

## Analysis of State FFA Degree Scoring

R. Kirby Barrick

Department of Agricultural  
Education  
The Ohio State University

The State Farmer Degree is the highest degree that may be conferred by a state FFA association (Official Manual, 1981). Since the beginning of the National FFA Organization in 1928, the degree system has been based upon occupational experience, leadership, and scholarship. The degree may be awarded annually to at least 10 but not more than 3% of the total FFA membership in the state.

The "National Constitution and Bylaws, Future Farmers of America" established minimum qualifications for election to the State Farmer Degree. These qualifications serve as minimum competencies for earning the state degree. However, no value or weighting system is included to assist in determining which applicants will receive the degree. For a state to stay within the 3% maximum, a scoring system is necessary so that applicants may be placed in a rank order. In Ohio, the State FFA Degree election follows the criteria required by the National FFA Organization. The only exception is that the maximum number of degrees awarded annually is limited to 2% of the state FFA membership. Until recently, each major program area had a separate degree application.

In 1982, the State FFA Degree application and scoring plan in Ohio were revised. One application was adopted for use by all program areas. The anticipated benefits included increased consistency among program area scores, greater ease in scoring, and improved ability to judge applications across program areas.

Several researchers have investigated some of the components of the FFA degree scoring system. Arrington (1981) found that the scope of students' occupational experience programs was related to the area where the students were located. Students from rural areas tended to have a larger supervised occupational experience program than students from urban areas. Henderson (1980) determined that there was consistency in scoring of State FFA Degree applications in Ohio, particularly in regard to an objective evaluation of student performance regardless of sex. Morton (1978) found a positive relationship between student achievement and supervised occupational experience programs.

As far as can be determined, no systematic analysis of the scoring procedure or scores for the State FFA Degree in Ohio has ever been completed. The researcher identified a need for determining whether the scoring system in use was actually in line with the philosophy of the state leaders in vocational agriculture and FFA in Ohio. Further, there was a need to compare scores on degrees across program areas to help determine the fairness of awarding the State FFA Degree in Ohio by program area.

## Objectives of the Study

The purpose of the study was to analyze the scores of the State FFA Degree applications in Ohio in 1982. Specifically, the study was designed to:

1. Identify sex, year in school, area of state, and program area of applicants for the recipients of the State FFA Degree;
2. Identify the influence of the 12 scoring areas of the application upon the applicants' receiving the State FFA Degree; and
3. Identify relationships among the 12 scoring areas of the application.

Since the forms for the degree applications were to be used for several years, the information obtained from this study would be helpful in making needed changes in the scoring plan for the degree. Further analysis of the data may assist Ohio and other states in determining the best criteria for awarding state degrees. The results of the study may be helpful to states that need to adopt a scoring system for state degrees or analyze the system being used currently within that state.

## Methodology

The study was an ex post facto correlational study which investigated the relationships among specified variables. The variables included scores on the 1982 State FFA Degree application and demographic variables pertaining to the applicants.

## Population and Sample

The population for the study was all applicants for the State FFA Degree in Ohio in 1982 who ranked among the top 3% of the applicants within the respective program areas. All applicants in the population were included in the study.

Applicants included in the population were determined by two slightly different means. In Ohio, production agriculture applications are evaluated at the district level, and the top 3% of the applicants are forwarded to the state for further evaluation. The top 3% of the production agriculture applications, based on district scores, were included in the study. For program areas other than production agriculture, applications were not scored on the district level. When the state scoring was completed, the top 3% of all applications in each program area were selected and included in the study. A total of 585 applications was included in the study.

## Instrumentation

The data were collected using "Application, State FFA Degree, 1982-83-84" (Ohio FFA Association, 1982a). The application was revised from the 1979-80-81 version by the state supervisory staff and FFA advisory committee in Ohio. The scoring system (Ohio FFA Association, 1982b) was prepared and reviewed by the same groups of people. The teachers who prepared the application and scoring plan reached consensus that the application collected the proper information and gave proper weight to the variables based on criteria for the degree. No further test of the application was conducted since one of the purposes of the study was to determine correlations between scores by areas and whether the applicant received the degree.

The State FFA Degree application consists of 12 sections, each representing a part of the vocational agriculture program. The scoring sections include:

- Opportunity
- Agricultural Experience Program
- Record Books
- Applicants' Net Worth
- Improvement Projects
- Exhibits at County and State Fairs and Shows
- Participation in Official State and National judging Contests
- FFA Leadership Activities
- Participation in Other Chapter Activities
- Participation in School Activities
- Participation in Community Activities
- Scholarship

The scoring system contains a point system for each scoring area of the application with guidelines for awarding points. The same scoring system is used throughout the state.

## Data Analysis

The data were analyzed using three procedures. Frequency distributions were generated for the demographic data, including year in school, sex, and area of residence and for scores on the applications for three groups: those who received the degree in 1982, those who applied but did not receive the degree in 1982, and for the entire sample. Secondly, multiple regression was used to determine the explained variation in achieving the degree based on the 12 scoring areas of the application. Thirdly, Pearson Product-Moment Correlation Coefficients were calculated to indicate relationships among scoring areas on the application.

