

**CONSIDERATIONS FOR KANSAS STATE UNIVERSITY'S COLLEGE OF
AGRICULTURE OBTAINING AAALAC ACCREDITATION**

by

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Abstract

Kansas State University uses a variety of animals to fulfill the University's research and teaching mission. K-State maintains a single Institutional Animal Care and Use Committee (IACUC) to oversee the use of all vertebrate animals used in research and teaching at K-State. K-State's program is AAALAC accredited. The Association for the Assessment and Accreditation of Laboratory Animal Care, International (AAALAC) is a non-profit organization with the mission to promote the humane care of animals used in research and teaching. AAALAC is a private member association that evaluates and accredits member organizations by utilizing a peer review process. Accreditation signifies that an animal care and use program goes beyond meeting minimum standards required by law and strives for excellence to better meet the needs of the animals in their care. However, K-State's accreditation is university-limited, meaning not all colleges that use animals for research and teaching are accredited. The College of Agriculture is not included in the accreditation even though it supports 15 animal facilities within the Department of Animal Science & Industry (AS&I) and 2 facilities located at Agricultural Experiment Stations (AES). Species housed in these facilities include; cattle, horses, swine, sheep, goats, and poultry. AAALAC reports that accreditation of agricultural animal programs lags behind other animal research and teaching programs. This may be due to multiple factors such as; minimal research funding sources require institutions to be accredited, minimal funding to make necessary facility upgrades, and a lack of conviction of how accreditation may benefit an agricultural animal program. This paper begins to discuss the scope of the program, identify common deficiencies, and provide suggestions for program improvement. As public pressure increases to improve care of animals in research and agricultural settings, it would benefit K-State to accredit all the institution's animal facilities. The IACUC is a key player in this effort but support from K-State institutional leadership and the College of Agriculture is paramount. Those at K-State know the importance of the care we provide the animals in our facilities, but obtaining AAALAC accreditation will show our peers, supporting institutions, and our students that we strive for excellence in care of all our animals.

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Dedication

I would like to thank my childhood best friend, Jamie, you may have beaten me to the finish line but your support kept me in the race. Much love and thanks to my family for putting up with all my life decisions. And last but not least, to all the animals I have had the privilege to serve, thank you for the constant lessons in compassion and respect.

Preface

The foundation of this report is compiled using information provided by AAALAC, International. The information provided on K-State's Department of Animal Science & Industry is compiled from both published information on the web and from the author's knowledge compiled over the last two years working with K-State's University Research Compliance Office and Comparative Medicine Group. The intent of the report is to open a dialogue on discussing the possibility of pursuing AAALAC accreditation for K-State's College of Agriculture. The recommendations are solely those of the author and the author would defer to input from more experienced professionals in the field as to the practicality of the recommendations. The author hopes that some elements of the report lead to improvements in the agricultural animal care and use program regardless if AAALAC accreditation is pursued.

CHAPTER 1 - AAALAC International

AAALAC International

The Association for the Assessment and Accreditation of Laboratory Animal Care International (AAALAC) is a non-profit organization with the mission to promote humane care of animals used in research and teaching. AAALAC is private member association that evaluates and accredits member organizations by utilizing a peer review process. Membership in AAALAC is voluntary, but accreditation must be achieved through a rigorous program review process. Through the accreditation process an institution demonstrates their ability to meet the minimum standards required by law. The accreditation process also aims to motivate institutions to go beyond the minimum standards and strive for excellence in providing animal care. AAALAC accredits over 700 organizations world-wide (4). The programs accredited by AAALAC include academic, corporate, medical, and government institutions.

The History of AAALAC International

The post World War II era of the 1940's and 1950's saw an increase in scientific research, including research utilizing animals. This growth was partially due to the support of the federal government in the formation U.S. National Institutes of Health (NIH) (17). A group of veterinarians in the Chicago area recognized that the rapidly changing animal research industry would benefit from a national organization focused on the standardization of animal care, accreditation of animal research facilities, and educational programs for both members and the public. The Animal Care Panel (ACP), which later was renamed The American Association of Laboratory Animal Science (AALAS), was formed in 1950 to improve laboratory animal care and the sharing of information between research institutions. The core value statement of AALAS (7):

“The American Association for Laboratory Animal Science believes that the use of laboratory animals in scientific and medical research is essential to the improvement and protection of the quality of all life. The humane and responsible care of laboratory animals is vital to quality research and, as such, an essential aspect of AALAS endeavors. AALAS is dedicated to building and disseminating a knowledge base in laboratory animal science for the education and training of those who work in this field.”

As the ACP began to grow in membership, a need for standardization of animal care and use facilities was recognized. An ACP committee focusing on accreditation of animal research facilities was formed in 1960. In 1964, the Animal Facilities Accreditation Board (AFAB) submitted a report to the ACP board with the recommendation that the accreditation program should be a separate organization from ACP (17).

The ACP recognized the importance of support of the scientific community and its active participation in a separate accreditation program. Organizations with a major interest in the development of an accreditation organization were appointed to the National Advisory Committee (NAC) to the AFAB in 1964 (see Table 1:1) (17). The purpose of the NAC was assessing the feasibility of an accreditation program. The NAC not only represented the interest of the institutions that would be affected by an accreditation program, but also the national scientific community in general. In 1965, AAALAC was formed in an effort to ensure that animal research is conducted with appropriate standards. The founding members of AAALAC included the ACP, the American College of Surgeons, and the thirteen organizations appointed to the NAC. The goal was to develop an accreditation organization based on voluntary participation and peer review.

Over forty years later, AALAC has experienced tremendous growth. This includes the expansion to international institutions participating in the accreditation process necessitating a change in the name of the organization to the Association for Assessment and Accreditation of Laboratory Animal Care International in 1996. Currently, AAALAC International is comprised of 66 member organizations with 767 programs are accredited in over 30 countries (4).

