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ABSTRACT

This report provides a description of the status of vocational agricultural education in Michigan in preparation for statewide planning to meet the educational needs of the state's agricultural sector. The report includes three major sections. The first section summarizes each of the four reports that were completed by the project staff at Michigan State University: (1) a baseline survey of secondary agricultural instructors in Michigan; (2) status and trends of vocational-technical education in agriculture; (3) opinions of secondary school principals of schools that have dropped, added, or maintained secondary agriculture programs; and (4) employer opinions about graduates of secondary agricultural education programs. The summary statements presented are designed to emphasize and highlight the findings of the various reports that have direct implications for formulating recommendations for policy and program changes in vocational and technical education in agriculture in Michigan. The second major section reports the findings and recommendations of the External Review Committee. Information about the review committee, its activities, and its recommendations are presented. The concluding section of the report includes the consultant's summary and recommendations and reaction to the recommendations by the review committee. (KC)

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A REPORT
ON THE STATUS AND FUTURE DIRECTION OF VOCATIONAL-TECHNICAL AGRICULTURE EDUCATION IN MICHIGAN

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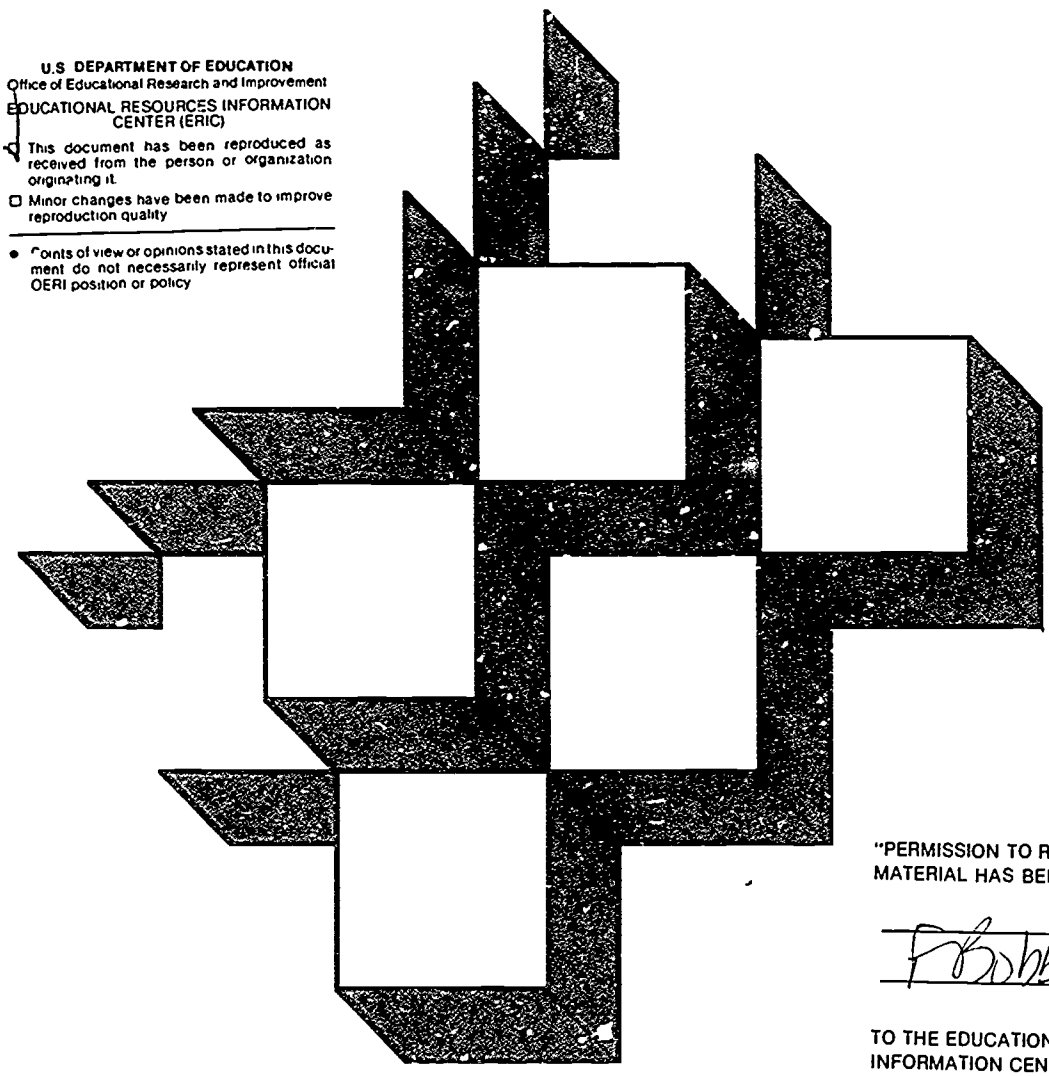

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A Report On The Status and Future Direction of Vocational-Technical Agriculture Education in Michigan

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Michigan Council on Vocational Education

and the

Michigan Department of Education

November 1987

Special Recognition

The completion of this Study took a significant commitment by numerous individuals.

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Preface

The Carl D. Perkins Vocational Education Act of 1984 (P.L. 98-524) required the Michigan State Board of Education to establish a council composed of thirteen (13) individuals representing citizens and groups in the State interested in vocational education. The council membership, as prescribed by the Perkins Act, represents the following areas: seven (7) representatives of the private sector, including five (5) from business, industry and agriculture, and two (2) from labor organizations; six (6) representatives from vocational education institutions, including secondary and postsecondary, career guidance and counseling, special education, and special populations.

The Council's role is to provide the State with reports, recommendations and advice concerning the status of vocational education in Michigan. More specifically they are required to evaluate at least every two years the vocational education program delivery systems in terms of their adequacy and effectiveness in achieving the purposes of the Perkins Act.

Due to the significant decline in enrollment in secondary vocational-technical agriculture education programs and the low enrollment in postsecondary agriculture related occupational areas, along with the fact that agriculture is Michigan's second largest industry, the Council initiated a "Study of the Status and Future Direction of Vocational-Technical Agriculture Education in Michigan.

The Council commissioned Michigan State University to conduct the Study with the assistance of an external consultant. The Study was cooperatively funded by the Council, the Michigan Department of Education/ Vocational-Technical Education Service, with inkind contributions from Michigan State University.

Background

Agricultural education in the public schools and community colleges in Michigan has been undergoing change for many years. There has been a decline in the number of local school districts which have offered programs of vocational education in agriculture but with some offsetting new programs offered through area vocational education centers. There has been a trend to offer a few courses instead of a program in vocational-technical agriculture education at junior and community colleges due to the limited number of enrollees.

