

The Master of Agriculture in the Department of Animal Science at Texas A&M University: An Opinion Survey Analysis and Results Comparison

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Abstract

Texas A&M University provides its students with a program in agriculture allowing them the opportunity to acquire a professional problem-solving degree. This program is called the Master of Agriculture. In order to assess the quality of the Master of Agriculture program and to obtain curriculum suggestions, a survey of Master of Agriculture graduates from the Department of Animal Science between 1980 and 1995 was conducted in the fall of 1995. Forty-four students responded out of 98 possible respondents. The results indicated an overall positive attitude toward the degree program with the majority of respondents suggesting the addition of courses or an increased number of required hours in the areas of computer science, veterinary science, finance, and management. The survey was structured after a survey published in 1980 by W. W. Miller for comparison. The current results were not significantly different in the areas of people and factors influencing the graduates' decision to pursue a Masters degree. The surveys were also not significantly different in the reasons for pursuing a Masters of Agriculture instead of a Masters of Science. Students' feelings regarding the value of the internship have not changed over the years with the majority holding the internship as having much or great value; but Miller's survey found students had more interest in technical writing, speech, and agronomy, while the current survey found the courses mentioned above more beneficial to graduates.

Introduction

According to Johnson and Wittwer (1984), agricultural research falls into one of three categories. The first is disciplinary research which reviews and improves theory, contributes knowledge, improves techniques, and provides scientific measurements in a particular discipline. The second type is subject-matter research which provides information in an organized fashion about multidisciplinary bodies for use in a set of real-world problems. The last type of agricultural research is problem solving research. This entails generating new information or assembling existing facts to focus on solving a specific problem faced by decision-makers in a specific time and place. All three types of research are important, yet only the first two types are addressed fully in a typical MS or Ph.D. program. Texas

A&M developed a professional degree program, called the Masters of Agriculture, to specifically target problem solving research in agriculture (C. O. A. L. S., 1985). The program was developed to provide students with a flexible graduate degree, training students to become executives in agricultural related businesses (C. O. A. L. S., 1985). The degree may be earned in any department in the College of Agriculture and Life Sciences and also in five interdisciplinary areas: agricultural chemistry, food science and technology, natural resource development, plant sciences, and agricultural development (Lacey and Downey, 1995). The program requires 36 hours, twelve of which may be taken outside of the degree option, and twelve of which must be taken at Texas A&M to satisfy residency requirements (C. O. A. L. S., 1983). The students must participate in a 684 course (professional internship) but may only use up to eight hours of credit (Lacey and Downey, 1995). The internship may be set up independently or set up through a departmentally arranged interview. A special problems class (685) may be used toward the degree, but must also be less than or equal to eight hours of credit (Lacey and Downey, 1995). Students may also count up to three hours of a theory of research class (690) towards their degree. The total of the three previously mentioned courses must be no more than 25% of the total degree plan (Lacey and Downey, 1995). Through the required internship, students are able to face a business world problem, write up an analysis including possible solutions in a professional paper, and receive employer-based training that provides valuable experience both educationally and in efforts towards future employment.

Since few alterations to the Master of Agriculture program have been implemented, it was necessary to evaluate graduates' satisfaction with and results from the program in order to develop ideas for improvement. A survey was conducted in the fall of 1995 to assess program effectiveness and to pinpoint areas in need of improvement. The survey was structured after a previous survey conducted by Miller (1980) in order to provide a firm comparison basis. Miller used a survey of Master of Agriculture students and a survey of Master of Science students in the College of Agriculture at Texas A&M University as a comparison model for his doctoral dissertation. The current survey was conducted solely on Master of Agriculture students in the Animal Science

Department and the respondents are graduates of this program between the years 1980 and 1995.