AAALAC International's mission statement:

“The Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC International) is a voluntary accrediting organization that enhances the quality of research, teaching, and testing by promoting humane, responsible animal care and use. It provides advice and independent assessments to participating institutions and accredits those that meet or exceed applicable standards.” (4)

AAALAC International Organization

AAALAC, International is governed by a Board of Trustees. The board is comprised of a representative from each of the member organizations with each individual representative

appointed for a three-year term. The Council on Accreditation charged with evaluating programs for accreditation. They perform site visits, review program descriptions, evaluate programs, make suggestions for improvement, and determine accreditation status. They also review annual updates submitted by accredited organizations. The council is divided into three different sections; North America, Europe, and Pacific Rim (4). Council members serve four year terms with a two term limit and are appointed by the Board of Trustees (17). Council members possess diverse knowledge in regards to issues with animal care and use programs. The Council on Accreditation mission statement:

“The AAALAC International Council on Accreditation promotes quality and continuing improvement of the well-being of animals used in research, testing, and teaching, the health and safety of personnel, and the animal-based research itself. These are accomplished through the conduct of peer reviews of animal care and use programs, conferring an accreditation status, educational efforts, and on-going communications with stakeholders. The Council’s activities are principled in the application of performance-based standards and professional judgment within the framework of the Guide, applicable reference resources, and relevant governmental regulations.” (2).

In addition to council members, the Council on Accreditation utilizes *ad hoc* members in the accreditation process. *Ad hoc* members accompany council members on site visits and provide recommendations to the council. The use of *ad hoc* members allows the council to incorporate persons that may have expertise in a specific discipline, such as; agricultural, pharmaceutical, and aquatics research. The council selects *ad hoc* members that possess a minimum of four years experience or training in the care and use of laboratory animals and have demonstrated a commitment to laboratory animal science. The council currently has over 260 *ad hoc* members (4). The proportion of the scientific research world that utilizes animals is small in comparison to the scientific community in general. The use of animals in research and teaching covers a wide variety of special disciplines and the council’s utilization of specialist enhances the evaluation process.

Accreditation Standards

It is important to understand that AAALAC does not develop the standards for animal care and use, but rather promotes widely accepted industry guidelines and current regulatory

standards. AAALAC does not enforce state and federal regulations. A single document outlining the standards for animal care and use that can be used to evaluate a program in its entirety does not exist. For this reason, AAALAC utilizes multiple resources to determine standards for an animal care and use program. As stated in AAALAC's Rules for Accreditation, the standards promoted by AAALAC uphold 4 basic objectives (5):

- The care and management of laboratory animals should be directed by qualified persons.
- All animal care personnel should be suitably qualified by training and experience in the care of laboratory animals.
- Physical facilities and the methods of care and use for animals should permit their maintenance in a state of well-being and comfort.
- The accredited unit shall observe any and all statutes and governmental regulations which bear upon animal care and use including, but not limited to, the prevailing standards of sanitation, health, labor and safety of the jurisdiction(s) in which it is located.

Governmental Oversight

In the United States, there are two federal agencies that are involved in the oversight of the use of animals in research and teaching, the United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) and the National Institutes of Health (NIH) Office of Laboratory Animal Welfare (OLAW). Both require that all activities utilizing animals in research and teaching be reviewed by an Institutional Animal Care and Use Committee.

APHIS is responsible for the enforcement of federal regulations as outlined in the Animal Welfare Act (AWA). Since 1966, the AWA has provided regulations that ensure the humane treatment of animals that are intended for research, bred for commercial sale, exhibited to the public, or commercially transported (9). The AWA outlines the minimum standards for the care of animals covered under the AWA. Institutions using animals covered by the AWA for the purposes of research, testing, and teaching must be registered with the USDA and are inspected

at a minimum of once per year. Institutions are also required to provide annual updates to the USDA, including the number of animals used per species.

The OLAW is responsible for the oversight of compliance with the Public Health Service (PHS) Policy on Humane Care and Use of Laboratory Animals (18). The PHS Policy is mandated under the Health Research Extension Act of 1985. This policy is applicable to both PHS agencies and institutions receiving PHS funding. This policy requires institutions supported by the PHS to establish and maintain methods to ensure appropriate care and use of animals used for research, training, or biological testing. OLAW's mission statement (18):

“The Office of Laboratory Animal Welfare (OLAW) provides guidance and interpretation of the Public Health Service (PHS) Policy on Humane Care and Use of Laboratory Animals, supports educational programs, and monitors compliance with the Policy by Assured institutions and PHS funding components to ensure the humane care and use of animals in PHS-supported research, testing, and training, thereby contributing to the quality of PHS-supported activities.”

OLAW requires every institution receiving PHS support for conducting activities involving animals to provide a written animal welfare assurance statement (18). Assurance statements are approved for a time period of no longer than 5 years. The assurance statement must describe the institution's program for the care and use of animals, institutional status (AAALAC accredited or evaluated by the institution's IACUC), and the IACUC. Kansas State University maintains a PHS animal welfare assurance statement.

All 3 organizations share the goal of ensuring appropriate care of animals used in research and teaching. However, each organization defines “animal” differently. The AWA defines “animal” as “any live or dead dog, cat, monkey (nonhuman primate mammal), guinea pig, hamster, rabbit, or such other warmblooded animal, as the Secretary may determine is being used, or is intended for use, for research, testing, experimentation, or exhibition purposes, or as a pet; but such term excludes (1) birds, rats of the genus *Rattus*, and mice of the genus *Mus*, bred for use in research, (2) horses not used for research purposes, and (3) other farm animals, such as, but not limited to livestock or poultry, used or intended for use as food and fiber, or livestock or poultry used or intended for use improving animal nutrition, breeding, management, or production efficiency, or for improving the quality of food or fiber” (9). In contrast, the PHS policy encompasses all vertebrate species. The PHS Policy definition of “animal” as “any live, vertebrate animal used or intended for use in research, research training, experimentation, or

biological testing or for related purposes” (18). AAALAC defines “laboratory animals” as “all animals used or to be used in research, teaching or testing at accreditable units are to be included and evaluated in accordance with the standards set forth in Section 2 of these Rules. This includes traditional laboratory animals, farm animals, wildlife, and aquatic animals. Nontraditional animals, inclusive of invertebrate species, are also included where they are relevant to the unit's mission” (5).

