

# Characteristics of Beginning Agriculture Teachers and Their Commitment to Teaching

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*The purpose of this study was to describe the characteristics of beginning agriculture teachers and their perceived likelihood of teaching secondary agriculture in the future. Information was gathered from secondary agriculture teachers across the U.S. who were in their second year of teaching agricultural education during the 2003–2004 academic year. A survey instrument was created specifically for this study through which information about the experience of beginning teachers, the demographic characteristics of the beginning teacher, and the perceived likelihood of teaching secondary agriculture in the future was gathered. Data were analyzed using descriptive statistics and a multiple regression analysis. While nearly three-fourths of the respondents reported they were highly likely to teach secondary agriculture one-year from the time of the survey, less than one-third reported they were highly likely to do so at five years, and only 15% reported they were highly likely to do so twenty years from the time of the survey. No statistically significant relationship was found between the characteristics of beginning teachers and their perceived likelihood of remaining in the profession.*

## Introduction

Providing a sufficient quantity of qualified agriculture teachers is the first goal of The National Strategic Plan and Action Agenda for Agricultural Education (National Council for Agricultural Education, 2000). The 1999–2001 National Study of the Supply and Demand for Teachers of Agricultural Education (Camp, Broyles, & Skelton, 2002) provided evidence of a shortage of agricultural education teachers. In the fall of 2001, there were openings for an estimated 1,175 new agricultural education teachers, while fewer than 700 new graduates were seeking teaching positions. Over 300 positions were not filled with fully qualified agriculture teachers by the beginning of the 2001–2002 school year. However, the number of teachers completing teacher preparation programs during that same time period was more than adequate to fill the positions. Only about 59% of newly certified agriculture teachers sought teaching positions (Camp et al., 2002). A

research report from the American Association for Employment in Education (2000) confirmed the report of a nationwide shortage of agriculture teachers, ranking agricultural education as a field with “some shortage” (p. 7). The report ranked the demands in each of the education fields as considerable shortage, some shortage, balanced, some surplus, and considerable surplus.

Similar to the data in agricultural education, teaching positions across all disciplines experienced shortages during the 1999–2000 academic year, with 58% of all schools reporting difficulty in filling one or more teaching position openings (Ingersoll, 2003). In an analysis of the U.S. Department of Education’s National Center for Education Statistics’s Schools and Staffing Survey and the subsequent Teacher Follow-up Survey, Ingersoll (2001) reported that after three years, 29% of all beginning teachers left teaching altogether and after five years, 39% left teaching altogether. In an analysis of more recent data from the Schools

and Staffing Survey, Ingersoll (2003) reported that the demand for new teachers is neither primarily due to student enrollment increases nor retirement, but due to the number of teachers who departed from their positions. He suggested that retaining teachers should be viewed as a potential solution to the shortage of teachers. Similarly, Camp and Heath-Camp (1990) reported that 15% of vocational education teachers quit within the first year of teaching, and that more than half leave the profession within six years.

Why are beginning teachers leaving the profession at such high rates? The initial year of teaching is often problematic for beginning teachers (Camp & Heath-Camp, 1989; Veenman, 1984). Consequently, the transition that occurs between the teacher education program and mastery teaching has been identified by researchers, professional organizations, and policy makers as critical in the professional development of teachers. While beginning agriculture teachers experience challenges similar to other beginning teachers during their initial years, the added expectations of supervising agricultural experience programs (student project component) and advising the FFA chapter (leadership component), increase the demands and the potential for challenges. Nesbitt and Mundt (1993) indicated that “new agriculture teachers are not only responsible for the activities of a normal subject teacher such as classroom management and subject content, but they are also responsible for an entire program of vocational education” (p. 11). Furthermore, agricultural education was described by Osborne (1992) as “A profession that eats its young” (p. 3).

