JOB-RELATED STRESS AMONG SECONDARY AGRICULTURAL EDUCATION TEACHERS: A COMPARISON STUDY

Robert M. Torres, Professor
Rebecca G. Lawver, Graduate Assistant
Misty D. Lambert, Graduate Assistant
University of Missouri

Abstract

The study sought to explore and compare the current level of job stress among secondary agriculture teachers in Missouri and North Carolina. The accessible populations consisted of secondary agriculture teachers (n = 252) in Missouri and (n = 118) in North Carolina. Data were collected using the Job Stress Survey (Spielberger & Vagg, 1999). From the findings, it was concluded that agriculture teachers in Missouri and North Carolina are not in an overall state of stress compared with norm data. However, time-related job tasks were found to be a source of stress among both teacher samples, and "excessive paperwork" was identified as the highest stressor. Low stress items among teachers fell into three broad job-related categories best described as supervision, advancement, and inactivity.

Introduction and Theoretical Framework

Stress is a growing concern in today's society. According to the American Psychological Association (2007) one-third of people in the United States regularly report experiencing extreme levels of stress, and nearly one in five reports that they experienced their highest level of stress 15 or more days per month. Greenberg (1984) defined stress as ~~"~~the physical, mental, or emotional reaction resulting from an individual's response to environmental tensions, conflicts, pressures, and other stimuli" (p. 2). Stress further results from excitement, challenge, inspiration to do well and perform at high levels, but at the same time stress makes individuals fearful, angry, frustrated, and unable to relax (Cosgrove, 2000).

Concern with the effects of job stress on a person's productivity, absenteeism, and health-related problems have increased dramatically during the last decade (Vagg & Spielberger, 1998). School teachers are not excluded from this concern. According to Adams (1999), high levels of stress can be harmful to teachers and may negatively affect their teaching, personal lives, and, most importantly, their students. Although most teachers agree that teaching is rewarding, it is a difficult career because of too few resources, too much paperwork, crowded classrooms, students with emotional problems, low salary, and high-stakes standardized testing (Strauss, 2002). Humphrey and Humphrey (1986) estimated that teachers make more than 400 decisions a day. This is particularly true in agricultural education because teachers face the additional challenge of meeting both traditional teacher roles as well as the specific programmatic roles associated with their programs (Torres, Ulmer, & Aschenbrener, 2007). Adding to the stress of frequent decision making, secondary agriculture teachers work well beyond a 40-hour work week preparing lessons, evaluating student work, coaching career development teams, and supervising student projects (Croom, 2003; Straquadine, 1990; Torres et al.).

Job stress research relative to secondary agriculture teachers has implications for improving the nature of the job and providing insight into possible interventions. The most influential framework for conducting research on job stress has been person-environment (PE) fit theory (Brewer & McMahan, 2004; Edwards & Cooper, 1990; Spielberger & Vagg, 1999). The PE fit theory is proposed as an approach for

understanding the process of adjustment between individuals and their work environment (Caplan, 1987). According to the theory, stress and strain in the workplace result from the interaction of an individual with his or her work environment (Vagg & Spielberger, 1998). The interaction between an individual and his or her environment determines whether or not a situation is stressful for that person (Brewer & McMahan). When demands of the job exceed a person's ability to meet those demands, the fit between an individual and their environment is incompatible; leading to a condition of stress.

Person-environment fit theory identifies of two basic measures regarding a person and the environment. The first measurement is objective, and the second is subjective. The objective environment indicates physical and social situations and events as they exist, independent of the person's perceptions, whereas the subjective environment refers to situations and events as perceived by the person (Edwards & Rothbard, 1999). Subjective fit is consistent with research on psychological stress, which deals with stress as experienced by the person (Edwards & Rothbard).

Review of Literature

Teacher stress literature is a subset of a much larger effort to investigate the effects of job stress in a variety of occupations and settings (Guglielmi & Tatrow, 1998). However, stress in education is not a new concern. Hans Selye, President of the International Institute of Stress, began conducting research on stress in education over 40 years ago (Greenberg, 1984). Humphrey and Humphrey (1986) reported that teachers averaged 4½ days of absences each year, with a third of those absences being related to stress. In addition, it was reported that 35% of teachers indicated calling in sick because of fatigue, and 84% believed that there were health hazards in teaching. Furthermore, 80% said their view of teaching had changed since beginning in the profession, and 23% admitted having a poor ability to cope with stress (Humphrey & Humphrey).