Reference Resources

The primary resource for accepted guidelines is the *Guide for the Care and Use of Laboratory Animals* (13). This commonly referred to as “*The Guide*” within the laboratory animal industry. The Guide, first published in 1963, has undergone multiple revisions as the industry has progressed. The purpose of the Guide is to help animal care and use programs with standards that are both scientifically and humanely appropriate (13). The recommendations in the Guide are based on scientific methods, published data, and expert opinion and opinions which uphold high quality animal care. Guidelines for the care and use of agricultural animals are covered in the *Guide for the Care and Use of Agricultural Animals in Research and Teaching* (12). This book is commonly referred to as “*The Ag. Guide.*”

AAALAC maintains a list of reference resources. These are adopted by the council as sources of references and guidelines to assist both site visitors and accredited institutions in determining appropriate standards for animal care and use programs. They allow for more detailed information on specific aspects of an animal care and use program, such as occupational health issues, the use of non-human primates, and euthanasia. Table 1:3 lists the most commonly used reference resources by Kansas State University’s animal care and use program. Further guidance on accreditation requirements are also addressed in AAALAC’s position statements and rules for accreditation (5).

The Accreditation Process

Any public or private institution, organization, or agency actively maintaining, using, importing, or producing animals for purposes of scientific research, teaching, or testing may apply for accreditation. An active animal care and use program includes multiple components: animals, facilities, equipment, professional staff, technical staff, administrative support, institutional policies, and animal husbandry and veterinary care (5).

The accreditation process is comprised of 4 parts; the program description, the site visit, the Council on Accreditation review, and the determination of accreditation status. An appeal process is available for of institutions which have their accreditation withheld or revoked. The organization to be accredited submits a Program Description (PD) to AAALAC. The outline of the PD is provided by AAALAC to ensure that all the elements of the animal care and use program are detailed within the document. The PD must contain information on the institution's animal care and use policies, the animal care program, veterinary care program, and the animal facilities. The PD is usually submitted with supporting documentation (e.g., facility maps, HVAC data, and organizational charts).

Once AAALAC receives the PD, a site visit team will be assigned to the organization. The PD is reviewed by the site visit team assigned to the institution. This team usually includes 2 or more members but typically depends on the size of the animal care and use program and its unique requirements. The site visit includes a review of the PD which allows the team members to ask any additional questions, and tour of all the animal facilities described in the PD. At the end of the visit, the team meets privately to discuss their observations. The site visitors then conduct a de-briefing with institutional members. At this time the team provides their preliminary findings, including mandatory items and suggestions for improvement. Mandatory items are deficiencies that must be addressed before full accreditation can be granted or continued. Suggestions for improvement are items that AAALAC feels should be improved. However, the findings communicated at the de-briefing may not be the final outcome of the site visit. All official determinations of accreditation status occur at the triennial council meetings. In addition to the site visit team, a small group of committee members will review the PD and site visit report before the council meeting and the council will determine accreditation status. The outcomes for accreditation include; provisional, full accreditation, deferred/conditional accreditation, probation, and withhold/revoke accreditation.

Kansas State University's Animal Care and Use Program

Kansas State University maintains a single IACUC to oversee the use of all vertebrate animals used in research and teaching at K-State. The IACUC is administered by the University Research Compliance Office (URCO) under the Vice President for Research. K-State is AAALAC accredited, but the accreditation is university-limited meaning not all colleges that use

animals for research and teaching are accredited. Accredited colleges include; the College of Veterinary Medicine (CVM), the College of Human Ecology (CHE), College of Arts and Sciences (CAS), and the Biosecurity Research Institute (BRI). The College of Agriculture is not accredited. K-State underwent its last AAALAC review and was granted full accreditation in 2008. K-State will undergo the next AAALAC review in the summer of 2011.

Tables

Table 1:1 Founding member organizations of AAALAC

American Association of Dental Schools
Animal Care Panel (ACP)
American College of Physicians
American College of Surgeons
American Dental Association
American Heart Association
American Hospital Association
American Medical Association
American Veterinary Medical Association
Association of American Medical Colleges
Association of American Veterinary Medical Colleges
Federation of American Societies for Experimental Biology
National Association of State Universities and Land Grant Colleges
National Society for Medical Research
Pharmaceutical Manufacturer’s Association

Table 1:2 Comparisons of functions of organizations responsible for oversight of animal care and use programs

	USDA – APHIS	NIH – OLAW	AAALAC
Purpose	Animal Welfare Act (AWA)	PHS Policy	Accreditation
Applicable institutions	Users of “covered species”	PHS funded	Voluntary
Species covered	Warmblooded	Vertebrates	All
Standards	Federal regulations	PHS Policy & The Guide	Reference resources
Method of oversight	Inspections and annual reports	Assurance Statement and annual reports	Peer Review and annual reports
Sanctions	Fines, imprisonment	Loss of funding	Accreditation revoked

Adapted from OLAW On-line Seminar, June 11, 2009, C.E. Newcomer “What every IACUC should know about AAALAC accreditation”

Table 1:3 The most commonly used reference resources by Kansas State University's animal care and use program

Guide for the Care and Use of Laboratory Animals (NRC, 1996) *
Guide for the Care and Use of Agricultural Animals in Research and Teaching (FASS, 2009)
Biosafety in Microbiological and Biomedical Laboratories (CDC, 2007)
AVMA Guidelines on Euthanasia (AVMA, 2007) *
Occupational Health and Safety in the Care and Use of Research Animals (NRC, 1997)
“A good practice guide to the administration of substances and removal of blood, including routes and volumes” (Journal of Applied Toxicology, 2001)
NIH Guidelines for Research Involving Recombinant DNA Molecules (NIH, 2009)

* Currently under revision

CHAPTER 2 - AAALAC Accreditation of Agricultural Programs

What is an Agricultural Animal?

Agricultural animals, or farm animals, are used for both agricultural production research and teaching and for biomedical research and teaching. It is important to understand the need to classify their use in order to determine the appropriate guidelines and regulations for their care. If agricultural species are used for biomedical research then those animals are covered by the AWA and the facility must be registered with the USDA. Agricultural animals are exempt from the AWA if they are used strictly for food and fiber production, including research “for improvement of animal nutrition, breeding, management, or production efficiency, or for improvement of the quality of food or fiber” (19). The use of agricultural animals for the teaching of medical professions (medical and veterinary medical) are covered under the AWA, while animals used to teach college students in animal production classes are not covered. AAALAC’s position is that animals in an agricultural setting must be provided with housing and care equitable to a high-quality, well-managed farm (2). AAALAC uses *The Guide for the Care and Use of Agricultural Animals in Research and Teaching* (12) as the primary resource for the care of agricultural animals. It also notes that the first 3 sections of *The Guide* are applicable to agricultural animals (1). Regardless of classification, animal care programs must provide appropriate care for each species and under the circumstances which they are being used.

