

Participant Perceptions About Agricultural Careers

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Introduction

Perception is reality. If high school students perceive a career in agriculture to be associated with manual labor, low salaries, contingent upon weather conditions, unstable job security and equivalent to farming; they will be less likely to pursue a career in agriculture (Betts & Newcomb, 1986; Farm Foundation, 1989). Unfortunately those perceptions regardless of being fact or fiction, provide an important reference point used by individuals to determine their career choice.

Nationally enrollments in colleges of agriculture declined 30% between 1977 and 1983 (Coulter, 1985). Enrollments somewhat stabilized in the late 1980s (NACTA, 1990); however, the projected demand for college graduates with expertise in food, agriculture, and the natural resources far exceeds the supply throughout the 1990s. While colleges of agriculture search for reasons and ultimately solutions to declining enrollments additional evidence begins to reveal the complexity of the problem. Several studies conducted in response to declining enrollments in colleges of agriculture indicate high school students' lack of general knowledge about agricultural careers, and they have a poor image of agriculture (Coulter, 1985; Mallory & Sommer, 1986; Farm Foundation, 1989). At the postsecondary level this perception is also evident. Love and Yoder (1989) found that three-quarters of non-agricultural college students and one-half of agricultural college students perceived agriculture to be synonymous with farming/ranching and crop/livestock production.

Such perceptions coupled with attitudes held by students about agricultural salaries, working conditions and variable job security begins to crystallize the dilemma. How are colleges of agriculture responding to declining enrollments? And perhaps most important how are they changing the "image" of agriculture? The primary recommendation/recruitment strategy to increase enrollment in colleges of agriculture is to convey agriculture as a dynamic, diverse industry which offers a variety of career opportunities (Betts & Newcomb, 1986; Carter & Leibold, 1987; Coorts, 1987). Carter and Leibold (1987) recommend sharing information

about opportunities in agriculture through literature, student ambassadors, and recruiters. Betts and Newcomb (1986) suggest working with science teachers in urban areas and providing them with interesting agricultural information that can be integrated into classes. Smith (1989) and Coorts (1987) challenge colleges of agriculture to integrate communication, leadership, and social skills along with a perspective of world issues and cultures into curricula. Additionally, Love and Yoder (1989) recommend the formation of a national commission to develop strategies for informing students about agricultural careers.

Pennsylvania Governor's School For The Agricultural Sciences

One way to introduce potential agriculture students to the diverse and dynamic field of agriculture is to actively expose and involve them in an agricultural experience prior to graduation from high school. For the past five years the Pennsylvania Governor's School for the Agricultural Sciences (PGSAS) has involved over 300 students in a residential agricultural enrichment program at the University Park campus of The Pennsylvania State University. This five-week intensive program is for academically outstanding high school sophomores and juniors who have demonstrated exceptional ability in the sciences or who have a high interest in some phase of agriculture (Mortensen, 1989).

The curriculum provides each student with a myriad of opportunities to explore the science, technology and policy of food, agriculture and the natural resources. In addition to scheduled classes, seminars, laboratory sessions and field trips, each participant works with a faculty mentor to design and conduct a research project which yields results and can be completed in five weeks. (Mortensen, 1989, p.25)

What is the payoff from participation in such an experience? Some individuals have raised questions whether such as experience impacts on participants subsequent selection of a college major or in changing perceptions regarding agricultural careers. What is the relationship between participation in PGSAS and subsequent enrollment in colleges of agriculture? Forty-seven percent of the 238 students who participated in the PGSAS from 1986 to 1989 are enrolled at the Pennsylvania State University and 30% of those students are enrolled in The College of Agriculture. Beyond the relationship of participation in PGSAS and matriculation

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into agricultural colleges, it is important to investigate whether perceptions about agricultural careers change following participation in PGSAS.

Purpose and Objectives

The purpose of this study was to compare perceptions regarding selected agricultural careers prior to and following participation in PGSAS. The following objectives were formulated:

1. To compare the perceptions of students toward selected agricultural careers.
2. To compare the attitudes of students concerning a future career in agriculture.
3. To describe attitudinal changes toward agricultural career work conditions.

Procedures

The population for this study was all 64 students enrolled in the Pennsylvania Governor's School for Agricultural Sciences during summer 1990.

Data Collection

Data were collected summer 1990 via a self-administered questionnaire which was developed by Sommer (1985). Content and face validity were established by a panel of experts consisting of faculty and graduate students within the Department of Agricultural and Extension Education at The Pennsylvania State University. Data were collected at the beginning and end of PGSAS (July 1 to August 4, 1990). Sixty-three students completed the questionnaire. Data were analyzed using descriptive statistics, including frequencies, percentages, and measures of central tendency.