One question that is of concern is the extent to which the characteristics of beginning teachers and the programs in which they teach have an effect on their decision to remain in the profession. The theoretical framework for this study is based on Krumboltz’ (1979) social learning theory of career decision making. Krumboltz identified four factors that influence career decision making including genetic endowments, which includes race and gender, environmental conditions and events, learning experiences, and task approach skills. The conceptual model for this study is based on Chapman’s model for teacher retention (Chapman, 1983; Chapman, 1984; Chapman &

Green, 1986). This model for teacher retention suggests that the teacher’s personal characteristics, educational preparation, initial commitment to teaching, quality of the first teaching experience, professional and social integration, and employment climate influence career satisfaction which influences the teachers’ decision to remain in or leave teaching. Do the characteristics of beginning agriculture teachers influence their decisions to remain in the profession?

### **Purpose and Objectives**

The purpose of this study was to determine the personal and professional characteristics of beginning agriculture teachers during their first year of teaching as well as to determine their perceived level of commitment to teaching. In addition, a second purpose was to determine if a relationship existed between the personal and professional characteristics and the perceived likelihood of the teacher remaining in the profession.

The following specific objectives were addressed in this study:

1. Describe selected personal and professional characteristics of beginning agriculture teachers.
2. Describe the perceived likelihood of beginning secondary agriculture teachers remaining in the profession.
3. Determine if a relationship existed between the personal and professional characteristics of beginning teachers and their perceived likelihood of remaining in the profession.

### **Methods and Procedures**

The target population for this study included all secondary agriculture teachers in the U.S. who had completed one full year of teaching agriculture and who were in their second year of teaching agriculture during the 2003–2004 academic year. A secondary agriculture teacher is defined in this study as an individual hired to provide instruction in secondary schools and/or vocational/technical centers with at least a 50% assignment in agricultural education. The entire population was selected for participation in this study rather than a sample due to the relatively small population size ( $N = 504$ ), ease of

accessibility, and the ease of data input using online technology. Individuals identified as the “state leader” of agricultural education (National FFA Organization, 2003) in each state in the U.S. were initially contacted via e-mail. If the person identified as the state supervisor could not provide the names and contact information, teacher educators at the universities offering a program in agriculture teacher preparation in that state were contacted. Follow-up communication was continued until the names and contact information of second year agriculture teachers in every state were identified.

Descriptive survey methods were used to gather demographic information about the beginning agriculture teachers as well as their perceived likelihood of remaining in the profession. Questions were also included to clarify whether or not the respondent fit the parameters of the population targeted in the study. The instrument used was developed by the researchers as part of a larger study. Survey questions were developed based upon a review of extant literature regarding beginning teachers as well as from preliminary qualitative data collected from a small group of first year teachers in one western state (Warnick, Thompson, & Gummer, 2007). A panel of experts ( $N = 11$ ) including teacher educators, state supervisors, and secondary agriculture teachers examined the instrument for content validity and readability. As the entire population was surveyed, a similar population was required for pilot testing the instrument. A group of secondary agriculture teachers ( $N = 16$ ) who had completed either two or three years of teaching was identified and agreed to participate as pilot test participants. This group included teachers from four states across the U.S. The feedback from the pilot test resulted in a few minor wording changes for clarification and formatting purposes, but no major changes were made to the instrument. As a measure of reliability of the instrument, a post-hoc analysis using Cronbach’s alpha coefficient was conducted. Internal consistency from the pilot test data was estimated at  $\alpha = .83$  and at  $\alpha = .92$  for the data collected from the study. Data were collected using internet technologies following Dillman’s (2000) recommendations. The instrument was placed on an online server developed at a land-grant university. This

software allowed all data to be entered and collected electronically.

Usable response data were analyzed using descriptive statistics and a multiple regression analysis. Frequencies, percentages, means, and standard deviations were calculated for the demographic variables and the reported likelihood of teaching in the future. A multiple linear regression model was used to determine if a relationship existed between the personal and professional characteristics of the beginning teachers and the perceived likelihood of teaching in the future.

## Results

### *Response Rate*

The total population for this study consisted of all secondary agriculture teachers in the U.S. who had taught one full year and were in their second year of teaching agriculture during the 2003–2004 academic year. Letters or e-mail messages were sent to all teachers identified by state supervisors of agricultural education and/or teacher educators as meeting the targeted population ( $N = 631$ ). Of those individuals contacted, 127 did not meet the parameters of the targeted population either by contacting the researchers to report that they did not meet the parameters without responding to the survey or through their responses to two questions in the demographic information section of the instrument, resulting in an adjusted population of 504. The responses of any participant identified as not having completed one full year of teaching and/or not having a full-time position with at least a 50% assignment in agricultural education were also not included in the final analysis. After making adjustments for those misidentified and those responding who did not match the population parameters, 208 usable surveys were returned out of 504 potential participants, yielding a return of 41.27%.