Accreditation of Agricultural Animal Programs

Most agricultural research and teaching programs are located at land grant institutions. Land grant institutions were first established in 1862 (14). Originally, a state was granted federal land to full fill the mission to teach agriculture, military tactics, and the mechanic arts as well as classical studies. To this day, land grant institutions receive federal funding annually to support the mission. The development of the Agricultural Experimental Stations (AES) and Cooperative Extension Service also arose from the land grant system. A university’s intimate association with AESs adds a difficult component to the structure of the animal care and use program. The AESs may be located a far distance from the main campus making oversight, communication, and lines of authority complicated.

The National Association of State Universities and Land Grant Colleges, now known as the Association of Public and Land-grant Universities (APLU), was one of the founding members of AAALAC, International (Table 1:1). In 2004, AAALAC appointed a committee, the Agricultural Research Program Accreditation Advisory Committee (ARPAAC), to determine how to better serve the agricultural animal programs and promote accreditation (3). The committee cited several benefits for accreditation of agricultural animal programs (6):

- Promotes and validates high standards for research and animal care
- Offers an opportunity for in-depth program assessment
- Provide opportunity for the identification and acquisition of additional resources
- Promote a positive image among research funders
- Provides public accountability

The benefits outlined above are the same ones for any program using animals for research and teaching. Even if programs are providing excellent care of their animals there is always room for improvement. Taking the time to prepare for the inspection forces a program to conduct a self-evaluation. There is also the benefit of having outside persons that are experienced in the field, and have seen many other institutions, perform a peer-review of the animal care and use program. Besides affirming what a program may be doing right, it will identify areas that need improvement. This challenge to improve the program can lead to better research, a safer work environment, and improved animal care. Also, identifying areas of concern can lead to appropriate corrections before a major incident which may jeopardize animal or worker well-being. It is much more efficient for an institution to correct a problem before significant damage occurs or negative publicity is generated.

The committee also identified unique challenges faced by agricultural animal programs (6):

- Size and complexity of the program
- Unclear lines of authority
- Cost of accreditation
- Investigator resistance to external oversight/control
- Misperceptions

Agricultural research programs may use large numbers of animals not only for research and teaching, but for producing food and fiber products. A program may have to support

programs that are spread out across large distances. Even with today's improved communication technologies, geographic separation can make it difficult for program oversight and communication with researchers. Typical programs support many facilities, often with a different faculty member responsible for oversight.

The challenge of cost to the institution is not necessarily the accreditation itself, but with multiple facilities that are each unique. There is a cost associated with the staff resources it takes to prepare documentation, conduct facility assessments, and initiate improvements. Additionally, it can be difficult to prepare a program for accreditation when those responsible for animal care and the animal facilities are resistant to the idea. This is closely tied with misconceptions persons may have about accreditation. The argument may be that programs have very little resources, including money and personnel to allocate to the accreditation process when they perceive the process is too difficult or not a benefit to their mission.

Universities may choose to accredit one or multiple units. They can choose to accredit their agricultural animal program along with other animal facilities or separately. Pursuing campus-wide accreditation at one time requires a whole program assessment once every three years. Depending on the structure of the animal care and use program, a university may choose to pursue accreditation for the agricultural animal program separately. This may help to avoid dealing with trying to coordinate obtaining information from multiple units at one time. This also may be influenced by the way animal use protocols are administered; all animal use protocols may be reviewed by a single committee or the university maintains 2 committees with one being for agricultural animal use protocols only. An institution needs to assess how best to structure their animal care and use program so that the necessary oversight and compliance can be maintained.

Accredited Agricultural Animal Programs

AAALAC reports approximately 50% of the 76 land grant institutions are AAALAC accredited, of which about half included their agricultural animal programs (11). An earlier published presentation on the AAALAC website (date unknown) stated that 28% of land grant institutions were accredited and of those only 36% included their agricultural animal programs (1). This shows there has been an increase in accreditation of agricultural animal programs at least in the last few years. In the fall of 2009, AAALAC again appointed a committee to look at

the promoting accreditation of agricultural programs (11). None of K-State's peer institutions' agricultural animal programs are currently AAALAC accredited (as determined by review of the AAALAC website and the institution's website). K-State's peer institutions include; Colorado State University, Iowa State University, North Carolina State University, Oklahoma State University, and Oregon State University. There are several Universities with AAALAC accreditation that might serve as models for K-State in obtaining accreditation of the agricultural animal program. These include Auburn University, Cornell University, Clemson University, Michigan State University, University of Illinois, and the University of Tennessee. Contacting these programs for information on how they accomplished accreditation should be one of the initial steps.

Common Deficiencies in Agricultural Animal Programs

AAALAC performed an analysis of the institutional program reviews for state universities and land grant colleges from 1993 to 2002 with the goal to identifying the common deficiencies seen in agricultural programs (6). They included both mandatory items and suggestions for improvement, and included the 3 most recent site visit reports. If a program was new to AAALAC they only included the 1 or 2 reports available for review.