The downward trend in vocational-technical agriculture programs has been especially significant in those programs for production agriculture. However, there has been a decline in other programs such as those in the horticultural fields.

During the past five years there has been a national effort to stimulate the teaching of agricultural concepts in the general classrooms, especially in the elementary classes. Some grassroots efforts in Michigan have been supported by various private and commodity-based organizations as well as by leaders in the Michigan Department of Education, Michigan Department of Agriculture and Michigan State University.

During the fall of 1986 Governor Blanchard signed an executive order establishing a Task Force to study and make recommendations on revitalizing agriculture through research and education in Michigan. This was an outgrowth of recommendations from the Governor's Conference on Agriculture in November 1985. At that time one of 16 workshop groups focused on the crisis in agricultural education.

The current crisis on farms and for farm families in Michigan, due to the floods during the fall of 1986 and to the general farm commodity/market/land value situations, has brought into immediate focus the concerns for farms, farmers and the agribusiness and natural resource situation.

In addition there has been an identified shortage of persons prepared to fill technical and professional positions which require backgrounds (majors) in agriculture and natural resources.

Statement of the Problem

There has been absence of descriptive reports identifying the current status and characteristics of present day Michigan programs in the vocational-technical agriculture areas. Many data were available as parts of other reports but there was an absence of reports based on those data to describe the availability of vocational-technical agriculture education programs to youth and adults throughout the State.

Descriptive reports were needed for the purpose of designing a long-range planning process which could be the basis for a redirection/ renewal of the agricultural education programs in the State.

Some of the key questions asked about the agricultural education situation in Michigan were:

1. What is the availability of programs of vocational-technical agriculture education in Michigan?

2. What is the need and feasibility for vocational-technical agriculture education programs in Michigan?

3. What should be the nature and scope of the agricultural education system in Michigan for the future.

The study's overall goal was to provide information and recommendations to be used in the development of a long-range planning process for the revitalization of vocational-technical agriculture education in Michigan. Specifically, the objectives were:

1. To describe the present status and trends of vocational-technical agriculture education in Michigan by using AVAILABLE DATA.

2. To describe the opinions of decision-makers regarding factors/rationale for initiating, discontinuing, and maintaining secondary vocational agriculture education programs in Michigan.

3. To describe the opinions of teachers on the status and future direction of vocational agriculture education in Michigan.

4. To describe the opinions of employers on the status and future direction of vocational agriculture education in Michigan.

5. To solicit advice from an external review panel on the future direction of vocational-technical agriculture education in Michigan.

6. To solicit recommendations and a final report on the Status and Future Direction of Vocational-Technical Agriculture Education in Michigan from an external consultant.

Report of the External Consultant

Introduction

This report includes three major sections. First, there is a section that summarizes each of the four reports that were completed by the project staff at Michigan State University. The summary statements presented are designed to emphasize and highlight the findings of the various reports that have direct implications for formulating recommendations for policy and program changes in vocational and technical education in agriculture in Michigan. The following reports, prepared by the project staff are summarized. The specific reports should be consulted for details.

> "Baseline Survey of Secondary Agriculture Instructors in Michigan: Tables and Graphs of the Data Collected"
>
> "The Status and Trends of Agricultural Education in Michigan as Reflected in State Department of Education Data on Enrollment Trends, Gender and Racial-Ethnic Composition and Follow-up Data of Secondary and Postsecondary Agricultural Education Programs"
>
> "An Analysis of Opinions of Secondary School Principals of Schools That Have Either Dropped, Added or Maintained Secondary Agriculture Programs in Michigan from 1982 to 1986"
>
> "A Survey of Employer Opinions About Graduates of the Secondary Agricultural Education Program in Michigan"

The second major section reports the findings and recommendations of the Review Committee. Information about the Review Committee, its activities and recommendations are presented in the section "Report of the Review Committee."

The concluding section of the report includes the consultant's summary and recommendations (pages 22 - 27).

SUMMARIES OF REPORTS PREPARED FOR THE STUDY

Baseline Survey of Secondary Agricultural Instructors in Michigan

Procedure for Collecting Data

Data were collected by mail questionnaires sent to all vocational agriculture instructors (N=185). Responses were received from 65% of the instructors. From knowledge of survey research methodology it is probably safe to assume that the instructors responding are representative of the vocational agriculture instructors in the State who would be most responsive to proposed policy and program change in vocational agriculture. Consequently, the responses of the instructors returning questionnaires probably provide a fairly accurate description of the instructors and the schools in which they teach, the nature of the current programs, and the instructors' perceptions about current and future programs. The fact that approximately one-third of the instructors did not return completed questionnaires may be a relatively realistic estimate of the proportion of Michigan's vocational agriculture instructors who would not be expected to take an aggressive role in initiating or implementing program or policy revisions.

Characteristics of Instructors

The age and years of teaching experience distributions of the instructors do not reveal characteristics that could discourage a posture of change and innovation. With one exception, all instructors hold a four-year college degree with well over half holding a graduate degree. Almost all of the instructors hold provisional or permanent teaching certificates. Eight of each 10 responding instructors indicated that they attend workshops in technical agriculture, which indicates a relatively high degree of participation in continuing education activities. Production agriculture is a major area of specialization for a majority of the instructors. Fifteen percent of the instructors are female.

Characteristics of Schools and Programs

Vocational agriculture programs are located primarily in rural areas; the percentage of programs in suburban, urban, and metropolitan areas is limited. Most programs are located in comprehensive high schools.

About 60% of the instructors expect the 1987-88 enrollment in vocational agriculture to remain the same or increase, 40% expect a decrease in enrollment. Over 80% of the teachers reported 60 or fewer students enrolled in vocational agriculture. High school students enrolled in vocational agriculture do not live primarily on farms.

About one-fifth of the instructors reported scheduled time during the school day for individual instruction outside the school pertaining to

supervised occupational experience programs of students. Sixty percent of the instructors have assigned responsibilities during the school day other than teaching vocational agriculture. Most of the instructors (almost 80%) are employed beyond the regular school year. Most of the instructors reported no paraprofessional assistance.

Most (85%) of the instructors perceive that increased graduation requirements had influenced enrollments in vocational agriculture, with the majority reporting the influence to be a decrease in enrollment.

Instructors perceive a relatively high degree of support for the vocational agriculture program from local advisory committees, students, principals, parents, and agricultural industry.

One-fifth of the secondary instructors taught adults during the past year, one fourth indicated "probably" or "definitely" that they would like to teach adults.