Results

Data were collected from 63 students enrolled in the PGSAS 1990 before and after participation in the program. Fifty-eight percent were female, and the majority (84%) reported that they were enrolled in the college preparatory curriculum at their respective high schools. Respondents reported 67% of their fathers and 59% of their mothers held

a college degree. Thirty-nine percent indicated they lived/live on a farm; however, when asked where they would like to reside when they settle down: only 23% noted they would like to live on a farm. The majority (60%) indicated that they would like to live in a suburb, town, small or medium town; 14% indicated they would like to live in a large city.

Perceptions Toward Agricultural Careers

Participant responses regarding how exciting selected agricultural careers appear in Table 1. Students were asked to indicate how exciting selected careers in agriculture were using a 5-point scale ranging from "very exciting to dull." Students could also respond "don't know" to this question. Students did formulate perceptions about agricultural careers following exposure to these careers during their tenure at PGSAS. Before participation in PGSAS, one of five students indicated that they did not know how exciting a career in aquaculture would be and one of six did not know how exciting a career in biotechnology would be. However, almost one-half of the students rated biotechnology and genetic engineering as the two most exciting agricultural careers (46.8% and 46%, respectively) after participation in PGSAS. Students perceived community nutrition related and toxic waste careers as the two least exciting career areas (47.6% and 46%, respectively) after participation in PGSAS.

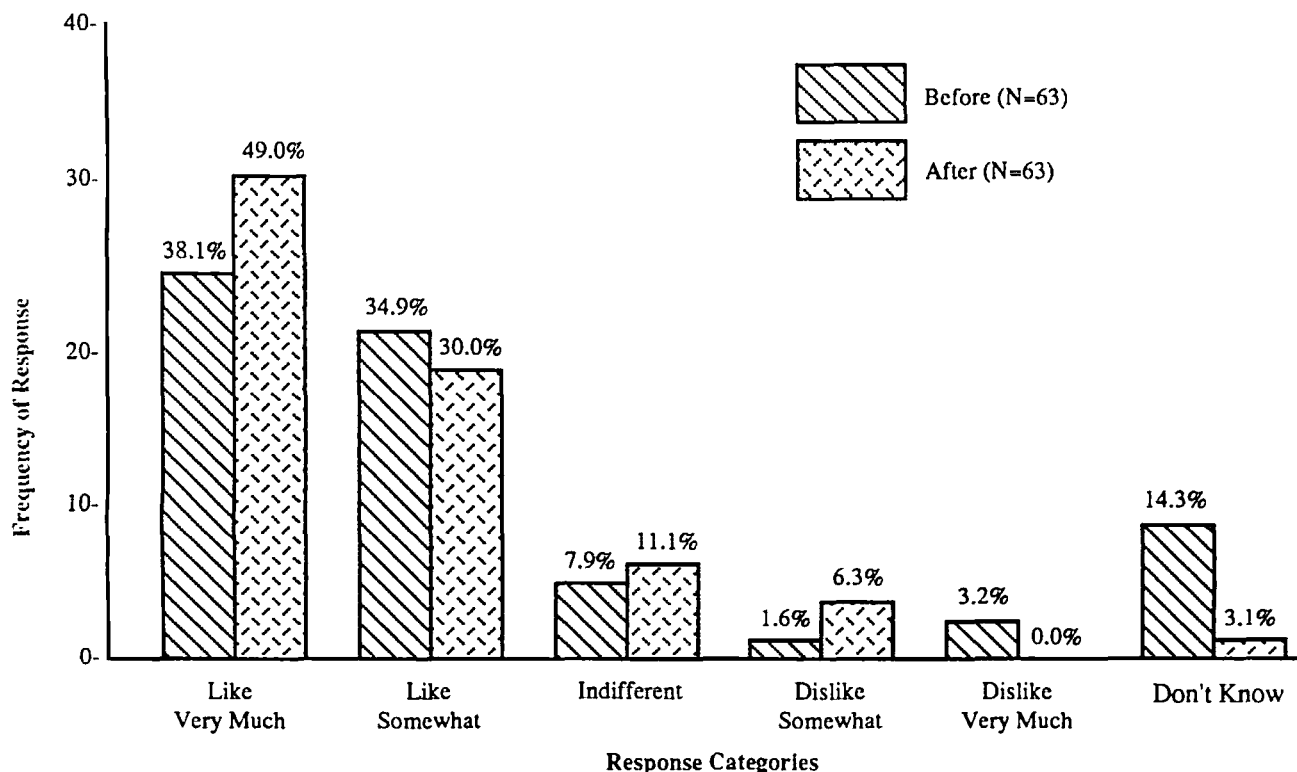
Attitudes Concerning Agriculture Careers