The review of the literature consistently suggests that teachers are expressing some degree of stress. Many studies have attempted to identify the sources of stress in elementary and secondary school teachers (Borg & Riding, 1991; Farber, 1984; Friedman, 1991; Guglielmi & Tatrow, 1998; Kyriacou & Sutcliffe, 1978; Mazur & Lynch, 1989; Milstein, Golaszewski, & Duquette, 1984; Mykletun, 1984; Olson & Matuskey, 1982). According to Cosgrove (2000), factors leading to teacher stress are students who are poorly prepared, student indiscipline, poor working conditions, time pressures, low job status, and conflicts with colleagues. Other factors leading to teacher stress include role overload, poor learner behavior, lack of resources, class size, diversity in individuals with whom they have to work, and lack of motivation of co-workers (Smylie, 1999). Additionally, an earlier study by Coates and Thorsen (1976) indicated common sources of teacher stress included time demands, clerical duties, and difficulties with students, student motivation, large class size, financial constraints, and lack of educational supplies.

A study conducted by Montgomery and Rupp (2005) measured the relationships between teacher stress and several variables including coping, burnout, emotional response, personality, personal support, environment and demographic characteristics. This study identified that on average, external stressors including student misbehavior and work demands are highly correlated with teacher stress. Additionally, in a study of industrial technology teachers, Brewer and McMahan (2004) identified stress related to lack of organizational support and difficulties with supervisors or coworkers as being more stressful than job pressures. Finally, in a study among rural and urban secondary school teachers, urban school teachers reported greater sources of stress due to poor working conditions, inadequate salary, poor promotion, and lack of recognition for teaching, and poor staff relations (Abel & Swell, 1999).

Agriculture teachers draw upon physical, emotional and intellectual resources to be effective in the classroom (Cano, 1990). Recognizing the variety of roles and responsibilities secondary agriculture

teachers assume is important in understanding their stress. The trend of increasing job responsibilities in agricultural education is well documented in the literature (Delnero & Montgomery, 2001). One early observation cited by the National Research Council (1988) was that secondary agriculture teachers spend a great deal of time helping students excel in production-oriented FFA competitive events and award programs and less time on classroom instruction. In recent years, more, not less has been added to the job responsibilities in agricultural education. Effective secondary agriculture teachers possess five common performance qualities of productive teaching behaviors: organized, structured class management, positive interpersonal relationships, professional responsibilities, and personal characteristics (Miller, Kahler, & Rheault, 1989).

The combination of varied teaching roles, the individual, and the environment in which they teach are grounds for stressful situations. Research conducted by Heath-Camp and Camp (1990), and Myers, Dyer, and Washburn (2005) on problems of beginning secondary agriculture teachers as well as research by Cano (1990) and Croom (2003) on secondary agriculture teacher burnout are a sample of research that relates to the issue of agriculture teacher stress. Although a vast amount of research has been conducted on teacher stress nationally and internationally, secondary agriculture teachers have gone largely unstudied.

Purpose and Research Objectives

The purpose of the study was to explore and compare the level of job stress among secondary agriculture teachers in Missouri and North Carolina. The following research objectives guided the study:

1. Describe selected characteristics of secondary agriculture teachers (gender, years of experience, time spent at work per week) by state.
2. Compare the level of job stress perceived by secondary agriculture teachers by state and against norm data.
3. Identify the highest/least stressors of secondary agriculture teachers by state and against norm data.

Procedures

The design for this study was descriptive-survey research. The accessible populations were secondary agriculture teachers in Missouri (N = 445) and North Carolina (N = 415) during the 2007-2008 academic year. The frames were obtained from the Missouri Department of Elementary and Secondary Education Directory of Agricultural Education and the North Carolina State Agricultural Education Office. Deliberate efforts were made to remove duplicate names and ensure accurate frames were obtained. Because of cost considerations, a census was taken from one state and a random sample from the other. A census was sought for Missouri agriculture teachers. For North Carolina, a simple random sample was use to select subjects for the study. According to Krejcie and Morgan (1970), the desirable sample size was n = 201 to obtain a known precision (+/- 5%) and confidence level (95%).