One-half of the instructors judged their vocational agriculture programs as somewhat or very effective; one-third rated their programs satisfactory; almost one-sixth rated their programs somewhat to very ineffective. Forty percent of the instructors indicated that adequate funds are not available. Ninety-five percent of the instructors indicated an advisory council for the vocational agriculture program.

Curriculum

Instructors reported major emphasis on production agriculture and science. Lesser emphasis was reported for business, marketing, and mechanics. Instructors indicated a higher priority on program goals that emphasize individual competencies of students and job and career awareness in contrast to goals that emphasize job training and placement. About 7 of each 10 instructors reported the emphasis of the curriculum had changed during the past five years. One-half of the instructors reported that credit for science or mathematics was given for enrollment in vocational agriculture.

Students enrolled in vocational agriculture have access to computers in slightly over two-thirds of the schools. Instructors generally report that students have supervised occupational experience programs; most instructors indicated that they value supervised occupational experience. Three-fourths of the instructors indicated the vocational agriculture program includes FFA.

The Future

Fifty-two percent of the instructors rated the future of agricultural education in the secondary schools as "good" or "excellent"; 48% indicated "fair" or "poor" prospects for the future. Comments by instructors regarding the future of agricultural education programs highlighted elementary and junior high students as clientele for instructional programs, revision of current programs, including FFA, to emphasize areas other than production agriculture, and a strong emphasis on the

necessity for aggressive influence from agencies beyond the local school district (State Department of Education and Michigan State University) to achieve substantial change and reform.

Status and Trends: Vocational-Technical Education in Agriculture

Status and Trends

Enrollment in secondary vocational agriculture programs has ranged from approximately 12,500 students in 1962, to a high of almost 15,000 students in 1977, to an enrollment of approximately 8,400 students in 1986. Enrollment in secondary vocational agriculture decreased 44% from 1977 to 1986. During the same time period, enrollment in all secondary vocational education programs decreased 21%; total secondary school enrollment decreased 23%.

The number of secondary schools offering vocational agriculture programs has decreased since 1962. Change in the definition of a program for record-keeping purposes makes it difficult to document accurately the magnitude of the decline.

The number of secondary vocational agriculture teachers has declined. Since 1977 the number of teachers has declined from 210 to 188 in 1986 -- a 10.5% decline. During the same period of time, the average number of vocational agriculture students per teacher has declined from 71 students per teacher to 44 students per teacher -- a 38% decrease. The number of vocational agriculture students per department (school) decreased from 81 in 1977 to 41 in 1986 -- a 49% decrease.

Since 1977, FFA membership has decreased 42%, which parallels the decrease in enrollment in vocational agriculture. The number of FFA chapters decreased from 155 in 1977 to 129 in 1986 -- a 17% decrease. FFA membership as a percentage of enrollment in vocational agriculture has remained relatively steady at approximately 70%.

Females constituted 28% of the secondary enrollment in vocational agriculture in 1986 -- a slight increase from 25.5% in 1979. Few females are enrolled in secondary agricultural mechanics courses (1.5%) and renewable natural resources (5.1%); 22% of the enrollment in production agriculture courses is female; two-thirds of the students enrolled in ornamental horticulture are female.

Few minority students are enrolled in secondary vocational agriculture programs. In 1986, minorities comprised 3.4% of the secondary vocational agriculture enrollment; in 1979, 2.6% of the secondary vocational agriculture enrollment was from minority groups. Minority students enroll to greater extent in ornamental horticulture and renewal resources courses than they do in agricultural mechanics and production agriculture courses.

The percentage of enrollment in secondary vocational agriculture courses classified as special needs students increased from 13% in 1980 to 24%

in 1986. From one-third to 45% of the enrollments in agricultural mechanics, ornamental horticulture, and renewable resources courses were classified as special needs students in 1986; 14% of the enrollment in production agriculture courses was classified as special needs students.

In 1986, almost three-fourths (73%) of the secondary students enrolled in vocational agriculture were enrolled in agricultural production courses; 18% were enrolled in horticulture courses; 7% in agricultural mechanics; 2% were enrolled in natural resources courses.

Funding for secondary vocational agriculture programs primarily is from local funds. In 1984-85, almost 83% of the funds were from local sources with 17% from state funds. Federal funds accounted for less than .1% of the total funds for vocational agriculture.

Since 1981, the percentages of students completing vocational agriculture programs placed in agriculturally related employment has ranged from 46% to 51%. Approximately 30% (29% to 35%) of the completers continue their education beyond high school with approximately one-half of the students who continue their education enrolling in education programs related to agriculture. The percentage of vocational agriculture program completers who were reported to be unemployed declined from a high of 18% in 1982 to 7% in 1985.

Postsecondary technical programs in agriculture are offered in nine community colleges and three universities. Postsecondary enrollment was 1,115 in 1981; in 1985 postsecondary enrollment was 837. Almost one-half (47% to 49% from 1981 to 1985) of the enrollment in postsecondary technical programs is at Michigan State University.

Data concerning adult education in agriculture are not compiled by the Michigan Department of Education at the current time.

Sources of Data

Data indicating status and trends of vocational and technical education in agriculture are compiled by the Michigan Department of Education. The data presented for secondary vocational agriculture programs do not distinguish between vocational agriculture programs offered in local schools and in area centers. Data regarding postsecondary technical programs in agriculture are meager and incomplete. Data regarding adult education in agriculture offered by local, area, and postsecondary schools were not reported, hence probably not collected. No data were reported regarding instruction in an agriculture in the public schools other than programs that are under the jurisdiction of the vocational education system.

Opinions of Secondary School Principals of Schools That Have Dropped, Added or Maintained Secondary Agriculture Programs

Procedures for the Study

A former high school principal was employed to conduct telephone interviews with principals of schools that had added, dropped, or maintained vocational agriculture programs. From 1982 to 1986, 17 schools had dropped vocational agriculture and 5 schools had added vocational agriculture programs. Interviews were also conducted with the principals of 16 schools selected at random from all schools that maintained vocational agriculture programs. Interviews were completed with all of the principals in the three categories of schools.

Summary of Major Findings

Special funding for vocational agriculture was not reported to be a major factor in decisions to maintain or drop programs. Special funding was reported to be a factor in 3 of the 5 schools that added vocational agriculture programs.

New graduation requirements were reported to have little influence on whether to maintain or drop vocational agriculture programs.

Factors contributing to the decision to maintain vocational agriculture programs reported by principals were student interest; parent interest; support from the advisory council, employers, and the agricultural industry; the presence of an FFA chapter; a competent teacher; a positive teacher/administrator relationship; and support by the school board.

