

Students show low awareness of agricultural careers

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Young people are not being attracted into agricultural careers in the numbers needed. A report by the National Association of State Universities and Land-Grant Colleges Resident Instruction Committee on Organization and Policy in 1982 indicated that 13 percent of the jobs in the total food and fiber industry are unfilled or are filled by underqualified persons. Enrollment in agricultural colleges across the nation has declined 25 percent since 1978. Enrollment in some subjects has declined even more. Since 1977, the University of California, Davis, has experienced a 70 percent drop in Pest and Disease Management majors and a 40 percent decrease in the number of students majoring in Plant Science.

The enrollment drop seems due in part to a decline in the rural population. Most students entering colleges now come from urban and suburban areas and form their images of agriculture from newspaper headlines and television featuring negative events. Dean Hegwood, of the University of Maryland Agricultural College declared, "To paraphrase the old song, 'How do you keep them down on the farm after they've seen the morning paper?'" This negative view of agriculture is not unique to high school students. A 1985 Gallup sur-

vey showed that the general public considers farming to be an important industry, but among 10 occupations given, farming was the first choice of only 6 percent and the last choice of 16 percent of the sample. When asked about farming as a career for their children, people placed it on a par with military careers and only ahead of truck driving in desirability.

To investigate why fewer high school students were enrolling in agricultural colleges, the Dean's Office of the UC Davis College of Agricultural and Environmental Sciences commissioned a survey on high school students' attitudes toward agricultural majors and careers.

Survey of high schools

Based on earlier research into high school students' career choices, a 27-item questionnaire was constructed in multiple-choice format along with space for students to write in additional comments. Questions concerned the students' career goals, educational plans, attitudes towards agricultural careers, and likelihood of enrolling in an agricultural major and working in an agricultural field, along with demographic information. We administered the questionnaire at seven high schools within a 100-mile radius of Davis to include rural high schools (Arbuckle and Ceres), suburban schools (Stockton and Concord), and urban schools (Oakland and two high schools in Sacramento). With the permission of school authorities, we conducted the survey in Science, Government, and English classes. Between 54 and 119 students participated at each school for a total of 613 returns. To equalize the groups of urban, suburban, and rural students, we deleted random cases to yield a final sample of 540: 180 urban, 180 suburban, and 180 rural students. The sample was well balanced for gender (51 percent female, 49 percent male) and ethnic diversity (54 percent white, 46 percent minority). Most of these students said they were college-bound and believed that they had the ability to complete college. In addition to the questionnaires, we held group discussions with minority high school students on ways to attract more of them into agricultural careers.

Results

When asked how they would like a career in agriculture for themselves, about

equal percentages were positive (29 percent) and negative (30 percent), and the largest number expressed uncertainty (41 percent). Rural students and those who had lived on a farm themselves or whose parents had worked in agriculture were significantly more positive. Although 29 percent thought they might like an agricultural career, only 17 percent reported that they had considered this possibility, and only 12 percent thought it likely that they would work in agriculture someday. Farm experience promoted consideration of an agricultural career and males were more likely to think of working in agriculture than were females (table 1). Among white students, the percentage who expected to work in agriculture was lower than the number who had considered this as a career, but among minority students, the number expecting to work in agriculture exceeded the number who had previously considered such a career. Perhaps the minority students expected to work temporarily in agriculture but to build a career in some other field, or perhaps they believed they would have no choice.

In an effort to determine the influence of various factors in the career choices of high school students, the survey presented eight positively worded job characteristics and asked how important each would be in the student's choice of a career. A stable and secure future was the top priority, 84 percent rating it as "very important" (table 2). Second was making a good income, then working with people, and use of one's special talents. The least important factors were being one's own boss and holding a respected position in the community. Later in the survey, each student was asked to rate a career in agriculture using the same phrases to be rated as "very true," "partly true," or "false" with reference to a career in agriculture. Table 2 reveals a negative correlation ($Rho = -.76, p < .05$) between the student's career objectives and how agriculture was viewed. Those areas in which agriculture was rated highest — being one's own boss and making a contribution to society — were the lowest items in the student's career objectives.

An agricultural career was seen as involving outdoor, natural, and healthful hard work (page 6). Students also thought that such work was masculine, independent, safe, blue-collar, and boring. Rural students rated agricultural careers as more interesting and independent than did other students, but they also described it as less safe. Urban students perceived an agricultural career as more boring, low paying, and dependent and safe. Males were more inclined than females to rate agricultural careers as satisfying, interesting, masculine, and easy to learn.