Instrumentation

Data were collected using the Job Stress Survey (JSS) developed by Spielberger and Vagg (1999). The JSS is a standardized, commercially available instrument designed to measure job stress as a function of job-related items that are perceived to be a source of severe and frequent stress. The JSS contained two sections. Section one sought to determine teachers' perceived level of severity of 30 common job-related stressors using a scale from 1 to 9; 9 being the most stressful measure.

The second section sought to determine the frequency at which teachers encountered the job-related stressor at work during the previous 6 months using a scale that ranged from zero days experienced to more than nine occurrences in the last six months (0 – 9+). The two responses (severity and frequency) were used to produce three stress index scores: Job Stress Index, Lack of Support Index, and Job Pressure Index. Index scores were calculated by multiplying severity scores by frequency scores. A third section was added to the questionnaire that sought teachers' personal, home, and work-related information. The JSS was prepared for a paper-pencil and electronic format.

Spielberger and Vagg (1999) reported that validity and reliability of the JSS were established through the results of previous studies. The creation of the instrument was detailed in *Job stress survey: Professional Manual.* The manual further reported that the job-related items in the JSS were analyzed for construct validity using factor analysis. Alpha coefficients of .80 or higher were reported for all three scales including Job Stress, Job Pressure, and Lack of Support (Spielberger & Vagg).

Data Collection

Missouri teachers' data were collected during the months of March and April 2008. For secondary teachers in Missouri, this period of time can be characterized as representing a high level of activity to include FFA Career Development Event activities as well as typical spring academic semester, instructional activities, and events. Using a mixed mode (paper/electronic) approach, three points of contact with teachers were made to collect data. The data collection process began by mailing teachers a personally signed 3 × 5 in. prenotice postcard announcing the intent of the study and the forthcoming request for participation. Two days later, a personalized e-mail that included the personalized URL hyperlink to an online questionnaire was sent to teachers by using the HostedSurvey.com service. The opening page of the online questionnaire contained a message to the teachers detailing the importance of the study and their participation as well as instructions for completing the online questionnaire. An e-mail reminder was sent via HostedSurvey.com to those who had not responded by the specified date. The e-mail including the URL (again), further encouraged teacher participation. As a result, a response rate was 43% (n = 193) was achieved.

North Carolina teacher data were collected during the months of May and June 2008. This time was selected because it closely matched the teacher activities in Missouri. Three points of contact were also used with these teachers when collecting data. The data collection process began by mailing teachers a personally signed 3 × 5 in. prenotice postcard announcing the intent of the study and the forthcoming request for participation. Two days later, a personalized paper questionnaire was mailed to teachers. An e-mail reminder was sent to teachers who had not responded by the specified date approximately 7 days later. Via the HostedSurvey.com service, teachers were sent an e-mail that included a personalized URL hyperlink to the online questionnaire. The opening page of the online questionnaire contained a message to teachers detailing the importance of the study and their participation as well as instructions for completing the online questionnaire. As a result of these efforts, a response rate of 54% (n = 108) was achieved.

Teachers who responded by completing the questionnaire were assumed to represent response bias. Miller and Smith (1983) suggested procedures for examining response bias by comparing a sampling of nonrespondent data (10% to 30%) to respondent data. Toward that end, a sampling of nonrespondents was taken from each teacher group. For Missouri, a random sample representing 30 % (n = 71) of the nonrespondents was taken; for North Carolina, a random sample representing 30% (n = 29) of the nonrespondents was taken.

Nonrespondents were mailed an envelope packet containing a revised and signed cover letter, a paper copy of the questionnaire, and a self-addressed, stamped return envelope as a reminder to participate in the study. The final contact with nonrespondents consisted of a personalized e-mail with a personalized link to the online questionnaire; followed by personalized phone calls to all nonrespondents. These efforts yielded an 83% (n = 59) response rate for Missouri and a 34% (n =10) response rate for North Carolina teachers.