Students were asked to respond to a statement indicating if they would like a career in agriculture using a 6-point scale ranging from "like very much" to "dislike very much." Students could also respond "don't know" to this question (see Figure 1). Seventy-three percent of the students indicated before participation in PGSAS that they would "like/very much like" to enter an agricultural career. After participation in PGSAS over three quarters (79%) of the students indicated that they would "like/very much like" to enter into an agricultural career. Fourteen percent of the students indicated they "didn't know" if they would like a career in agriculture before participation in PGSAS, only 3% responded they "didn't know" if they would like an agricultural career after participation in PGSAS.

Table 1. Distribution of Responses Regarding How Exciting Selected Agricultural Career Areas were Perceived Before and After Participation in 1990 PGSAS.

Career Area	Very Exciting		Moderately Exciting		Slightly Exciting		Dull		Don't Know	
	Before*	After*	Before	After	Before	After	Before	After	Before	After
	%		%		%		%		%	
Aquaculture	9.5	19.0	31.7	39.7	25.4	30.2	11.1	6.3	22.2	4.8
Genetic engineering	38.1	46.0	42.9	36.5	12.7	14.3	4.8	3.2	1.6	0.0
Applied biology	37.1	34.9	25.8	39.7	22.6	15.9	9.7	6.3	4.8	3.2
Food science	7.9	12.7	31.7	28.6	34.9	34.9	17.5	22.2	7.9	1.6
Plant science	12.7	17.5	23.8	36.5	27.0	30.2	27.0	15.9	9.5	0.0
Applied economics	3.2	4.8	15.9	19.0	19.0	34.9	47.6	39.7	14.3	1.6
Farming	16.1	12.7	16.1	23.8	14.5	25.4	41.9	27.0	11.3	11.1
Biotechnology	33.3	46.8	39.7	30.6	7.9	16.1	3.2	4.8	15.9	1.6
Toxic waste specialist	6.5	7.9	17.7	15.9	27.4	25.4	35.5	46.0	12.9	4.8
Food safety specialist	3.2	6.3	17.5	15.9	42.9	33.3	31.7	42.9	4.8	1.6
Environmental mgmnt	29.5	32.3	19.7	25.8	27.9	16.1	14.8	19.4	8.2	6.5
Community nutrition	8.1	7.9	14.5	9.5	30.6	33.3	40.3	47.6	6.5	1.6

Figure 1. Perceptions of Participants Toward a Career in Agriculture Before and After Participation in 1990 PGSAS.



Description of Attitudinal Changes

Participants in PGSAS were asked what a career in agriculture meant to them personally. Perceptions were reported on a scale consisting of bipolar occupational conditions (see Figure 2). Students' perceptions about agricultural occupational conditions remained fairly constant even after exposure and participation in PGSAS.

PGSAS participants, prior to and after their participation: perceived agricultural careers to require hard work, offering moderate pay and having moderate prestige. Generally the perceptions of the participants were clustered in the center of the bipolar scales reflecting perceptions that were not strong in either direction.

Conclusions

This study provides additional insight concerning students' perceptions about agricultural careers. However, evidence suggests that the findings in this study correlate with findings in other studies, again emphasizing the need to educate all students about careers in agriculture. Based upon the results of the study several conclusions were formulated.

First, even though almost three-quarters (73%) of the students entering the PGSAS indicated they were interested in an agricultural career, they still lack a basic knowledge base about several agricultural career areas. This result is consistent with the findings of Coulter (1985), Mallory and Sommer (1986), Farm Foundation (1989) and Love and Yoder (1989). Following participation in PGSAS, over three-fourths (79%) of the students indicated they would like to enter into an agricultural career and their knowledge base

concerning several career areas expanded sufficiently for them to respond to questions related to specific agricultural careers. (PGSAS continued bottom of next page.)

Figure 2. Perceptions of Students Toward Occupational Conditions Related to an Agricultural Career.