Over half of the institutions (59%) did not have any mandatory items (6). Twenty-nine percent did not have any suggestions for improvement (1). They also showed that there was no significant correlation between the number of mandatory items or suggestions for improvement identified and whether or not the program was campus-wide or university-limited. They showed there was no correlation between the numbers of mandatory items or suggestions for improvement and if the program included a medical school or health science center (1). Site reports had a range of 0 to 9 mandatory deficiencies and 0 to 20 suggestions for improvement (1). For the purpose of the review, they divided the deficiencies into 4 different categories:

- Institutional Policies – occupational health and safety program (OHSP), IACUC, veterinary care, and administrative organization
- Animal Environment, Housing, and Management – animal space provisions, support services, sanitation practices, caging/housing systems, aseptic surgery, husbandry practices, identification, record keeping, vermin control

- Veterinary Care – preventive medicine, disease diagnosis, control, and treatment, surgical and post-surgical care, anesthesia and analgesia, and euthanasia
- Physical Plant – HVAC, survival surgery support, facility maintenance, personnel safety concerns, general storage conditions, sanitation of facilities, illumination, emergency power, physical plant design, and security

They found that the majority of deficiencies at land grant institutions were items having to do with institutional policy, 65%, which also reflects what seen in general animal care and use programs (70%) (1). The second most common deficiencies noted in land grant institutions were physical plant issues (20%) while general animal care and use programs had the least amount of deficiencies in this category (5%). The top 3 issues for both programs were IACUC issues, OHSP issues, and HVAC concerns. One of the main perceived obstacles to an agricultural animal program obtaining accreditation are facility issues, but AAALAC's survey of site visit reports does not support this. The following aspects of agricultural facilities are not deemed by AAALAC to be a major hindrance in achieving accreditation; outdated facilities, the use of natural ventilation, the use of a non-controlled photoperiod (i.e. open barns), and lack of lack of temperature control.

CHAPTER 3 - Kansas State University's Agricultural Animal Program

Kansas State University, founded in 1863, is a land-grant institution (16). Due to the presence of both the College of Veterinary Medicine and the College of Agriculture, the use of agricultural species for research and teaching for both biomedical and agricultural purposes are a major part of the K-States animal care and use program. The College of Agriculture maintains 11 different academic programs supporting both undergraduate and graduate education. The Department of Animal Science and Industry (AS&I) is the main animal user within the college of Agriculture. AS&I maintains 15 separate animal facilities within the vicinity of Manhattan, KS. AS&I reports on their website that the department manages about 6,500 acres of land for research purposes and their animal facilities support approximately 2000 to 3000 cattle, 3500 swine, 1500 laying hens, 250 sheep and 45 horses on average. In addition to the livestock units, the department operates a feed mill. (8).

In addition to the main agricultural units located in Manhattan, KS, K-State maintains additional 18,000 acres of agricultural research sites. The Agricultural Experiment Stations (AES) are located near the Kansas cities of Hays, Garden City, Colby and Parsons. The purposes of the AESs are to provide communication, education, and services to Kansas producers beyond the reach of main campus. It also allows K-State to conduct research in different areas of the state. The AESs located in Hays and Parsons maintain multiple animal facilities that support beef cattle research.

Agricultural Animal Research and Teaching Units

The following describes the purpose of each agricultural research and teaching unit. Additional information on the size, management, and activities of the units is provided. The majority of the information is provided by K-State's AS&I website and the author's knowledge of the facility gained during IACUC inspections (8).

Beef Cattle Research Center

The Beef Cattle Research Center (BCRC) aims to produce quality research addressing the need of the beef cattle industry. In addition to the research mission the center provides hands-on

training for both undergraduate and graduate students. The BCRC is the department's beef cattle feedlot operation and has been in operation at its current site since the 1960's. The majority of research projects conducted at the BCRC is on beef cattle nutrition. The unit houses both K-State and privately owned animals. The unit is overseen by an AS&I faculty member and maintains a management staff of 2 research assistants. The unit also relies on part-time employment of approximately 20 to 25 students. The unit is not known to conduct tours for the public.

The Beef Stocker Unit

The Beef Stocker Unit is has been in operation since 1948 and has 1,120 acres. The original purpose was to study the utilization of Kansas native grasses on beef production. Today the utilization of the unit is for research for the development of stocker cattle. In 2005, the unit opened the Animal Identification Knowledge Laboratory to support advances in animal identification technology. At that time, the unit constructed 24 receiving pens which hold 300 head of 500 lb. cattle. The unit is overseen by an AS&I faculty member and maintains a management staff of 2 research assistants. The unit does conduct tours for the public and host the annual Beef Stocker Conference.

Cow/Calf Unit

The Cow/Calf Unit focuses on 4 main research areas; 1) nutritional management of cattle grazing native tallgrass range, 2) production cycle management including calving, breeding, and weaning, 3) effects of calf nutritional and health management on carcass quality and value, and 4) factors influencing grazing distribution. The unit operates approximately 5,000 acres shared between 2 locations. The main Cow/Calf Unit is located west of the main campus and maintains a small livestock handling facility. The second part of the Cow/Calf Unit is the Junietta facility which also includes several cattle holding pens. The unit maintains approximately 325 commercial cows, 80 heifers, and 15 breeding bulls. The unit is overseen by an AS&I faculty member and maintains a management staff of a unit manager, an assistant manager, a research assistant, and additional graduate students.

Purebred Beef Teaching Unit

Purebred Beef Teaching Unit has a very strong teaching component in addition the supporting research. Part of the unit's mission is providing undergraduate students hands-on

experience in managing purebred stock, including aspects of breeding, feeding, management and marketing. The unit supports K-State's Little American Royal livestock show by providing animals and training for students to learn livestock showmanship skills. The unit operates approximately 4,000 acres of native grass pasture in 2 locations. The main unit is located north of the main campus and maintains a large barn with stalls, multiple outdoor pens, and a livestock handling facility. The second part of the unit is rental property located at Cedar Creek Ranch, Northeast of Manhattan. The unit is overseen by an AS&I faculty member and is managed by a unit manager and relies on the part-time employment of students. The unit also hosts an annual livestock sale.

Dairy Teaching and Research Center

The Dairy Teaching and Research Center supports research on dairy nutrition, housing, and management. The unit also supports the teaching of both graduate and undergraduate students through both formal class work and informal activities such as K-State's Dairy Judging Team and Little American Royal. The Center is located north of the main campus. The current facility has been in place since 1977 and has expanded to meet research needs, supporting over 250 dairy cattle. The unit is overseen by an AS&I faculty member and is managed by a unit manager and both full-time staff and part-time employment of students. The unit conducts tours for the public.

Poultry Research and Teaching Unit

The Poultry Research and Teaching Unit conducts research studies related to broilers, layers, turkeys, game birds and heritage poultry breeds. The unit supports both graduate and undergraduate training through formal instructions and informal activities, such as poultry judging. The unit maintains a specific flock for the purpose of training the judging team. The unit is located north of the main campus and operates 6 animal barns. The unit is overseen and managed by an AS&I faculty member. The unit relies on a staff member and student employees for husbandry care and also conducts tours for the public.

