

Chapter 12: Perceptions of Agriculture and Natural Resource Careers Among Minority Students in a National Organization

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Abstract

The purpose of the study was to identify factors that influence the career choice behaviors among students who were members of Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS) National Society. A secondary purpose was to identify perceptions and attitudes among students that chose careers in agriculture and natural resources. The MANRRS students in the study indicated their mother and persons employed in the field as the individuals who most influenced their choice of a career. Students' personal concern for the environment was an additional factor that influenced their choice of a career. The perceptions and attitudes reported by MANRRS students who chose a career in agriculture and natural resources focused around several themes, which included career opportunities, positive educational experiences, and internship/job experiences with agencies and organizations. It is hoped that the experiences presented here by current agriculture and natural resources students will aid governmental agencies, private corporations, and nonprofit organizations in increasing the number of ethnic minority professionals in the field of agriculture and natural resources.

Keywords: Minority students, natural resources, career development, agriculture education.

Introduction

One of the biggest challenges facing agriculture and natural resource professionals and educators lies in recruiting and retaining traditionally underserved populations. Although minorities are well represented in many fields, minority professionals in agriculture and natural resource careers are still limited and research is needed to investigate why there is a lack of interest among minorities.

The national U.S. demographics have shifted and continue to shift toward a more and more diverse population. According to a 2007 census brief, roughly 34 percent of the U.S. population identified themselves as non-White—14.5 percent of

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Latino origin, 12.8 percent African American, 4.3 percent Asian American, about 1 percent Native American, and approximately 1.5 percent indicated two or more races. In addition, minorities are more likely than Whites to live in urban areas (U.S. Census Bureau 2007) and 303 of the Nations' 3,143 counties no longer have majority White populations (U.S. Census Bureau 2007).

Despite increased attention to and discourse on the role changing demographics will have on the field of agriculture and natural resources, there have been few changes in the way minorities are recruited to pursue higher education in these professional areas. For example, a recent study of diversity in environmental institutions (Taylor 2005) found that one-fourth of 29 government agencies surveyed and more than one-third of 129 mainstream environmental organizations surveyed had not hired any minorities in the past 3 years. The same study also discovered that 22 percent of government agencies and 33 percent of mainstream environmental organizations have no minorities on staff.

These statistics are particularly alarming given the large number of retirements at the federal level. For example, at the U.S. Department of Agriculture Forest Service (Forest Service), over 50 percent of the leadership in key areas will become eligible to retire by the end of 2007 (Renewable Natural Resources Foundation 2003–2004). In some key career paths, the projections for turnover are significant—where entomologists (81 percent), foresters (49 percent), engineers (40 percent), and wildlife biologists (35 percent) are all expected to retire in significant numbers.

In the educational arena, many of the subdisciplines have faced declining enrollment of minority students in agriculture and natural resources (Renewable Natural Resources Foundation 2003–2004) and even graduates of these programs are not choosing governmental employment. During the period 1993–2000, only 9.4 percent of the 182,519 degrees awarded in agriculture and natural resources were awarded to racial/ethnic minorities (Food and Agricultural Education Information System 2000).

With the aforementioned dynamics in mind, what are the specific factors that can be used to attract minority students to the agriculture and natural resources field? What are the factors that influenced students to choose agriculture and natural resources as their career? What are students' perceptions of the field? What are the barriers to pursuing degrees in agriculture and natural resources? Determining the specific strategies most effective in recruiting underrepresented students requires an understanding of not only how students chose a career in agriculture and natural resources, but also students' perception of their respective field. In this paper, I examine the factors that influenced their choice of agriculture and natural resources as a college major and perceptions of agriculture and natural resources careers.

The research on career choices made by students entering college has been extensive. In the area of agriculture and natural resources, several studies have identified numerous factors influencing this decisionmaking process including values, financial incentives, exposure to agriculture, and family (Wildman and Torres 2001); and visiting with former graduates, campus visits, printed university publications, visits with professors, career opportunities, and academic reputation (Washburn et al. 2002). An early study by Wakefield and Talbert (2003) of past Negro Farmers of America members found that the teacher was a strong influence in their participation with the Future Farmers of America after the merger of the two organizations in 1965. Talbert (1997) and Talbert and Larke (1995) identified additional factors influencing student interest in agriculture. Previous research indicates early introduction of minorities to agriculture and natural resources through high school counselors (Leatherberry and Wellman 1988, Wellman 1987) and youth programs will increase minority participation. However, Jones and Larke (2001) and Mitchell (1993) suggested that minority students often decide to select an agriculture career later in their lives, and often transfer into the discipline after their freshman year.

