

Factors Associated with Sustainability of Collegiate Livestock Judging Programs at Four  
Year Universities

DISSERTATION

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By

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## Abstract

Collegiate animal sciences curricula have incorporated livestock judging since the late 19<sup>th</sup> century. Methods to assess the value of livestock have become more precise than visual appraisal over time, which contributed to a de-emphasis on training for visually evaluating livestock quality. However, data-based livestock appraisal methods can lead to single-trait selection at the expense of immeasurable traits such as structural correctness, udder quality, animal health and well-being, and physical abnormalities. As a result, visual appraisal has remained a highly utilized and valuable livestock evaluation technique in order to minimize the impact of unintended consequences from objective-only measurement criteria. Therefore, livestock producers may want to consider using both visual appraisal and data-based criteria in selection decisions. Even so, there is increased economic scrutiny within higher education, which has compounded the pressure to evaluate the utility and cost effectiveness of academic programs such as collegiate livestock judging.

The purpose of this study was to describe current sources of support and expenditures, anticipated support trends, and characteristics of collegiate livestock judging programs at four-year colleges and universities in the United States. This descriptive study used correlation and regression analysis to determine the association between livestock judging program support, expenditures, structural and demographic characteristics, and contest performance. The target population was comprised of

livestock judging programs at four-year colleges and universities whose livestock judging teams had competed at the NAILE in 2012, 2013, or both years. Data collection was completed using an online survey instrument.

Findings focused on sources of funding support and categories of expenditures of four-year college and university livestock judging programs, espoused stakeholder group support for livestock judging programs and demographic and structural characteristics of livestock judging programs. Data from this study provided evidence that competitive success and funding resources reflect a collinear relationship. Therefore, this relationship suggests that programs need to secure sufficient resources in order to be competitive at the national level, or that ongoing competitive performance is requisite to continued funding support; although the relative mix of funding sources will likely evolve over time.

A direct relationship exists between team member experience and team performance. Teams comprised of junior college transfer students generally outperformed teams with few or no junior college transfer students. Likewise, teams that compete in a greater number of contests each year tend to be more competitive in the national contest than teams that competed in fewer contests. Thus, the effect of team member experience is compounded when a junior college transfer student attends an institution that competes in a greatest number of contests; which was revealed to be commonplace.

Despite a moderate emphasis on contest performance, most livestock judging coaches perceived academic performance and graduation rates to be of greater

importance. Originally, livestock judging was introduced as a supplemental activity to demonstrate application of knowledge presented via classroom instruction. Evidence from this study suggests most livestock judging programs have retained an academic focus. Apparently, the intent of most coaches is to provide educational experiences that supplement the academic pursuits of students. Communicating this orientation and value system to stakeholder groups that espouse less than positive support for the livestock judging program may stimulate a more beneficial relationship and generate additional support for livestock judging, or at the very least reduce the negative tension that exists in some academic units.

## Dedication

To Ashley and all the little Culps to come – We make a good team.

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## Fields of Study

Major Field: Agricultural and Extension Education

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## Chapter 1: Introduction

Seven years prior to the passage of the Morrill Act of 1862, which established the land-grant system, the Michigan Agricultural College became the first academic institution focused on agriculture in America. The first animal husbandry department was established at the Wisconsin College of Agriculture in 1890. Laboratory exercises in livestock judging became an integral part of the original curriculum. Visual appraisal was essential for evaluating the quality and value of livestock at that point in time. Several other institutions soon realized the value of livestock judging, and within a decade the first intercollegiate livestock judging contest was held in 1898 in Omaha, NE. Success in competitions proved valuable for the recruitment of new students, as this was one way expertise in the field of animal agriculture was measured (Willham, 2008).

The American Society of Animal Nutrition was established in 1908 and was the precursor to the American Society of Animal Science. Research was primarily focused on applied animal nutrition as the original name implied. The focus on research began to broaden following the Second World War. By the early 1960s there was a shift toward more basic science that could be applied across species and disciplines emerged, and this trend continues today (Britt, Aberle, Esbenshade, & Males, 2008). Contemporary animal science curricula include nutrition, physiology, reproduction, genetics, biotechnology, genomics and biochemistry to name a few. Teaching practical skills and animal

husbandry has declined in recent years although it has been identified as a potential issue for preparing students for future agricultural production positions (Peffer, 2010).

Fifteen percent of American workers are employed in agriculture yet less than 1% of the U.S. workforce is actively engaged in farming and ranching. Subsequently, student demographics and interest in animal science has changed tremendously. Men comprised a majority of the original student population; however, it is now estimated that over 70% of all students enrolled in animal science programs are women. Most of the current agricultural students are interested in pursuing careers involving veterinary medicine, equine and companion animals rather than production agriculture (Esbenshade, 2007). This change in focus has led many institutions to recognize that animal husbandry skills have diminished within the current student body, which has contributed to a “back to the basics” movement including teaching fundamental animal handling courses (Sterle, 2007).

Livestock evaluation has also evolved in recent decades. The first national sire summary of a beef cattle breed was published in 1971. This marked the first time cattle producers could make across herd comparisons. Test stations were established across the country to evaluate the performance of boars, bulls and rams, and have been utilized by producers to improve their herds and flocks. Bull test stations are still thriving in many areas of the country where ranching and commercial cattle production remains strong although the overall popularity of testing stations has declined, especially for boars and rams. One of the breakthroughs in genetic evaluation that has exacerbated the decline of testing stations is the use of Expected Progeny Differences (EPDs). These genetic

estimates predict the value an animal's offspring will have in specific phenotypic characteristics, and have even progressed to include bioeconomic indices that combine traits and express them using dollars and cents that can be expected from the offspring that particular sire or dam.

Genomic testing has gained traction in the purebred industry as a method of increasing the accuracy of EPDs. Producers can make decisions about which animals to keep in the herd or cull in the time it takes to obtain a blood sample and have it evaluated. This is in stark contrast to the conventional method of waiting for an animal to mature, breeding the animal, and then evaluating their offspring to determine its genetic merit. Some adversaries of live evaluation believe that genetic selection should be limited to utilizing information that can be statistically analyzed in place of visual appraisal as a result of these emerging technologies. This approach has resulted in rapid genetic change, but it is difficult (if not impossible) to measure the detrimental effects on many physical characteristics, and single-trait selection has often become the norm. Livestock breeders are able to combine these objective measures with visual evaluation of subjective measurements of such as structural correctness, udder quality, animal health and welfare, and other physical abnormalities through visual evaluation. Consequently, visual appraisal has remained a highly utilized and essential tool for livestock producers

Funding support in higher education has also changed dramatically. Excluding federal stimulus money, state budget appropriations for higher education has declined tremendously. Institutions of higher learning have consequently increased tuition rates and research funding has shifted largely to the private sector and individual contributions.

Academic departmental funding for programs such as livestock judging appears to have waned during this time period, partly due to increased economic scrutiny.

Decision-making and communication skills are cited most frequently when judging team alumni are asked what they learned from being a member of a livestock judging team. These are two of the five top skill sets or abilities that employers seek in new employees. The other three skill sets include the ability to work in a team structure, the ability to plan, organize and prioritize work and the ability to obtain and process information (National Association of Colleges and Employers, 2012). The latter three skill sets may also be enhanced through student participation on a judging team as well. Livestock judging participants are part of a team. They must schedule practices around their course and work schedules, and other student activities. Successfully evaluating livestock and presenting oral reasons about the animals (in some instances up to eight hours after viewing the livestock) requires the ability to obtain, recall and process information accurately.

### *Justification and Need*

Livestock production, and specifically livestock evaluation, has become more precise through advances in technology. Collegiate livestock judging originated in an era when visual appraisal was the primary means of selection. Over time, research results, performance data, ultrasonography and genomic testing have been used in combination with visual appraisal to more effectively select livestock. Coincidentally, the role and emphasis on livestock judging in collegiate departments of animal science has shifted

from preparing students to become animal breeders to a broader career development context.

The need to prepare students that not only have knowledge of basic science, but also the fundamentals of animal husbandry and handling is an essential part of the animal sciences curriculum. Students interested in careers in the animal sciences will need to understand advancing technologies and their applications for success in the workplace. Involvement in collegiate livestock judging provides hands-on training for students and challenges their understanding of innovation. Contest classes include production scenarios and performance records that must be considered when ranking the animals and presenting oral reasons to justify the placings.

Obtaining and processing information, setting priorities, decision-making, communication skills, and working in a team environment are the five most essential skills sought by employers. These skills are reinforced through participation in collegiate livestock judging. Livestock judging requires students gather information about animals through visual appraisal and production records. This information is then used to assess the value of each animal and develop a logical, ordinal ranking of the animals. Students then defend their decisions through a brief extemporaneous speech also known as ‘reasons’.

The need to investigate the value of the co-curricular experience is as great as ever. Economic pressure has forced administrators to critically evaluate program offerings and faculty support is often a point of contention. Therefore, research regarding sources of funding for collegiate livestock judging programs will not only contribute to

the knowledge base of higher education funding, but also provides a platform for sustainability and growth of such programs.