Sheep Research and Teaching Unit

The Sheep Research and Teaching Unit supports small ruminant meat and wool production. The unit houses animals used for research and formal teaching activities and

provides animals for informal teaching activities such as the wool judging and The Little American Royal. They maintain a herd of approximately 200 sheep and some goats. The facilities are comprised of one main building, multiple holding pens with shelters, and fenced grazing pasture. The department is planning to build a new facility just north of the current facility. The unit is overseen and managed by an AS&I faculty member and relies on student employees for husbandry care.

Horse Research and Teaching Unit

The Horse Research and Teaching Unit supports a breeding herd of 25-30 broodmares and several stallions with the goal of producing quality performance-bred horses that can be used for cutting, reining, roping, or general ranch work. Additional pleasure horses are also housed at the unit for student instruction. In addition to formal equine course work, the program supports the equine judging team and research primarily in the area of equine nutrition. The unit provides reproductive and training services to clients in which privately owned animals may be housed at the unit. The unit actively offers horses of various ages for sale. The facility is located north of main campus and includes several barns, paddocks, and round-pens, an outdoor arena, and over 300 acres of fenced pasture. The unit is overseen by an AS&I faculty member and is managed by a unit manager with additional husbandry care provided by students. At another site north of main campus, The Equine Education and Teaching Center is currently under construction.

Swine Teaching and Research Center

Swine Teaching and Research Center (Swine Unit) maintains gestation, farrowing, nursery, growing and finishing facilities for swine and conducts nutritional research and production technology. Those pigs not retained for the breeding herd are marketed. The unit, located north of main campus is overseen by an AS&I faculty member. The unit is managed by a unit manager and additional husbandry care is provided both full-time staff and student employees. The unit does allow tours of the facility to the public but maintains biosecurity practices to protect the unit's animals.

Segregated Early Weaning Research Facility

Segregated Early Weaning Research Facility (SEW Barn) was built in 1993. The purpose of the facility is for the evaluation of feed ingredients, feed additives and feeding management of

weanling pigs. The facility operates 2 identical buildings than can house 200 pigs each. The facility brings in weaned pigs from commercial operations and houses them for eight weeks for research purposes. Then the pigs are shipped to a commercial operation where the pigs are finished. This occurs in approximately 9 week cycles. The SEW facility is located north of the Swine Teaching and Research Center. However, it is operated separately from the Swine Unit for biosecurity purposes. The SEW Barn is overseen by an AS&I faculty member and is managed by a swine graduate student.

Call Hall

Call Hall, located on the main campus, maintains one animal room. The room supports a small number of metabolism stalls that are used to house cattle and is infrequently utilized. The room is overseen by the AS&I faculty member when they are conducting a study in the facility.

Weber Hall

Weber Hall, located on the main campus, maintains an indoor arena, a large animal procedure room, animal holding facilities, and an abattoir. Cattle, horses, sheep, goats, and swine may be used within the facility. No animals are housed in the facility on a permanent basis. The arena can house approximately 3000 people and is utilized for classroom instruction, livestock shows (Little American Royal), and conference demonstrations.

Kansas Artificial Breeding Service Unit

Kansas Artificial Breeding Service Unit (KABSU) provides breeding services to the cattle industry. It is a service oriented unit. KABSU provides in-house breeding soundness exams and semen collection as well as on-farm services. In 2009, a new animal housing facility was built north of main campus. Previously, all animals brought in for in-house services were housed with the K-State's Comparative Medicine Group. The unit is managed by a unit manager and support staff.

Kansas Agricultural Experiment Station – Hays

The AES in Hays, KS, operates 3 animal facilities and over 5000 acres. The main site supports a research feedlot with a 900 head capacity, a feed mill, and grazing pasture. The H.B. Ranch satellite facility provides 1142 acres of rangeland used for cow/calf production. The

facility has an animal handling area, sorting pens, and capabilities to confinement house cow/calf pairs if necessary. The Saline Experimental Range satellite facility has 2400 acres of range land. The Saline Experimental Stations maintains animal working and short-term holding facilities. The facilities are managed by AES faculty and utilize support staff for animal care.

Kansas Agricultural Experiment Station – Parsons

The AES in Parsons, KS, operates 2 animal facilities. The main facility in Parson is consists of several pastures and 2 animal handling facilities. The second facility is located in Mound Valley and operates a feedlot type of setting with a large animal handling facility. The Mound Valley satellite facility does not normally house cattle year around. The facilities are managed by an AES faculty member and utilize support staff for animal care.

IACUC Oversight of Agricultural Animal Research and Teaching Units

K-State maintains a single Institutional Animal Care and Use Committee (IACUC). The IACUC oversees the care and use of all vertebrate animals used for research and teaching at K-State. The IACUC is charged with conducting a review of the animal use program, including the inspection of animal facilities, at least once every 6 months (13). The IACUC inspects all the AS&I animal units and AESs animal facilities at the same time it conducts inspections of all other K-State animal facilities. During the inspection process deficiencies are noted. The Department Head, or other responsible persons, are notified in writing of the deficiencies. They are then expected to respond in writing detailing the corrective actions taken.

A review of the IACUC inspection reports from fall of 2004 to the spring 2010 revealed a range of deficiencies among the agricultural animal units. For the purposes of simplicity, deficiencies were divided into 5 categories. The categories are listed below with examples:

