration programs are operating on or subsidized by "seed money" from the 1968 Vocational Education Amendments, The Elementary and Secondary Education Act, or private foundations. Unless educators realize the value of such programs and can muster school and community support, there is danger of discontinuing the programs when pioneering monies are withdrawn.
11. Vocational guidance has highly sophisticated techniques for providing occupational information in the high school, many based upon the capabilities of the computer.
12. The field of industrial arts has developed several innovative programs providing occupational exploratory experiences at the junior high school levels which may serve as a format or guidelines for program development in other vocational services.

Recommendations

The recommendations developed from this review are:

1. Career development programs must be an integral part of the entire educational continuum and school environment.
2. School experiences may be made more meaningful to the student through association with the world of work.
3. Greater use should be made of simulated and direct work experiences in the junior high and senior high school programs.
4. Occupational exploration should be a systematic career development process, with experiences sequentially organized.
5. The occupational exploration program should be sufficiently flexible to provide for the needs of all students.
6. A closer working relationship or linkage will need to be established between the school system and business and industry.
7. Teacher education should become sensitized to the occupational exploration and career development aspects of education and modify their programs to provide specific teacher preparation in this area.
8. The professional preparation of counselors needs to be revised to focus more sharply on the vocational aspects of guidance, possibly through the use of limited job experience in the counselor preparation programs.

The paucity of research in occupational exploration leaves a wide array of areas needing additional research and study in the following priority areas:

1. The objectives of elementary world-of-work programs need to be fully identified and clearly defined.
2. Curriculum development is needed at all educational levels, with the greatest emphasis on elementary programs.
3. The responsibility of vocational education for elementary and junior high school occupational exploration programs must be clearly defined.
4. Alternative means must be explored for financing programs after federal legislation and private foundations cease providing developmental funds.
5. Study is needed to determine whether all students should be involved in occupational exploration programs or whether these programs should be primarily for the handicapped and disadvantaged student.
6. Continued effort is needed in developing strategies for implementing and administering career development programs.
7. Guidelines and training packages on occupational exploration need to be developed for in-service teacher education programs.
8. Strategies and guidelines need to be developed for acquiring active community involvement in occupational exploration programs.
9. Evaluation techniques and procedures for occupational exploration programs need further development.

[1]Wesley E. Budke, *Review and Synthesis of Information on Occupational Exploration*, Columbus: The Ohio State University, ERIC Clearinghouse on Vocational and Technical Education, April 1971.

News and Views of NVATA

JAMES WALL
Executive Secretary

TEACHER FACTS

- .....A record number of college graduates were qualified for teaching Vocational Agriculture last year. 1700 graduates majoring in Agricultural Education were qualified in 1970 as compared to only 1038 in 1965.
- .....Ohio led all other states in adding the largest number of new teaching positions last year with 53. They were followed by North Carolina with 26, California with 24, Texas 22 and Florida 21. The above were all in vocational agriculture.
- .....Texas led all states with the number of teachers in vo-ag with 1,182. They were followed by North Carolina—574, Ohio—462, California—446, Illinois—457, Minnesota—432 and Alabama—390.
- .....35.2% of the teachers taught in multiple teacher departments.

FFA ALUMNI ASSOCIATION

Membership dues are $4.00 per year. This would seem to be a small sum to pay for membership in an organization that appears to have a great future. Send your dues to the National Alumni Association, care of Jay Benham, Executive Secretary, Box 15160, Alexandria, Virginia 22309. Let's give this fine group a boost.

NEWS TO ME

Jay Benham, a former FFA member himself, has been appointed as the first Administrative Secretary of the recently formed FFA Alumni Association. Until 1970 no provision was made for alumni membership of the FFA. At the National Convention held in Kansas City, Missouri last October members voted to change the constitution permitting the establishment of an alumni category of membership so former FFA members could continue to play an important role in the organization.

Jay graduated from The Ohio State University, had a distinguished record as a teacher of vocational agriculture at Oxford, Ohio and was named outstanding young teacher in his region by the NVATA. In his 3½ years at Oxford, the vocational agriculture department expanded from 30 students and one teacher to 150 students and four teachers and an adult program with over 300 enrolled. There are over 4 million former FFA members in the U.S. Benham is aiming for 15,000 members in the FFA Alumni Association for the first year of operation.

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The top priority concerns, expressed by James E. Dougan, Assistant Director, Vocational Education, Ohio, at the 1970 AVA Convention were: more definite information on the employment opportunities for skilled trained people in the various areas of agriculture, teachers being employed on 12-month basis, lack of state personnel, recruitment and in-service training of teachers, increased salaries, expansion of adult education, plenty of 9th and 10th grade agriculture, and making instruction vocational.

*****

For every $1,000 an American farmer had tied up in machinery 10 years ago, he will have about $1,500 invested now. Annual costs of owning a piece of equipment has risen to about 15% of the initial purchase price. This may explain why many farmers are considering renting or leasing equipment as opposed to outright ownership as they look ahead at their replacement needs.

—*The National Future Farmer,*
Vol. 19, No. 2

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Trained men with ideas coupled with the tools with which to work is the formula for uncovering the answers to the questions and solutions to problems.

—*The Empire State Mason*

*****

The rate of on-the-job injuries is rising — pointing to the need for improvement in workplace environment. The rate of disabling work-related injuries in American industry has increased more than 20 per cent since 1958 causing a loss of productive man-days that is 5 times the number lost from strikes. In both human and economic terms the current occupational safety and health scene needs improvement. About 14,000 persons are killed annually as a result of industrial accidents. Over two million are disabled each year. Two hundred fifty million man-days are lost each year because of work-connected disability.

U.S. Dept. of Labor —
U.S. Manpower in the 1970's

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Taiwan had an economic growth of 8 per cent last year. Taiwan economy has five main aspects: expanding industrialization, deceleration of agricultural growth, more dependence on exports, a shortage of technicians and managers, and retail price inflation.

—*Minister of Economics Sun Yun-Suan*

Duane R. Lund was recently appointed to the National Advisory Council on Vocational Education. He received his B.A. degree from Macalester College, St. Paul, Minnesota and his M.A. and Ph.D. from University of Minnesota. He has been a teacher, counselor, high school principal and is now superintendent of schools in Staples, Minnesota. He was Executive Secretary for U.S. Senator Edward J. Thye from 1955 through 1958.

His accomplishments, offices and honors include:

- Member, Governor's Advisory Committee on School Finance, 1960
- Chairman, Minnesota Manpower Advisory Committee, 1961
- Member of Study Team of Education in western Europe, 1965
- Vocational Education Consultant to the District Committee of the U.S. House of Representatives, 1965-7
- Member, Title I Advisory Committee to Minnesota State Department of Education, 1966-8
- Vice president, Minnesota Association of Vocational Schools, 1966-70
- Member and first Chairman, Minnesota Professional Teaching Practices Commission, 1967-present
- Member, Advisory Committee to Minnesota State Department of Education for all Federal Education programs, 1968-present
- Member, Minnesota State Advisory Council for Vocational Education, 1969-present
- Member, Board of Trustees of Upper Midwest Regional Education Laboratory, 1969-present
- Member, State "Education for the 70's Commission," 1970
- Delegate to White House Conference on Education of the Disadvantaged Child
- Past President, Central Minnesota Education Association and Member of State MEA Board of Directors

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Research people in the field of memory transfer believe that chemical procedures capable of increasing man's intelligence will be available within 10 years.

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