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# Assessing College of Agriculture Freshmen

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## Abstract

Enrollments in colleges of agriculture declined dramatically during the 1980s, despite a strong demand in the marketplace for graduates with degrees in agricultural fields. This article is based on a survey of college of agriculture freshman majors and the factors influencing their decision to major in agriculture. Based on these findings, the authors develop a series of recommendations regarding student recruitment and marketing strategies.

## Introduction

Development and maintenance of a college-level educational curriculum is a never-ending process of assessment and revision. No more intensive process of evaluation has taken place than among the Colleges of Agriculture. In reaction to steady enrollment declines, Colleges now question the traditional avenues of student recruitment, including the relevance of agricultural curricula to contemporary educational needs.

Colleges of Agriculture have witnessed steadily declining numbers since 1977, when there were 98,000 students enrolled in four-year agricultural college programs in the United States. By 1990 the enrollment had declined to 60,512 (Litzenberg, et al., 1991).

Declining enrollments in agriculture are attributed to various factors, including: 1. decreased number of persons in the 15-19 year-old cohort, a cohort which will continue to decline in absolute numbers through 1995 (Hodgkinson, 1986:273); 2. decreasing farm population and the increasingly

urban orientation of the rural population; 3. the generally pessimistic image of U.S. Agriculture; and 4. the influence that parents, teachers and guidance counselors exert on high school graduates to consider non-agricultural careers (Lyson, 1982, Molnar, 1981).

One surprising fact is that declining enrollments have occurred at exactly the time that demand for agricultural graduates is on the increase. A USDA study in 1980 projected that the overall annual demand for agricultural college graduates will exceed the available supply by 13 percent or more through the year 2005. Recent articles in the *Chronicle of Higher Education* (Hutchinson, 1988) and the *American Society of Engineers Journal* (Rehkugler, 1989) note that Colleges of Agriculture are not able to meet the current demands for their graduates in the job market. The 1990-91 Report on Placement Data (an unpublished document) for the Agricultural Technical Institute, a two year branch campus of The Ohio State University, indicated that ATI graduates received an average of 3.1 job offers per graduate. The areas of highest demand included horticultural enterprises, agricultural businesses, food marketing and engineering technologies — each with ten job offers per student. Even students in the traditional agricultural production areas have an average of nearly three job offers from which to select after graduation. Starting salaries for 1990-91 ATI graduates ranged from \$15,000 to \$35,000 plus benefits. Hence it appears that job prospects and starting salaries in agriculture are increasing while enrollments in Colleges of Agriculture decline.

## Marketing Colleges of Agriculture

Some Colleges of Agriculture are addressing enrollment declines with comprehensive enrollment management programs, including Pennsylvania State University, Virginia Polytechnic Institute and the California Polytechnic Institute at San Luis Obispo, to mention a few. Also, NASULGC sponsored the first National Enrollment Workshop for Colleges/Schools of Agriculture at The Ohio State University in December, 1987. The program included sessions on coordinated marketing strategies, development of college recruitment publications, the use of scholarships for recruitment, and student retention programs. These sessions followed the philosophy and principles described by Keller (1983), Kotler and Fox (1985), Hossler (1986) and others who have promoted the concept that academic planning should strategically

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focus resources on such activities as comprehensive curriculum marketing and student retention programs.

Equally important from these authors' point of view is evaluation of student educational needs. The traditional conception of the College of Agriculture, however idealized, was that of educating successive generations of farmers. Today the teaching of production agriculture to farm youth is only one element in a wide ranging curriculum available to students from agriculture and other colleges within the university. Students from a variety of backgrounds prepare for careers in such diverse areas as agribusiness, agricultural finance, teaching and extension, agricultural journalism and communications, animal and plant genetics, plant pathology, landscape and turfgrass management and a host of agriculturally-related environmental areas.

### Assessing Agricultural Freshmen

Both student recruitment and curriculum evaluation should be tied to an assessment of student educational needs and goals. Curriculum development and student recruitment must rely upon a thorough knowledge of student motivations. One direct approach is to ask new students about their reasons for enrolling in agriculture and their career aspirations upon graduation (Schuster and Constantino, 1986).