Follow-up procedures were the first step in controlling for nonresponse error, attempting to get back as many responses as possible (Dillman 2000). A random sample ( $n = 61$ ) of the non-respondents ( $N = 296$ ) was identified and contacted through telephone calls and asked to complete the questionnaire over the telephone, or complete it and return it through fax or e-mail. Only seven of the 61 teachers completed

the questionnaire as part of this follow-up group, while eleven teachers reported that they did not meet the required parameters of the population. Linder, Murphy, and Briers (2001) suggested that, after diligent effort, if data can be obtained from fewer than 20 non-respondents, the data from non-respondents that is collected can be combined with the response data from late respondents in making comparisons for estimation of non-response error. They recommended that late respondents be operationally defined to include those who respond following the final follow-up stimulus. In this study, 53 participants responded after the final reminder. The summed responses of the 60 participants considered non-respondents or late-respondents were compared to the summed responses of the 155 participants who responded prior to the final reminder using an independent *t*-test. The analysis indicated no significant

difference between the early and late responses,  $p = .403$  (two-tailed).

#### *Objective 1: Demographic Information Teacher Personal Characteristics*

The first research objective was designed to identify the characteristics of the population. Questions included information about each teacher's personal and professional characteristics. Questions about participants' personal characteristics included gender, age, racial/ethnic identity, educational background, teacher certification status, and background in 4-H and FFA. Of the respondents, 47.1% were female and 51.9% were male, with two respondents (1%) declining to respond to the question. Participant ages ranged from 22 to 57 years old. Table 1 provides the breakdown of participants into the age groups. The mean age was 26.78 with a standard deviation of 5.92.

Table 1  
*Distribution of Ages of Beginning Agriculture Teachers (N = 208)*

Age	Frequency	Percent
22 – 25	183	88.0%
26 – 30	14	6.7%
31 – 40	9	4.3%
41 – 50	1	0.5%
51 – 60	1	0.5%
Total	208	100.0%

The majority (97.59%) of respondents reported that their racial/ethnic identity was best described as "White, European American, Non-Hispanic." Only one participant (0.48%) identified with each of the following descriptions: "Black, African American, Non-Hispanic," "Hispanic or Latino American," "American Indian or Alaskan Native," and "Other," while one participant declined to respond.

Participants were asked to respond to statements about the levels of education they had

completed. More than three-fourths (77.9%) of respondents had completed a bachelor's degree in agricultural education, while less than one-fifth (18.8%) of respondents had completed a master's degree. Additionally, 65 (31.3%) participants reported experience of full-time employment for one year or longer in an agriculture or natural resources career other than teaching. A summary of the reported education and work experience is provided in Table 2.

Table 2  
*Summary of Completion of Education and Work Experience (N = 208)*

Education and Work Experience	Frequency	Percent
Certificate /Associates degree	69	33.2%
Bachelor's degree in Ag Ed	162	77.9%
Bachelor's other than Ag Ed	57	27.4%
Post-baccalaureate degree	93	44.7%
Master's Degree	39	18.8%
Other graduate level training	42	20.2%
Employment in agriculture industry	65	31.3%

Participants were asked to select from a list of statements that best described the teacher certification status at the beginning of their first year of teaching. A majority of the participants, 175 (84.1%) teachers, reported they held a certification obtained through a traditional agricultural education teacher preparation program. Eleven (5.3%) of the participants held a certification obtained through an alternative certification program, while 14 (6.7%) respondents held temporary certification and were working toward alternative certification. No respondents reported holding a temporary certificate without plans to obtain certification. Eight (3.8%) participants reported a certification other than one of the choices provided. The

open-ended responses for the other categories included two participants previously certified who were in the process of re-certifying, four who were on provisional or emergency certificates working toward certification, one with a professional technical certificate, and one certified through a graduate program.