Teacher data from Missouri respondents (n = 193) and nonrespondents (n = 59); and North Carolina teacher respondents (n = 108) and nonrespondents (n = 10) were statistically compared on the primary variables of interest (the JSS scales). Using an independent

samples *t*-test, no significant ($p > .05$) differences were found between respondent and nonrespondent data on the variables in either group of teachers. Thus, nonrespondent data were pooled with the respondent data, yielding a total response rate of 252 (57%) for Missouri teachers and a total response rate of 118 (59%) for teachers in North Carolina, acknowledging some remaining potential for response error.

All returned and/or submitted questionnaires yielded usable data. Data were coded by the researchers and analyzed using SPSS (version 15). Frequencies, percentages, and measures of central tendencies and variability were used to summarize the data.

Results

Research question one sought to describe characteristics of secondary agriculture teachers. Table 1 displays these characteristics. In Missouri, 174 (73%) were male, and 65 (27%) were female. A large percentage (39%) of secondary agriculture teachers in Missouri work 56 to 65 hours a week. In addition, Missouri agriculture teachers had an average of 11 years teaching experience (SD = 8.52), with individuals' experience ranging from 1 to 37 years. For the North Carolina teachers, 73 (65%) were male, and 40 (35%) were female. The majority (43%) of North Carolina teachers work 46 to 55 hours a week. Furthermore, North Carolina teachers had an average of 13 years of teaching experience (SD = 9.99).

Table 1
Characteristics of Secondary Agriculture Teachers

	Missouri (n = 252)			North Carolina (n = 118)	
Characteristic	*f*	%		*f*	%
Gender					
Female	65	27.2		40	35.4
Male	174	72.8		73	64.6
Hours a week at work					
36-45 hours	13	5.4		13	11.0
46-55 hours	85	35.6		51	43.2
56-65 hours	92	38.5		28	23.7
66-75 hours	39	16.3		15	12.7
75+ hours	10	4.2		4	3.4

Note. Frequency totals represent missing data; valid percentages are reported.

Research objective two sought to compare the level of job stress of secondary agriculture teachers in terms of overall Job Stress, Job Pressure, and Lack of Support by state and by norm data. The job stress results in Table 2 reveal that secondary agriculture teachers in Missouri and North Carolina are alike on the three index scores. Similarly, secondary agriculture teachers in both states are in the 60th percentile of managerial/professional norm data on the Job Stress Index. Managerial/professional was chosen as the norm data over the other norm group offerings reported in the manual because it most closely resembled the population being studied. Missouri agriculture teachers are at the 68 percentile on the Job Pressure Index, whereas North Carolina agriculture teachers are at the 64 percentile on norm data. The Lack of Support Index scores are lowest for both Missouri and North Carolina agriculture teachers, falling at the 56 and 58 percentile, respectively.

Table 2
Secondary Agriculture Teacher Job Stress Survey Results

	Missouri data (n = 252)		M/P norm data[a]	North Carolina data (n = 118)		M/P norm data[a]
Index score	*M*	*SD*	Percentile	*M*	*SD*	Percentile
Job stress index	22.38	12.21	60	22.23	11.61	60
Job pressure index	28.61	14.73	68	26.89	14.31	64
Lack of support index	19.43	14.94	56	20.72	14.75	58

[a]M/P= Managerial/Professional

Table 3 ranks the five highest job stressors as reported by secondary agriculture teachers in Missouri and the corresponding norm percentile for managerial/professionals. For item analysis, Spielberger and Vagg (1999) indicated that special attention be given to items for which the index score is more than one-half of the standard deviation above the mean for the comparison group. Furthermore, scores appeared to be somewhat skewed as noted by the relatively large standard deviation and range of scores. Therefore, median was identified as a better measure of central tendency and used in ranking the items. Mean and standard deviation scores were also reported to draw reference to the managerial/professional norm data. As revealed by the Job Stress Index score, the most stressful item for secondary agriculture teachers in Missouri is ―excessive paperwork" (*Md = 63, M* = 53.05, *SD* = 26.09). Teachers also rated ―working overtime" (*Md = 45, M* = 43.2, *SD* = 22.77), ―meeting deadlines" (*Md = 42, M* = 41.87, *SD* = 25.90), and ―frequent interruptions" (*Md = 30, M* = 32.32, *SD* = 24.33) as being stressors. ―Insufficient personal time" (*Md = 24, M* = 31.42, *SD* = 28.89) and ―critical on the spot decisions" (*Md = 24, M* = 26.82, *SD* = 19.62) tied for fifth as being job stressors; each was above the national norm for managerial professionals.