This approach was taken in a survey of recently enrolled freshman agricultural majors (N = 217) at The Ohio State University. The survey focused primarily on three areas:

1. factors influencing freshmen's decisions to enroll in the College of Agriculture;
2. their opinions about agricultural education and agricultural research; and
3. their plans for agricultural careers and advanced graduate education.

The analysis of the survey results is presented in terms of the changing make-up of College of Agriculture students. First, no longer is there a dominant uniformity among students. When students were asked what sort of community environment they grew up in, 43 percent answered "farms," but nearly 19 percent reported growing up in cities larger than 10,000. The remainder were from smaller towns or rural non-farm (38 percent) environments.

A second point of analysis is between students who pursue majors in the social sciences (i.e., agricultural education, agricultural economics, rural sociology etc.) versus those planning to major in an area of natural science (i.e., agronomy, animal science, horticulture etc.). The breakdown on the question of major was as follows: 54 percent had declared a natural science major and 32 percent had declared a social science major. The remainder were undecided at the time of the survey.

### Factors Influencing Enrollment Decisions

On a scale of 1 to 5 ("not influential" to "extremely influential"), 27 factors related to the decision to enroll in the College of Agriculture were listed in the survey. The factors were grouped into five major types: 1. financial incentives; 2. values; 3. family and friends; 4. teachers, extension workers

and others; and, 5. exposure to agriculture. A summated mean (i.e., the average of individual mean scores) was computed for each major type. Individual factor means and ranks are reported in Table 1, along with an indication as to whether or not the factor was significantly more influential by community environment (city vs. rural non-farm/town vs. farm) and by major (social science vs. natural science). Cross-tabular analysis of the frequency distributions employing chi-square and Cramer's V were used to determine significance of background and major.

The five highest rated individual factors influencing decisions to enroll in the College of Agriculture in their order of importance were: prior experience in agriculture, preference for rural living, a desire to work with animals, good job opportunities and influence of parents. Four of the five factors indicate traditional motives for enrolling in agriculture (Lyson, 1982). However, the perception of good job opportunities is surprising given that the survey was conducted during the height of publicity about the farm crisis, although Schuster and Constantino (1986:6) had similar findings. The results here indicate that the freshmen may be referring to jobs in agribusiness rather than farming per se.

Two of the top five factors were "values," which was the highest rated of the five major types. Preference for rural living and a desire to work with animals were most likely to be mentioned as influential by farm youth. Likewise both prior experience in agriculture and influence of parents were also more likely to be mentioned by freshmen with farm backgrounds.

The second most influential set of factors was financial incentives. However, only job opportunities ranked in the top half among all factors.

The third highest rated area was exposure to agriculture. However, three of the five factors therein were ranked near the bottom in their influence on enrollment. These three included the mass media factors of radio/television, newspapers/news magazines and farm journals. Stories and articles about farming appeared to have had the least influence on decisions to enroll in the College of Agriculture and this was true regardless of background. This finding brings doubt to the effectiveness of media oriented enrollment marketing campaigns. It would be expected that entering freshmen from farm backgrounds, many of whom are already pre-disposed to enter an agricultural profession, would not rate the media as influential (Lyson, 1979). However, it might be supposed that media stories would be useful for students with city backgrounds and even those from rural non-farm and small town backgrounds. This does not appear to be the case and suggests that media dominated strategies are not likely to work. Use of the media in recruitment is perhaps most effective when integrated into a more general plan stressing values, job opportunities and direct exposure to agriculture through work or high school.

Despite the importance of parents as a factor influencing enrollment decisions, over-all family and friends was ranked fourth among the five major types of factors. Teachers, extension workers and others in a position to counsel high