Principals of schools that had dropped vocational agriculture reported, generally, influence from the same factors that contribute to the maintenance of programs, however, the influence of the factors is in the opposite direction. Principals of schools that had dropped vocational agriculture programs most frequently reported "enrollment" and "the teacher" as factors influencing the decision.

For schools that added vocational agriculture programs "need for the program" was the primary factor given as a reason for initiating a vocational agriculture program.

The data reported and the comments of principals recorded on the interview schedules emphasize the major if not primary influence of the "teacher" on the decision to maintain or drop the vocational agriculture program. Teachers who are less competent in technical agriculture, teachers whose technical competence is out of date, teachers who cannot discipline students, teachers who have the inability or refuse to change, and teachers who are reluctant to work with administrators to bring about revision and change were very visible among the explanations given by principals in schools where programs had been discontinued.

A clear and valid finding of the study is that teachers play an extremely important and vital role in decision making about current and future programs of instruction in agriculture in the public schools.

Assistance from outside consultants (Michigan Department of Education or Michigan State University) was most frequently sought by schools where programs were added. A majority of principals in schools that maintained or dropped vocational agriculture programs reported that assistance from outside consultants was not the case.

Additional Factor for Consideration

The interviews apparently did not investigate in depth the possible influence of area vocational centers as a factor in making decisions about maintaining, adding, or dropping vocational agriculture programs. Comments by principals on some of the interview schedules alluded to this factor; however, its relative influence was not explored in detail. The presence of area vocational centers needs to be studied in more detail in reference to the offering of vocational agriculture in local schools.

Employer Opinions About Graduates of Secondary Agricultural Education Programs

Procedures for the Study

Vocational agriculture instructors were asked to provide the name, address, and telephone number of the first employed graduate in an agricultural occupation from the 1985-86 graduating class. Fifty graduates from 50 different schools were identified. Telephone interviews were conducted with employers of 44 of the 50 graduates. Employers were asked questions about the competence of graduates of the secondary vocational agriculture program, about areas for which the graduates were well trained, and about areas for which training needs to be improved.

Summary of Major Findings

Slightly less than one-half (46%) of the graduates were employed in production agriculture. More than half of the graduates were employed in ornamental horticulture (21%), agricultural business (18%) and agricultural mechanics (15%) occupations.

Speaking skills, technical agriculture skills, computer skills, and science skills were rated highest by employers as necessary to be a successful employee. Fewer employers rated math and writing skills and agricultural terminology as most important for a successful employee.

When asked to list areas where students need to be better prepared, one-third of the employers responded "no opinion." The areas needing

improvement most frequently mentioned by employers who responded were writing, speaking, and technical agriculture skills. Mentioned by fewer employers as areas needing improvement were science, math, and agricultural terminology.

When asked to compare the vocational agriculture graduates with other employees, from two-thirds to three-fourths of the employers rated the vocational agriculture graduates in the "upper level" on work attitude, general skill level, and agricultural skill level.

Employers were asked what they considered to be the most important part of the vocational agriculture training program in providing the type of employees their firm requires. The most frequent responses were work attitudes and agricultural skills. Mentioned less frequently were general education skills, general vocational education skills, and more experience prior to employment.

When asked their perceptions of future employment needs of agriculturally-trained persons, 29% of the employers did not reply, 57% indicated a need for agriculturally-trained employees; 14% indicated that the need was questionable.

Employers were given an opportunity to indicate the changes they would like to see in secondary agricultural education programs to better prepare students for employment. The most frequently mentioned responses (each listed by 20% to 29% of the employers) were more hands-on experience, more technical agriculture skills, and better work attitudes. Ten percent of the employers listed better communications skills or more agribusiness skills.

REPORT OF THE EXTERNAL REVIEW COMMITTEE

Organization of the Committee

An External Review Committee, selected by the project staff, met in East Lansing on July 22-24, 1987 to review the background materials prepared by the project staff, to receive statements from and dialogue with a number of individuals who had been invited to meet with the External Review Committee, and to formulate some recommendations about the future direction of agricultural education in Michigan. Members of the External Review Committee were:

Dr. Ellen S. Russell, Principal
Chicago High School for Agricultural Sciences

Dr. Jasper S. Lee, Professor and Head
Department of Agricultural and Extension Education
Mississippi State University

Dr. William Drake, Professor of Agricultural Education
Department of Education
Cornell University

Mr. Bill Bartow, Vocational Agriculture Instructor
Alpena High School
Alpena, Michigan

Mr. Dale Brown, Extension Livestock Agent
Branch County
Coldwater, Michigan

Dr. J. Robert Warmbrod, Professor
Department of Agricultural Education
The Ohio State University

J. Robert Warmbrod chaired the sessions conducted by the External Review Committee. The following persons presented statements to the Review Committee and/or engaged in discussion with the Committee.

Mr. Charlie Arensmeier
Consultant Youth Programs
Vocational-Technical
Education Service
Michigan Department of Education

Mr. Mike Tate, Director
Michigan 4-H Program
Michigan State University

Dr. Cas Book, Associate Dean
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Mr. LeJean Marshall, Past Chairman
Michigan State Advisory Council
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Dr. Larry Connors, Chairperson
Department of
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Michigan State University

Mr. Joe Curtin, Superintendent
Webberville Community Schools
Michigan

Mr. Bob Sherer
Executive Cooordinator
Michigan Occupational Information
Coordinating Committee
Michigan Department of Labor

Mrs. Dorothy Beardmore
Vice President
Michigan State Board of Education

Findings and Recommendations

Purposes of Instruction in Agriculture

A. What are the purposes of instruction in agriculture?

B. We have examined agricultural education as a system which includes vocational education in agriculture -- a more wholistic view of education for agriculture. Includes instruction in agriculture from kindergarten through adult education.

C. Agricultural education should be available to all citizens but especially those:

1. Exploring careers in agriculture

    Awareness
    Exploration
    Appreciation

2. Persons seeking self fulfillment though agriculture -- providing for avocational interests

3. Those preparing for and pursuing careers in agriculture

D. The matrix of education in agriculture
(From "Futuring -- Agricultural Education," Office of Occupational and Continuing Education, New York State Department of Education)

	Populations				
	Elementary	Early Secondary	Secondary	Post-Secondary	Other Adults
Program Clusters					
Agricultural Appreciation	X	X	X	X	X
Self-fulfillment through Agriculture	X	X	X	X	X
Agricultural Production and Science Occupations			X	X	X
Agricultural Business Management and Service Occupations			X	X	X
Natural Resources and Ecological Occupations			X	X	X

Clientele for Instruction in Agriculture

A. Elementary learners should have the opportunity to become aware of agriculture and develop an appreciation for it.

1. This will be nonvocational agriculture

2. This can probably best be done through Agriculture in the Classroom

a. Infusion is a must

b. Materials (support materials are absolutely essential)

B. Self fulfillment (avocational agriculture)

1. We have been providing this to the limited number of learners who take vocational agriculture.

2. This is a challenge because of the need to serve both the person living on the land "the cottage industry agriculture" and the commercial farm population.