Materials and Methods

This study was designed to assess the Animal Science Department Master of Agriculture graduates' attitudes towards and opinions of their degree program. The survey was intended as an evaluation of the program and a sounding board for individual comments regarding likes, dislikes, and suggested changes. The study was conducted with four major objectives in mind. The first objective was to determine the factors that influenced the graduates to pursue a Master's degree in the department of Animal Science in the College of Agriculture and Life Sciences at Texas A&M University. The second objective was to gather the graduates' opinions concerning various aspects of the Master of Agriculture graduate degree program. The study was also aimed at identifying potential curriculum changes in the required curriculum of this professional degree program. Finally, the results were to be compiled and compared to Miller's (1980) study. Miller surveyed all College of Agriculture graduates from 1974 to 1978, separating them into Master of Agriculture students and MS students. The survey used in the current study was structured very closely to Miller's for comparison purposes. Ninety-eight graduates were identified as having received their degrees between 1980 and 1995. Surveys were sent to these students in the mail to be returned anonymously in the envelope provided. A follow-up letter was sent to all 98 graduates in hopes of gaining participation of any nonrespondents. Random phone calls to all eligible graduates were utilized to follow-up on the status of the surveys and to gain any additional respondents.

The surveys included Likert type questions inquiring into the motivation behind the graduates' choices to pursue a masters degree, to pursue a masters degree at Texas A&M, and to pursue a Master of Agriculture as opposed to a Master of Science. Section one contained specific questions with the option to respond based on the degree of influence each question had on the respondent's decision. The answers were rated from one for "no influence" to five for a "very strong influence." Also included were four multiple choice/ Likert-type questions concerning quality of the program, preparation for the business world, training applicable to one's career, and what route students would take if they were to start over. Section two contained a list of course areas (28 areas including a space for "other"). Students were to respond first as to whether they participated in the course area and second as to the value of the course area in the degree program. The value was assessed by whether or not the course should be added to the curriculum if the student did not take the course, and

whether there should be more courses required in the discipline if the student had participated in the course area. Also included in the survey were multiple choice, Likert, and short answer questions about: value of the internship and professional paper (4 questions), educational background (2 questions), and job history (9 questions). A short answer/ multiple choice area (16 questions) was provided for the students' profiles (GPR, test scores, demographics, etc.) and comments.

Data was collected on 44 respondents from an anonymous response in a postage-paid return envelope. Surveys were analyzed using means and standard deviations on Likert questions, and percentages on multiple choice questions. Data was then compiled and recorded in Microsoft Excel for review and analysis.

Results and Discussion

The survey results concerning the factors that influenced the graduate to pursue a Master's degree in the Department of Animal Science at Texas A&M University were recorded as mean responses and standard deviations. Regarding the person or persons that had the most influence on the graduate's decision to pursue a Masters, the top motivator was professors, followed by parents, professional colleagues, and finally spouses (Table 1). The most influential factor for pursuing a master's degree at Texas A&M was the desire for further professional training. Doubts concerning vocational goals were of moderate influence. Inability to find a job in area of undergraduate training, nearness to home, and financial assistance had little influence on the decision (Table 2). When asked what influenced their decision to obtain a Master of Agriculture as opposed to a Master of Science, graduates felt that the practicality of the program and their orientation towards a career in a non-research area had the strongest influence. The opportunity to participate in an internship and the perception of the Master of Agriculture as a "good route" for their education both had moderate influence on students' decisions (Table 3). The graduates' opinions concerning the Master of Agriculture generally represented satisfaction with the program. When asked to rate the program quality, with one being "poor" and five being "excellent", the most common response was "excellent" with a mean response of 4.360.65. Using the same scale, regarding effectiveness of the degree in preparing graduates for their first job and benefit of graduate training in present career, the mean responses were 4.07 0.85 and 3.75 1.08, respectively. Graduates were asked their opinion concerning the value of the internship and the professional paper, rating each again from one (no value) to five (of great value). The mean response regarding the professional paper was 3.09 1.04 with a mode of 3. The internship was favored as more valuable with a mean

Table 1. Degree of Influence People had on Graduates' Decision to Pursue a Masters Degree

| Person | Mean Response ^z | Standard Deviation |
|------------------------|----------------------------|--------------------|
| Professor | 3.05 | 1.29 |
| Parent | 2.80 | 1.30 |
| Professional Colleague | 2.47 | 1.37 |
| Spouse | 2.19 | 1.47 |