The final questions regarding the personal characteristics of the respondents dealt with the teachers' backgrounds in 4-H, FFA, or other programs related to their position as an FFA advisor and agriculture teacher. Table 3 provides a summary of the subjects' participation in 4-H, FFA, and other relevant activities.

Table 3  
*Summary of Beginning Teachers' Participation in 4-H, FFA, and Other Relevant Activities (N = 208)*

Activity	Frequency	Percent	Median Years
Participation in FFA	176	84.6%	4.0
Participation in 4-H	143	68.8%	8.0
Participation in other relevant activities	139	66.8%	
Participation in both 4-H and FFA	128	61.5%	
No participation in 4-H or FFA	17	8.2%	
No participation in 4-H, FFA, or other relevant activities	12	5.8%	

*Teacher professional characteristics.* Most (80.3%) of the participants in the study taught in comprehensive high schools during their first year while a small percentage (6.3%) taught at vocational, technical, or career centers, junior high or middle schools (6.3%), or had split assignments between different school types (7.2%). Participants were also asked to report the number of students enrolled in the school in

which they taught during their first year. Responses ranged from 37 to 4500 students with a mean of 678.68 and standard deviation of 688.42. Slightly over half (51.9%) of the participants taught in schools with 500 students or fewer, while only 9.6% taught in schools with more than 1500 students.

A majority (57.2%) of the participants reported that they taught in a school with only

one agriculture teacher during their first year. Forty-six participants (22.1%) taught in a school with two agriculture teachers. Thirty-six teachers (17.3%) reported that they taught in a school with three or more agriculture teachers.

Participants were asked to report the number of students enrolled in the agriculture program in which they taught during their first year. A range of values was reported from 10 students to 680, with a mean of 130.64 and a standard deviation of 119.89. Nearly one-fourth (24.5%) taught in agriculture programs with fewer than 50 students, while about one third (33.2%) reported having between 51 and 100 students. Only 19.3% of participants taught in programs with agriculture student enrollment of more than 200 students.

Beginning teachers were also asked to report the percentage of students enrolled in the agricultural education program in which they taught during their first year who were FFA members and who had supervised agricultural

experience (SAE) programs. The mean percentage of FFA members was 67.7% with a standard deviation of 61.8 and the mean percentage of students with SAE programs was 45.7% with a standard deviation of 41.7. Percentages of FFA membership and SAE programs are summarized in Table 4. A few participants reported higher than 100% for both questions.

Participants were asked to respond to a question regarding the perceived general reputation of the agriculture program in which they taught during their first year before they began teaching. Over one-third (37.5%) of the teachers responded that the reputation of the program was either "Very Strong" or "Strong." Only one-fifth (30.3%) reported that it was either "Poor" or "Very Poor," while 27.4% reported the reputation of the program prior to their taking the position as "Fair." Ten teachers (4.8%) reported that it was a new program.

Table 4

*Percentage of FFA Membership and SAE Program Participation for Students of Beginning Teachers (N = 208)*

Percentage of Students	FFA Membership		SAE Participation	
	Frequency	Percent	Frequency	Percent
0%	6	2.9%	22	10.6%
1–20%	33	15.9%	50	24.0%
21–40%	29	14.0%	39	18.8%
41–60%	35	16.8%	29	13.9%
61–80%	28	13.4%	23	11.1%
81–99%	24	11.5%	19	9.1%
100%	43	20.7%	21	10.1%
More than 100%	8	3.8%	4	1.9%
Missing	2	1.0%	1	0.5%
Total	208	100.0%	208	100.0%

Two questions were asked about the number of students the beginning teacher was asked to teach in each class. While the greatest percentage (43.8%) of teachers responded that their class sizes were "Just right," 23 teachers (11.1%) responded that overall the number of students asked to teach in each class was "Too

large to manage," and six teachers (2.9%) said their classes were "Much too small." Beginning teachers were also asked to estimate the number of students in each class. A summary of the mean, maximum, minimum and median, broken down by the responses to the questions about class size, is provided in Table 5.