C. Persons preparing for careers in agriculture

1. This is the vocational group.

2. This is the part of agricultural education that you are most concerned about given the current conditions in Michigan.

Vocational Curriculum in Agriculture

A. Findings

1. Agricultural industry is important in Michigan

a. Will continue to be important

b. Will likely experience greatest growth in production agriculture in dairying and fruits and vegetables

c. Will likely be less competitive in grain

d. Forestry will continue as important sector

e. Recognition of non-farm sector is very limited in agricultural education; needs exist in the area

2. Vocational agriculture is experiencing declines in existing efforts

a. No adult education

b. Much of effort is production agriculture

c. FFA is predominant driving force in curriculum

B. Conclusions

1. Redirection of vocational education in agriculture is needed

a. Must focus around broad nature of the agricultural industry

b. Increased attention to agribuciness needed

2. Redefinition of mission needed

a. Secondary instruction/programs

b. Adult/continuing education (such as full or part-time teachers - not an add-on to existing teaching responsibilities.)

3. Any redirection must recognize existing agencies, policies, etc., with particular recognition of local school autonomy in Michigan

C. Recommendations

1. Curriculum must include content areas in addition to production agriculture (Note: The taxonomy system now used for reporting needs to be "cleaned up" so that program operation and State Department of Education compliance and reporting procedures are congruent). The curriculum must be rooted in the needs of Michigan's agricultural industry.

2. Instruction in agriculture should be undergirded with science knowledge. Instruction in agriculture should not usually be substituted for instruction in science. (If substitution occurs, the students are likely losers in the long run.)

3. Curriculum should be designed with the initial year being broad-based and succeeding years increasing in specificity.

   a. Area vocational centers would offer instruction that is of narrower focus for specific employment training.

   b. Comprehensive high school programs would likely have less specification of occupational emphasis, particularly in the 9th and 10th grades.

   c. Articulation of curricula in high schools and area vocational centers is essential.

Grade 9	Grade 10	Grade 11	Grade 12	Post-Secondary	Adult/Cont. Ed.

Increasing Occupational Specificity →

4. Curriculum structure must be examined to insure credibility, sophistication, substance, and authenticity.

   a. A portion of the curriculum should be standardized on a statewide basis, particularly in grades 9 and 10.

   b. A portion of the curriculum should be locally derived to meet agricultural industry needs unique to a given school district.

   c. The structure used should provide broad-based educational preparation (as contrasted to narrowly-focused tasks and competencies).

5. The provision of adult/continuing education must be addressed. (Strong needs for adult education exist and can likely be met through efforts in vocational agriculture.)

   a. Vocational-technical education in agriculture cannot be without the presence of the adult education component.

b. Approaches for the delivery of adult education need to be developed. Options include local vocational agriculture programs with full-time adult teachers, part-time teachers, and those with no adult teachers. The mode of operation would need to be developed appropriate to needs and situations.

c. Adult education must be systematic instruction. Systematic instruction programs for adults involve a series of educational activities related to long-term educational goals. Using different speakers on different topics is not systematic education. Vocational agriculture teachers have skills in programming, access to laboratory facilities, and must establish themselves as viable agricultural leaders in their communities.

6. Supervised practice must be continued and enhanced as an integral part of the vocational agriculture program.

7. The curriculum must drive the vocational student organization, and not vice-versa.

   a. Some of the FFA programs/activities need redirection for more relevance.

   b. Leadership or input to redirect the FFA nationally may be appropriate from Michigan agricultural educators.

   c. Conscious efforts need to be made to enhance the FFA as a "tool" of vocational education in agriculture.

8. Staff development must occur simultaneously with curricular changes.

   a. Human resources are most important to quality of programs delivered.

   b. All staff involved need to participate, including <u>all</u> teachers, state staff, and teacher educators.

   c. Efforts need to recognize the humanizing of change, including preparation of individual for change, and relating to others who are less directly involved.

D. Summary

1. The curriculum is the driving force of accountability in vocational education in agriculture.

2. It must be relevant, efficiently delivered, and held accountable.

3. Traditions must sometimes be unshackled. "Pain" results but the rebirth will be more glorious than historical successes.

4. A leader(s) must step forward, organize for the future, and charge ahead.

Policy Regarding Reform and Change

A. Research on school improvement and on the change process has shown that efforts which are locally driven and school based are most successful. When teachers are involved in the development of new curriculum materials, they are more likely to use them. When local people are involved in the planning process, they are more likely to implement a new program.

B. Michigan already has a great deal of local autonomy and local discretion in education. We believe that any changes and reforms should be undertaken at the local level under some form of statewide leadership. Curriculum changes we are recommending are extensive and will require resources, time, and a structure for nurturing innovation. There will need to be strong leadership, vision, and coordination to effect change that is responsive to local needs but also enables agricultural education throughout the state to have some common goals and objectives.

C. Curriculum changes alone will not bring about revitalization. Staff development activities must go hand-in-hand with the new materials that are developed. We are recommending a concept that would allow change to occur. The idea of a Center or Institute for Curriculum Design and Staff Development in Agricultural Education would have several purposes:

   1. to bring key people together on a regional basis to plan, design, and field test new curricula.

   2. to coordinate efforts in agricultural education at all levels: elementary, secondary, postsecondary, graduate and post graduate, adult and continuing, extension, etc.

   3. to provide assistance to classroom teachers.

D. The Institute for Curriculum Design and Staff Development in Agricultural Education would be based at Michigan State University because it is the State's land grant institution and has the major responsibility for training agricultural teachers in the state. Its College of Agriculture is the source of knowledge in and about agriculture, and its researchers can inform educators about new directions in agriculture. A new position of Director of the Institute should be created within the Department of Agricultural and Extension Education and a search would be conducted for a person of vision, energy, and creativity. The Director would select 4 to 5 consultants who would work within the regions of Michigan. These consultants might be outstanding high school teachers of agriculture with 5-10 years teaching experience who would leave their teaching jobs for a three-year period.