## Results and Conclusions

1. Of the 585 applicants, 133 (23%) were juniors, 354 (60%) were seniors, and 98 (17%) were graduates. Of the 409 who were awarded the degree, 66 (16%) were juniors, 262 (64%) were seniors, and 81 (20%) were graduates (Table 1).
2. A total of 50% of the junior applicants, 74% of the senior applicants, and 83% of the graduate applicants were successful in being awarded the degree (Table 2).
3. The percent of applicants receiving the degree varied by geographic district, from 90.3% receiving the degree in District 1 (extreme northwest Ohio) to 28.6% receiving the degree in District 14 (extreme southeast Ohio). See Table 3.
4. Approximately 79% of the applicants were male and 21% were female. Of those who received the degree, 81% were male and 19% were female. From a different perspective, 72% of the male applicants and 62.4% of the female applicants received the degree (Tables 4 and 5).
5. The average score for all 585 applicants was 63.49 out of 100 points. The average scores by program area varied from 42.21 (Agricultural Mechanics) to 69.07 (Production Agriculture). For those who received the degree, the average score was 67.63. The average score by program area varied from 48.4 (Agricultural Mechanics) to 73.04 (Production Agriculture.) See Table 6.
6. Of the total proportion of explained variance in achieving the degree, 37.9% could be explained by the score on agricultural experience program (20% of the application score), 31.0% could be explained by score on judging contest participation (5% of the application score), an 11.6% could be explained by score on community activities participation (5% of the application score). The remaining 19.5% could be explained by scores on the other nine areas of the application (70% of the application score). See Table 7.
7. Moderate correlations determined by Pearson Product-moment Correlation Coefficients determined between scoring areas ( $r \geq .40$ ) were agricultural experience program and net worth (.47); community activities and net worth (.41); chapter activities and exhibits (.42); community activities and exhibits (.42); chapter activities and community activities (.40); and between FFA activities and chapter activities (.47), school activities (.46), and community activities (.47). See Table 8.

The majority of applicants and the majority of those who received the degree were seniors. The highest success rate for receiving the degree was among graduates, followed by seniors. This information stands to reason since each additional year in vocational agriculture and FFA provided an opportunity to amass additional points in most scoring areas of the application.

**Table 1**

*1982 State FFA Degree Applicants: Year in School by Whether They Received the Degree*

Year in school	Applicants					
	Received degree		Did not receive degree		Total	
	n	%	n	%	n	%
Junior	66	16.1	67	38.1	133	22.7
Senior	262	64.1	92	52.3	354	60.5
Graduate <sup>a</sup>	81	19.8	17	9.7	98	16.8
(Grad I)	(64)	(15.6)	(15)	(8.5)	(79)	(13.5)
(Grad II)	(10)	(2.4)	(2)	(1.2)	(12)	(2.1)
(Grad III)	(7)	(1.8)	(0)	(0.0)	(7)	(1.2)
Total	409	100.0	176	100.0	585	100.0

Note. <sup>a</sup>Graduates were further divided into Grad I (one year out of high school), Grad II (two years out of high school), and Grad III (three years out of high school).

**Table 2**

*1982 State FFA Degree Recipients by Year in School  
(n=585)*

Year in school	Applicants			
	Received degree		Did not receive degree	
	n	%	n	%
Junior	66	49.6	67	50.4
Senior	262	74.0	92	26.0
Graduate <sup>a</sup>	81	82.7	17	17.3
(Grad I)	(64)	(81.0)	(15)	(19.0)
(Grad II)	(10)	(833.0)	(2)	(16.7)
(Grad III)	(7)	(100.0)	(0)	(0.0)

Note. <sup>a</sup>Graduates are further divided into Grad I (one year out of high school), Grad II (two years out of high school) and Grad III (three years out of high school).

Table 3

1982 State FFA Degree Applicants' District by Whether They Received the Degree  
(n=585)

District	Applicants					
	Received degree		Did not receive degree		Total	
	n	%	n	%	n	%
1	28	90.3	3	9.7	31	100.0
2	23	60.5	15	39.5	38	100.0
3	41	73.2	15	26.8	56	100.0
4	37	72.5	14	27.5	51	100.0
5	31	75.6	10	24.4	41	100.0
6	29	63.0	17	37.0	46	100.0
7	18	72.0	7	28.0	25	100.0
8	40	87.0	6	13.0	46	100.0
9	30	73.2	11	26.8	41	100.0
10	30	76.9	9	23.1	39	100.0
11	16	84.2	3	15.8	19	100.0
12	26	72.2	10	27.8	36	100.0
13	19	57.6	14	42.4	33	100.0
14	8	28.6	20	71.4	28	100.0
15	33	71.1	21	38.9	54	100.0