### *Statement of the Problem*

Methods to evaluate livestock and livestock production have changed dramatically since the establishment of collegiate livestock judging. Visual appraisal is no longer the only method that can be used to evaluate animals, but is one of several methods used in combination with objective measurements. Thus, the development of soft skills amongst livestock judging program participants might be applicable to a greater proportion of current students than in previous generations. Collecting and analyzing information, using that information to make a decision, and then orally defending that decision are useful skills to develop for future careers (National Association of Colleges and Employers, 2012). A shift in sources of support for higher education programming has occurred due to economic, educational and societal changes, and programs such as livestock judging may not be valued much as they have in the past. The practical research question that needs answered is, “How are collegiate livestock judging programs supported?” Therefore, the research problem for this study is to determine how collegiate livestock judging programs have been supported in the past and to identify trends that might impact future support and program sustainability.

### *Research Objectives*

1. Describe the sources and amounts of funding support for university livestock judging programs.
2. Describe the expense categories and amounts included in university livestock judging program budgets.
3. Describe anticipated trends of funding support for university livestock judging programs.
4. Describe anticipated trends of expense categories and amounts for university livestock judging programs.
5. Describe anticipated trends in espoused stakeholder support for university livestock judging programs.
6. Describe the demographics and structural characteristics of collegiate livestock judging programs and coaches.
7. Determine the relationship between funding/espoused support variables, demographic and structural characteristics, and a three-year composite measure of competitive performance.

### *Definition of Key Terms*

*Livestock Judging* – The process of evaluating, assessing, ranking and determining the value of livestock animals (beef cattle, meat goats, sheep and swine). Methods include visual appraisal, utilization of performance data, or a combination of visual appraisal and performance data.

*Livestock Judging Contest* – A competitive event where students are individually asked to evaluate, determine the value of, and rank species of either beef cattle, meat goats, sheep or swine or any combination of the four species. Students then answer questions about the livestock, present oral reasons defending their rankings, or both.

*Livestock Judging Team Head Coach* – University faculty, staff, graduate student or volunteer who is officially designated by the institution as the head coach of a group of students that participate in the university's livestock judging program.

*Assistant Livestock Team Coach* – A person who shares responsibilities with the livestock judging team head coach. This person may or may not be officially recognized and/or employed by the institution.

*Livestock Judging Team Coordinator* – A university faculty or staff member at an academic institution that oversees graduate student(s) who serve as the primary coach(es) of a collegiate livestock judging team.

*Livestock Judging Program Annual Travel Budget* – Funds and in-kind resources used to support a livestock judging program. Budget data are reported on a fiscal year basis for each respective institution.

*Senior College Livestock Judging Team* – A group of students designated to represent their university at a collegiate livestock judging contest. Livestock judging programs at four-year colleges and universities are classified as senior college livestock judging teams, whereas, junior college livestock judging teams represent junior and community colleges (i.e. two-year degree programs). A livestock judging contestant is defined as a person that is documented on the institution's eligibility form and is a contestant/alternate in any recognized senior college contest as outlined in the coaches' minutes. A livestock judging contestant must be a bona fide undergraduate student enrolled in a recognized institution offering a well-rounded curriculum in the Animal Sciences with a baccalaureate degree in Agriculture. A student may complete their eligibility in the Fall as a first term graduate/professional student. Eligibility to participate on a senior college livestock judging team is limited to a single calendar year. Interruptions in an undergraduate course of study for military service, hardship or other reasons shall not make a student ineligible for contest participation if all other contest requirements have been fulfilled. Contest eligibility will be granted for spring or fall contests only and not on an individual contest basis (National Collegiate Livestock Coaches' Association, 2013).

*Senior College Livestock Judging Season* – Students enrolled in a four-year college or university who are eligible to judge for one livestock judging season. The season begins in January at the National Western Stock Show in Denver, CO, and concludes in November at the North American International Livestock Exposition (NAILE) in

Louisville, KY. A student may begin competing at any point during the season, however, eligibility always concludes at the NAILE.

*Sustainable Livestock Judging Program* – A collegiate livestock judging program having enough support to perpetually field a team of at least five students compete in a minimum of four contests each competitive season.

#### *Limitations*

Data from this study were provided by livestock judging team head coaches or faculty coordinators from four-year academic institutions that had competed at the NAILE in 2012 or 2013 or both.

Funding and expenditure data were reported in defined ranges in order to encourage subjects to complete the survey. Predetermined ranges expedited the data collection and reporting process by reducing the time required for respondents to prepare for and complete the survey. However, collecting funding and expenditure data in ranges did not allow for precise calculations for livestock judging program budgets.

#### *Delimitations*

Each four-year college or university with a livestock judging program is able to choose which livestock judging contests to participate in each year. Not all collegiate livestock judging programs participate in the same array of contests annually.

### *Assumptions*

Respondents that provided data for this study had an accurate perception and provided valid data for their particular institutional context. Respondents provided data on a fiscal year basis according their university's budget year. Although the beginning and ending dates of the fiscal year may differ slightly among institutions, it is assumed that the data will reflect the 2013-2014 academic year and can be aggregated and summarized for the purposes of this study.

## Chapter 2: Review of Literature

The purpose of this study was to identify and describe support systems for collegiate livestock judging programs administered by four-year colleges and universities in the U.S. Chapter 1 described the need to investigate educational programs, which bolster the development of critical thinking and communication skills in college students. The evolution of evaluating food animals and higher education in America was briefly discussed and the research problem was outlined. This chapter will describe a historical and demographic context of American society. Origins of American higher education and land grant institutions are presented, followed by the historical evolution of land grant colleges of agriculture and the study of animal sciences. Reviews of experiential education and collegiate livestock judging are also included. This chapter concludes with an explanation of the theoretical foundation and conceptual framework for this study.

### *Historical and Demographic Context*

Scientific discoveries have resulted in advancements in agricultural production efficiency that reduced the proportion of the U.S. population needed to produce food. The societal landscape in America has subsequently been altered by a mass migration from rural to urban living (Willham, 2008). Diversified crop and livestock production operations were once the mainstay of American farming and ranching. Single commodity farming specialization first occurred in the poultry industry beginning in the

1970s. Dairy and swine production also shifted toward more concentrated operations over the past 30-40 years (Britt et al., 2008). According to the 2007 U.S. Census of Agriculture (USDA-NASS, 2009), 8.5 percent of American farms accounted for 63 percent of agricultural sales, despite 87 percent of farms being considered family owned and operated.

Less than one percent of the U.S. population claimed farming as their primary occupation in 2007 (USDA-NASS, 2009). Only 15 percent of American workers were employed in agriculture in 2000 (2000 U.S. Census; as cited in (Britt et al., 2008). A subsequent change in student demographic characteristics and interests in animal sciences has emerged. Once dominated by male students aiming to return to the family farm, female students earned 70% of the animal science baccalaureate degrees awarded in 2003 (Esbenshade, 2007). The majority of 21<sup>st</sup> century animal science students expressed interest in pursuing careers involving veterinary medicine, equine and companion animals (Esbenshade, 2007).

### *Founding of Higher Education in America*

Harvard College was the first higher education institution established in America. Instruction began in 1638 as a result of a legislative act of the Great and General Court of the Massachusetts Bay Colony in 1636. Many early Puritan settlers were graduates of Oxford and Cambridge universities in England. Cambridge alumni outnumbered Oxford alumni and therefore higher education in New England was modeled after the Puritan character of Cambridge. Yale College emerged as the second higher education institution

in New England following a gathering of ten Connecticut clergymen in 1701. Religious teachings, language arts, mathematics, politics and foreign languages comprised the original curriculum at both institutions. Higher education subject matter was largely unchanged until the following century (Herren & Edwards, 2002).

Education of the working class was clearly needed as the industrial and agricultural revolutions gained traction in America during the early 1800s. College-level courses focusing on “useful” skills began to materialize at a few American institutions. West Point Military Academy’s engineering department was the first of its kind when it was established in 1812. Rensselaer’s Institute in New York was created in 1824 with the mission of applying science to everyday life, first focusing on agriculture, and then shifting to engineering. Many other U.S. institutions embraced the German higher education model by establishing laboratories to promote scientific discovery and strengthen science-based education. Harvard and Yale, the two original classical instruction colleges in New England, initiated scientific research programs by 1847 (Huffman & Evenson, 1993).

### *Development of Land Grant Institutions*

Participation in higher education in America was originally limited to upper class, white males prior to the mid-1800s. At that time, Justin Morrill (a U.S. Representative from Vermont), and Jonathan Turner (an educational activist), were leading spokespersons for educating common citizens in America. Morrill suggested that educating young agriculturalists in particular was crucial to improving farming practices

and conserving soil (Parker, 1971). Support was growing by the 1850s to establish colleges devoted to teaching agriculture and mechanical arts (engineering), in place of the classical curriculum of higher education institutions in existence at that time (Huffman & Evenson, 1993). Endorsed by the 1856 U.S. Agricultural Society meeting, Morrill introduced legislation in 1857 that would fund agriculture and mechanical arts colleges (Parker, 1971; Rossiter, 1979).

Five years later President Abraham Lincoln signed the Morrill Land Grant Act of 1862. Passage of the Morrill Act initiated a cascade of events, which eventually led to the establishment of land grant institutions in every state and several U.S. territories. Land was granted to each state that had not seceded from the Union to support at least one college having the primary objective of teaching agriculture and mechanical arts. Such colleges in Michigan (1855), Maryland (1856), Iowa (1858), and Pennsylvania (1862) had already been established in anticipation of passage of the land grant act (Huffman & Evenson, 1993).