1. On each region a core group of people would be brought together on a regular basis to plan, design, and implement new curricula. The core group would include:

   a. elementary school teachers
   b. high school vocational agriculture teachers
   c. high school science teachers
   d. agribusiness leaders
   e. extension agents
   f. high school counselors
   g. principals and superintendents
   h. school board members
   i. university faculty
   j. college and postsecondary teachers

2. Teachers would receive stipends to attend planning meetings, which would be held after school, on weekends, and during the summer. The work would be ongoing and would be held at school sites. The consultant for each region would visit teachers in their classrooms and would work with the Institute Director at MSU to provide inservice training. The teachers selected for the core group should wish to participate and should have an eagerness to change, or at least be ready for change.

3. The work of the core group, under the leadership of the consultant for each region, would include the following:

   a. revising the vocational agriculture curriculum and making changes in FFA.

      (1) curriculum content would move toward agriscience and agribusiness.

      (2) FFA constitution would be broadened to include more than vocational agriculture; contests would be less production oriented, degree requirements and awards would be more relevant to new fields of agriculture, names would be changed to attract more students.

   b. designing general agricultural science courses for high school students who will not enroll in vocational agriculture.

   c. integrating agriculture into existing subject areas (social studies, science).

   d. writing curriculum guides for vocational agriculture core curriculum and agricultural education grades K-12.

   e. writing course outlines for high school agriculture courses.

   f. developing materials for Agriculture in the Classroom.

g. preparing articulation agreements between secondary schools and postsecondary institutions, college and universities, and the Extension Service.

h. developing placement test so that students with an agricultural background and course credit may "place out" of basic college courses and enroll in higher level courses.

i. enlisting the help of agribusiness and industry in describing present and future employment trends in agriculture for the region.

j. writing a textbook in agriscience for use in the high school.

E. Concurrent with the above curriculum design activities are activities in staff development.

These include:

1. preservice training for new teachers.

2. assistance for new teachers in their first three years on the job.

3. inservice for all teachers on the use of new materials

4. retraining of veteran teachers to update them on the fields of agriculture.

This could be done in the College of Agriculture in various departments and through summer internships in agribusiness.

F. Professors in agriculture education should be actively involved in all of these activities because new directions must be incorporated into teacher education programs. The staff development effort requires that the Institute Director and consultants spend time in classrooms observing teachers and providing direct assistance.

G. The Institute, if successful, will cause charges that may require new structures to implement them effectively. The local core groups should recommend policy changes if they are needed. A broader purpose for agricultural education may require vocational education to change or for agricultural education to move out of vocational education.

Magnet School Concept

A. It is proposed that one or more magnet schools specializing in the agricultural sciences be established in major urban areas.

1. Designated as a Center or High School for Agricultural Sciences.

2. Include classrooms, laboratories, outdoor laboratories, greenhouses, livestock facilities, etc., for instruction in agriculture and in other subjects completed by high school students.

3. Instruction would emphasize agribusiness and agricultural science.

4. Curriculum would include, in addition to instruction in agriculture, courses in English, science, mathematics, social science, the arts, foreign language and other courses required for graduation.

5. Curriculum designed for students preparing for postsecondary study and for students preparing to work at the time of graduation.

B. Clientele

1. Enrollment should not be limited to students who have unique characteristics but should include students at all levels of academic ability with diversity of socioeconomic and racial backgrounds.

2. Curriculum should be designed to serve students who have a broad range of interests and reasons for studying agriculture.

C. Rationale

1. Agricultural illiteracy is a problem for the entire society, but particularly so for persons in urban areas.

2. Instruction in agriculture, food, and natural resources is an effective vehicle for integrating instruction in other school subjects, particularly the sciences and mathematics.

D. Organization and Administration

1. Administratively, the school would be a part of the school district in which it is located.

2. Regular and special funding would be in accordance with policies of the State Department of Education.

3. Efforts should be made to secure special funding from foundations, appropriate state and federal agencies, nongovernmental organizations, and agricultural business and industry.

SUMMARY AND RECOMMENDATIONS OF THE EXTERNAL CONSULTANT

This section of the report includes summary statements about the current status of agricultural education in Michigan and recommendations regarding the future direction of agricultural education in the State. The comments of this section are derived from the reports prepared by the project staff, the statements and discussion with individuals who met with the External Review Committee, and the analysis and recommendations of the External Review Committee reported in the immediately preceding section.

The central focus for the study of the "Status and Future Direction of Vocational-Technical Agriculture Education in Michigan" is agricultural education offered by secondary schools. Likewise, that will be the primary focus for this section of the report; however, some recommendations refer to agricultural education in grades below the high school or agricultural instruction in postsecondary institutions. Some recommendations in this section refer to more specific recommendations and comments included in the preceding section of the report "Report of the Review Committee."

Summary

The studies conducted by the project staff, presentations to and discussions with the External Review Committee, and deliberations by that Committee support the following summary statements about agricultural education in Michigan.

1. Agricultural education in the secondary schools at the current time is primarily vocational education in agriculture.

2. Currently, agricultural education in secondary schools (vocational agriculture) is a part of the federal-state system of vocational education. Leadership and incentives from the Michigan Department of Education put highest priority for policy and program development, improvement, and revision on proposals and activities that are within current policies governing the federal-state vocational education system.

3. During the past 10 years there has been a steady and substantial decline in the number of secondary schools offering vocational agriculture programs and in the number of high school students enrolled. The extent of the downward trend in enrollment is greater than the decline in high school enrollments in all vocational education programs and total enrollments in public secondary schools in the State.

4. Adult education, as a part of the secondary school vocational agriculture program, has to a major extent almost disappeared. Apparently, data are no longer collected about adult education programs conducted as a part of the vocational agriculture program.

5. There is little indication of a high degree of coordination and articulation between secondary vocational agriculture programs offered in local high schools and in area centers.

6. Postsecondary agricultural education (less than baccalaureate level) is offered in some community colleges and universities. There does not appear to be formal articulation between these postsecondary programs and secondary school vocational agriculture programs.

7. The policy of local autonomy is strong and real in Michigan and will be a significant factor influencing both the development of proposals and the implementation of proposals for change and reform.

8. Persons directly concerned about and involved with vocational agriculture (teachers, school administrators, state advisory council members, state department of education personnel, and Michigan State University faculty members in agricultural education) see a need for revision and reform and demonstrate eagerness and willingness to propose and implement change.

9. There appears to be agreement that there are purposes for instruction in agriculture at the secondary and lower grade levels that are broader than and in addition to the purposes of current vocational agriculture programs.

