

### **Teacher Perceptions of Factors Associated With Expanding Vocational Agriculture Programs**

Robert J. Birkenholz, Assistant Professor  
Agricultural Education  
University of Missouri-Columbia

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Important changes have occurred in the agricultural industry in recent years (Heffernan & Campbell, 1984). The trend toward fewer commercial farms and farmers accompanied by an increase in the size of commercial farm units are changes which many familiar with agriculture have come to accept as inevitable (Rural Missouri 1995: Challenges and Issues, 1985).

Programs of vocational agriculture must be adapted to meet the needs of a changing agriculture (Bowen, 1986, January). Vocational agriculture programs were initially developed to provide instruction in agriculture to assist students who intended to enter production agriculture occupations (Smith-Hughes Act, 1917). Subsequent legislation expanded the focus of such programs to provide instruction for students who anticipated employment in off-farm agricultural occupations as well (Vocational Education Act, 1963). As a result, vocational agriculture programs have begun to expand course offerings and curricula to prepare students for a variety of careers related to agriculture.

Vocational agriculture teachers have found themselves in a unique situation. Many teachers have had experience in production agriculture, were enrolled in a production-oriented vocational agriculture program in high school, and have been conducting a production-oriented program. Teacher preparation and familiarity with production-oriented programs has been the status quo since agriculture teacher education programs were first developed. Bowen (1986, March, p. 3) recognized the need to examine such programs when he wrote:

The production agriculture mentality that dominates agricultural education deserves careful scrutiny. In view of the 1986 agriculture situation, should production agriculture be so predominant in terms of classroom and laboratory teaching, supervised occupational experiences for students, adult instructional programs and the FFA?

#### **Purpose and Objectives**

The purpose of this research was to assess perceptions of Missouri vocational agriculture teachers regarding factors related to selected curricula adjustments in local programs. Five general areas of emphasis were identified as the central focus of this study, including: production agriculture, agribusiness, agricultural mechanics, horticulture and forestry. These five areas were selected as the most practically significant curriculum areas to be included in this study. The five areas examined were felt to be potential areas for program expansion on a broad scale throughout the state of Missouri. Specific objectives developed to guide and direct this study were to assess vocational agriculture teacher perceptions of:

1. The adequacy of vocational agriculture programs in preparing students for careers in five agriculture curriculum areas.
2. Which areas of the curriculum should receive greater emphasis.

3. How modifications would impact student enrollment.
4. The adequacy of local SOEP opportunities in five curricular areas.
5. Which curriculum areas would require a major program revision if it received greater emphasis in local programs.
6. The adequacy of teacher preparation in the five curriculum areas.
7. The need for inservice education in the five curriculum areas.

#### Procedures

Data collection was completed at the conclusion of each of 13 area inservice workshops held throughout the state of Missouri in October, 1985. The population consisted of 201 vocational agriculture teachers who attended a workshop entitled "Program Enhancement--Integrating Instruction in Production, Agribusiness, Mechanics, Horticulture, and Forestry." The purpose of the workshop was to identify and discuss practical modifications which may have been appropriate for local vocational agriculture programs. The entire population of workshop attendees provided responses which were included for data analysis, which represents approximately 62% of all secondary vocational agriculture teachers in the state of Missouri.

The data collection instrument was developed by faculty members in agricultural education at the University of Missouri-Columbia. A field test of the instrument was conducted utilizing members of the Missouri Joint State Staff in Agricultural Education, which consist of former vocational agriculture teachers (i.e., teacher educators and state supervisors). Modifications of the instrument were made following the field test to improve clarity and readability.

The data collection instrument allowed respondents to indicate their level of agreement or disagreement with seven stem statements for each of the five areas of the curriculum assessed. A five-point Likert-type scale was used to insure uniformity among respondents and to facilitate comparisons between curriculum areas for each statement.

Responses were numerically coded so that a response of strongly agree received a value of 1, a neutral response received a 3, and strongly disagree received a 5. Response means were computed for each of the 35 items and were the focus of subsequent data analysis.

The response scale was divided into three equal segments to facilitate interpretation of the results. Means of less than 2.33 were assumed to indicate relative agreement with the underlying statement. Means between 2.33 and 3.67 were categorized as collectively neutral in the middle response category. Means of 3.67 or greater were assumed to indicate relative disagreement with the associated statement.

Examination of means computed from a bi-polar scale may be misleading without considering the variability of responses. Therefore, standard deviations were important statistics to consider to assess the variability of responses for each item. Relatively large standard deviations would appear to indicate greater disparity in responses as compared to smaller standard deviations.

Instrument reliability was computed as part of the data collection process. A coefficient alpha = .92 was computed using the SPSS subprogram RELIABILITY (Hull & Nie, 1981).