Table 5  
*Summary of Beginning Teachers' Perception of Class Size (N = 208)*

The number of students asked to teach in each class is:	Frequency	Percent	Average number of students per class		
			Mean (SD)	Min/ Max	Median
Too large to manage	23	11.1%	26.1 (3.7)	20 / 34	25
Large, but manageable	58	27.9%	22.7 (6.1)	10 / 35	23
Just right	91	43.8%	15.7 (5.5)	5 / 30	15
Small	30	14.4%	9.3 (3.1)	5 / 15	10
Much too small	6	2.9%	7.3 (2.5)	4 / 10	7
Total	208	100.0%			

The final questions relating to the program in which the beginning teacher taught during the first year dealt with extra compensation provided for the additional responsibilities of FFA advising and SAE program supervision.

Just over half (52.4%) of the participants reported that they had received a stipend for FFA advising, and more than three quarters

(79.8%) reported that they received compensation for additional days of work beyond the standard teaching contract. Data from these questions is summarized in Table 6. Participants were also asked how many days pay they received in addition to the standard teaching contract. The mean response was 36.36 days with a standard deviation of 17.45.

Table 6  
*Summary of Compensation Provided for Additional Responsibilities (N = 208)*

Compensation:	FFA Stipend		Extended Contract	
	Frequency	Percentage	Frequency	Percentage
Yes	109	52.4%	166	79.8%
No	99	47.6%	40	19.2%
Missing	0	0.0%	2	1.0%
Total	208	100.0%	208	100.0%

### *Objective 2: Likelihood of Remaining in the Classroom*

The goal of research question two was to determine beginning teachers' perceived likelihood of teaching secondary agriculture 1, 3, 5, 10, and 20 years from the time of the survey. Most (88.9%) reported they were either likely or highly likely to be teaching secondary agriculture one year from the time of the survey. Nearly three-fourths (73.6%) responded they were likely or highly likely at three years, 61% at five years, less than half (44.7%) at 10 years, and only about 32% were likely or highly likely to be teaching secondary agriculture at 20 years from the time of survey. Twenty five percent of participants reported that it was unlikely or highly unlikely they would be teaching secondary agriculture 20 years from the time of the survey and 16.2% perceived they were unlikely or highly unlikely to be teaching

secondary agriculture 10 years from the survey. The results from this question about the likelihood of teaching secondary agriculture in the future are summarized in Table 7.

### *Objective 3: Relationship Between Teacher Characteristics and Perceived Likelihood of Future Teaching*

The third objective sought to determine if a relationship existed between the characteristics of the beginning teachers and the perceived likelihood of the teacher remaining in the profession in the future. Response data from the question about the likelihood of teaching in the future at one year, three years, five years, ten years, and twenty years from the time of the survey were summed to create a single variable named *perceived teacher persistence*. The higher the score, the more likely the teacher would be to "persist" in the profession. Using a

multiple linear regression model with simultaneous entry, the perceived teacher persistence variable was regressed on the variables related to teacher personal characteristics and the characteristics of program in which they taught during the first year. No statistically significant relationship was found

between the teacher persistence variable and the personal and professional characteristics of the teacher,  $F_{(20, 187)} = .75, p = .772$ . In the model, only the variable related to the teacher receiving an extended days contract for advising and/or supervision was significant,  $\beta = -.16, p = .041$ .

Table 7  
*Beginning Teachers' Perceived Likelihood of Teaching Secondary Agriculture in the Future (N = 208)*

	Highly Likely	Likely	Some-what Likely	Some-what Unlikely	Unlikely	Highly Unlikely
	<i>f</i> (%)	<i>f</i> (%)	<i>f</i> (%)	<i>f</i> (%)	<i>f</i> (%)	<i>f</i> (%)
Time from survey						
One year	151 (72.6%)	34 (16.3%)	9 (4.3%)	7 (3.4%)	3 (1.4%)	3 (1.4%)
Three years	101 (48.6%)	52 (25%)	32 (15.4%)	10 (4.8%)	3 (1.4%)	5 (2.4%)
Five years	69 (33.2%)	58 (27.9%)	43 (20.7%)	16 (7.7%)	11 (5.3%)	8 (3.8%)
Ten years	42 (20.2%)	51 (24.5%)	52 (24.0%)	24 (11.5%)	19 (9.1%)	15 (7.2%)
Twenty years	32 (15.4%)	34 (16.3%)	61 (29.3%)	24 (11.5%)	19 (9.1%)	33 (15.9%)

### Conclusions, Discussion, and Recommendations

The conclusions of this study were based on the responses from the beginning secondary agriculture teachers participating in the study. Generalization beyond the population for this study is not statistically appropriate. Furthermore, because the individuals targeted as participants for this study were only those teachers identified by state supervisors of agricultural education, members of their staff, and/or teacher educators in each state, additional limitations exist. Any other teachers in the United States matching the parameters of the population were not known and were therefore not part of the population studied.