Perceptions and attitudes of minorities toward agriculture and natural resources careers have been researched. Findings from a 1995 study by Warlow et. al. concluded that the lack of minority professionals in agriculture who can serve as role models was seen as a significant barrier to encouraging minority youth to pursue agricultural careers. Leatherberry and Wellman (1988) reported African American students knew little about the skills needed by a wide range of natural resource professionals, the jobs available, and the wages earned in those careers.

Methods

Data were collected at the 2000 Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS) national career fair and conference. The mission of MANRRS is to promote academic and professional advancement by empowering minorities in agriculture, natural resources, and related sciences. The MANRRS program began as a vision shared by a group of agriculture students and faculty members at Michigan State University and Pennsylvania State University in 1986. Their goal was to develop a partnership between minority agriculture and natural resources students and professionals from academic institutions, government, and industry. Their commitment led to the first national MANRRS conference, held at Michigan State University in 1986. Currently, the organization just held its 23rd annual conference and had over 900 students and professionals attending from more than 50 collegiate and high school chapters (representing 1862 and 1890 land

grant institutions and tribal colleges), governmental agencies (e.g., Forest Service and National Park Service), private corporations (e.g., Archer Daniels Midland Company) and nonprofit organizations (e.g., Environmental Careers Organization). Given that the total MANRRS student membership was the population under study, a convenience sample was preferred. In all, 227 completed surveys were obtained.

Instrument

A survey was developed for this study following an indepth literature review. The following measures were used for the study:

- **Factors of Influence**—A 3-point Likert scale (1 = strong influence to 3 = no influence) to determine the major interpersonal influences on students when deciding a college major. For example, items included mother, other relative, high school teacher, college advisor, and person employed in the profession. Additional items included intrapersonal and structural influences. These included personal concern for the environment, availability of scholarships, and ability in science skills.
- **Perceptions of Agriculture and Natural Resources**—Students indicated the degree to which they agreed or disagreed with issue statements using a 1 to 5 scale where 1 = strongly agreed and 5 = strongly disagree. These statements included: (1) Most agriculture and natural-resources-related careers are in low-paying jobs, (2) Most agriculture and natural-resources-related careers involve working outdoors, and (3) Most members of minority groups have a negative image of agriculture and natural-resource-related careers.
- **Recommendations to Promote Diversity**—This measure included a 5-point Likert scale and had nine items included. Examples include active recruiting of minority students for positions, forming minority support groups for minority employees, and establishing mentoring programs in the workplace.
- **Open-Ended Questions**—These were provided for students to express personal feelings and experiences regarding recruitment, retention, and barriers of increased participation by minorities in agriculture and natural resources.

Face validity and reliability for this section of the survey were established during a pilot test of nine University of Minnesota MANRRS student chapter members not included in the final survey population. Reliabilities on the pilot data were 0.79 (field perceptions) and 0.92 (barriers). The final data set yielded reliabilities of 0.72 and 0.89, respectively.

Results

The following tabulation presents demographic characteristics of the study participants (n = 227). The majority of the respondents were female (55.1 percent) and African American (81.8 percent). Students in the sample were more likely to live in a city or town during their childhood (41.3 percent) and had a total household income between \$50,000 and \$75,000 (30.4 percent). Sixty percent of the students held a sophomore or junior class standing and 60 percent had a 3.0 grade point average or higher. Almost half of students were agriculture majors (48.8 percent), followed by those majoring in forestry and natural resources (21.6 percent).