Table 3
High Stress Items Among Missouri Secondary Agriculture Teachers (n = 252)

	Job Stress Index				M/P norm data[a] JS-X	
Stressor	*Md*	*M*	*SD*	Range[b]	*M*	*SD*
Excessive paperwork	63.00	53.05	26.09	0 - 81	31.09	25.18
Working overtime	45.00	43.20	22.77	0 - 81	23.40	21.25
Meeting deadlines	42.00	41.87	25.90	0 - 81	32.68	22.59
Frequent interruptions	30.00	32.32	24.33	0 - 81	36.04	24.27
Insufficient personal time	24.00	31.42	28.89	0 - 81	11.94	19.62
On the spot decisions	24.00	26.82	19.62	0 - 81	22.11	18.45

[a]M/P= Managerial/Professional.
[b]Maximum value equals 81.

Table 4 ranks the five highest job stressors as reported by secondary agriculture teachers in North Carolina and the corresponding norm percentiles for other managerial/professionals. As revealed by the Job Stress Index score, the most stressful job-related item for the North Carolina agriculture teachers is ―excessive paperwork" (*Md = 56, M* = 52.61, *SD* = 28.69). Teachers also rated ―meeting deadlines" (*Md = 36, M* = 40.05, *SD* = 28.29), ―working overtime" (*Md = 36, M* = 37.90, *SD* = 24.49), ―fellow coworkers not doing their job" (*Md = 30, M* = 36.43, *SD* = 30.40), and ―insufficient personal time" (*Md = 28, M* = 33.07, *SD* = 31.03) as being job stressors; each was above the national norm for managerial professionals.

Table 4
High Stress Items Among North Carolina Secondary Agriculture Teachers (n = 118)

	Job Stress Index				M/P norm data[a] JS-X	
Stressor	*Md*	*M*	*SD*	Range[b]	*M*	*SD*
Excessive paperwork	56.00	52.61	28.69	0 - 81	31.09	25.18
Meeting deadlines	36.00	40.05	28.29	0 - 81	32.68	22.59
Working overtime	36.00	37.90	29.49	0 - 81	23.40	21.25
Fellow workers not doing job	30.00	36.43	30.40	0 - 81	27.68	25.69
Insufficient personal time	28.00	33.07	31.03	0 - 81	11.94	19.62

[a]M/P= Managerial/Professional.
[b]Maximum value equals 81.

Table 5 displays items that ranked as the 5 lowest of the 30 job stressors among Missouri secondary agriculture teachers. Ranking as the lowest stress item was "periods of inactivity" (*Md* = 0.00, *M* = 4.55, *SD* = 9.33). Agriculture teachers also rated "competition for advancement" (*Md* = 0.00, *M* = 5.10, *SD* = 12.84), "lack of opportunity for advancement" (*Md* = 0.00, *M* = 11.16, *SD* = 19.02), "poor or inadequate supervision" (*Md* = 1.00, *M* = 10.16, *SD* = 17.35), and "difficulty getting along with supervisors" (*Md* = 1.00, *M* = 12.04, *SD* = 21.42) as items that cause slight stress.

Table 5
Low Stress Items Among Missouri Secondary Agriculture Teachers (n = 252)

	Job Stress Index				M/P norm data[a] JS-X	
Stressor	*Md*	*M*	*SD*	Range[b]	*M*	*SD*
Periods of inactivity	0.00	4.55	9.33	0 - 81	6.31	13.86
Competition for advancement	0.00	5.10	12.84	0 - 81	11.22	19.52
Lack of opportunity for advancement	0.00	11.16	19.02	0 - 81	19.30	27.51
Poor or inadequate supervision	1.00	10.16	17.35	0 - 81	13.75	22.02
Difficulty getting along with supervisor	1.00	12.04	21.42	0 - 81	9.01	17.81

[a]M/P= Managerial/Professional.
[b]Maximum value equals 81.