Many high school students were surprised to learn that careers in agriculture weren't restricted to farming.

Students then evaluated 12 agriculture-related careers from most to least exciting. Although 14 percent of the students didn't know about aquaculture and biotechnology, these fields ranked with environmental management and genetic engineering as being among the most exciting. Next came applied economics, applied biology, farming, and community nutrition. Food safety, food science, toxic waste, and plant science were ranked the least exciting careers. Students were

asked to rate their interest in 11 majors offered by the UC Davis College of Agricultural and Environmental Sciences. Highest ratings were given to human development, which 69 percent found interesting, followed by design and animal science, environmental studies, nutrition and community studies, food science, agricultural economics, soil and water science, plant science, and textiles, in that order. This ranking roughly corresponds to their respective enrollments at UC Davis. We

used factor analysis to distill groupings of the 23 titles as the students perceived them, so that we could make some generalizations about the career areas and majors. The method of analysis used (varimax rotation) yielded the following three factors:

□ Community nutrition, which included the following majors and career areas: community nutrition, food safety, nutrition, food science, human development, community studies, applied economics, environmental management, and design.

□ Applied biology, including applied biology, biotechnology, genetic engineering, toxic waste management, aquaculture, and plant science as a career.

□ Agricultural science, covering soil and water science, plant science as a major, environmental studies, textiles, animal science, agricultural economics, and farming.

By averaging the interest/excitement ratings of the various careers and majors in each factor grouping, we were able to compare them with career interests. For the group as a whole, applied biology was the most interesting/exciting area, with an average 60 percent rating these careers and majors as exciting. Next came community nutrition, which was interesting to 49 percent of the students. The agriculture factor was least appealing to the sample as a whole, with an average of 36 percent rating these careers and majors as exciting.

These factors provided a basis for examining career choices by gender, ethnicity, type of school, and other factors. Females rated the community nutrition area as significantly more interesting/exciting than did males, but there were no sex differences on the other two factors. Urban and suburban students rated applied biology much higher than did rural students, with no differences on the other two factors for type of school. Ethnic differences reached significance both on community nutrition, with Blacks, Hispanics, and Asian-Americans more interested, and on applied biology, where Asian-American students expressed more interest than did other ethnic groups. High school rank was also related to interest in applied biology; students with higher class standing found it more interesting than did those with lower standing.

The degree to which students thought they would like a career in agriculture was positively correlated with interest in each of the three factors. Those with parents who worked in agriculture gave higher ratings to community nutrition and agricultural science. Having lived on a farm increased ratings for applied biology and agricultural science.

Students who said they wished to work someday in education, homemaking, or

TABLE 1. Career plans as related to demographic characteristics

Item	n	Have you ever considered a career in agriculture? Percentage responding			Realistically, do you think you will ever work in agriculture? Percentage responding		
		Yes	No	Don't know	Yes	No	Don't know
Sex							
Male	275	23.2	68.4	8.4	16.0	54.4	29.7
Female	265	11.6	81.9	6.5	9.0	65.0	26.0
School							
Urban	180	8.9	83.3	7.8	5.6	73.9	20.6
Suburban	180	10.0	83.3	6.7	8.3	56.7	35.0
Rural	180	32.8	59.4	7.8	23.3	48.9	27.8
Ever live on farm?							
Yes	146	38.1	52.9	9.0	29.0	42.6	28.4
No	394	8.6	84.6	6.8	5.7	66.9	27.3
Ethnic identity							
White	289	24.2	68.2	7.6	11.4	62.6	26.0
Black	70	1.4	93.0	5.6	4.2	59.2	36.6
Hispanic	73	13.7	79.5	6.8	19.2	50.7	30.1
Asian-American	62	11.3	79.5	9.7	16.1	61.3	22.6
Native American	11	36.4	54.5	9.1	36.4	36.4	27.3
Other	35	2.9	91.2	5.9	8.8	61.8	29.4
Total group	540	17.2	75.4	7.4	12.4	59.8	27.8

TABLE 2. High school students' ratings of job characteristics as related to career choices and to agriculture