Conclusions and recommendations resulting from this research effort were limited to vocational agriculture programs supervised by teachers providing responses. However, some recommendations may have practical implications for other vocational agriculture programs.

### Results

Each of the 201 vocational agriculture teachers in attendance at an area inservice workshop provided responses and contributed to the 100% response rate for the population surveyed. Teacher respondents reported an average vocational agriculture program enrollment of 61.2 students and 10.0 years of teaching experience. Response ranges for these two characteristics varied from 22 to 203 enrollees and from 1 to 36 years of teaching experience, respectively.

Respondents were also asked to indicate the population of the largest community in their school district. Responses ranged from 100 to 65,000 with an average population of 4,587.

Data in Table 1 show response means and standard deviations for each curriculum area assessed and for each of the seven statements included in the instrument. Relatively low means and standard deviations for both production agriculture and agricultural mechanics revealed that teachers tended to agree that their programs were adequately preparing students for careers in those areas. Teachers perceived their programs to be less-than-adequate in preparing students for careers in horticulture and forestry as indicated by item means in excess of the 3.66 level. Teacher responses were computed in the middle category concerning the adequacy of their vocational agriculture programs in preparing students for careers in agribusiness.

Teacher respondents indicated their agreement with the need to place greater emphasis on agribusiness in their local curricula. However, the remaining four curriculum areas produced means in the middle category. There was also greater uniformity in teacher response to the need to expand the emphasis on agribusiness as indicated by the lower standard deviation associated with that mean.

Expanding the emphasis in certain curriculum areas may also enable local vocational agriculture programs to serve a greater number of students. Teacher respondents tended to agree that expanding programs in the areas of agribusiness, horticulture and agricultural mechanics may result in increased student enrollments. Respondents tended to neither agree nor disagree with the statement regarding the influence on student enrollment as a result of expanding production agriculture and forestry curricula at the local level.

The opportunity for supervised occupational experience programs (SOEP) was also assessed relative to each of the curriculum areas studied. Teachers tended to agree that adequate opportunities existed in local communities for students to conduct SOEPs in the areas of production agriculture, agribusiness and agricultural mechanics. However, response means in the middle category were produced in regard to the adequacy of SOEP opportunities in horticulture and forestry.

Teacher respondents agreed that major program revisions were necessary to incorporate instruction in horticulture and forestry. Teachers tended to disagree that incorporating production agriculture would

Table 1  
Means and Standard Deviations of Teacher Perceptions of Factors Associated With Expanding Five Areas of the Vocational Agriculture Curriculum

Statement	N	Area of Curriculum									
		Production Agriculture	Agribusiness	Agricultural Mechanics	Horticulture	Forestry					
		$\bar{X}$	s.d.	$\bar{X}$	s.d.	$\bar{X}$	s.d.	$\bar{X}$	s.d.	$\bar{X}$	s.d.
1. My current vocational agriculture program adequately prepares students in _____.	201	1.37 0.64		2.35 1.01		1.52 0.83		3.70 1.45		3.76 1.39	
2. Greater emphasis should be placed on _____ in my local program.	201	2.66 1.38		1.67 0.85		2.33 1.13		2.36 1.26		2.27 1.36	
3. Expanding my local program in _____ would allow more students to be served.	201	2.76 1.35		1.88 1.04		2.32 1.17		2.08 1.22		2.43 1.40	
4. There are adequate opportunities in my local community for SOEP in _____.	201	1.64 1.01		2.14 1.15		2.20 1.08		2.91 1.38		3.09 1.50	
5. Incorporating _____ in my program would require a major program revision.	201	3.74 1.63		3.03 1.51		3.46 1.57		1.91 1.23		2.03 1.31	
6. I feel adequately prepared to teach _____.	201	1.13 0.45		1.81 0.88		1.49 0.78		3.25 1.44		3.34 1.46	
7. Future inservice programs should include instruction about _____.	201	2.68 1.33		1.78 0.95		2.32 1.16		2.02 1.20		2.26 1.37	

Note. Scale: Strongly Agree = 1; Neutral = 3; Strongly Disagree = 5.

require a similar revision. However, they were collectively neutral in their perception of the need for major program revisions to incorporate instruction in agribusiness and agricultural mechanics.

There was rather uniform agreement among teacher respondents regarding the adequacy of their preparation to teach production agriculture, agricultural mechanics and agribusiness, as indicated by the relatively low means and standard deviations for each of those areas. However, teachers tended to vary widely in response to the adequacy of their preparation to teach both horticulture and forestry. There was greater variability among responses concerning the adequacy of teacher preparation in horticulture and forestry than for the remaining three curriculum areas.

There appeared to be relatively strong and uniform agreement among respondents regarding the need for inservice education in the area of agribusiness as this curriculum area resulted in the lowest mean and standard deviation. Teacher respondents also indicated, to a lesser degree, the need for inservice in horticulture, forestry and agricultural mechanics. A response mean in the middle category was computed for the need for inservice education in production agriculture.