Table 6 displays items that ranked as the 5 lowest of the 30 job stressors among North Carolina secondary agriculture teachers. Ranking as the lowest stress item was "periods of inactivity" (*Md* = 0.00, *M* = 3.19, *SD* = 8.23). North Carolina agriculture teachers also rated "competition for advancement" (*Md* = 0.00, *M* = 5.18, *SD* = 14.22), "difficulty getting along with supervisors" (*M* = 7.96, *SD* = 17.09), "lack of opportunity for advancement" (*Md* = 0.00, *M* = 10.54, *SD* = 19.74), and "poor or inadequate supervision" (*Md* = 2.00, *M* = 13.10, *SD* = 22.69) as low stress items.

Table 6
Low Stress Items Among North Carolina Secondary Agriculture Teachers (n = 118)

	Job Stress Index				M/P norm data[a] JS-X	
Stressor	*Md*	*M*	*SD*	Range[b]	*M*	*SD*
Periods of inactivity	0.00	3.19	8.23	0 - 81	6.31	13.86
Competition for advancement	0.00	5.18	14.22	0 - 81	11.22	19.52
Difficulty getting along with supervisor	0.00	7.96	17.09	0 - 81	9.01	17.81
Lack of opportunity for advancement	0.00	10.54	19.74	0 - 81	19.30	27.51
Poor or inadequate supervision	2.00	13.10	22.69	0 - 81	13.75	22.02

[a]M/P= Managerial/Professional.
[b]Maximum value equals 81.

Conclusions, Implications and Recommendations

A profile of secondary agriculture teachers in Missouri and North Carolina suggests that these teachers are mostly male and have an average of 11 or more years of teaching experience. Almost all teachers reported working more than 45 hours per week. However, Missouri teachers seem to work approximately 10 hours a week more than North Carolina teachers.

Despite the fact that the majority of teachers are not experiencing severe job stress, job stress does rise to a level of concern. Missouri and North Carolina teachers both fall in the 60th percentile in the overall Job Stress Index. Agriculture teachers do have excessive roles and responsibilities, continue to place demands on themselves, and must meet demands placed on them by students, parents, administrators, and peers.

Agriculture teachers in Missouri and North Carolina ranked over the 60th percentile on the Job Pressure Index. Spielberger and Vagg (1999) identify the 70th percentile as the point of stress. Although teachers do not appear to be stressed, on average they are close to the tipping point in the area of job pressure. This is contradictory with the study conducted by Brewer and McMahan (2004) that identified lack of support as being more stressful than job pressure for industrial technology teachers. Job pressure occurs when the requirements of the job to not match the teachers' resources or capabilities. The excessive paperwork, working overtime, meeting deadlines, and insufficient personal time are contributing to job pressure stress.

What's encouraging is teachers in Missouri and North Carolina continue to have a healthy level of support from their colleagues, administrators, peers, and parents. Missouri teachers rank in the 56th percentile and North Carolina teachers rank in the 58th percentile on the Lack of Support Index. It is important for teachers to be proactive in seeking positive support networks and continue to cultivate healthy relationships with others.

For those who are experiencing extreme levels of stress and those who are rapidly approaching the tipping point, the following recommendations have been identified. State and national teacher organizations should provide assistance to teachers in identifying resources for the classroom and

provide professional development opportunities to enhance the teachers' qualifications, coping strategies and networking abilities.

The Person-Environment fit theory suggests that physical, mental, and/or emotional stress occurs when a person does not fit their environment. It appears that with this group of secondary agriculture teachers, it is not the work area or supervisor that is creating stress. However, what do emerge are high stress items related to time issues (i.e., "working overtime," "meeting deadlines," and "excessive paperwork"). A discrepancy in the amount of time individuals need to perform their job and how they manage their job may lead to mental and/or emotional stress. It is advised that teachers participate in time management training. State and national teacher associations should offer various forms of time management training workshops during conferences and consider them a professional development opportunity to enhance and develop agriculture teachers' time management skills. National and state leaders should be aware of the demands placed on teachers and develop a streamlined approach to managing work at the local level.