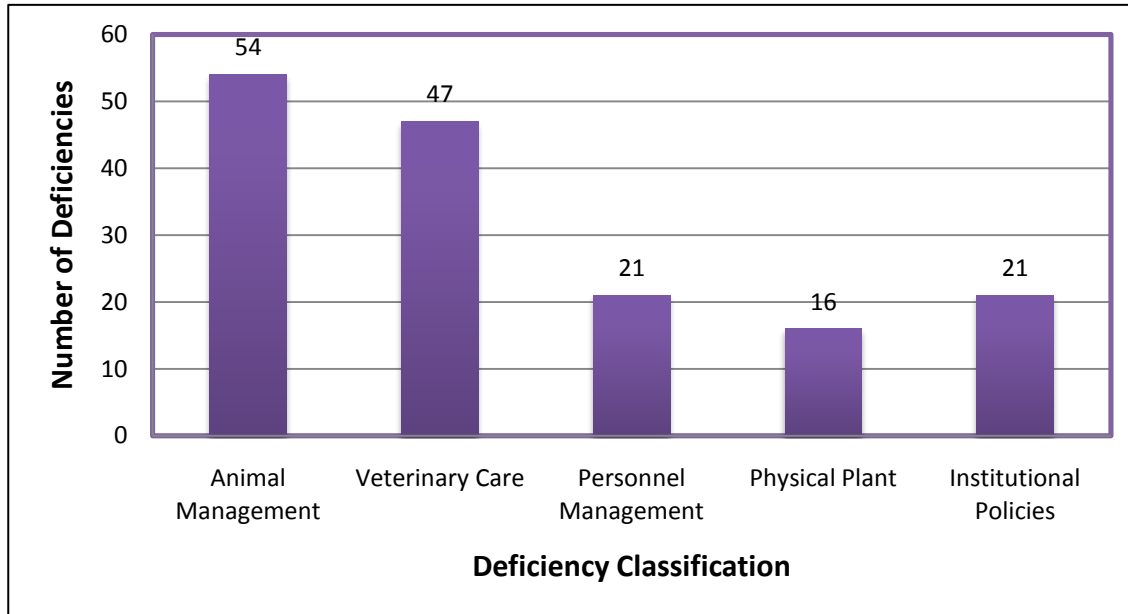
- Animal Management – housing space, sanitation, feed storage, animal identification
- Veterinary Care – medical records, expired drugs, anesthesia/analgesia
- Personnel Management – training, occupational health program enrollment
- Physical Plant – facility maintenance, ventilation, safety, sanitation
- Institutional Policies – proper postage of signage, personal animals on-site

The most common type of deficiencies noted during IACUC inspections of the agricultural animal units were animal management issues (see Figure 3:1). Issues with general

sanitation, feed storage, and vermin control were commonly noted. The second most common type of deficiencies noted fall under veterinary care. This category does not strictly reflect the care of animals provided by a veterinarian, but a general classification addressing how animal health is managed. This includes the documentation of animal health issue (including diagnosis, treatment, and treatment resolution), evidence of a herd health program, and the use of expired drugs/medications. In the author's experience, follow-up care and the presence of expired drugs/medications are the most repeated deficiencies. Personnel management deficiencies are commonly the lack of documentation of training and enrollment in the occupational health and safety program of staff and students. The high use of student employment and high worker turnover rate of some units can make it difficult for both the unit manager to oversee and also for the IACUC to evaluate adequate documentation. Improper IACUC signage or no signage or lack of the IACUC protocol being readily accessible were commonly noted during inspection for institutional policy deficiencies. Physical plant issues were noted the least.

Figure

Figure 3:1 Total number of IACUC inspection deficiencies by classification, 2004 - 2010



CHAPTER 4 - Recommendations and Considerations

The agricultural animal facilities at K-State are already a part of an animal care and use system that has strong components. The research and teaching activities in these units are reviewed by and require the approval of the IACUC. Because an animal care and use program involves many elements, a thorough review of each component should be conducted to assess if the K-State animal care and use program incorporates that element in regards to the agricultural animal facilities. From the review process, areas in need of improvement can be identified and addressed separately.

The elements can be divided into several categories; IACUC policies and practices, occupational health, animal husbandry, veterinary care, and physical plant. The review should indicate three outcomes; 1) Yes, the element is incorporated into the program, 2) No, the element is not incorporated into the program adequately or not at all, and 3) Unknown, the element may or may not be incorporated into the program and should be further investigated. If further program development is supported, a thorough assessment should be reviewed by a committee of stakeholders. This committee should include representatives of the agricultural units, faculty from the Department of Animal Science & Industry, the URCO, the veterinary staff, and the Attending Veterinarian. Each category is addressed briefly below based on the author's knowledge of the program.

IACUC Policies and Practices

Oversight of the satellite facilities, AESs located in Parsons and Hays, may benefit by presenting the IACUC committee a video recording of the inspection as not all member have the chance to travel to these distant locations. The IACUC currently utilizes a check list to ensure a thorough program review during semi-annual inspections. However; the URCO may consider the development of site specific inspection checklists for IACUC members to use during inspection of the facilities. The agricultural animal facilities are large and have different elements where items may be overlooked if not presented by the unit manager or asked about by the IACUC member. This may also lead to improved consistency of the inspections between each bi-annual program review.

The IACUC should consider expanding their oversight to additional areas that are not currently a part of the program and therefore are not inspected:

- K-State operates a feed mill which produces feed that is used in many of the animal units. The addition of the feed mill to the semi-annual inspections might be warranted. This feed mill is planned for replacement.
- K-State has an equestrian team which is a varsity sport and supported by the athletics department and the College of Agriculture. The horses used by the team are owned by K-State. K-State accepts tax deductible donations of horses for the program. These horses have a very public profile and are used for intercollegiate shows viewed by visiting equestrian teams and the viewing public. They may also be exhibited at public events such as a football game. Currently the team's horses are maintained at a non-K-State facility. It may become easier to address this issue as the team will eventually relocate to the equestrian center currently under construction, which is owned and operated by K-State.

Another point that supports the move to accredit the College of Agriculture, is the fact that researchers with appointments in other colleges that are accredited utilize the AS&I units for research purposes. Ownership of animals determines who is responsible for animals at an off-site location (4). When an accredited institution contracts with another institution that is AAALAC accredited they are not required to include the off-site institution in their program review and include in the site visit process, even if they own the animals. When an accredited institution contracts with another facility that is not AAALAC accredited and also retains ownership of the animals, the accredited institution must include the off-site institution in their program description and the off-site facility must be a part of the site visit process. Currently, if AS&I facilities are utilized by K-State PIs from another accredited college that specific part of the AS&I unit must be included in the program description and inspected by AAALAC site visitors. University-wide accreditation would make this process easier.