**Table 1 Factors Influencing Freshmen Decisions to Enroll in the College of Agriculture**

FACTOR (significant factor indicated)	MEAN SCORE	RANK	BACKGROUND	MAJOR
<b>FINANCIAL INCENTIVES</b>	<b>1.60</b>	<b>SECOND</b>		
Scholarship (N=213)	1.40	13th (tie)	City	
Agriculture Ensures a Good Income (N=212)	1.18	15th		
Good Job Opportunities (N=215)	2.20	4th		
<b>VALUES</b>	<b>2.15</b>	<b>FIRST</b>		
Desire to Help Others (N=212)	1.90	6th		
Preference for Rural Living (N=213)	2.80	2nd	Farm	
I have always wanted to work with plants (N=212)	1.40	13th (tie)		
I have always wanted to work with animals (N=213)	2.59	3rd	Farm	Natural Science
<b>FAMILY AND FRIENDS</b>	<b>1.40</b>	<b>FOURTH</b>		
Parents (N=212)	2.16	5th	Farm	
Sister or Brother (N=213)	0.99	21st (tie)		
Other Relatives (N=212)	1.50	9th (tie)	Farm	Natural Science
High School Friend (N=212)	1.06	18th (tie)	Rural non-farm/Town	Social Science
College Friend (N=212)	1.50	9th (tie)		
<b>TEACHERS, EXTENSION WORKERS, AND OTHERS</b>	<b>1.07</b>	<b>FIFTH</b>		
College of Agriculture Alumni (N=211)	1.48	12th		
High School Science Teacher (N=212)	0.80	23rd		
Extension 4-H Agent (N=212)	1.08	16th (tie)	Rural non-farm/ Town	Social Science
High School Home Ec Teacher (N=211)	0.20	27th		Social Science
Extension Agriculture Agent (N=211)	1.08	16th (tie)	Farm	Social Science
Volunteer 4-H Leader (N=211)	1.00	16th (tie)	Rural non-farm/ Town	Social Science
High School Counselor (N=211)	0.99	21st (tie)		
Vocational Agriculture Teacher (N=212)	1.60	8th	Farm	Social Science
Veterinarian (N=211)	1.49	11th		Natural Science
High School Principal (N=212)	0.50	26th		Social Science
<b>EXPOSURE TO AGRICULTURE</b>	<b>1.45</b>	<b>THIRD</b>		
Prior Experience in Agriculture (N=214)	3.10	1st	Farm	Social Science
Radio or TV Programs About Food Production (N=212)	0.58	25th		Natural Science
Newspaper or News Magazine Article about Food Production (N=212)	0.70	24th		Social Science
Farm Journal or Special Magazine Focused on Food Production (N=211)	0.99	21st (tie)		
Had Agricultural Courses in High School (N=212)	1.86	7th	Farm	Social Science

school students into a College of Agriculture were ranked as least influential of all. These results are significant for the development of recruitment strategies because of the many attempts to use high school counselors and a whole host of "significant others" to influence enrollment decisions. The results among College of Agriculture freshmen indicate that such recruitment strategies by themselves will have limited success.

Beside background, Table 1 also shows differences in influences between those majoring in the social sciences versus those in the natural sciences. There were a number of instances in which a particular factor was more influential for either social science or natural science majors. Although the results are somewhat mixed, the overall pattern suggested in Table 1 is that social science majors seem more influenced

to enroll in the College of Agriculture due to interpersonal channels of communication. Social science majors were more greatly influenced by high school friends, the extension 4-H agent, the home economics teacher, the extension agricultural agent, volunteer 4-H leaders, the vocational agriculture teacher and the high school principal. As well, social science majors, when compared to natural science majors, were more influenced by prior experience in agriculture and having taken agricultural courses in high school. In comparison, natural science majors were influenced more by a desire to work with animals, influence of relatives, influence of a veterinarian and news stories about food production.

The overall conclusion to be reached from Table 1 is that a myriad of diverse factors seems to influence the decision of those who chose to enroll in a college of agriculture. No one

single dimension was predominant (Schuster and Constantino, 1986). The implication is that recruitment programs must be multi-faceted; that is, they must address a series of interrelated activities to promote interest in agricultural curricula (Keller, 1983).

## Conclusion

While the survey represents a one time sampling of freshmen agricultural students at a single land-grant university, the data and observations can be used to make several general statements about recruitment and curriculum.

Effective student recruitment programs must recognize the diverse factors influencing decisions to enroll in colleges of agriculture. The most influential factors were not limited to a single dimension (Schuster and Constantino, 1986). This is illustrated by the diversity apparent in the top five factors alone. Two were related to values (preference for rural living, desire to work with animals), one was a financial incentive (good job opportunities), one referred to exposure to agriculture (prior experience in agriculture) and one was associated with family support (influence of parents). Furthermore, the importance of some factors varied with the residential background and major of the student. Four of the top five factors, the only exception being the factor of good job opportunities, were more important for students from a farm background than those from small towns and cities. Yet, from a demographic point of view, it is from urban areas that Colleges of Agriculture must look for their future supply of students.

