

Application for Approval of a New Major in Veterinary Diagnostic and Production Animal Medicine

Introduction

Changes in animal agriculture have increased the need for post-graduate programs specialized in diagnostic and production animal medicine (livestock production). Iowa State University is the leading source of veterinarians entering production animal medicine in the United States. Production animal medicine is a top priority of the teaching, professional practice and research strategies of the College of Veterinary Medicine. The proposed program provides for education and experience beyond the DVM degree, with emphasis on preventive and population approaches for enhancing animal health, well-being and productivity. This graduate major is designed to build on the basic professional degree by providing advanced training in diagnostic, analytical and intervention skills essential to serving modern animal agriculture.

Program Proposal

A. Background Information

1. Name of the proposed major

The name of the proposed major is Veterinary Diagnostic and Production Animal Medicine

2. Name of the degree

The degree will be Master of Science

3. Name of the department involved

The department involved and presenting the application is the Department of Veterinary Diagnostic and Production Animal Medicine

4. Need for the proposed program.

The first priority in the College of Veterinary Medicine's strategic plan is enhancement and expansion of programs in production animal medicine. To facilitate this strategy, the College of Veterinary Medicine has recently reorganized to form a department of Veterinary Diagnostic and Production Animal Medicine. The mission of this department is to attain the highest standards of excellence in veterinary diagnostic and production animal medicine through teaching, research, extension and professional practice programs. Expected benefits include improved animal health, profitable and sustainable livestock production, a plentiful supply of safe and wholesome

food, and protection of the environment shared by animals and humans.

Current changes in veterinary medicine supporting animal agriculture have increased the need for post-graduate programs in diagnostic and production animal medicine. The proposed major provides for education and experience beyond the DVM degree with emphasis on preventive and population approaches for enhancing animal well-being and productivity.

Iowa State University is the leading source of veterinarians entering production animal medicine in the United States. This graduate major is designed to build on the basic professional degree by providing advanced training in diagnostic, analytical and intervention skills essential to serving modern animal agriculture. Current demand for production medicine specialists comes from companies specializing in animal production, animal genetics, feeds and nutritional services and animal health products. In addition, public practice and research positions will increasingly be needed in government agencies and academic institutions. Finally, high quality consultation in private practice is an area that utilizes graduates from this program.

5. **Objectives of the proposed program**

a. **Program Objectives:** The objectives of the proposed program are designed to provide the advanced medical/disease expertise and research training and experience to enable graduate veterinarians to better serve the food animal industry. Specific program objectives will include the following:

- Provide specific formal training in disease mechanisms and pathogenesis that will enable rational and scientific diagnostic, therapeutic and preventive intervention for production animal health.
- Present current principles and practices of diagnostic evaluation to best support decisions about animal health programs and practices.
- Provide epidemiological and statistical training to enable quantitative evaluation of population and research data for animal herds; further to provide the principles and tools for design and execution of hypothesis-based research in production animal units or in research trials supporting animal health issues.
- Provide specific working environments and experiences in production animal medicine by involving graduate students in university and commercial animal units where advanced training can be utilized to evaluate or effect animal health decisions.

b. Student Objectives and Outcomes

Graduates of the VDPAM major will have expertise in production animal principles and practices and the ability to advise clients and consult effectively with more advanced and focused specialists in other specialties as needed.

Graduates will have the following competencies:

- Advanced training and understanding of analytical concepts and methods that allow effective interpretation of research and animal production data.
- Ability to sample herds and select laboratory tests appropriate to the diagnostic needs of specific herds or populations.
- Understand epidemiology and population dynamics to a level sufficient to rationally evaluate problems and recommend corrective procedures on a herd or population basis.
- Providing animal health monitoring programs, planning and decision making or implementation.
- Work in a variety of settings, including production animal units, animal health companies, consulting companies, and possibly regulatory agencies.
- Evaluate experimental evidence, review epidemiological data, synthesize reports from a variety of medical and performance data, and design appropriate applied experiments that can be tested with appropriate statistical procedures.
- Apply basic medical knowledge of disease mechanisms to production animal units, oriented to herd and population level decisions that will help to prevent the need for individual medical treatments and improve the overall profitability of the operation.

6. General description of the program

This program will include didactic and laboratory courses, field investigations, and hypothesis-driven research experiments. The program is designed to provide advanced training in the following subjects:

Biostatistics and Epidemiology

Diseases of food animals

Diagnostic medicine

Therapeutics

Disease prevention
Animal health economics
Animal production management
Food safety