10. Agriculture, broadly defined (agriculture, food, and natural resources), is a major industry in Michigan.

Recommendations

Purposes for Instruction in Agriculture

1. The purposes for offering instruction in and about agriculture in the public schools of Michigan should be redefined to include purposes broader than and in addition to the purposes of vocational education in agriculture. In addition to preparation for entrepreneurship and employment in occupations requiring knowledge and skill in agriculture (food, agriculture, and natural resources), purposes for instruction in and about agriculture include (a) understanding and appreciation of the nature and importance of food, agriculture, and natural resources in our economy and society (agriculture literacy); (b) knowledge of occupational and professional opportunities in food, agriculture, and natural resources; and (c) preparation for advanced study of food, agriculture, and natural resources in colleges, universities, and other postsecondary institutions. The adoption of purposes that are broader than the purposes of vocational agriculture requires the initiation of nonvocational programs and courses as well as revision of current vocational agriculture programs and courses. (See section "Report of the Review Committee.")

Clientele

2. Clientele who receive instruction in and about agriculture should be expanded to include, at least potentially, all students in grades K through 12 in addition to persons who are anticipating or expect to be engaged occupationally in the agricultural industry. Broadened purposes for instruction in and about agriculture lead to new and different clientele to be served. Agricultural instruction should be provided students of all levels of ability, all racial and ethnic groups, and all levels of socioeconomic status.

Curriculum

3. Curriculum revisions for vocational agriculture programs and the development of curriculum for new programs and courses for instruction in and about agriculture should be consistent with and contribute to the goals and objectives stated in Goals 2000: Education for a New Century (State Board of Education, April 1987).

4. Instruction about agriculture (agriculture literacy) should be integrated into courses, other than vocational agriculture, currently being taught in grades K through 12. "Agriculture in the Classroom" should be expanded to achieve this purpose. Collaboration between the public schools and the 4-H program of the Cooperative Extension Service can contribute to the achievement of this purpose.

5. The vocational agriculture curriculum should be revised and updated (a) to reflect the current and anticipated status of the agricultural industry in Michigan; (b) to increase substantially emphasis on nonproduction aspects of agriculture; (c) to include more emphasis on economics, management, and marketing; (d) to emphasize the science base of agriculture and the application of science and mathematics through instruction in agriculture; and (e) to introduce subject matter concerning the international dimension of agriculture. (For more specific recommendations concerning the vocational agriculture curriculum see the section "Report of the Review Committee.")

6. New courses at the secondary school level, both vocational and nonvocational courses, should be developed in agribusiness, agricultural science, college preparatory agriculture, and other appropriate areas. Courses of varying lengths -- year, semester, or quarter -- should be considered.

7. At the secondary level, vocational and nonvocational courses in agriculture should not be substituted for meeting graduation requirements in science and mathematics, especially for students who expect to pursue postsecondary and higher education. Vocational and nonvocational courses in agriculture should emphasize the application of science and mathematics. Students completing these courses should be encouraged to complete science and mathematics courses in which all secondary school students enroll.

8. Curriculum development and revision in vocational and nonvocational courses in agriculture should be accompanied by revision in the purposes, programs, and activities of the FFA. A basic question that must be addressed is: Should students enrolled in nonvocational courses in agriculture participate in a students' organization as an integral part of the curriculum? The response to that question sets the bounds for the nature and magnitude of the change in FFA programs and activities that must be considered.

9. Personnel in secondary and postsecondary schools should initiate articulation agreements, particularly for students who enroll in vocational agriculture courses in high school or secondary students who wish to study agriculture in a postsecondary institution. An example of such a program is a "2 plus 2" program between a local school district and a community college or the Institute of Agricultural Technology at Michigan State University.

10. Instructional programs in agriculture should use extensively modern technology (computers, communications, etc.) in the delivery of instruction.

Policy

11. One policy issue must be considered before the nature of the future direction of agricultural education in the secondary schools of Michigan can be determined. That question is: What purposes are to be served by instruction in and about agriculture in the public schools of Michigan? If the response to that question is that only "vocational" purposes are to be served, revision and reform of the current vocational agriculture program is the focus. If the response to that question is the adoption of purposes that are broader than "vocational purposes," the agenda for reform and revision is more difficult and comprehensive.

12. In debating and resolving the aforementioned question, a wide range of persons and groups must be involved with special significance given to those who make, enact, and implement policy for public education in the state (State Board of Education, state level advisory groups, state department of education personnel, local boards of education, and school administrators). The resolution of the question of what purposes are to be served by instruction in and about agriculture cannot be dealt with solely by persons whose major interest and expertise is agricultural education or vocational education. The resolution of this issue must recognize the reality of local autonomy.

13. A second major policy issue concerns leadership, administration, and supervision for the program of agricultural education by the Michigan State Department of Education. The consideration of this issue probably should be concurrent with the consideration of the issue regarding purpose. Depending on the resolution of the issue of purposes to be served by instruction in and about agriculture,

the pertinent questions are: Can appropriate and necessary leadership for the agricultural education programs mandated by the purposes adopted be provided by the Vocational-Technical Education Service of the Michigan Department of Education? Can the current "vocational education system" in Michigan accommodate the agricultural education programs mandated by the purposes adopted?

The resolution of these two major policy issues -- purposes for instruction in agriculture and leadership, administration, and governance by the Michigan Department of Education -- are central to the future direction of agricultural education in the public schools.

14. To facilitate reform of current programs and the initiation of new programs, policy should be formulated to make possible pilot and experimental programs in schools. Pilot programs should be carefully selected, monitored, and assessed with results communicated quickly and accurately to other schools. This mechanism for initiating and assessing change could appropriately fall within the purview of the proposed Center for Curriculum Design and Staff Development in Agricultural Education described in the section "Report of the Review Committee."

15. Magnet schools specializing in the agricultural sciences should be established in major urban areas. (See section on "Report of the Review Committee.")

16. Coordination and articulation between vocational agriculture programs in local schools and area centers should be re-examined and clarified with special reference to changes that are or will be made in current vocational agriculture programs.

17. Another major policy issue that should be resolved concerns adult and continuing education in agriculture. Pertinent questions include: Should adult education continue to be a part of the secondary school vocational agriculture program? What schools (local schools, area centers, or postsecondary schools and colleges) are most appropriate for the delivery of adult education? What purposes, other than occupational and vocational, should adult education serve? What are appropriate funding policies for adult education? How is collaboration with the Cooperative Extension Service best achieved?

18. Preservice and inservice teacher education programs must be revised and updated in accordance with the redirection and revision in agriculture education that will be implemented. Personnel in the Department of Agricultural and Extension Education at Michigan State University should be involved actively and significantly in the study and discussion of the future of agricultural education and particularly on the preparation and continuing professional and technical education of teachers of agriculture. (See section on "Report of the Review Committee.")