Use of mass media, while intuitively attractive from the viewpoint of a contemporary marketing philosophy, may have minimal impact on student decisions to enroll in Colleges of Agriculture. While radio, television, magazines and farm journals will continue to be essential elements of a college's recruitment marketing plan, their cost-effectiveness must be questioned by the results from the Ohio State study as well as those of other researchers (Lyson, 1979, 1982; Molnar and Dunkelberger, 1981).

This study also confirms what many others have already observed: that over-reliance on high school teachers, high school counselors and extension workers represents an outmoded enrollment strategy.

Recruitment programs will not achieve desired results if they depend too much on only one or two recruitment methods. The more effective approach appears to be multi-strategic, geared to providing separate appeals to rural/farm youth, small-town youth and city youth. Agricultural careers need to be re-defined in terms that are consistent with the motivations of potential students from non-traditional sources, without neglecting potential students from traditional sources.

In conclusion, perhaps the inference to be drawn from declining college of agriculture enrollment coupled with the

apparent increased job demand for agriculture graduates as follows: As the nature of today's agriculture changes, positions within agriculture and agribusiness traditionally held by agriculture graduates will be increasingly filled by graduates from non-agricultural fields. The implication being that if the Colleges of Agriculture do not supply graduates for these agriculture-allied fields, other colleges within the university will. Increasing enrollment is the key to assuring the continued relevance of agricultural college curriculums within the land-grant university system.

## References

- Agricultural Technical Institute Placement Office (1986), *Annual Report*. Wooster, Ohio: Agricultural Technical Institute.
- Franklin, Peter (1990), "Employers Flock to Ag Schools," *The Columbus Dispatch*, Sunday, January 28.
- Hodgkinson, Harold L. (1986), "Reform? Higher Education? Don't Be Absurd!" *Phi Delta Kappan* (December), 271-274.
- Hossler, Don (1986), *Creating Effective Enrollment Management Systems*. New York: College Board Publications.
- Hutchinson, Fred (1988), "Agricultural Schools are not able to meet the demand for their Graduates." *Chronicle of Higher Education*, August 10, p. 6.
- Keller, George (1983), *Academic Strategies: The Management Revolution in American Higher Education*. Baltimore, Maryland: The Johns Hopkins University Press.
- Kotler, Philip and Karen F. A. Fox (1985). *Strategic Marketing for Educational Institutions*. Englewood Cliffs, New Jersey: Prentice-Hall Inc.
- Litzenberg, Kerry K., Dwayne A. Suter and Sheri Stebenne Whatley (1991), "Summary of Fall 1990 Enrollment in Colleges of Agriculture of NASULGC Institutions." *NACTA Journal* (June), 4-11.
- Lyson, Thomas A. (1979), "Going to College: An Emerging Rung on the Agricultural Ladder." *Rural Sociology* 44 (Winter), 773-790.
- Lyson, Thomas A. (1982), "Stability and Change in Farming Plans: Results from a Longitudinal Study of Young Adults." *Rural Sociology* 46 (Spring), 544-556.
- Molnar, Joseph J. and John E. Dunkelberger (1981), "The Expectation to Farm: An Interaction of Background and Experience." *Rural Sociology* 46 (1), 62-84.
- Rehkugler, Nancy C. (1989), "Where have all the Agriculturalists Gone." *American Society of Engineers* (June), 2.
- Riebe, Fritz and K. Maksymicz (1991), "1990-1991 Placement Data for the Ohio State Technical Institute." December 19. unpublished report.
- Schuster, Camille P. and Paul Constantino (1986), "Using Marketing Research to Develop Student Recruiting Strategies." *NACTA Journal* XXX (2): 4-8.
- U.S. Department of Agriculture (1984). *The Nation's Largest Industry*. United States Department of Agriculture, Office of Information. Washington, D.C.
- Western Commission for Higher Education (1988), "High School Graduates. Projection by States. 1981 to 2004." Western Commission for Higher Education. Boulder, Colorado. March.