^z1=None; 5=Very Strong

Table 2. Degree of Influence Certain Factors had on Graduates' Decision to Pursue a Masters Degree

| Factor | Mean Response ^z | Standard Deviation |
|---|----------------------------|--------------------|
| Desire for Further Professional Training | 4.52 | 0.95 |
| Doubts Concerning Vocational Goal | 2.79 | 1.57 |
| Inability to Find a Job Related to Undergraduate Degree | 2.31 | 1.55 |
| Nearness to Home | 2.28 | 1.53 |
| Financial Assistance | 1.91 | 1.36 |

^z1=None; 5=Very Strong

Table 3. Degree of Influence Certain Reasons had on Graduates' Decision to Pursue a Master of Agriculture Instead of a Master of Science

| Reason | Mean Response ^z | Standard Deviation |
|--|----------------------------|--------------------|
| Practicality of the M of Agr | 4.34 | 0.89 |
| Orientation of Degree Toward Non-Research Area | 4.34 | 0.96 |
| Good Route for Education | 3.47 | 1.47 |
| Opportunity for an Internship | 3.39 | 1.43 |

^z1=None; 5=Very Strong

response of 4.10 0.96 and a mode of 5. Also, 52% of the graduates felt that the internship aided in securing their first full-time position. Table 4 displays the breakdown of the answers concerning the internship value by percent response. In section two of the survey, student opinions about curriculum changes were addressed. For analysis, the answers of "Should Add" classes in this area and need to "Increase" courses in this area were combined to find percentages. Computer science was the area in which the largest percentage of students felt they needed more training (significant majority of 63.64%). The majority of the students also felt more emphasis was necessary in the areas of Veterinary Science, Finance, and Management. Rangeland Management was not suggested by the majority, but fell closely behind those listed above. The percentages are listed in Table 5 for comparison. Some of the comments regarding

curriculum changes needed are listed below. Students felt the program:

1. Did not provide enough training in statistics for continuation into a Ph.D.
2. Needed to include more hands-on training.
3. Had several classes that repeated undergraduate information.
4. Should limit core courses.
5. Should add more business courses.
6. Needed a required course in immunology.
7. Was practical and valuable.

Students also felt that the program should enable them to pursue a Ph.D. if they decided to take that career path. The program is currently considered a terminal degree with pro-

Table 4. Value of the Internship in the Master of Agriculture Degree Program

| Response | Percent |
|-------------|---------|
| No Response | 4.55 |
| None | 0.00 |
| Little | 6.82 |
| Moderate | 18.18 |
| Much | 29.55 |
| Great | 40.90 |

Table 5. Curriculum Changes: Courses that Should be Added and/or Requirements Should be Increased

| Course Area | Percent |
|----------------------|---------|
| Computer Science | 63.64 |
| Veterinary Science | 59.09 |
| Finance | 52.27 |
| Management | 52.27 |
| Rangeland Management | 45.45 |

fessional employment being the goal after the Masters of Agriculture is obtained. The program is also quite flexible depending on the department, the individual student, and the chair of the student's committee. Most of the individual suggestions regarding curriculum listed above are at the discretion of the student's committee.

One of the most important reasons for conducting the survey was to compare the current results with those of Miller (1980). Using a separate variance t-test with a level of $p < 0.05$, Miller's survey was not significantly different from the current survey in the areas of people and factors affecting graduates' decision to earn a Master's degree (Table 6).

Considering the graduates' decision to obtain a Master's of Agriculture, the previous study (Miller, 1980) did not include variances or standard deviations regarding this question in the survey; therefore, it was necessary to use a rank comparison. The current survey and Miller's (1980) survey both resulted in the same top three reasons for selection of the M. Agr. program over the M. S. program: the practicality of the M. Agr. degree program, the orientation of the M. Agr. degree program towards careers in non-research areas, and the feeling that the M. Agr. degree was a good route for further graduate education, respectively. The fourth spot differed in the surveys. In

Miller's (1980) survey, the fourth reason was that graduates did not want to write a thesis. In the current survey, the fourth ranking answer was that the graduates wanted the opportunity to participate in an internship.