Each state in the U.S. eventually received a one-time grant of land to support a college focused on teaching agriculture and mechanical arts following the conclusion of the Civil War in 1865. Scientific expertise in agriculture was limited when land grant colleges first came into existence (Madsen, 1976). Recitation based on memorization was the most common method of instruction, and scientific discovery was limited due to few experimental laboratories on college campuses (Rossiter, 1979). Another limitation was the shortage of agriculture professors as a result of limited agricultural education programs prior to the establishment of land grant colleges. Support for teaching and

research at agricultural colleges came largely from private agricultural societies (Huffman & Evenson, 1993).

The first agricultural society was formed in Philadelphia in 1785 to improve agricultural practices through experimentation and scientific research. Charter members included judges, lawyers, military leaders, doctors and politicians (Fletcher, 1959). Similar societies later arose throughout the country which included farmers and citizens interested in agricultural production advancements by developing a climate “. . .of innovation, competition, and dissemination of results. . .” which still exists today (Huffman & Evenson, 1993, p. 12). Societies offered cash prizes at state and county fairs for improved farming implements as well as high quality grain and livestock. Such rewards enticed farmers to conduct simple research experiments on their own, which were also used to educate neighboring farmers. Research was slow, but productive, and provided evidence supporting the establishment of agricultural experiment stations. Agricultural societies played a key role in harnessing public support for the passage of a federal act to establish experiment stations (Huffman & Evenson, 1993).

Momentum increased on a legislative level to provide funding for agricultural research stations by the 1870s. Representatives from 12 land grant colleges engaged in discussions about how to accelerate research efforts in 1871. A national committee was appointed the following year at a national agriculture convention held in Washington and assigned the task of investigating pre-existing experiment stations. U.S. Representative Cyrus Carpenter introduced the first experiment station bill to Congress in 1882. The legislation was based on the ideas of then Iowa State College professor, Seaman Knapp.

The first bill was abandoned in 1884 due to a lack of support. Two years later (in 1886) the chairmen of the U.S. House of Representatives Agriculture Committee, William Hatch, introduced a new experiment station bill. The second bill underwent several revisions, and was heavily contested by states' rights advocates, but eventually, the Hatch Act was signed into law in 1887 (Huffman & Evenson, 1993).

Scientific discovery in the field of agriculture rapidly increased following implementation of the Hatch Act. Functioning experiment stations increased from 15 to 55 between 1887 and 1893, with all but five stations tied to land grant colleges. Experiment stations operated under two objectives set forth by the Hatch Act of 1887, to acquire and spread practical knowledge on subjects connected to agriculture, and to perform original scientific research (Huffman & Evenson, 1993). The Hatch Act of 1887 also formally recognized teaching and research as the two primary functions of land grant institutions in the late 1800s (Kerr, 1987).

Three years following passage of the Hatch Act of 1887, the Second Morrill Land Grant Act of 1890 was passed. Formally an appropriations bill, the latter act also served as a foundation for just and equitable spending of federal funds regardless of race. Many of the colleges created as a result of the 1890 Act are collectively referred to as Historically Black Colleges and Universities (HBCU) (Kerr, 1987).

Evidence of non-formal instruction in agriculture appeared prior to 1861, via agricultural societies, county fairs, and farm publications. Michigan Agricultural College hosted the first college short course for farmers in 1867 at the behest of the state agricultural society in Michigan. The Agricultural College of Pennsylvania began

hosting short courses in 1871. Formal instruction for farmers on college campuses expanded greatly in the 1880s, with Wisconsin leading the development of the modern form of short courses in 1886. Distribution of USDA bulletins for farmers began in 1889, and extension work with farmers within the USDA has been traced back to about 1900 (Huffman & Evenson, 1993).

Seaman Knapp led extension education efforts in the Southern U.S., and William Spillman managed the Northern and Western states. Spillman's work largely focused on successful farm management. He obtained production and management data from many farms, from various regions, and prepared publications identifying improved management practices, which were then disseminated to farmers. Field demonstrations conducted in southern states focused on control of boll weevil infestation in cotton were the basis of Knapp's original extension activities (Huffman & Evenson, 1993). Knapp worked only in states infested with the boll weevil until the General Education Board provided financial assistance to expand demonstration work to other states (Scott, 1970; True, 1929).

Corn and calf clubs for boys, canning clubs for girls, and home demonstrations for women were also initiated as a result of Knapp's expanded efforts. Information presented at many of the farm and home demonstrations came from the USDA, and local farmers and homemakers, rather than land grant colleges (Huffman & Evenson, 1993).

James McLaughlin, from Michigan, introduced the first extension bill in the U.S. Congress in 1909. Lack of support kept the original bill buried in committee. Four years later, in 1913, Representative Asbury Lever and Senator Hoke Smith introduced similar

bills in their respective chambers of congress. The bills called for the establishment of extension departments housed in state-designated agricultural colleges. Cooperative extension activities subsequently emerged between the USDA and the defined colleges of agriculture. Following passage of the bills, President Woodrow Wilson signed the Smith-Lever Act of 1914 and Cooperative Extension Service was born (Huffman & Evenson, 1993). Extension services have since disseminated new knowledge obtained from research endorsed by land grant colleges (Herren & Edwards, 2002). Over 3,000 county Extension offices were operating in the U.S and associated territories in 2013 (National 4-H Council, 2013). After passage of the Smith-Lever Act of 1914, teaching, research and extension comprised the tripartite mission of land grant colleges in the U.S.

Senator Carroll Page, Republican from Vermont, and Dr. Charles Prosser, known as the father of vocational education in the United States, crafted legislation that would become known as the Smith-Hughes Vocational Education Act in 1917. Six years after the initial legislation was introduced, Senator Hoke Smith and Representative Dudley Hughes (both from Georgia), successfully navigated the bill through the U.S. Senate and House of Representatives. The Smith-Hughes Vocational Education Act of 1917 (ch. 114, 39 Stat. 929, 20 U.S.C. § 11 et seq.) was not the beginning of agricultural education, but provided secondary agricultural education in America with a federal presence and funding support (Camp, 1987). Secondary agricultural education increased in popularity since the early 1900s. Historical records documented that fewer than 100 public secondary schools offered coursework in agriculture during the 1906-07 school year (Robison & Jenks, 1913). However, less than a decade later (during the 1915-16 school

year), 3,675 secondary schools in the U.S. were teaching agriculture courses enrolling over 73,000 students throughout the country (True, 1929). The Smith-Hughes Vocational Education Act also contributed to the formation of departments devoted to the preparation of vocational agriculture teachers at land grant colleges. Agricultural teacher preparation programs, created as a result of the legislation, are still functioning at many land grant institutions (Herren & Hillison, 1996)

One additional piece of legislation that also contributed to the establishment of land grant colleges in the U.S., was the Equity in Educational Land-Grant Status Act of 1994. Land grant colleges were established on tribal lands to serve Native American students as a result of the legislation. Overall, there were 109 land grant institutions operating in the U.S. in 2011 as a result of the 1862 and 1890 Morrill Acts and the Equity in Educational Land-Grant Status Act (USDA, National Institute of Food and Agriculture, 2011). Students at 67 land grant institutions and 140 total institutions between 2004 and 2012 were enrolled in agriculturally-related baccalaureate degree programs in America (Food and Agricultural Education Information System, 2012)

### *Land Grant Colleges of Agriculture*

Urbanization and increased population diversity within American society has resulted in a dynamic shift in the teaching, research and extension services provided by land grant colleges (Kellogg & Knapp, 1966; Meyer, 1998). Basic farming skills and innovative agricultural production practices comprised the basis of the initial college curriculum. Ensuring a strong national food supply was the overriding goal for land

grant colleges; however, a lack of public understanding of agriculture and agricultural colleges threatened continued support for the original land grant mission (Meyer, 1998). Under the scope of natural resource management, with a direct focus on catering to the problems of the people, a revised vision for land grant colleges included all facets of food production, beyond the limited scope farming applications (Meyer, 1998).

Four needs emerged from the National Research Council (1996) concerning the future of the land grant system: (1) the need for an expanded and inclusive view of the modern food and agricultural system; (2) the need for multistate, multi-institutional, and multidisciplinary collaborations and partnerships (that is, a “new geography” for the land grant system; (3) the need to reinvigorate the tripartite mission through the integration of teaching, research, and extension; and, (4) the need for enhanced accountability and guiding principles for the use of public, especially federal, resources (p. 21).

Stakeholder involvement was identified as crucial for continued support of the land grant system. Public funds provide a majority of the resources for the system; however, “. . .some groups (consumer and environmental groups, small and “alternative” farmers, minorities, low-income families) perceived they were under-served or excluded. . .” by land grant colleges (National Research Council, 1996, p. 25). Issues deemed of major concern by communities still only receive minor land grant resources even as several colleges increased their efforts to elicit stakeholder input (National Research Council, 1996). Without support from stakeholders, resource availability might eventually become the predominant concern for land grant colleges of agriculture.