How important are these factors in your choice of a career?							How well does each phrase describe a career in agriculture?						
	Rank	(Mean)	Percent responding				Rank	(Mean)	Percent responding				
			Very	Some- what	Not important	Don't know			Very true	Some- what	False	Don't know	
A stable and secure future	1	(2.85)	84.8	12.0	1.3	1.9	8	(1.82)	12.4	49.3	28.7	9.7	
Earn lots of money	2	(2.55)	58.7	35.7	4.3	1.3	7	(1.88)	11.1	52.0	20.7	16.1	
Opportunity to work with people	3	(2.51)	57.8	34.4	6.7	1.1	3	(2.29)	39.3	44.6	11.3	4.8	
Use of special talents	4	(2.49)	53.7	38.9	5.0	2.4	4	(2.07)	24.1	48.0	17.4	10.6	
Permits creativity or originality	5	(2.41)	47.2	43.0	7.2	2.6	6	(1.89)	12.2	54.8	21.7	11.3	
Respected position in community	6	(2.32)	46.5	37.4	14.4	1.7	5	(2.06)	20.6	54.4	14.8	10.2	
Make a contribution to society	7	(2.33)	41.7	44.3	10.4	3.7	1	(2.53)	56.1	33.1	5.7	5.0	
You can be your own boss	8	(2.12)	32.8	45.0	20.7	1.5	2	(2.39)	41.5	40.4	6.7	11.5	

public service were more interested in the community nutrition area. Those wanting to work in business or government or as private professionals expressed more interest in applied biology. Those intending to work as private professionals were significantly less interested in the agricultural sciences factor, which was of greatest interest to those desiring farm or ranch work or homemaking as their future occupation. The agricultural sciences factor was liked more by those whose friends were considering an agricultural college and by those whose parents expressed a preference that their child attend an agricultural college.

Fourteen percent of the students felt that their parents would prefer them to attend a college of agriculture, 25 percent felt that their parents would prefer another type of college, and 61 percent reported no parental preference. Finally, the survey asked students whether anyone had ever suggested that they attend a college of agriculture. A discouraging 78 percent replied that no one had ever made such a suggestion. Only 2 percent (11 students) had a high school counselor suggest agricultural college, and 6 percent had a teacher suggest it.

Written comments at the end of the questionnaire could be broadly grouped into six categories:

- ☐ Not interested in agriculture; agriculture seems boring (23 percent).
- ☐ I don't know much about agriculture; people need to know more about it (22 percent).
- ☐ Agriculture is important, but not for me. I have other career plans; the survey introduced new career ideas (14 percent).
- ☐ Agriculture would make a bad career; it doesn't pay well (11 percent).
- ☐ I like agriculture (10 percent).
- ☐ Specific comments about UC Davis (9 percent).

The comments showed a narrow conceptualization of agriculture as restricted to farming. Often students expressed surprise to learn about the breadth of career opportunities in agriculture, and some expressed dismay that they were learning of these opportunities during the last quarter of their senior high school year — a time when, in their view, it was too late to choose a new plan for college and career. Several suggested that the survey would have been more helpful if it had been administered to them as freshmen, or if a speaker had come to talk to the

students about agricultural careers early in high school.

Two special discussion groups, which involved minority students, were specifically directed toward creative problem-solving for increasing minority enrollment in agricultural colleges. The two main reasons students mentioned for not being interested in agricultural careers were a lack of knowledge and the belief that agriculture involves a financially risky line of work. Many indicated that they had never considered a career in agriculture because they had not been exposed to the types of work and study involved. When asked for suggestions on ways to increase enrollment in agricultural colleges, students most often suggested increased publicity about the availability of jobs in the agricultural sector, the financial rewards for college-educated people in agricultural fields, and breadth of career opportunities beyond farming per se, including the modern, technological aspects of agricultural research and agribusiness careers.

Overview

The survey indicated that fewer high school students were interested in attending a college of agriculture because they were unaware of the wide range and availability of careers in agriculture. Although they recognize the importance of agriculture for food production, they don't associate it with food processing, distribution, sales, international trade, or its supporting industries. Nor do they think of resource management, the fiber industry, or the fast-growing fields of biotechnology and genetic engineering as agriculture-related careers.

The typical student in our sample sought a career in the city, in a business or industry that promised a secure future, good money, involvement with computers and new technology, and a chance to use his or her special talents in a creative way. The typical student did not realize that these objectives could be achieved through a major in an agricultural college.

After completing the survey, several students expressed new interest in exploring the possibilities of going to an agriculture college, because they found career areas that interested them among the majors and careers mentioned in the questionnaire. The wide range of occupations for which one can prepare in an agricultural college had clearly not reached these high school students through teachers, counselors, or other information channels.

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