	<i>Percent</i>		<i>Percent</i>
Gender		Current class standing:	
Male	44.9	1 st year (freshman)	11.5
Female	55.1	2 nd year (sophomore)	30.4
Race/ethnicity:		3 rd year (junior)	31.7
African American	81.8	4 th year (senior)	15.4
Hispanic/Latino	9.3	Graduate	6.2
Native American	3.1	Other	4.8
Asian American	0.9	Academic major:	
White/European	0.4	Agriculture, general	48.8
Other	4.4	Forestry/nat res	21.6
Location of childhood home:		Animal science	12.8
On a farm/ranch	11.1	Wildlife and fisheries	5.3
Rural area	14.2	Food science/tech	4.4
Suburb	18.7	Plant sciences	2.1
City/town	41.3	Other	4.8
Major metro area	14.7	Grade point average:	
Household income:		4.0	0.5
Less than \$25,000	24.9	3.5–4.0	22.1
\$25,000–\$50,000	23.2	3.0–3.5	37.4
\$50,000–\$75,000	30.4	2.5–3.0	30.6
Over \$75,000	21.5	2.0–2.5	8.6
		Below 2.0	0.5

Respondents indicated that their mothers had the strongest influence on their decision of agriculture or natural resources as a college major. Other persons that had some influence on their decision in choosing a college major included persons employed in the profession

Factors Influencing College Major Decision

Respondents indicated that their mother ($M = 2.0$; $SD = 0.8$) had the strongest influence on their decision of agriculture or natural resources as a college major (table 12-1). Other persons that had some influence on their decision in choosing a college major included persons employed in the profession ($M = 2.1$; $SD = 0.9$), college of agriculture/natural resources recruiter ($M = 2.2$; $SD = 0.8$), college advisor ($M = 2.3$; $SD = 0.9$), and their high school teacher ($M = 2.2$; $SD = 0.9$). Those persons with some or no influence included minister ($M = 2.8$; $SD = 0.4$), college admissions personnel ($M = 2.5$; $SD = 0.6$), high school administrator ($M = 2.5$; $SD = 0.7$), and father ($M = 2.4$; $SD = 0.7$).

Respondents' "personal concern for the environment" ($M = 1.7$; $SD = 0.6$) had a strong influence on their choice of agriculture and natural resources as a career (table 12-2). Other strong influences included availability of scholarships in chosen major ($M = 1.8$; $SD = 0.8$), and availability of jobs after graduating from high school ($M = 1.8$; $SD = 0.8$). Availability of minority student clubs ($M = 2.4$; $SD = 0.7$) and ease of courses/programs of study ($M = 2.4$; $SD = 0.8$) were viewed as factors with some or no influence on their interest in agriculture and natural resources careers.

Respondents were also given the opportunity to indicate the extent to which different resources used by colleges influenced their decision on a major (table 12-3). This was based on a 1 = not at all to 5 = very much scale. A college visit ($M = 3.5$; $SD = 1.5$) and a conversation with current students in the major ($M = 3.3$; $SD = 1.7$) had the most influence on their decision. Respondents indicated brochures ($M = 2.5$; $SD = 1.7$) had very little influence on their decision on a major.

Perceptions and Attitudes Toward Agriculture and Natural Resources Careers

Respondents were asked their perceptions of agriculture and natural resources careers using 25 statements (table 12-4). The top five statements that the majority of students agreed upon included: "People with college majors in the sciences such as chemistry, genetics and biology can find agriculture and natural resources-related careers" ($M = 2.1$; $SD = 0.8$), "Graduates with degrees in agriculture and natural resource-related majors are able to pursue science oriented careers" ($M = 2.2$; $SD = 1.1$), and "Professional degrees in agriculture and natural resources are required for professional advancement" ($M = 2.4$; $SD = 1.0$), "Minority groups lack information about agriculture and natural resource careers" ($M = 2.5$; $SD = 1.2$), and "The media generally portrays agriculture and natural resources in a positive light" ($M = 2.7$; $SD = 1.0$).

Table 12-1—Influential persons on students' choice of college major

Statement	Mean ^a	Standard deviation	Rank
Mother/female guardian	1.96	0.80	1
Person employed in career	2.09	.88	2
College recruiter	2.19	.83	3
College advisor	2.26	.85	4
High school teacher	2.29	.85	5
Brother/sister	2.32	.80	6
Friends	2.34	.67	7
College professor	2.35	.80	8
High school counselor	2.39	.77	9
Relative	2.42	.72	10
Father/male guardian	2.43	.67	11
High school administrator	2.53	.72	12
College admissions	2.54	.61	13
Minister	2.84	.41	14

^a Scale: 1 = strong influence, 2 = some influence, and 3 = no influence.