State and federal resources for American land grant colleges have waned in recent years and even while student enrollment increased. State appropriations for higher education decreased 73% per \$1,000 of annual per capita income, between the 1989-1990 and 2011-2012 academic years across America (Baum & Ma, 2012). Federal funding for agricultural research, one of the tripartite missions of land grant colleges, is substantially less than funding resources appropriated for other federally funded research areas. United States Department of Agriculture's (USDA) research grant funding for 2012 was \$285 million, compared to the \$30 billion and \$6 billion in grant funding available through the National Institutes of Health (NIH) and The National Science Foundation (NSF), respectively (Biemiller, 2012). The NIH is the world's leading medical research funding source and is directed by U.S. Congressional legislation (National Institutes of Health, 2014). Fields such as mathematics, computer science and the social sciences receive a majority of the research funding from NSF (The National Science Foundation, 2014).

### *Animal Sciences*

Baccalaureate degree programs in agriculture were organized across 33 academic areas, which ranged from broad fields such as general agriculture to the specialized disciplines including landscape architecture and veterinary medicine by the Food and Agricultural Education Information System (2012). Undergraduate enrollment in land grant colleges of agriculture rose 33% between 2004 and 2012, from 91,338 to 121,842 students (Food and Agricultural Education Information System, 2012).

Approximately one out of every five students (19.1%) enrolled in American colleges of agriculture were pursuing baccalaureate degrees in animal sciences in 2012.

The first course in animal husbandry was taught in 1882 at what is now the University of Wisconsin. Eight years later the faculty at Wisconsin founded the first animal husbandry department in America. Over the next two decades, several more animal husbandry departments were established (Willham, 2008). Newly founded departments focused on teaching, research and extension programming to meet the needs of the rural population within their state (Britt et al., 2008).

The American Society of Animal Nutrition, founded in 1908, was a precursor to the American Society of Animal Production (ASAP), which became known as the American Society of Animal Science (ASAS) in 1961. Animal science research primarily focused on applied animal nutrition during the late 1800s and early 1900s, as the original name implied. This research focus was primarily in response to the growing livestock feed business, which began to emerge during the 1890s (Willham, 2008).

The Union Stock Yard and Transit Company of Chicago hosted the first International Livestock Exposition in 1900. The ASAP (later ASAS) hosted its annual meeting immediately after the exhibition each year from 1920 until 1963. Animal scientists often preferred attending the show during the early years, but by the 1940s, attendance at the society meeting began to take precedence (Willham, 2008).

Following World War II, animal science research interests broadened to fields beyond nutrition, although most experiments continued to focus on farm applications. A

shift toward basic science that could be applied across multiple disciplines and species emerged during the early 1960s and continues today (Britt et al., 2008).

Genetics, reproduction, nutrition, behavior and biotechnology are fundamental concepts of contemporary undergraduate animal science programs (Peffer, 2010). Science-based curricula have overshadowed the teaching of practical skills and animal husbandry, which was the focus when animal husbandry departments were founded (Willham, 2008). Many institutions realized as early as the 1970s that animal husbandry skills have diminished among incoming students. The shifting demographics of student background, knowledge, and experience has prompted land grant university animal science departments to revert “back to the basics” to some extent by teaching fundamental animal handling and production courses (Sterle, 2007). The decline of student interest in animal production as a career has been identified as a major issue of concern in preparing students for future agricultural production positions (Peffer, 2010).

### *Experiential Education*

Experiential education has been defined by Conrad & Hedin (1982) as:

Educational programs offered as an integral part of the general school curriculum, but taking place outside of the conventional classroom, where students are in new roles featuring significant tasks with real consequences, and where the emphasis is on learning by doing with associated reflection. (p. 58)

Experiential education in practice consists of student instruction, an opportunity to apply the instruction in a new context, and reflection upon the outcome of the application.

Conrad & Hedin (1982) summarized the effect of nearly 30 experiential education programs, and concluded that experiential learning improves personal, social and intellectual development, to a greater extent than classroom instruction alone. The researchers subsequently recommended experience-based programs be expanded.

Experiential education began to increase in the late nineteenth century (Weatherford & Weatherford, 1987). Perhaps the first advocate for experiential education in agricultural education was Rufus Stimson. Stimson objected to the standard teaching routine of the early 1900s, which consisted of classroom lecture, followed by recitation and manual labor on the school farm, because he believed too many students stood around observing other students working (Moore, 1988). His project method of instruction began after vacating the Presidency of the Connecticut Agricultural College (CAC) to assume the Director position at Smith's Agricultural School, located in Northampton, MA, in 1908. Moore (1988) hypothesized that the project method of instruction was the result of blending Stimson's experiences as President, with the philosophy of his mentor, William James, and the writings of Swiss educational reformer, Johann Pestalozzi.

John Dewey's Laboratory School was one of the earliest formal programs of experiential education in America. Dewey (1916) believed learning spawned from social activity and natural curiosity. A person's ability to shape future actions increased as experience increased, and life itself provided an excellent foundational context for student learning (Dewey, 1916). Students discern cause and effect relationships by

reflecting upon experiences, which allowed students to adapt to an ever-changing world (Dewey, 1916).

David Kolb (1984, p. 27) suggested, “Learning is best conceived as a process, not in terms of outcomes . . .” when describing experiential learning theory. Kolb’s four-part theory is collinear and rooted upon (a) concrete experience, (b) observation and reflection, (c) formation of abstract concepts and (d) active experimentation. Kolb’s experiential learning theory drew from previous theories developed by Dewey, Lewin and Piaget, and is the theoretical foundation underlying the educational principle of learning by doing (Kolb, 1984). Kolb’s theory supports the belief that the process of interpreting past experiences can be used to predict future outcomes which is important for critical thinking and problem solving. Extracurricular programs on college campuses may also be able to provide an outlet for students to increase experiential education opportunities.

Internship programs, study abroad experiences, academic student organizations and competitive teams along with other experiential education programs have been identified as soft skill development opportunities. These types of programs are consequently being reevaluated and promoted at land grant colleges (Biemiller, 2012). Agricultural industry groups have encouraged soft skill development among agriculture college students since at least the 1980s due to a perceived “. . . lack of practical experience, inability to solve problems and communicate effectively, lack of leadership, management and accounting skills, and inability to “get along” (Love & Yoder, 1989, p. 3). Soft skill development has been positively associated with student participation in

extracurricular activities on numerous occasions, and has been encouraged by several researchers (Birkenholz & Schumacher, 1994; Ewing, Bruce, & Ricketts, 2009; Layfield, Radhakrishna, & Andreasen, 2000; Love & Yoder, 1989). National data for student participation in extracurricular programs at land grant colleges of agriculture are unavailable. However, ninety-six percent of respondents to a questionnaire distributed to students enrolled in full time undergraduate programs in the College of Agriculture and Life Sciences at Iowa State University participated in extracurricular activities (Foreman & Retallick, 2012). These results should be considered with caution, as the response rate was only 27.9 percent, with a 20.5 percent overall usability rate.

### *Intercollegiate Livestock Judging*

Intercollegiate livestock judging is a co-curricular activity that provides opportunities for students to apply knowledge in the animal sciences related to livestock selection, production and management. Laboratory exercises involving livestock judging “. . . quickly became the focus of interest for students, because it prepared them for the rapidly expanding purebred segment of the livestock industry . . .” during the late 1890s and early 1900s (Willham, 2008, p. 9).

The first intercollegiate livestock judging contest was held in 1898 in Omaha, NE (Willham, 2008). Two years later, in 1900, the first National Collegiate Judging Contest (national championship contest) was held at the inaugural International Live Stock Exposition in Chicago (*108th National Collegiate Livestock Judging Contest Awards Breakfast Program, 2013*). The national competition has been held every year since

1900, excluding six years, 1914-1915 (due to a disease outbreak), and 1942-1945 (due to World War II). The National Collegiate Judging Contest was relocated to Louisville, KY, in conjunction with the North American International Livestock Exposition in 1976, following the closing of the International Live Stock Exposition in Chicago in 1975 (*108th National Collegiate Livestock Judging Contest Awards Breakfast Program, 2013*). Several additional intercollegiate livestock judging competitions are held annually across the country.

Taylor and Kauffman (1983) reported that for the first 50 years (beginning in the late 1800s through the mid-1900s), livestock judging was one of the primary subjects of animal science instruction taught to students. Visual appraisal was the primary means of assessing the value and quality of livestock during that time period. Despite a few complaints in the 1930s, the importance of livestock judging was not seriously challenged until the 1960s. Subsequent changes in required coursework resulted in livestock judging classes becoming elective courses in many animal science programs by the 1980s (Taylor & Kauffman, 1983).

Literature associated with the cost of sponsoring collegiate judging teams was limited to one survey conducted in the late 1990s that encompassed all non-salary expenses of animal related judging teams (livestock, meats, dairy, horse, wool, and meat animal evaluation teams). Expenditures for judging programs ranged from \$2,500 to \$25,000 annually, with an average annual expense of \$10,953.70. Academic institutions covered 50% of the costs on average, along with funding provided by team members (15.2%), endowments (12.2%) and annual giving (11.2%), covering the remaining costs

(Field, Green, Gosey, Ritchie, & Radakovich, 1998). According to McCann and McCann (1992), the financial costs of sponsoring an intercollegiate livestock judging team coupled with the de-emphasis of livestock judging as a subject, contributed to a reduction in the number of collegiate livestock judging programs in the U.S. For example, the number of collegiate livestock judging teams declined from 44 in 1981 to 31 in 2013 (*108th National Collegiate Livestock Judging Contest Awards Breakfast Program*, 2013).

