ABSTRACT: The purpose of graduate education in reproductive physiology and endocrinology is to develop scientists and educators who will create new knowledge and impart this knowledge to appropriate end users in animal agriculture. Technology changes over time but the scientific method remains constant. Society needs scientists and educators who are grounded in the fundamentals of biology as well as in animal agriculture. Students in reproductive physiology and endocrinology require a blending of fundamental sciences with application to agricultural species in their training. My philosophy has been to treat each student as a unique individual needing a program designed to eliminate weaknesses and to magnify strengths. Each student must have a background in statistics and biochemistry. These 2 fundamental areas of science are of such importance that they must be included early in the educational process to assure competence in research or teaching. Students must be involved in their own research as early as possible. Collaborative and interdisciplinary research has been a key factor in developing successful scientists and educators in my graduate education program. Success of students after graduation has been a rewarding aspect of training graduate students.

Key words: animal science, graduate education, philosophy

INTRODUCTION

Technology changes but the scientific method remains constant. The purpose of our graduate educational process is to develop scientists and educators who will create new knowledge and impart this knowledge to appropriate end users in animal agriculture. The success of students after graduation is the most rewarding aspect of working with graduate students.

Dr. L.E. Casida has been a role model for those of us who are involved in the education of graduate or postdoctoral students in the area of reproductive physiology and endocrinology. His concept of the relationship of animal science to a biology training program at the graduate level remains as functional today as it was in 1966 (Casida, 1966). The blending of fundamental sciences with application to agricultural species is the cornerstone for excellence in graduate education in reproductive physiology and endocrinology (Casida, 1966; Ulberg, 1986).

Students who become reproductive physiologists and endocrinologists must be well educated in the fundamentals of biology. For the student to be functional in animal science as a reproductive physiologist and/or endocrinologist, he or she must also understand the agricultural species to be studied and the economic reasons for studying the particular species (Casida, 1966; Ulberg, 1986).

Philosophy for Graduate Education

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Philosophy for graduate education

A philosophy has been to educate graduate students to become scientists, teachers, or specialists in reproductive physiology and endocrinology. This process recognizes that a one size fits all approach is not the approach to develop scientists. The standard, however, is that each student must have a background in statistics and biochemistry. These 2 fundamental areas of science are of such importance that they must be included early in the educational process to assure competence in research or teaching. The idea that a student must be involved in his or her own research before he or she really becomes a graduate student is a concept presented by Dr. Casida (1966). I am in agreement with him and have involved students in research as early in their career as possible.

My graduate training was in the laboratory of R.E. Erb at Purdue University. By example, I learned the value of getting started in research early in my career. There was no task that he would ask of a student that he would not do himself. He emphasized the science over the technology that we were using or developing. He taught by example that the job was not complete until the research was published. I was fortunate to work with Robert E. Short and Robert A. Bellows at the U.S. Livestock and Range Research Laboratory in Miles City, MT, following my graduate education. As products of Dr. Casida’s laboratory, they introduced me to much of his philosophy during my first year with them.

My location away from the main campus of Texas A&M University has presented both opportunities and drawbacks for involving students in the research process. Undergraduate interns in research have been a key part of my research and teaching role. I have had one or more undergraduate interns in research annually and have given them research projects that are similar to those assigned to master’s candidates. These young men and women have gone on to distinguish themselves as scientists, educators, extension specialists, veterinarians, and leaders in agricultural business. The drawback has been that I could not work with as many talented students as I would have if I had been located at the main campus.

Inevitably the professional appointment that a mentor occupies affects one’s philosophy for graduate education. The idea expressed by Dr. Casida (1966) that the Agricultural Experiment Station is extremely important in the development of graduate students and postdoctoral trainees remains an integral part of graduate education in the area of reproductive physiology and endocrinology. Having spent my career at locations removed from a main campus, a key part of my philosophy has been to include graduate students or postdoctoral trainees in all of my research projects. This allows them to learn many new techniques. This has been supported by excellent colleagues located on the main campus.

Collaborative and interdisciplinary research have been key factors in my graduate education program. These colleagues who are more knowledgeable have strongly affected the students that I have mentored. This is one of the requirements for success in science noted by Stormshak (2004). Teaching students the value of collaborative and interdisciplinary research has been challenging and rewarding. The result has been well trained and effective scientists, educators, and specialists, due to the work of these collaborators. Many of the more interesting findings in the literature are the results of collaborative research. The other aspect of the education program that has been important is collaboration across disciplinary lines. Again, the result has been well trained and effective scientists, educators, or specialists. Much of the credit should be given to these outstanding collaborators for their efforts with my students and the remainder to these excellent students.


LITERATURE CITED