Low stress items among this group of teachers can be divided into three broad groups: supervision, advancement, and inactivity. This would tend to indicate that school personnel and the setting itself contribute minimally to secondary agriculture teachers' stress. Teachers also seem to be indifferent to the opportunities and competition for advancement. This is essentially due to the structure of the teaching profession. Finally, "periods of inactivity" and "frequent change from boring to demanding" also rank as low stress items. It is important to recognize the job-related items that are not perceived as teacher stressors are also the "selling points" of the profession. These items should be used to recruit potential teachers to the profession by capitalizing on the items that make the profession less stressful. Good management and continuous monitoring by teachers, administrators, and state and national staff will ensure that these remain low stress items while on the job. This study suggests that as a whole, our teachers are not stressed, but the results do indicate teachers are rapidly approaching the tipping point of being overstressed. Finally, adequate focus should be shifted from the low stress items to the high stress items to effectively cope with the stressors of the job.

Secondary agriculture teachers will benefit from further examination of stress to help explain additional contributing factors. For example, can personal (e.g., gender and/or personality) or family (e.g., marital status and/or number of children at home) attributes explain stress levels among agriculture teachers? Additional research on work and family balance and benefits of stress reduction would be useful. Does the number of teachers in the department, years of teaching experience, or number of students in program influence the amount of stress agriculture teacher experience? Does program planning affect the stress levels of agriculture teachers? The FFA organization and supervised agricultural experiences may provide insight into the characteristics of a low and high stress teaching environment in agricultural education. A study identifying specific characteristics of agricultural education programs that make them unique is an additional element that could be explored. Finally, this research studied only teachers currently in the classroom. A study of teachers who left the profession would be valuable to determine whether job stress was an underlying reason for their decision to leave the profession. With the knowledge of job stress in agricultural education, we will be able to stimulate conversation about the profession and formulate ways to manage stress among our teachers before they reach the tipping point.

References

Abel, M. H., & Sewell, J. (1999) Stress and burnout in rural and urban secondary school teachers. *The Journal of Educational Research, 92*(5), 287-293.

Adams, E. (1999). Vocational teacher stress and internal characteristics. *Journal of Vocational and Technical Education. 16*(1). Retrieved August 14, 2008, from

http://scholar.lib.vt.edu/ejournals/JVTE/v16n1/adams.html

American Psychological Association (2007). S*tress a major health problem in the U.S., warns APA*. Retrieved June 1, 2008, from http://www.apa.org/releases/stressproblem.html

Borg, M. G., & Riding, R. J. (1991). Towards a model for the determinants of occupational stress among schoolteachers. *European Journal of Psychology of Education, 6*, 355-373.

Brewer, E. W., & McMahan, J. (2004). Job stress and burnout among industrial and technical teacher educators. *Journal of Vocational Education Research*, 28*(2),* 125-140.

Cano, J. (1990). Teacher stress – teacher burnout: A profession at risk. *The Agricultural Education Magazine*, *62*, 13-14, 22.

Caplan, R. D. (1987). Person-environment fit theory and organizations: Commensurate dimensions, time perspectives, and mechanisms. *Journal of Vocational Behavior*, *31*, 248-267.

Coates, T. J., & Thorsen, C. E. (1976). Teacher anxiety: A review with recommendations. *Review of Educational Research, 46,* 159-184.

Cosgrove, J. (2000). *Breakdown: The facts about stress in teaching*. London: Routledge Falmer.

Croom, D. B. (2003). Teacher burnout in agricultural education. *Journal of Agricultural Education, 44*(2), 1-13.

Delnero, J., & Montgomery, D. (2001). Perceptions of work among California agriculture teachers. *Journal of Agricultural Education, 42*(2), 56-67.

Edwards, J. R., & Cooper, C. L. (1990). The person-environment fit approach to stress: Recurring problems and some suggested solutions. *Journal of Organizational Behavior*, *11*, 293-307.

Edwards, J. R., & Rothbard, N. P. (1999). Work and family stress and well-being: An examination of person-environment fit in the work and family domains. *Organizational Behavior and Human Development Process*, *77*(2)*,* 85-129.

Farber, B. A. (1984). Stress and burnout in suburban teachers. *Journal of Educational Research*, *77*, 325-331.