A Chi-Square test was used to compare the percentages regarding the graduates' value of the internship and their suggestions for course changes in the curriculum. Regarding the internship, the Chi-Square was less than ($p < 0.05$) the tabulated value; thus the populations show a homogeneity of distribution and the year the survey was given did not significantly affect the responses. Regarding the course suggestions, the Chi-Square did exceed the tabulated value

($p < 0.05$); thus the null hypothesis (the two populations show a homogeneity of distribution) was rejected. Consequently, the year the survey was taken reflected different responses regarding changes needed in the curriculum (Table 7). In Miller's study (1980), the students placed more emphasis on the need for courses in technical writing, speech, and agronomy; whereas, the current study found the areas listed in Table 7 to be the most desired courses.

Summary

The data gathered from this survey provided valuable insight on how the program could be enhanced. It

Table 6. Degree of Person's and Factor's influence on Graduates' Decision to Pursue a Masters (Miller, 1980) and Separate Variance T-test with 1996 Survey

| Persons/Factor | Mean Response ^z | Standard Deviation | T-test statistic ($p < 0.05$) |
|------------------------------------|----------------------------|--------------------|---------------------------------|
| Professors | 2.66 | 1.43 | 1.80 |
| Parents | 2.41 | 1.45 | 1.79 |
| Professional Colleagues | 2.11 | 1.31 | 1.61 |
| Spouse | 2.23 | 1.47 | 0.17 |
| Further Professional Training | 4.39 | 0.86 | 0.84 |
| Doubts Concerning Vocational goals | 2.57 | 1.46 | 0.86 |
| Inability to Find a Job | | | |
| Related to Undergraduate Degree | 2.03 | 1.42 | 1.11 |
| Nearness to Home | 1.82 | 1.28 | 1.87 |
| Financial Assistance | 2.36 | 1.62 | 1.94 |

^z1=None; 5=Very Strong

Table 7. Internship Value in the Master of Agriculture (Miller, 1980), Course Suggestions (Miller, 1980) and Chi-square Values for the Comparison with 1996 Survey

| Internship Value | Percent Response | Number of Students | Chi-Square | Tabulated Chi-Square |
|--|------------------|--------------------|-------------|----------------------|
| None | 4.41 | 10 | 5.70, 5 df | 11.07 |
| Little | 8.37 | 19 | | |
| Moderate | 23.35 | 53 | | |
| Much | 19.38 | 44 | | |
| Great | 34.36 | 78 | | |
| No Response | 10.13 | 23 | | |
| Course Suggestions (should add or increase) | | | | |
| Computer Science | 48.00 | 109 | 30.99, 4 df | 11.14 |
| Veterinary Science | 55.00 | 29 | | |
| Finance | 48.50 | 125 | | |
| Management | 14.90 | 110 | | |
| Rangeland Management | 12.80 | 34 | | |

also provided opinions concerning satisfaction or dissatisfaction with the program. The data was comparable to the work done by Miller in 1980, and provided the department with a base to work from in order to improve the current program. It is quite evident that the program needs more emphasis in Computer Science and Veterinary Science, these areas are even more valuable to students now than they were in the previous study. Business courses such as Finance and Management are still just as important to students today as they were in the past. Decisions to pursue a masters seem to rely more on professors and less on family and colleagues. The internship which is currently required was valued by the majority of students in 1980 and is valued by an even larger majority presently. Practicality was and still is the number one reason students chose the Master of Agriculture as opposed to the Master of Science. The desire for further professional training is still the biggest factor affecting the decision to pursue a Masters, and since the Master of Agriculture is a professional degree program students will receive the training they are seeking. The program is very well received by the students and faculty and provides a perfect fit for the problem solver who wants more hands-on training and the opportunity to gain a graduate degree while attacking real problems in the agriculture industry. Today's agriculture industry needs leaders to address issues and to present logical solutions in a professional manor. This graduate program will help shape

the industry as well as the students and bring both entities together.

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