19. The development of instructional and curriculum materials and personnel development demand high priority when concerted efforts for reform and redirection are initiated. See the proposal for the establishment of a Center for Curriculum Design and Staff Development in Agricultural Education in the section "Report of the Review Committee."

20. If progress toward redirection and reform is to occur, some person or agency must assume aggressive leadership to initiate the study, debate, and formulation of proposals for policy and program change required for a new future for public school education in agriculture in Michigan. It is suggested that the Michigan Department of Education is the most appropriate agency to initiate the process. It is imperative that the process involve both persons with expertise and interest in agricultural education and persons who formulate and enact policy for public education. The highest priority policy issue is: Why teach agriculture in the public schools of Michigan? Consideration of other policy and program issues follows the resolution of that question.

Michigan Council on Vocational Education

SUMMARY AND RECOMMENDATIONS

Summary

According to the National Governors' Association, "the United States is in the midst of profound economic change. Today, a generation of Americans face new and often harsh realities--workers who have been displaced by shifts in industry and trade, and debt-ridden farmers seeking to forestall foreclosures and bankruptcy. . .Today we see an economy characterized by stagnant productivity, continued erosion in the earning power of many workers and large numbers of dislocated and displaced workers. We see a global marketplace that the U.S. no longer dominates, a marketplace overwhelmed by growing competition for which our citizens are largely unprepared."

In 1983, Michigan's economy was the worst in the nation. During Governor Blanchard's first term, this State made great strides in overcoming its economic crises. The Governor's economic development strategy's primary focus, for the next four years, is to meet the challenge of international competition. Increasing agriculture's importance in Michigan's economy is a component of that strategy. As indicated in the proceedings from the Governor's Conference on the Future of Michigan Agriculture: "The existence of and need for a strong agriculture points to the critical need for education in agriculture throughout Michigan."

The Michigan Council on Vocational Education hopes that this report on the "Status and Future Direction of Vocational-Technical Agriculture Education in Michigan" will provide the Governor and his Task Force and the Michigan State Board of Education a basis from which to implement a long-range plan for revitalizing agriculture education and therefore become a key component for assisting Michigan's agriculture industry to increase its competitiveness internationally.

Alternative Viewpoints

The Michigan Council on Vocational Education agrees in concept with the external consultant's report. The report is presented in its entirety as part of this document. The Council does wish, however, to discuss a few of the recommendations with which it takes issue.

First, the External Review Committee's recommendation number five (page 16) states, "strong needs for adult education exist." The Council wishes to point out that due to the absence of current data, the answer to question of "need" remains unknown. In fact, the Cooperative Extension Service has a long history in providing adult education in agriculture. The Council does agree that an assessment of adult agriculture education program should be considered.

Second, both the review committee and the external consultant recommend that "courses in agriculture should not be substituted for meeting graduation requirements in science and mathematics. . ." However, there was no evidence provided in the report to substantiate this recommendation. The recommendation is also inconsistent with the Council's report titled, "Strike a Balance: Linking Academic and Vocational Education to Provide Options that Benefits the Learner," (1987). In this report the Council recommends that an "individual student learning plan be developed for each student which includes the academic and vocational-technical competencies to be achieved to meet each student's career and educational goals." If education was "learner centered," the recommendation to eliminate the substitution of courses would be unnecessary. Before such a recommendation is accepted or rejected, it should be substantiated with reliable data or further study.

Third, although available labor market data for the agriculture industry was reviewed, it appears that the present information is not adequate to redesign programs and curricula. The agricultural field, like other industries, is greatly impacted by technology. This phenomenon does not necessarily generate "new" occupations or job titles but affects the methodology and development of skills within an occupation, i.e., computerized equipment, genetic engineering. Like other industries, the job market is evoluntionary not revolutionary. Traditional job lines are becoming obscured mostly by the use of computers. Terminology such as agribusiness, agriscience, food technology, environmental management as it relates to water and toxics, and biotechnology are emerging within the industry. The problem seems to be the inability to succintly define them as they relate to employment demand and supply. Quite possibly some of these areas are emerging occupations needing more indepth study. Specific information is needed from business and industry to redesign curricula if agriculture education programs are to be revitalized, curricula redesigned and teachers trained and retrained.

RECOMMENDATIONS

Vocational-technical agriculture education is still a viable occupational program, however, it does need to be redesigned to reflect the broader agriculture related occupations, the technological changes within specific occupations and ultimately to become performanced based. Therefore, the Michigan Council on Vocational Education recommends to the State Board of Education:

(1) A Policy and Planning Advisory Board on Agriculture Education be established to:

   (a) Recommend the purpose and policies for agriculture education needed to reflect the present and future needs of the agriculture industry.

   (b) Serve as a review panel for labor market information on the agriculture industry.

   (c) Serve as the board of directors for a Center on Agriculture Education.

(d) Issue an annual performance report.

The Advisory Board should be appointed jointly by the State Board of Education and the Governor. Individuals from the private sector would constitute a majority of the membership including the Board's chairperson. The following areas should have representatives on the Board: environment, farmland preservation, horticulture, natural resources, non-farm businesses, production agriculture, and agriculture related organizations. It should also include a representative from the Michigan Department of Agriculture, Michigan Department of Education, Michigan Department of Natural Resources, the Governor's Office and Michigan State University.

(2) Refine and/or revise the present labor market information system to be current and reflective of the agriculture industry, including its growth components and technological developments and applications.

(3) Establish a Center for Agriculture Education. The following objectives for the Center should be based on labor market information, research and leadership from the Advisory Board:

(a) To develop a "learner centered," articulated: K - 12, adult, postsecondary, preservice and inservice, agriculture education program and curricula.

(b) To develop program and client performance standards.

(c) To develop an evaluation model including student performance tests and utilization of business and industry representation in the assessment process.

(d) To develop a technical assistance program to assist educational agencies and their staff to implement the revitalized agriculture education program.

(e) To develop model innovative agriculture education programs and projects that can be replicated throughout the state.

(4) Provide sufficient resources to revitalize agriculture education through the implementation of the recommendations identified above and assessed annually. The Council strongly encourages a collaborative approach to financing, including the Department of Education, Department of Agriculture, the Governor, Business and Industry, Private Organizations and Foundations. High priority should be given to reallocating/redirecting present resources and integrating resources and services presently available prior to soliciting additional funds.

Additional copies may be obtained from the Michigan Council on Vocational Education, P. O. Box 30008, Lansing, Michigan 48909, (517/373-6407).

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