There is a strong perception that livestock judging simply teaches students to rank animals, and that the practice of visual appraisal for animal evaluation is outdated (McCann & McCann, 1992). However, several researchers reported that livestock judging and other extracurricular activities improve skills that contribute to career success (Anderson & Karr-Lilienthal, 2011; Birkenholz & Schumacher, 1994; Cavinder, Byrd, Franke, & Holub, 2011; Ewing et al., 2009; Layfield et al., 2000; Love & Yoder, 1989; McCann & McCann, 1992; Miller et al., 2011; Nash & Sant, 2005; Rusk, Martin, Talbert, & Balschweid, 2002; Smith, 1989). Obtaining and processing information, setting priorities, decision-making, communication skills, and working in a team environment were the five most essential skills sought by employers in 2012 (National Association of Colleges and Employers, 2012).

Improved decision-making and communication skills were the outcomes most frequently identified by respondents on a nationwide survey of collegiate judging team alumni (livestock, meats, dairy, horse and wool teams) (McCann & McCann, 1992). Alumni from Texas A&M University's livestock judging team alumni reported enhanced critical thinking, self-confidence and teamwork skills, due to participation on the team

(Smith, 1989). A broader, more recent survey of judging team (livestock, meats, dairy, horse, wool and meat animal evaluation teams) alumni from Texas A&M University reported strong improvement in several skills affecting careers and interpersonal skills as a result of their judging team participation (Cavinder et al., 2011). The most popular life skills identified by respondents were teamwork, communication, confidence, public speaking and decision making.

Improvements in the cognitive domain (decision making, critical thinking, etc.) may be of critical importance for improving the preparation of agriculture students for the job market. A recent study of large, research-based, land grant colleges concluded that agriculture students have lower cognitive abilities and grade point averages than non-agriculture student classmates (Rhoades, Ricketts, & Friedel, 2009). However, there is evidence supporting the contention that cognitive abilities of expert livestock judges might be greater than experts in other fields. Students from the 1975-76 Kansas State University senior livestock judging team, who had received at least four years of livestock judging training, and had excelled in national competitions were studied for their decision making ability. The students used between nine and eleven dimensions to make decisions in a controlled judging experiment, which exceeded the number of dimensions (ranging from one to six) reportedly used by expert courtroom judges to make decisions (Phelps & Shanteau, 1978).

Basic science, as well as fundamentals of animal husbandry and handling have been recognized as essential elements of animal science curriculum (Peffer, 2010; Sterle, 2007). Involvement in collegiate livestock judging provides hands-on training with live

animals for students and challenges their understanding of science and innovation. The format of livestock judging contests and practice sessions require students to physically handle livestock species on a routine basis. Contest classes include industry-simulated production scenarios and performance records (expected progeny differences, bioeconomic indices, actual performance measures, genotypes, etc.) which are considered as additional criteria when ranking animals in a class and presenting oral reasons. Students are therefore expected to become familiar with proper animal husbandry practices and livestock production environments.

Livestock evaluation and selection procedures used in animal production have become more scientific and data-based relative to collegiate livestock judging program activities since their inception in the late 1890s. Visual appraisal is no longer the sole means of assessing the value of livestock. However, when combined with objective measures of livestock, visual appraisal can be effective at reducing single-trait selection practices that often have unintended negative consequences. Livestock evaluation and production skills may not be as broadly adaptable to careers in the animal sciences in the 21<sup>st</sup> century, as they were in the 1890s. However, participation on judging teams may improve life skills that are important to employers in the 21<sup>st</sup> century.

### *Theoretical Foundation*

Research has been conducted and reported on the effect of resource allocation on education and extra-curricular programming. This section will highlight the literature on

these subjects. Underlying theories from multiple sources will be blended to form the theoretical foundation and conceptual framework of this research.

Tow's (2006) undergraduate thesis reviewed the impact of funding on student achievement in the California secondary school system. Tow's theoretical foundation was rooted in the precept that increased funding should result in increased standardized test scores. However, Tow reported that increased overall funding led to a slight decrease in student testing performance. Federal funding earmarked specifically for improving teacher quality and reducing class size positively impacted standardized test scores (Tow, 2006). Tow (2006) concluded that funding should be earmarked for targeted areas in need of improvement rather than simply increasing the overall budget. Targeted investment can offset costs associated with valuable educational program delivery and thereby increase student achievement and overall success.

Hanushek's (1997) meta-analysis of the effect of educational resources on student performance reported no direct relationship between resource availability and student success. This is not to suggest that resources do or do not matter, but rather that the current structure of education and incentive programs, does not ensure additional resources will result in higher levels of student achievement (Hanushek, 1997). There is much variation between teacher and school quality, which may partially explain why central policy and resource distribution practices have been ineffective in improving student success (Hanushek, 1997). This study also reported that instructors largely adhere to policy and that a lack of progress in student performance was reflective of poor teacher incentives for quality instruction. Thus, Hanushek (1997) proposed the only

policy that appears effective at motivating teachers to improve student success was incentive programs (increased pay or resources for teaching, for instance) based on positive student outcomes.

Performance-based resource allocation in higher education proposed by Liefner (2003) stated that this form of resource distribution would result in increased activity from low performers and more cautious behavior from high performing faculty (Liefner, 2003). These assumptions arose from the belief that historically low performing academic professionals would need to prove their deservedness for resources, while high performing faculty may become risk averse, if resources were reallocated as a result of declining performance (Liefner, 2003). Because long-term success of universities is based upon the success of graduates as employees and entrepreneurs, Liefner cautioned alienating highly skilled individuals by over-rewarding typically less-productive faculty members who may simply be seeking additional resources. Additionally, Liefner suggested that resources should be reallocated to highly productive faculty members as the need arises.

Toma & Cross (1998) proposed that success in collegiate athletic events is positively associated with increased student applications for admission. Championship intercollegiate athletic teams positively draw attention to the academic institution and admission applications increased, especially when teams had a compelling story or were perceived to be underdogs (Toma & Cross, 1998). Theoretically, resource allocation could be directed toward competitive teams that may draw attention to academic institutions and increase student interest in enrollment.

Much like contemporary collegiate athletic programs, colleges of agriculture in the late 1800 and early 1900s recognized the need to recruit students to their institutions, and capitalized on their livestock judging teams as one avenue for recruitment (Willham, 2008). Many colleges with agricultural programs still invest in livestock judging teams to promote student interest in their agriculture departments. Illinois Central College, Peoria, IL, recently started a livestock judging program specifically for this purpose, and reported over 100 students enrolled in their agriculture department for the first time ever during the 2013-2014 academic year (G. Grebner, personal communication, September 9, 2013). The program manager in charge of recruiting students to the College of Food, Agricultural, and Environmental Sciences, at The Ohio State University, recently stated there has been an increase in student interest in attending the institution as a result the school's uptick in competitive successes at livestock judging competitions (J. Tyson, personal communication, April 12, 2014).

Increasing tuition revenue as a result of student recruitment is just one fundraising method institutions have used to offset the rising costs associated with providing higher education. Sources of funding support for higher education have changed dramatically in recent years. State appropriations for higher education dropped from \$9.74 per \$1,000 in personal income in 1989-1990 to \$5.63 per \$1,000 in personal income in 2011-2012 (Baum & Ma, 2012). College students are responsible for over half of the actual cost of their education today, compared to paying only 38% in 1998 (Desrochers, Lenihan, & Wellman, 2010). Research funding has coincidentally shifted more to private sector sources and individual contributions (Baum & Ma, 2012). Funding resources for

educational programming and co-curricular activities are also likely to experience a similar trend shifting away from public sources of support.

The research literature suggests that increased resource allocation and student success may not be a simple cause and effect relationship. Tow (2006) recommended that educational program funding be specifically directed toward programming with proven financial need and educational outcomes. Hanushek (1997) urged the implementation of teacher incentive programs based upon student performance. Resource allocation decisions within academic departments should be made with caution to motivate faculty members with poor performance track records, but continually support high achieving scholars (Liefner, 2003). Based upon somewhat analogous evidence which implies that athletic success can lead to increased student interest in academic institutions (Toma & Cross, 1998), a similar phenomenon may exist within in agriculture departments in relation to their livestock judging programs (G. Grebner, personal communication, September 9, 2013; Willham, 2008).

Financial support systems for higher education has shifted, and will likely continue to shift away from public funding toward cost recovery in the form of student tuition (Baum & Ma, 2012; Desrochers et al., 2010). Research and program funding within higher education has also begun to be outsourced to private partners and individual contributors (Baum & Ma, 2012; Desrochers et al., 2010). Based upon these resource shifts, perhaps financial support for collegiate livestock judging programs will become increasingly dependent upon external stakeholder contributions.

Drawing upon these sources, this research was based upon the theory that higher levels of support (i.e. both funding and espoused) for collegiate livestock judging programs are related to higher levels of team success and achievement.