Friedman, I. A. (1991). High and low-burnout schools: School culture aspects of teacher burnout. *Journal of Educational Research, 84,* 325-333.

Greenberg S. F. (1984). *Stress and the teaching profession*. Baltimore, MD: Brookes.

Guglielmi, R. S., & Tatrow, K. (1998). Occupational stress, burnout, and health in teachers: A methodological and theoretical analysis. *Review of Educational Research*, *68*, 61-99.

Heath-Camp, B., & Camp, W. G. (1990). Induction experiences and needs of beginning vocational teachers without teacher education backgrounds. *Occupational Educational Forum, 19*(1), 6-16.

Humphrey, J. N., & Humphrey, J. H. (1986). *Coping with stress in teaching*. New York: AMS Press.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research. *Educational and Psychological Measurement, 30,* 607-610.

Kyriacou, C., & Sutcliffe, J. (1978). Teacher stress: Prevalence, sources, and symptoms. *British Journal of Educational Psychology, 48*, 159-167.

Mazur, P. J., & Lynch, M. D. (1989). Differential impact of administrative, organizational, and personality factors on

teacher burnout. *Teaching and Teacher Education, 5*, 337-353.

Miller, W. W., Kahler, A. A., & Rheault, K. (1989). Profile of the effective vocational agriculture teacher. *Journal of Agricultural Education, 30*(2)*,* 33-40.

Miller, L. E., & Smith, K. (1983). Handling non-response issues. *Journal of Extension, 10*, 45-50.

Milstein, M. M., Golaszewski, T. J., & Duquette, R. D. (1984). Organizationally based stress: What bothers teachers. *Journal of Educational Research, 77,* 293-297.

Montgomery C., & Rupp, A. A. (2005) A meta-analysis for exploring the diverse cause and effects of stress in teachers. *Canadian Journal of Education, 28*(3), 458-486.

Myers, B. E., Dyer, J. E. & Washburn, S. G., (2005). Problems of beginning agriculture teachers. *Journal of Agricultural Education, 46*(3), 47-55.

Mykletun, R. J. (1984). Teacher stress: Perceived and objective sources, and quality of life. *Scandinavian Journal of Educational Research, 28*, 17-45.

National Research Council (1988). *Understanding agriculture: New directions for education*. Washington, DC: National Academy Press.

Olson, J., & Matuskey, P. V. (1982). Causes of burnout in SLD teachers. *Journal of Learning Disabilities, 15*, 97-99.

Smylie, M. A. (1999). Teacher stress in a time of reform. In R. Vandenberghe & A. M. Huberman (Eds.), *Understanding and preventing teacher burnout*. Cambridge: Cambridge University Press.

Spielberger, C. D., & Vagg, P. R. (1999). *Job stress survey: Professional manual.* Odessa, FL. Psychological Assessment Resources.

Straquadine, G. S. (1990). Work, is it your drug of choice? *The Agricultural Education Magazine,* 62, 11-12, 21.

Strauss, V. (2002). *Everyday problems*. Retrieved June 18, 2008, from http://www.washingtonpost.com/wp-dyn/articles/A61601-2002Oct21.html

Torres, R. M., Ulmer, J., & Aschenbrener, M. (2007, May). *Distribution of time usage among agriculture education teachers: A comparison of workloads*. Paper presented at the meeting of the American Association for Agricultural Education Research Conference, Minneapolis, MN, *34,* 571-584.

Vagg P. R., & Spielberger, C. D. (1998). Occupational stress: Measuring job pressure and organizational support in the workplace. *Journal of Occupational Health Psychology*, *3*(4)*,* 294-305.

ROBERT M. TORRES is a Professor in the Department of Agricultural Education at the University of Missouri, 126 Gentry Hall, Columbia, MO 65211. E-mail: TorresR@missouri.edu.

REBECCA G. LAWVER is a Graduate Assistant in the Department of Agricultural Education at the University of Missouri, 125 A Gentry Hall, Columbia, MO 65211. E-mail: rgl4z7@mizzou.edu.

MISTY D. LAMBERT is a Graduate Assistant in the Department of Agricultural Education at the University of Missouri, 125 A Gentry Hall, Columbia, MO 65211. E-mail: mdl7c9@mizzou.edu.