Table 4

1982 State FFA Degree Applicants: Sex by Whether They Received the Degree

Sex	Applicants					
	Received degree		Did not receive degree		Total	
	n	%	n	%	n	%
Male	331	80.9	129	73.0	460	78.6
Female	78	19.1	47	26.7	125	21.4
Total	409	100.0	176	100.0	585	100.0

Table 5

1982 State FFA Degree Recipients by Sex  
(n=585)

Sex	Applicants					
	Received degree		Did not receive degree		Total	
	n	%	n	%	n	%
Male	331	72.0	129	28.0	460	100.0
Female	78	62.4	47	37.6	125	100.0

Table 6

1982 State FFA Degree Applicants: Scores by Program Area

Program area	Average total scores			
	Received degree		All applicants	
	Score	n	Score	n
Agricultural business	67.09	16	64.52	19
Agricultural-industrial equipment	48.40	35	42.21	50
Animal production and management	60.55	7	53.17	11
Environmental management	52.23	1	44.19	2
Agricultural products processing	68.40	5	64.91	7
Horticulture	48.65	40	44.56	60
Production agriculture	73.04	294	69.07	420
Resource conservation	59.74	11	55.99	16
Total	67.63	409	63.49	585

Table 7

*1982 State FFA Degree Applicants: Scoring Area Weights and Explained Variance in Achieving the Degree*

Scoring area	Percent of possible score	R <sup>2</sup>	Change in R <sup>2</sup>	Percent of variance
Agricultural experience program	20	.1175	.1175	37.9
Judging contests	5	.2135	.0960	31.0
Community activities	5	.2495	.0360	11.6
Improvement projects	5	.2636	.0141	4.6
Opportunity	5	.2740	.0104	3.3
FFA activities	10	.2816	.0076	2.5
Chapter activities	5	.2919	.0103	3.3
Scholarship	10	.3002	.0083	2.7
Record books	15	.3076	.0074	2.4
Net worth	10	.3094	.0018	0.6
Other school activities	5	.3097	.0003	0.1
FFA exhibits	5	.3097	0	0.0

Table 8

*Relationships Among Scoring Areas of 1982 State FFA Degree Applications*

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Scoring area	Opportunity	Ag exp program	Records	Net worth	Improv proj	Exhibits	Judging	FFA activities	Chapter activities	School activities	Community
Ag exp program	.08										
Records	.01	.06									
Net worth	.04	.47	.20								
Improv proj	.05	.14	.19	.25							
Exhibits	-.06	.20	.29	.44	.25						
Judging	.02	.09	.16	.21	.19	.24					
FFA activities	.01	.10	.26	.30	.26	.37	.38				
Chapter activities	-.03	.10	.36	.33	.31	.42	.29	.47			
School activities	.01	-.04	.16	.12	.09	.21	.16	.46	.33		
Community act	.08	.21	.24	.41	.24	.42	.30	.47	.40	.38	
Scholarship	-.01	-.13	.11	-.05	.07	.10	.17	.13	.17	.20	.01

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Geographic location also has some influence on applicants receiving the State FFA Degree. Applicants from Northwest Ohio had a higher success rate than did applicants from the remainder of the state. Applicants from Southeast Ohio had a relatively low success rate. Differences in the type of agriculture may have some influence.

There was also a slight differentiation among the success of applications on the variable sex. Male applicants had a higher success rate than did female applicants.

The differences among scores of the first applicants who received the degree can bolster two arguments. First, it is apparent that if all applicants were scored without regard to program area, the successful applicants would probably not be proportionately representative of the number of students in each program area. Production agriculture would tend to have more than its "fair share" of recipients. These data can also be used to argue that scoring applicants by program area tends to lower the quality of the overall group of recipients.

The proportion of explained variance in achieving the degree is not equal to the variance in scoring area maximum values. Three scoring areas account for over 80% of the variance. The other scoring areas nearly become insignificant.

There were also low to moderate relationships that existed between specific scoring areas. Some relationships would be expected, such as between the agricultural experience program score and net worth score, and between the various leadership activities scores. A low negative relationship existed between agricultural experience score and scholarship. There was no relationship between opportunity score and agricultural experience score; according to the scoring guidelines, this should be a negative relationship.

### Implications and Recommendations

1. The study should be replicated to determine whether the results are consistent over several years.
2. The scoring system may not measure the factors that it is supposed to measure. The values for each scoring area should be investigated to achieve the emphasis deemed desirable.
3. The relationship between opportunity score and agricultural experience score should be evaluated. Opportunity may not be in inverse of experience programs.

4. The study should be conducted in other states. Results of such studies could be useful in revising applications and scoring guidelines or in adopting guidelines in states where none exist.

5. The study should be expanded to include all applicants at the district level. Perhaps different relationships exist among the applicants when all applicants are included in the analysis.

### Summary

In summary, the scoring plan used to evaluate State FFA Degree applications in Ohio may have some serious flaws. The successful applicant tended to be a senior or graduate, not from Southeast Ohio, a male who achieved a high score in agricultural experience, judging contests, and community activities areas of the application. The question which is to be answered: Is this the way it should be?

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