### *Conceptual Framework*

Figure 1 depicts a flow chart of inputs and outputs associated with collegiate livestock judging programs. Sources of funding and espoused support flow into collegiate livestock judging programs. Categories of expenditures and program achievement flow out of collegiate livestock judging programs. This study was conducted to assess the resource inputs and outputs of collegiate livestock judging programs in four-year colleges and universities in the U.S.

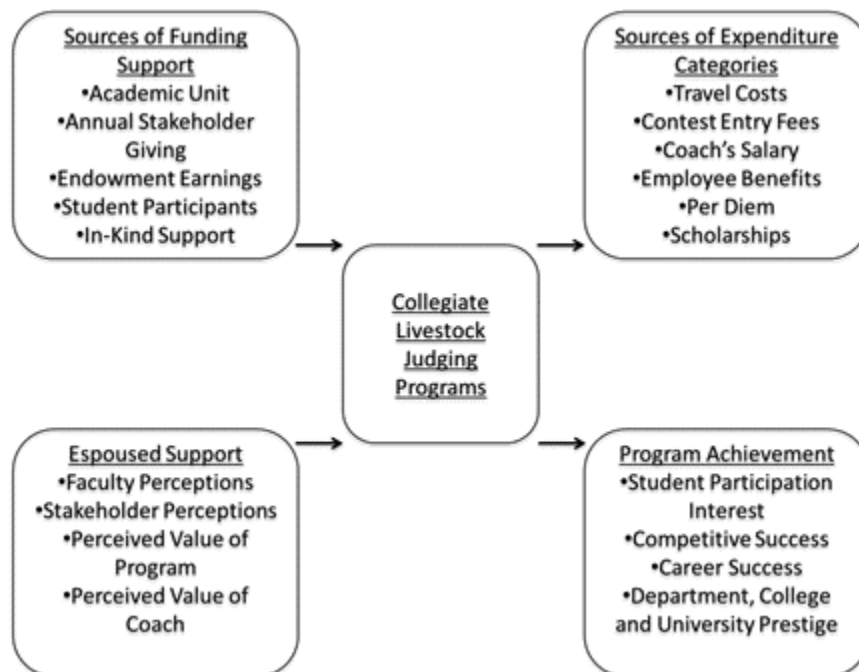


Figure 1. Conceptual Model of Inputs and Outputs of Collegiate Livestock Judging Programs

### Chapter 3: Procedures

Chapter 1 introduced the need to investigate resource support for collegiate livestock judging programs in order to preserve and sustain similar educational opportunities in the future. Historical background information on the evolution of livestock production and collegiate livestock judging was presented. Chapter 2 provided a historical and demographic context of American society and summarized the literature pertaining to land grant colleges of agriculture, animal sciences, experiential education and collegiate livestock judging. Chapter 3 describes the research design, conceptual model of the inputs and outputs of collegiate livestock judging programs and the research objectives of this study. The research population is defined, and instrumentation, data collection procedures and data analysis are also described in this chapter.

#### *Research Design*

This study was a descriptive survey of the sources and amounts of support and expenditure categories during the 2013-2014 fiscal year, anticipated trends for sources of support and categories of expenses, anticipated trends of espoused support, the relationship between support and competitive success, and the structure and characteristics of collegiate livestock judging programs at four-year colleges and universities. A livestock judging program performance variable was also computed using team rankings at the national intercollegiate livestock judging contest in 2012, 2013, and

2014. Financial support variables were examined to determine their relationship with the contest performance variable.

### *Conceptual Model*

Collegiate livestock judging programs require financial and espoused resources to support expenditures associated with competition and overall team achievements. Figure 2 depicts the conceptual model of the sources of support, categories of expenditures and outcomes of collegiate livestock judging programs. Sources of funding and espoused support flow into collegiate livestock judging programs and categories of expenditures and program achievement flow out of collegiate livestock judging programs.

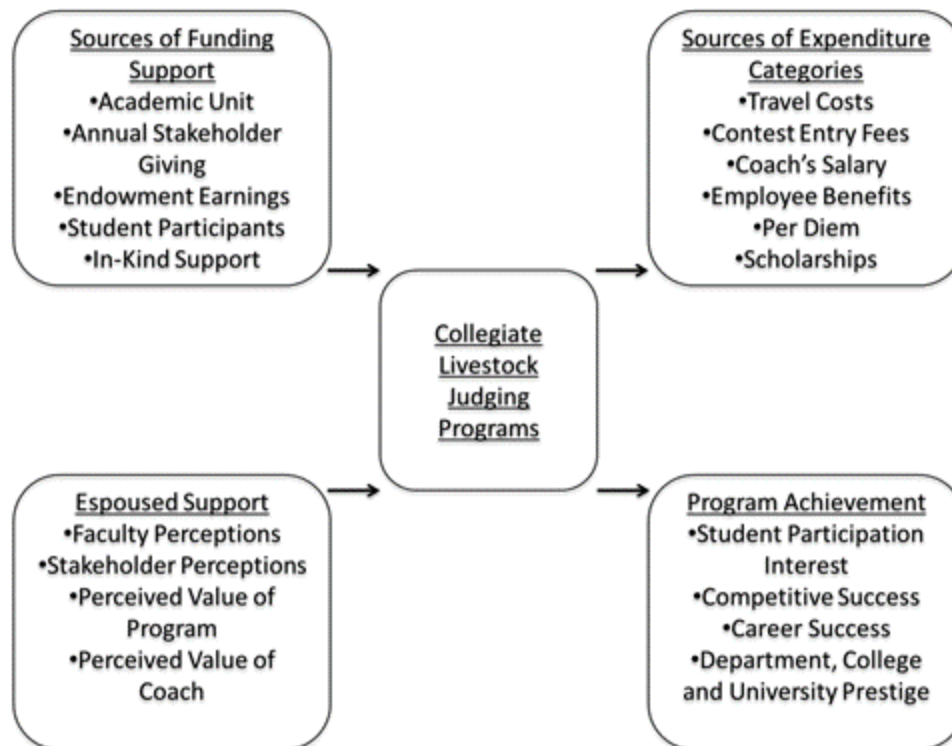


Figure 2. Conceptual Model of Inputs and Outputs of Collegiate Livestock Judging Programs

### *Research Objectives*

This study was conducted to identify and describe support, expenditures, anticipated trends in support and expenditures, anticipated trends of espoused stakeholder support, and their relationship to competitive performance, and the structure and characteristics of senior college livestock judging programs. The following research objectives were developed to guide this study.

1. Describe the sources and amounts of funding support for university livestock judging programs.
2. Describe the expense categories and amounts included in university livestock judging program budgets.
3. Describe anticipated trends of funding support for university livestock judging programs.
4. Describe anticipated trends of expense categories and amounts for university livestock judging programs.
5. Describe anticipated trends in espoused stakeholder support for university livestock judging programs.
6. Describe the demographics and structural characteristics of collegiate livestock judging programs and coaches.
7. Determine the relationship between funding/espoused support variables, demographic and structural characteristics, and a three-year composite measure of competitive performance.

### *Population and Sampling*

Livestock judging programs at four-year colleges and universities that competed at the NAILE in 2012, 2013, or both years, comprised the population for this study (n = 39). Contest results from the NAILE in 2012 and 2013 were used to identify colleges and universities that met the criteria for inclusion in the target population. The head livestock judging coach or substitute was identified by the president of the National Collegiate Livestock Coaches' Association, as the primary contact for each respective institution.

### *Instrumentation*

The data collection instrument (Appendix A) was developed by the researcher to address the first six research objectives outlined this study. Section I of the data collection instrument was designed to collect data regarding sources and amount of funding support by source and categories and amount of expenditures by category for university livestock judging programs. Seven sources were identified to report funding support. Eight categories of expenditures were identified to report financial expenses. Responses were reported using ranges defined by the researcher to categorize responses for data analysis. The predetermined dollar value ranges included 1 = \$0, 2 = \$1 to \$4,999, 3 = \$5,000 to \$9,999, 4 = \$10,000 to \$24,999, 5 = \$25,000 to \$49,999, 6 = \$50,000 to \$74,999, 7 = \$75,000 to \$99,999 and 8 = >\$100,000.

Section II of the instrument collected responses about anticipated trends in funding support and expenditures over the next five years for university livestock judging programs. The anticipated trend for each source of support and category of expenditure

was measured using a three point ordinal scale, 1 = support/expense will decrease, 2 = support/expense will stay the same, and 3 = support/expense will increase. Reporting categories were identical to those used in Section I, with exception to “All Other Sources of Financial Support” and “All Other Sources of Financial Expenditures”, which were replaced with “Overall Support” and “Overall Expenditures”, respectively. Data regarding anticipated trends in support and expenditures were used to predict future sources of funding and categories of expenses for university livestock judging programs.

Section III of the instrument measured anticipated trends in espoused stakeholder support over the next five years for university livestock judging programs. Espoused stakeholder groups were organized into 13 categories. Current espoused support and anticipated trend of each espoused support category was measured using a four point nominal scale, Consistently Negative, Mixed, Ambivalent, and Consistently Positive, and included a “Not Applicable” option.

Section IV pertained to the structure of the institution’s livestock judging program and the demographic characteristics of the livestock judging program structure at the institution. Additionally, one question asked respondents to rate their perceived importance (using a seven-point Likert-type scale, 1= Not All Important to 7 = Extremely Important) on five criteria, as well as, an “other” option, that might be used as measures of success for collegiate livestock judging programs by the respondent and as perceived by the head coach’s supervisor.