Table 12-2—Influential factors/issues on students' choice of college major

Statement	Mean ^a	Standard deviation	Rank
Personal concern for the environment	1.74	0.63	1
Availability of jobs after graduation	1.77	.79	2
Availability of scholarships in major	1.79	.83	3
Outdoor recreation activities	1.81	.83	4
Prestige of career I can enter with major	2.02	.80	5
Money I can earn after graduation	2.02	.76	6
Ability to use special talents	2.05	.73	7
Ability to use science skills	2.06	.79	8
Organized youth programs	2.16	.82	9
Rural family life	2.17	.78	10
Participant in natural resource programs (e.g., 4H)	2.20	.75	11
Past work experience	2.21	.86	12
Volunteering in enviro. organizations	2.26	.81	13
Ease of courses/program of study	2.38	.83	14
Availability of minority student clubs	2.41	.66	15

^a Scale: 1 = strong influence, 2 = some influence, and 3 = no influence.

Table 12-3—Influential resources on students' choice of college major

Resource	Mean ^a	Standard deviation	Rank
Brochure	2.59	1.70	1
Visits with minority faculty/staff	2.87	1.70	2
Visits with non-minority faculty/staff	3.19	1.78	3
Other	3.33	2.08	4
Career fairs	3.34	1.66	5
Participation in minority organizations	3.36	1.70	6
Conversations with students in the major	3.38	1.69	7
Visit to the college	3.57	1.54	8

^a Scale: 1 = not at all, 3 = very little/some, and 5 = much/very much.

Table 12-4—Perceptions of agriculture and natural resource careers based on agreement with statements

Statements	Mean ^a	SD ^b	Rank
People with college majors in the sciences such as chemistry, genetics and biology can find agriculture and natural resources-related careers	2.1	0.83	1
Graduates with degrees in agriculture and natural resource-related majors are able to pursue science oriented careers	2.2	1.08	2
Professional degrees in agriculture and natural resources are required for professional advancement	2.4	.96	3
Minority groups lack information about agriculture and natural resource careers	2.5	1.21	4
The media generally portrays agriculture and natural resources in a positive light	2.7	.99	5
Most agricultural and natural resources-related careers involve working outdoors	2.7	1.17	6
Most agriculture and natural resource-related careers require graduate training in fields such as genetics, microbiology, and chemistry	2.8	.89	7
In general, agriculture and natural resource-related careers have a positive image in most minority communities	2.8	.71	8
Most members of minority groups have a negative image of agriculture and natural resources-related careers	2.8	.80	9
Graduates with college degrees in agriculture and natural resources-related majors are sought after by many multinational corporations	2.9	.90	10
College graduates who major in agriculture and agriculture-related majors earn salaries as high as those earned by graduates in most other majors	3.0	.96	11
Graduates with college degrees in agriculture and natural resources-related majors often pursue business careers	3.1	.81	12
The number of job opportunities in agriculture and natural resources-related careers are declining	3.1	1.02	13
Most people choose careers in agriculture and natural resources because they can be their own bosses (by owning their own farm, ranch, etc.)	3.1	.86	14
Agriculture and natural resources occupations are generally viewed with the same level of prestige by the general public, as are other occupations	3.1	1.07	15
Most careers in agriculture and natural resources are very dependent upon weather conditions such as drought and floods	3.3	1.21	16
Most agriculture and natural resource-related careers involve or require manual labor	3.3	1.40	17
Most agriculture and natural resources-related careers are not attractive to members of minority groups	3.4	1.06	18
People with agriculture and natural resources-related careers often work in urban areas	3.4	.90	19
Natural resource professionals are ethnically representative of the U.S. population	3.4	1.17	20
Most graduates of agriculture and natural resources-related programs lack skills for careers outside of agriculture	3.6	.89	21
Most agriculture and natural resource career graduates are in low paying jobs	3.6	.74	22
Agriculture and natural resources related careers are not attractive to females	3.8	.95	23
There is little opportunity for advancement for people employed in agriculture and natural resource-related careers	4.2	.92	24
Most agriculture and natural resources-related careers do not require education beyond high school	4.4	.79	25

^a Scale: 1 = strongly agree; 2 = agree; 3 = neutral; 4 = disagree, 5 = strongly disagree.

^b Standard deviation.