Occupational health and safety

Occupational health and safety is an important component of any animal care in use program. The *Ag. Guide* states, "An occupational health and safety program must be established for individuals who work with agricultural animals" (12). Risks assessments are necessary to

determine the needs of a program. The URCO administers an OHSP for animal users at the university. This program has improved in the recent years with a new enrollment process, improved review process, and the addition of contracting with an occupational health service. It has expanded to include more persons, including some facility personnel that frequent animal areas. But it only incorporates those persons that are animal users, meaning those that are conducting research with animals, using animals to teach, and employees that work in animal facilities. The College of Agriculture is the only K-State college with a full-time safety manager. He is primarily focused on environmental health and safety. The accreditation process of the College of Agriculture would provide an excellent opportunity for the URCO to strengthen the relationship with the person that is responsible for worker safety within the College of Agriculture.

Animal Management

An item to address is the implementation of standard agricultural practices, such as dehorning, castration, and molting for animals strictly utilized for production purposes. Some of the units maintain animals that are not supported by research and teaching protocols. Currently these animals, especially if they are not owned by K-State, are not covered by an IACUC protocol. The IACUC and the URCO need to discuss the need for a production protocol for each unit that would cover the basic handling processing of these animals. Another option is to request from the units that their SOPs detail how animals strictly used for production purposes are handled and processed. This could be presented as a part of the herd health plan. Some units have more detailed plans than others. These should be approved by the IACUC and the AV and reviewed on a regular basis. The review could occur at a minimum of once every 3 years to coincide with the frequency of AAALAC site visits.

Veterinary Care

Units that are located near the main campus are serviced by the VMTH Food Animal Service or the ambulatory equine service. Inviting the clinicians to actively participate in a review of the program and obtaining their input in the development of herd health plans and SOPs is highly desirable. The URCO and the AV should encourage a positive relationship between the units and the VMTH clinicians. For satellite facilities, the AV should develop a

document that identifies the veterinarians servicing the satellite facilities and outlining their role and responsibilities. This should be shared and signed by the veterinarians for the satellite facilities and kept on record with the URCO. It is important that these veterinarians are aware if they have a concern or issue with animal welfare they can contact the AV or the URCO. It is important to note that the category of veterinary care does not mean strictly veterinary care, but also includes how managers and staff respond to health issues, how they document health issues (including diagnosis, treatment, and resolution), and how they maintain their health supplies.

Physical Plant

A thorough inspection of the agricultural animal units should be conducted to identify the necessary facility improvements. Recommendations for appropriate actions should consider the cost, time, and practical function of the improvements. Particular attention should be made to units that maintain facilities that require controlled ventilation rather than relying on natural ventilation. This should include ensuring facilities are documenting temperature and humidity appropriately. Each unit should provide a written plan as to how they plan to respond in the case of extreme environmental temperatures or failure of air handling units.

Documentation

The issue of documentation should be reviewed in all categories. The program as a whole can benefit from improved documentation. Providing more guidance on the expectations of the IACUC on what the animal units need to maintain may decrease non-compliance. Members of the IACUC should also be trained as to what should be expected and how to ask for the information during semi-annual inspections. This needs to be consistent among the units and between inspections. In many cases, students are responsible for daily husbandry care and providing prescribed treatments. A review of both the IACUC and units' training programs should be conducted to ensure the importance of documentation is adequately covered.

Overview of Recommendations

It is important to remember that faculty members may not view compliance as one of their primary responsibilities when they have teaching, research, budgetary, and administrative commitments. It can be difficult to get all the stakeholders; the IACUC, the Attending Veterinarian, the clinical veterinarians, administrators, faculty, and animal care staff, to

collaborate and reach consensus. To begin working towards accreditation, those seeking to initiate the effort must formulate a plan to open the dialogue with all stakeholders and promote AAALAC's mission and expectations. To obtain accreditation status for K-State's agricultural animal care and use program multiple factors need to be addressed, but none of them will happen if we cannot foster a team attitude towards its importance and practicality.

- The URCO and the AV should formulate a plan to promote accreditation to the administration, faculty, and staff in the College of Agriculture. This should also include gaining the support of K-State's President and Vice-President for Research.
- Develop methods to educate stakeholders (unit managers, faculty members, veterinarians) on the expectations for AAALAC accreditation.
- Contact other universities with currently accredited agricultural animal use programs to gain information on how they prepared for and maintain accreditation.
- Form a committee to assess the agricultural animal use program and the accreditation process. This idea of a "committee" would IMO put ASI on the defensive and would be viewed as intrusion by their faculty. Obviously, we would need to interact closely with them in development of programs needed to accomplish accreditation, but talking about committee oversight would be DOA with them). .
 - This should include representatives from AS&I faculty and staff, AESs, responsible veterinarians, the AV, and the URCO.
 - The committee should determine if the agricultural animal units should seek accreditation separately from K-State's other accredited colleges or as a part of the current program.
 - The committee should also outline expectations for herd health plan development, disaster plan development, training requirements, and documentation.
- Consider the funding additional staff positions.
 - Develop a position under the URCO that would act to oversee compliance and animal welfare issues of the agricultural animal units. This person should act as the point of contact between the units and the AV to ensure appropriate animal care.
 - Support the URCO in expanding its oversight capabilities by the hiring of additional compliance personnel. This should improve the administration of the post-approval monitoring program.

- Conduct a thorough inspection of the units to identify areas for improvement.
 - May consider using a consultant that has experience conducting site visits at institutions with similar facilities.
- Consider documenting the process so that the information may be shared with AAALAC or other institutions.

CHAPTER 5 - Conclusion

Those responsible for program oversight need to find a way to foster a culture of compliance involving all stakeholders through education, communication, and excellent customer service. K-State's animal care and use program is already incorporating many of the items identified by AAALAC and applying them to the agricultural animal units. Bringing together the parties that are responsible for the care of K-State's agricultural animals is the first step.

AAALAC's position is that that agricultural animal facilities should be maintained "with housing and care equitable to a high-quality, well-managed farm" (6). Since land grant institutions are charged with producing quality research and educating the next generation of producers and professionals, agricultural animal programs should already be striving to be the benchmark for the rest of the industry. It is critical that institutional officials fully recognize that the achievement of accreditation benefits not only research animals, but enhances the mission of the institution in producing quality research and graduates. Those at K-State know the importance of the care we provide the animals in our facilities, but obtaining AAALAC accreditation will show our peers, supporting institutions, and our students that we strive for excellence in care of all our animals.

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