Contest performance was computed as a weighted three-year composite variable calculated using inverted overall contest rankings from the National Intercollegiate

Livestock Judging Contest. The variable was computed by weighting 2012 results times one, 2013 results times two and 2014 results times three and summing the three measures to produce a single weighted index score reflecting institutional team performance over the three year period.

Content validity of the instrument was established through a review by a panel of experts (Appendix B). DeVellis (2003, p. 49) defined content validity as “. . .the extent to which a specific set of items reflects a content domain.” The panel was comprised of three current and former university level educators who were familiar with collegiate livestock judging programs. Revisions were made to improve the data collection instrument based upon recommendations from the expert panel.

Cronbach’s alpha reliability coefficient for internal consistency was used to assess reliability of the instrument based upon data collected during a pilot test (n=8). Subjects in the pilot test included livestock judging team coaches at two-year colleges in Idaho, Illinois, Kansas, Nebraska, Oklahoma, Texas and Wyoming. The pilot test was administered through SurveyMonkey® an online survey administration engine. The pilot test revealed a Cronbach’s alpha reliability coefficient for anticipated trends of funding support and expenditures to be .745 and the current and anticipated trends in espoused stakeholder support to be .740. All reliabilities were greater than the threshold alpha level of .7, which was established *a priori*. Therefore the instrument used in this study was considered reliable for data collection and analysis (Nunnally & Bernstein, 1994). Feedback from the pilot study was also used to clarify directions for two questions on the instrument and resulted in removal of one question from the final instrument.

### *Data Collection*

Data collection was conducted according to the tailored design method (Dillman, Smyth, & Christian, 2008). A personalized pre-notification letter was sent seven days prior to the beginning of data collection to potential subjects inviting their participation in the study. The letter informed them of materials needed to complete the survey, and informed them that they would be receiving a URL link to an electronic survey for a study about support systems for collegiate livestock judging programs (Appendix C).

Seven days after the pre-notification letter was delivered, a cover letter with the link to the data collection instrument was sent via the secure SurveyMonkey® online survey engine. The cover letter included a description of the research and the human subjects review requirements (Appendix D). Subjects were instructed to click or copy and paste the secure link into their Internet browser to complete the data collection instrument (Appendix A). Subjects were asked to access the data collection instrument within three weeks. Another copy of the cover letter was sent as the first follow-up email message one week after the survey was initiated through SurveyMonkey® to coaches that had not responded. A second, identical follow-up email message was sent through SurveyMonkey® two weeks after the survey had been initiated to coaches who had not responded. A third and final, identical email was sent via SurveyMonkey® three days prior to the close of the survey to coaches that had still not responded. The secure URL link to the data collection instrument was included in each email message. Three weeks

after data collection began the online survey engine was closed. One respondent requested and was granted a 24-hour extension to submit the survey due to an illness.

Two subjects who did not receive the data collection instrument because of SurveyMonkey® site restrictions were sent electronic cover letters and web links using the researcher's University email account. A similar timeline was followed for reminder emails sent to the two subjects receiving individual electronic cover letters and web links.

Data analysis began after the data collection process ended. Non-response error was addressed by comparing early to late respondents (Lindner, Murphy, & Briers, 2001) based on ten randomly selected survey items involving anticipated trends in support and expenditures associated with university livestock judging program funding.

### *Data Analysis*

Data collected through the secure SurveyMonkey® online survey engine were downloaded into the IBM SPSS Statistics 18 – PASW Statistics 18 (formerly SPSS). PASW Statistics 18 was utilized to analyze the data.

Research objective one was to describe sources and amounts of funding for collegiate livestock judging programs. Frequencies and percentages were used to summarize and describe responses within and across each source of support and for the total livestock judging program budget.

The second research objective was to describe expense categories and amounts included in university livestock judging program budgets. Frequencies and percentages

were used to summarize and describe responses within and across categories of expenditures and total livestock judging program expenditures.

Describing anticipated trends in funding support for university livestock judging programs was the third research objective. Frequencies and percentages for each source of support was used to summarize and describe anticipated changes in support for university livestock judging programs.

The fourth research objective was to describe anticipated trends within categories of expenditures for university livestock judging programs. Frequencies and percentages for each expenditure category were reported to summarize and describe anticipated changes in expenditures for university livestock judging programs.

Research objective five was to describe current and anticipated trends in espoused stakeholder support for university livestock judging programs. Frequencies and percentages were reported for current and anticipated espoused support from each stakeholder category and were presented to summarize and describe perceived changes in stakeholder support for university livestock judging programs.

The sixth research objective was to describe demographics and structural characteristics associated with university livestock judging programs. Descriptive statistics were used to summarize and describe demographic and structural characteristics of university livestock judging programs. Characteristics of 2013 livestock judging teams were described using means and standard deviations. Perceptual data of the importance of livestock judging teams were described by frequencies and percentages. Self-reported importance and perceived supervisor's importance each criterion were

compared using paired t-tests. Differences between weighted frequency means were considered statistically significant if p-values  $< .05$ .

Determining the relationship between support variables, demographic and structural characteristics, and contest performance was the seventh research objective. Correlations between independent variables and the dependent variable, contest performance index, was assessed using Spearman's Rank-Order Correlations when the independent variable was composed of ordinal data, and using Pearson's Product-Moment Correlations when the independent variable was composed of interval or ratio data. Correlation coefficients with p-values  $< .05$  were considered statistically significant. Independent variables, composed of ratio data, that were significantly related to the dependent variable, were included in stepwise regression analysis to determine the extent to which those independent variables explained variation associated with the contest performance index variable.

## Chapter 4: Results

The purpose of collegiate livestock judging programs evolved from an initial focus on a production agriculture skill, into a transferrable life skill emphasizing decision making and oral communication. This shift in focus occurred in response to changes in livestock evaluation methods. Technological advances have resulted in unbiased evaluation processes that were more objective and reliable than visual appraisal. The perceived importance of livestock judging as an exercise to enhance agricultural production practices has consequently declined. Support (both financial and espoused) for collegiate livestock judging programs may be related to a reduction in the perceived utility and value of visual livestock evaluation. This study examined sources of support and expenditures, espoused support trends and characteristics of collegiate livestock judging programs, in an effort to determine how best to improve sustainability efforts for such programs in colleges and universities throughout the United States.

This chapter presents findings based on the following research objectives:

1. Describe the sources and amounts of funding support for university livestock judging programs.
2. Describe the expense categories and amounts included in university livestock judging program budgets.
3. Describe anticipated trends of funding support for university livestock judging programs.

4. Describe anticipated trends of expense categories and amounts for university livestock judging programs.
5. Describe anticipated trends in espoused stakeholder support for university livestock judging programs.
6. Describe the demographics and structural characteristics of collegiate livestock judging programs and coaches.
7. Determine the relationship between funding/espoused support variables, demographic and structural characteristics, and a three-year composite measure of competitive performance.

### *Data Collection*

Livestock judging programs in four-year colleges and universities in the United States that competed in the North American International Livestock Exposition (NAILE) in 2012, 2013, or both years, comprised the target population for this study (N=39). Contest results from the NAILE in 2012 and 2013 contests were used to identify institutions included in the target population. The population frame included the livestock judging program in each respective institution. Subjects were identified by the president of the National Collegiate Livestock Coaches' Association. Two subjects were replaced with alternate contacts from their respective institution, due to personnel changes, and the survey was conducted based upon the final population frame (N=39, see Appendix E for a list of institutions).

Data collection was conducted according to the tailored design method (Dillman et al., 2008). Pre-notification letters were sent via email on October 27, 2014, to 39 subjects inviting their participation in the study, informing them of materials needed to complete the electronic questionnaire, and that they would be receiving a URL link to the survey (see Appendix C).

A cover letter containing the URL link to the data collection instrument was sent via SurveyMonkey®, (a secure online survey administration service) on November 3, 2014. The initial cover letter included a description of the research and the human subjects review requirements (see Appendix D). Subjects were asked to click on or copy and paste the secure URL link into their Internet browser to complete the data collection instrument within three weeks (see Appendix A). On November 10, 2014, the cover letter was resent as a first follow-up email message through SurveyMonkey® to subjects that had not yet responded. A third, identical follow-up email message was sent via SurveyMonkey® on November 17, 2014, to subjects who had not yet responded. A fourth cover letter email was sent via SurveyMonkey® on November 21, 2014, to subjects that had still not responded. The data collection process was closed on December 8, 2014.

Two subjects reported they did not receive the data collection instrument due to SurveyMonkey® site restrictions and were sent electronic cover letters and web links using the researcher's University email account. The locally established site restrictions were beyond the researcher's control. A similar timeline for sending reminder emails was used for the two subjects receiving individual electronic cover letters and URL links.

Data analysis began on December 10, 2014. Thirty-one subjects provided data out of 39 subjects in the target population, yielding an initial response rate of 79% (n=31). Two of the 31 responses were partially complete and were excluded from the data set yielding a 74.4% response rate based on 27 useable responses. Greater than ten percent of the information requested on the data collection instrument was missing from the two excluded responses.