The five statements that the respondents most disagreed with include: “Most agriculture and natural resources-related careers do not require education beyond high school” ($M = 4.4$; $SD = 0.8$), “There is little opportunity for advancement for people employed in agriculture and natural resource-related careers” ($M = 4.2$; $SD = 0.9$), “Agriculture and natural resources related careers are not attractive to females” ($M = 3.8$; $SD = 1.0$), “Most agriculture and natural resources careers graduates are in low paying jobs” ($M = 3.6$; $SD = 0.7$), and “Most graduates of agriculture and natural resources-related programs lack skills for careers outside of agriculture” ($M = 3.6$; $SD = 0.9$).

Barriers to Attracting Minorities to the Field

Respondents were given the opportunity to discuss what they felt is the greatest barrier to attracting racial/ethnic minorities to pursuing a degree in the field. The following themes were identified by the respondents’ comments: lack of information, internal agency/organization diversity, perceptions of careers, and historical cultural perceptions. Each of these will be discussed below.

Respondents felt that a major barrier to choosing agriculture and natural resources as a career is the lack of information being provided to students and the greater public. Several strategies were suggested by the students to overcome this barrier. One student stated that “getting the information to minorities seems to be the problem.” This perception is supported by other students’ comments:

Just introducing them to work in the field.

Lack of information that is circulated through minority communities to help the people understand the many different things they can do within the majors.

Negative perceptions of careers in agriculture and natural resources are also a major barrier to recruitment and retention of minorities. Of the comments provided, several revolved around negative perceptions of pay, remote job locations and availability, perceived career status, and African American cultural history. For example,

Black Americans historical experience (slavery and sharecropping) and the misperception [misconception] that there is no money to be made and lack of prestige.

Minorities feel that the field has a lot of low paying, boring jobs in which they will be overworked.

Students also provided examples of personal barriers/obstacles that were faced as a minority student in the field of agriculture and natural resources. These barriers included interpersonal factors from individuals of influence such as family and friends; discrimination and racism in educational institutions, professional settings, and surrounding communities; and organizational acculturation. Many students commented on perceived discrimination and cultural insensitivity in professional settings.

I have been in a racist environment where I was talked about behind my back by my supervisors and other fellow employees.

That I am always looking over my shoulder and don't feel as an equal.

A little people believe we [minorities] get the job based on our race and not our ability.

People not really giving me a chance because of my color.

Lack of inclusion with nonminority departmental students. (within the higher educational institution.)

In addition, some students felt a sense of "isolation" or "being exiled" when participating in student internships or other work experiences.

Lack of support from family and friends was experienced by several students. The students commented that lack of information about the field and its opportunities led to "parents and friends not being supportive" and "A lot of people tell me that I won't make any money and I'll be forced to work in the field cutting down trees for the rest of my life."

Strategies to Promote Agriculture and Natural Resource Careers Among Minority Students

Respondents were asked their perceptions of strategies to promote diversity in agriculture and natural resources careers. Table 12-5 shows summary statistics and rankings for the perceived strategies to promote diversity. The top three statements agreed upon by the respondents included: "Agency/corporation scholarships for minority students in college" ($M = 1.41$; $SD = 0.6$), "Agency/corporation development and support of minority student internships" ($M = 1.55$; $SD = 0.8$), and "Providing outdoor experiences for minority youth" ($M = 1.6$; $SD = 0.7$).

Respondents were also provided with open-ended questions to provide recommendations to agencies to overcome recruitment and retention barriers. Several respondents felt that agencies and corporations could improve recruitment by starting at an earlier stage in the educational career of students.

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Table 12-5—Strategies to promote diversity in agricultural and natural resources careers

Statement	Mean ^a	SD ^b	Rank
Agency/corporation scholarships for minority students in college	1.41	0.62	1
Agency/corporation development and support of minority student internships	1.55	0.75	2
Providing outdoor experiences for minority youth	1.6	0.65	3
Active recruiting of minorities for available positions	1.71	0.85	4
Agency/corporation sponsored continuing education programs for employees	1.72	0.76	5
Establish partnerships with minority professional organizations	1.73	0.89	6
Agency/corporation sponsored cultural diversity programs that demonstrate the value of an ethnically diverse workforce	1.90	0.79	7
Establishing minority mentoring programs in the workplace	1.99	0.99	8
Forming minority support groups for minority employees	2.21	1.02	9

^a Scale: 1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree.