	Bipolar Scale				
	1	2	3	4	5
Low prestige	•*			High prestige	
Mean Pretest (2.97)	(N=59)			(2.80) Mean After	
Dangerous	*•			Safe	
Mean Pretest (3.29)	(N=59)			(3.19) Mean After	
Poor pay	•*			Good pay	
Mean Pretest (2.65)	(N=60)			(2.68) Mean After	
Hard work	•*			Easy work	
Mean Before (1.72)	(N=60)			(1.92) Mean After	
Insecure	*•			Secure	
Mean Before (3.42)	(N=60)			(3.30) Mean After	
Blue collar	*•			White collar	
Mean Before (2.92)	(N=60)			(2.87) Mean After	
Muscle	•*			Brains	
Mean Before (3.17)	(N=60)			(3.17) Mean After	
Indoor	*•			Outdoor	
Mean Before (3.73)	(N=60)			(2.68) Mean After	

• = Before Participation in PGSAS
* = After Participation in PGSAS

Video-taped Food Science Courses for the Food Industry

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Abstract

Improving food industry employee education has been a difficult process in the past. However, with current low cost access to video cassette recorders, students can take video-taped college courses at home or at work. For example, Kansas State University offers 43 semester hours of video-taped food science courses. Although some of these courses require short periods of on-campus laboratory experiences, 35 hours may be taken through independent study without the student coming to campus. Prompted by USDA-FSIS introduction of food technologists (series 1382), KSU developed a Continuing Education Food Science Program to meet both the educational needs of the USDA food inspectors and the academic quality standards of the university. Using video cassettes, audio cassettes, and guided independent studies, an educational program was made available to students unable to follow traditional formal education. Since the program was initiated in 1986, over 1000 students from all 50 states have been enrolled in Kansas State University's Continuing Education Food Science Program.

Introduction

Since 1986, Kansas State University has offered a unique program in food science for food industry personnel. The program evolved in December, 1984, when the Administrator of the Food Safety and Inspection Service (FSIS) an-

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(PGSAS continued.)

Additionally, even as three of four students exhibited an interest in pursuing an agricultural career, their perceptions about agricultural occupational conditions did not vary based upon their participation in PGSAS. Students consistently felt that agricultural occupations entailed hard work, would provide moderate pay and be slightly lower in prestige. Again these results are consistent with the findings of the authors listed above.

Implications

It appears that participation in PGSAS reinforces students aspirations to pursue agricultural careers and slightly increases their knowledge base about agricultural careers. However, while this program offers students an intense "hands on" orientation to agriculture it is not the most efficient nor the most economic method to inform all students about agricultural careers.

Additionally, students maintained a "neutral" image of agricultural career attributes even after participation in PGSAS. It is unrealistic to expect attitudes to change following participation in a five-week program for several reasons;

noted that the USDA would begin introducing food technologists, series 1382, into the workforce of meat and poultry inspectors.

To fill these new positions, USDA required food technologist certification and developed a list of courses in food science, quantitative skills, and other science fields needed for adequate training and certification. The goal was to provide food technologists with a more in-depth understanding of production processes, food chemistry, nutritional content, and additives of meat and poultry. To meet this educational goal, a program was needed that considered unique constraints of inspectors, who travel often, may be located in remote areas far from university facilities, and are often unable to take time off for traditional classroom courses.

When Kansas State University was approached with this situation in 1985, its Division of Continuing Education agreed to become involved and proposed a Food Science Program for the Food Industry. The objective of this program was to take advantage of the consumer-popular video cassette recorder (VCR) and offer video-taped college courses to food industry personnel, especially USDA meat and poultry inspectors. By the spring of 1986, the program was introduced and offered "Introduction to Food Science" on video tape as the beginning course.

Prior to this program, no university educational package was available to help processing inspectors meet their new requirements. KSU is the only accredited university offering a full range of courses approved for USDA certification.

predominantly those dealing with the decision making process of choosing a career. Crites (1973) noted that the choice of a vocation is a process, not simply a one-time event, which extends from childhood through adolescence and even into adulthood.

Additionally, image is another critical occupational choice factor. Holland (1985) noted "just as we judge people by their friends, dress and actions, so we judge them by their vocations. Our everyday experience has generated a sometimes inaccurate but apparently useful knowledge of what people in various occupations are like" (p. 9).

A critical question to ask is if students with an interest in an agricultural career maintained "neutral" expectations of agricultural careers throughout participation in an intense program such as the PGSAS, how can we reach students who lack the most elementary understanding about opportunities in agriculture and help them make objective career decisions? Agricultural educators and those involved in agriculture, at all levels, must make a concerted effort to increase the agricultural literacy base of all students before they make critical career decisions. (PGSAS continued on next page.)