A majority of respondents were unsure of their long-term commitment to teaching secondary agriculture. Although nearly 90% reported that they were likely or highly likely to be teaching secondary agriculture one year from the survey, fewer than half reported that they were likely or highly likely to be teaching at ten years, and less than one-third at twenty years. A large difference exists in the number of teachers who reported a high likelihood of teaching one

year from the time of the survey versus those who plan to teach at 10 years. The difference is even larger at twenty years from the time of the survey. While both Krumboltz' (1979) theory and Chapman's (Chapman, 1983; Chapman, 1984; Chapman & Green, 1986) model suggest that personal characteristics influence career decision making, results from the population included in the current study suggest that there are other factors influencing the decision to remain teaching.

While a relationship did not exist between the likelihood of remaining in the profession and the personal and professional characteristics of teachers, the descriptive data collected hold implications for researchers and practitioners. The proportion of female agriculture teachers in this population is consistent with the most recent report of the National Study of the Supply and Demand for Teachers of Agricultural Education (Kantrovich, 2007) as was the low percentage of participants reporting diverse cultural or ethnic backgrounds. A higher proportion of participants in this study were females as compared to the general population of secondary agriculture teachers as reported by Camp et al. (2002), Foster (2003), and Kantrovich (2007).

A very low percentage of participants reported diverse cultural or ethnic backgrounds. While it appears that substantial progress is being made in recruiting females into the profession, it is recommended that a concerted effort be made to recruit “qualified agriculture teachers who represent the demographics of the nation” (National Council for Agricultural Education, 2000, p. 4), particularly in the area of cultural diversity.

While a majority of respondents held teaching certificates obtained through a traditional teacher education program, nearly 16% held either a temporary certificate or had obtained certification through alternate routes. While a significant relationship was not found to exist between the likelihood to remain in the profession and the means by which a beginning teacher was certified, additional research is recommended to determine if differences exist between these two groups in relation to their professional development needs as well as their commitment to remain in the profession. Most beginning teachers reported participation at some level in FFA, and a majority reported participation in 4-H. As a majority of beginning agriculture teachers had participated in FFA and 4-H, it is recommended that recruitment of new teachers be conducted through these programs.

Almost half of beginning teachers responding to this survey reported that less than 60% of the students enrolled in the agriculture programs in the school in which they taught were FFA members. Two-thirds of the participants reported less than 60% participation in supervised agricultural experience programs. These results suggest that additional efforts are needed in assisting beginning teachers with the management of the FFA and SAE components of their programs.

While nearly 80% of respondents reported receiving an extended contract for supervision, only about one half received a stipend for FFA advising. Administrators should be encouraged to support beginning teachers by providing extra compensation for additional responsibilities that are required to deliver the complete agricultural education program. While no significant relationship was found between teachers’ personal and professional characteristics and the perceived likelihood of remaining in the profession, the presence of an extended days contract for advising and/or supervision was found to be a significant factor. However, further analysis suggested that a relationship existed between the absence of an additional days contract and a higher likelihood of remaining in the profession. Further research should be conducted to explore the relationship between the absence of an extended contract and the likelihood of persisting in the profession.

The results of this study likely create more questions than are answered. What are the factors that influence the career decision making process of beginning teachers? A better understanding of the factors involved in these decisions might be useful in developing interventions aimed at retaining teachers in the profession, potentially resulting in one part of the solution for the teacher shortage (Ingersoll, 2003). Based on the questions raised by the results of this study, and as suggested by Miles and Huberman (1994), it is recommended that additional research be conducted, both qualitatively and quantitatively, to deepen and test the findings of this study. Specifically, research into specific reasons behind the career related decisions of teachers is needed.

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