#### Discussion

Data provided by workshop participants were analyzed to ascertain the perceptions of selected Missouri vocational agriculture teachers regarding the effect of program modifications in five curriculum areas. Although conclusions and resulting recommendations were limited to teachers who participated in workshop activities, results of this study may have practical implications for other vocational agriculture programs and teachers in Missouri, as well as in other states.

Respondents indicated vocational agriculture programs were adequately preparing students for careers in production agriculture and agricultural mechanics. Also, teachers reported local programs were less adequate in preparing students for careers in agribusiness. Furthermore, respondents revealed that local vocational agriculture programs have generally not expanded into horticulture and forestry curriculum areas. Relatively high standard deviations indicated wide variations in response to horticulture and forestry areas also existed.

These findings appear to support the conclusion that vocational agriculture programs in Missouri were somewhat traditional in nature and have not deviated significantly from the production and mechanics orientation which characterized early programs. The inability of such programs to prepare students for careers in horticulture and forestry should not be viewed as an indictment for poor quality instruction. Vocational agriculture teachers may have conscientiously refrained from providing instruction in those areas in view of local student and community needs.

Teacher respondents were asked to indicate the perceived need for additional programmatic emphasis in each of the five curriculum areas. Agribusiness was the curriculum area which teachers most uniformly agreed needed additional emphasis in local programs. Therefore, it would appear that modifying local vocational agriculture programs to incorporate agribusiness instruction should receive relatively high priority status among agricultural educators.

Production agriculture, agricultural mechanics, horticulture and forestry received collectively neutral responses in regard to the need for additional emphasis in local programs. Responses for production

agriculture and agricultural mechanics were possibly due to the adequacy of student preparation for careers in those areas. However, teacher respondents indicated that most vocational agriculture programs were not preparing students for careers in horticulture and forestry.

Declining student enrollments has been a topic of major concern among many vocational agriculture teachers and administrators. Therefore, it was important to ascertain the anticipated effect on student enrollment as a result of expanding vocational agriculture programs in the five curriculum areas identified. Expanding agribusiness, horticulture and agricultural mechanics were viewed as having a positive impact on student enrollment. Similar influences on student enrollment were not anticipated as a result of expanding instruction in the areas of production agriculture and forestry. Teacher respondents reported that adequate opportunities existed for student SOEPs in production agriculture, agribusiness and agricultural mechanics in local communities. However, teachers reported SOEP opportunities were more limited in horticulture and forestry.

Teachers anticipated that major program revisions were necessary to accommodate incorporation of horticulture and forestry instruction in local vocational agriculture programs. However, teacher respondents indicated that major revisions would not be necessary to incorporate production agriculture, agricultural mechanics or agribusiness in the local program.

The perceived adequacy of teacher preparation in the five curriculum areas was examined as part of this study. Teachers reported adequate preparation for teaching production agriculture, agricultural mechanics and agribusiness. Teachers also indicated they felt less adequately prepared to teach horticulture and forestry although responses varied widely.

Teachers reported the greatest need for inservice assistance in the area of agribusiness as evidenced by the lowest mean and standard deviation. Horticulture, forestry and agricultural mechanics were also found to be potential topics for future inservice workshops. Production agriculture inservice programs were the least important of the five areas examined.

#### Implications

As a result of this study, it appeared that modifying vocational agriculture programs to incorporate instruction in agribusiness was warranted. Teachers indicated that increased emphasis was needed, would allow more students to be served and would not require a major revision in the existing program. Also, teachers perceived themselves as being relatively prepared to teach agribusiness and that there were sufficient opportunities for SOEP in local communities. Although increased emphasis in agribusiness may produce positive results, such a modification should not be viewed as a panacea for the problems facing vocational agriculture.

Program expansion in other areas may also be worthy of investigation in localized regions. Emphasis on agricultural mechanics and horticulture may be increased in certain areas as local conditions dictate. Forestry may likewise be an important subject to incorporate in local programs; however, geographic characteristics may influence the location of such programs. District supervisors may be in a position to encourage program modifications on a regional rather than statewide basis.

Future inservice efforts should concentrate on agribusiness and how that subject matter may be incorporated into local vocational agriculture programs. Supplemental inservice assistance was also needed in horticulture, agricultural mechanics and forestry. Production agriculture appeared to be the lowest priority area for inservice education relative to the other curriculum areas examined.

Agricultural educators should monitor the environment in which vocational agriculture programs operate. Changes in agriculture and education will directly influence the type and scope of future programs. Teachers, supervisors and teacher educators should examine the need to modify vocational agriculture programs to address anticipated changes. The future success of vocational agriculture will depend upon the ability of agricultural educators to modify programs to function in the changing agricultural environment.

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