^b Standard deviation.

You can improve the numbers by getting to them [students] in high school before they enter college by implementing or supporting programs for younger students to get introduced to the field.

Additional respondents felt that there should be increased partnership between agriculture and natural resource agencies and higher education institutions.

Form long-term partnerships with HBCUs [Historically Black Colleges and Universities]—conduct on campus seminars with minority employee representatives and invest in HBCUs. Example is John Deere’s support of Iowa State ag [riculture] program.

Give more resources to HBCUs and recruit at these schools.

Internal strategies were suggested by respondents that could be used to increase cultural competency within the agency/organization. These included, “trying to make minorities feel comfortable,” “establish support systems in the workplace or a mentoring program,” “by advancing the pay in agriculture and natural resources,” “providing extra incentives to work in particular fields,” “recruit students earlier and provide support at the new job,” and “educate the employees about diversity.” Several external strategies were suggested to educate the community on the field and the opportunities available. These strategies include:

They should find some way to let the public know of all the advancements in the field.

Promote ag [riculture] in a positive light.

Educate the black community.

One respondent disagreed with any type of strategies that could be deemed as targeting only minority groups. This respondent stated, “I don’t think special catering should be done just because one is a minority, but on the basis of ability.”

Conclusion

Despite the positive perceptions of agriculture and natural resources among MANRRS students, professional organizations and agencies need to continue to address the inclusion of minorities in the field. This paper has described some of the major influences on minority students’ choices for professional careers. The role of the female parent/guardian and the high emphasis on visits with employees already in the field had a strong influence for many MANRRS students in choosing their professional career. These findings were inconsistent with previous studies, which suggested high school counselors as a major influential source. The attitudes and perceptions of agriculture and natural resource careers were also presented. The respondents for this study had positive perceptions of the field and consistently ranked agriculture and natural resources careers as prestigious as other careers. This result is similar to what Talbert et al. (1999) suggested, that professional organizations like MANRRS provided an excellent foundation not only for increasing students’ perceptions of the field positively but also provided numerous opportunities for college students to gain entry into top graduate schools around the country or agriculture-related careers in government, private industry, or higher education. Despite the barriers cited in the literature, many of the MANRRS students held highly satisfactory career perceptions that may be due to their participation in MANRRS and/or their commitment to their chosen major. Given this, several strategies are worth considering in providing entry not only into the field on a collegiate level but also professional:

- Increase of minority professionals in the field that can serve as mentor for prospective professionals at the collegiate level and incoming field professionals.
- Initiate minority community-based programs that connect institutions of higher education and agencies/organizations with prospective minority college students. Special emphasis should be placed on the family as an influential context. This will assist minority community members in gaining a greater understanding and appreciation for agriculture and natural-resources-related careers. This technique is currently being used among U.S. governmental agencies and private organizations. For example, the Forest Service “More

Kids in the Woods” national program has several grant recipients that are providing programming in minority, low-income communities to introduce the outdoors to minority children and youth.

- Introduce agriculture and natural resources careers at all stages of career development (Jones and Larke 2005) to encourage entry into the field. Many organizations are nationally developing environmental youth programs to introduce young people to the outdoors (e.g., urban 4H, Outward Bound, and Environmental Careers Organization) and have had great success. However, despite their success in introducing young people to the outdoors and developing personal concern for the environment, few young people are choosing agriculture and natural resources as a career. Additional curriculum reviewing career options along with environmental stewardship could address this issue.
- Establish mentoring programs on the collegiate and professional level for minorities in agriculture and natural resources.
- Continue with existing and establish new partnerships with minority-serving institutions.

Future research should replicate this study with other national minority student organizations (e.g., National Hispanic Environmental Council and National Tribal Environmental Council) to examine whether the findings are valid, which would increase the generalizability. In addition, future studies should continue to investigate career choice influences to examine other factors that influence minority agriculture and natural resource students’ perceptions of the field and their entry and retention into the professional realm. The author hopes that this information can provide government, private industry, or higher education institutions with a glimpse not only of the experiences that led minority students to choosing agriculture and natural resources careers but also how they feel about the field to ensure the future of agriculture and natural resources.

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