Cronbach's alpha reliability coefficient for internal consistency was computed post-hoc using data collected in this study to assess reliability of the data collection instrument (n=29). The post-hoc test revealed a Cronbach's alpha reliability coefficient of .850 based upon variables comprising anticipated trends of funding support and expenditures, and .885 for variables comprising current and anticipated trends in espoused stakeholder support. Each reliability coefficient was higher than the minimum threshold alpha level of .70, which was established *a priori* to determine reliability. Therefore, the data collection instrument used in this study was considered reliable (Nunnally & Bernstein, 1994).

Ten randomly selected support variables were used to compare early to late respondents (Lindner et al., 2001). Respondents were divided into quartiles based upon when each completed survey was electronically submitted. Early respondents were defined as those responding within the first quartile (n=7). Late respondents were those responding during the fourth quartile (n=7). Independent t-tests revealed no significant differences when comparing the means of the early and late respondents based on ten randomly selected topics involving anticipated trends in support or expenditures

associated with four-year university livestock judging programs. The ten randomly selected topics included *Anticipated Change in Expenditure – Scholarships* ( $p = .9$ ), *Anticipated Change in Expenditure – Instructional Resources* ( $p = .2$ ), *Anticipated Trend in Espoused Support – Other College Faculty* ( $p = .8$ ), *Anticipated Change in Financial Support – Fundraising Revenue* ( $p = .5$ ), *Anticipated Trend in Espoused Support – Alumni of Livestock Judging Team* ( $p = .3$ ), *Anticipated Trend in Espoused Support – Other Agricultural College Undergraduate Students* ( $p = .2$ ), *Anticipated Change in Financial Support – Overall Support* ( $p = .4$ ), *Anticipated Trend in Espoused Support – Departmental Graduate Students* ( $p = .9$ ), *Anticipated Trend in Espoused Support – Departmental Administrative Staff* ( $p = .5$ ), *Anticipated Trend in Espoused Support – Retired Departmental Faculty* ( $p = .4$ ). Therefore, data reported in this study were considered to be representative of the target population and may be generalized across the population frame.

### *Findings for Research Objective One*

Research objective one was to describe sources and amounts of funding support for collegiate livestock judging programs during fiscal year 2013-2014 (see Table 1). Subjects ( $n=29$ ) were asked to indicate the dollar value received in support of the livestock judging team by checking one of eight categories of dollar values for each of seven funding sources. The dollar value categories were \$0, \$1 to \$4,999, \$5,000 to \$9,999, \$10,000 to \$24,999, \$25,000 to \$49,999, \$50,000 to \$74,999, \$75,000 to \$99,999, and over \$100,000.

Twenty-eight subjects reported receiving funding support for their livestock judging team from the academic unit(s) (i.e. department) within the institution. Two funding ranges from *\$10,000 to \$24,999* and *\$25,000 to \$49,999* were the most commonly selected categories of funding from academic units for livestock judging programs with six (21.4%) respondents selecting each category. Five (17.9%) respondents selected the *\$1 to \$4,999* range, four subjects (14.3%) reported the *\$10,000 to \$24,999* range, *\$0* was selected by three (10.7%) respondents and two (7.1%) subjects reported funding ranges from *\$5,000 to \$9,999*. Two respondents (7.1%) indicated their livestock judging program received funding from their academic unit(s) in the *\$75,000 to \$99,999* dollar value range. None of the respondents reported funding support from their academic unit(s) for their livestock judging team in excess of *\$100,000*.

Stakeholder donation funding support was also examined and 28 subjects reported the dollar value of support from stakeholder donations ranged from *\$0 to \$49,999*. Fifteen (53.6%) subjects reported receiving financial support within the *\$1 to \$4,999* range from stakeholder donations. Seven (25.0%) respondents indicated their livestock judging programs received no financial support from stakeholders. Two (7.1%) subjects reported receiving stakeholder support in the *\$5,000 to \$9,999* dollar value range, two (7.1%) reported support in the *\$10,000 to \$24,999* range, and two respondents reported support in the *\$25,000 to \$49,999* category from stakeholder donations.

Subjects (n=29) reported receiving funding from development (i.e. endowment) accounts in support of their livestock judging program ranging from *\$0 to \$49,999*. The dollar value options, *\$0* and *\$1 to 4,999*, were the most popular selections to describe

financial support from development accounts, with each selected by eight (27.6%) respondents. Six (20.7%) subjects indicated receiving development account funding between *\$10,000 to \$24,999*, five (17.2%) respondents reported receiving funding in the *\$25,000 to \$49,999* range, and two (6.9%) reported funding in the *\$5,000 to \$9,999* range.

The value of funding received from student participants to support livestock judging teams was reported by 27 subjects in the range between \$0 to \$49,999. Sixteen (59.3%) of the respondents indicated that their livestock judging program did not receive financial support from student participants. The *\$1 to \$4,999* dollar value range was selected by seven (25.9%) respondents, and two (7.4%) subjects indicated the range of *\$10,000 to \$24,999*. Dollar value categories of *\$5,000 to \$9,999* and *\$25,000 to \$49,999* were each selected by one (3.7%) respondent, respectively, to indicate funding received from student participants.

Twenty-eight subjects reported receiving fundraising revenue generated in support of their livestock judging team. Ten (35.7%) respondents reported receiving *\$1 to \$4,999* in financial support from fundraising revenue. Seven (25.0%) respondents indicated receiving no revenue from fundraising. Each of the categories, *\$5,000 to \$9,999* and *\$10,000 to \$24,999* were selected by four (14.3%) respondents, respectively. Three (10.7%) subjects reported fundraising revenue in the *\$25,000 to \$49,999* range.

The value of in-kind support reported by 27 subjects ranged from \$0 to \$24,999. The most common response category to describe the level of in-kind support for collegiate livestock judging programs was *\$0*, which was selected by 17 (63.0%)

respondents (n=27). Nine (33.3%) subjects reported receiving in-kind support in the *\$1 to \$4,999* range and one (3.7%) respondent selected the *\$10,000 to \$24,999* range.

Twenty-four subjects reported the dollar value received from all other sources to be between \$0 and \$24,999. Eighteen (75.0%) survey responses selected the *\$0* option, three (12.5%) respondents selected the *\$5,000 to \$9,999* range, two (8.3%) selected the *\$1 to \$4,999* range, and one (4.2%) reported receiving funding in the *\$10,000 to \$24,999* range for all other sources of financial support.

Table 1.

*Sources of Funding Support Received During Fiscal Year 2013-2014 for Livestock Judging Programs at Four-Year Colleges and Universities.*

Funding Support Source	Frequency (Percentage)						
	\$0	\$1 to \$4,999	\$5,000 to \$9,999	\$10,000 to \$24,999	\$25,000 to \$49,999	\$50,000 to \$74,999	\$75,000 to \$99,999
Academic unit(s) (n=28)	3 (10.7)	5 (17.9)	2 (7.1)	6 (21.4)	6 (21.4)	4 (14.3)	2 (7.1)
Stakeholder donations (n=28)	7 (25.0)	15 (53.6)	2 (7.1)	2 (7.1)	2 (7.1)	0 (.00)	0 (.00)
Development accounts (n=29)	8 (27.6)	8 (27.6)	2 (6.9)	6 (20.7)	5 (17.2)	0 (.00)	0 (.00)
Student participants (n=27)	16 (59.3)	7 (25.9)	1 (3.7)	2 (7.4)	1 (3.7)	0 (.00)	0 (.00)
Fundraising revenue (n=28)	7 (25.0)	10 (35.7)	4 (14.3)	4 (14.3)	3 (10.7)	0 (.00)	0 (.00)
In-kind support (n=27)	17 (63.0)	9 (33.3)	0 (.00)	1 (3.7)	0 (.00)	0 (.00)	0 (.00)
All other sources (n=24)	18 (75.0)	2 (8.3)	3 (12.5)	1 (4.2)	0 (.00)	0 (.00)	0 (.00)

Note. No subjects reported receiving over \$100,000 from any of the funding sources.

### *Findings for Research Objective Two*

Research objective two was to describe the categories and amounts of financial expenditures used for collegiate livestock judging programs during fiscal year 2013-2014 (Table 2). Subjects (n=29) were asked to select one of eight dollar value ranges of funding for each of the categories of expenditures. The eight expenditure ranges were \$0, \$1 to \$4,999, \$5,000 to \$9,999, \$10,000 to \$24,999, \$25,000 to \$49,999, \$50,000 to \$74,999, \$75,000 to \$99,999, and >\$100,000.

Twenty-nine subjects reported on the salary funding expenditure category for their livestock judging team. Nine (31.0%) subjects reported salary expenditures (apportioned specifically for livestock judging program coaching activities) in the range from \$10,000 to \$24,999, eight (27.6%) responded with salary funding in the \$25,000 to \$49,999 range, six (20.7%) selected \$0, four (13.8%) selected \$1 to \$4,999, one (3.4%) selected \$5,000 to \$9,999, and one (3.4%) respondent selected the \$50,000 to \$74,999 range.

Expenditures associated with employee benefits were reported by 28 subjects, ranging from \$0 to \$24,999. Fourteen (50%) subjects reported no funding support for employee benefits, eight (28.6%) respondents reported \$1 to \$4,999 as the value of employee benefits, four (14.3%) reported \$5,000 to \$9,999, and two (7.1%) reported the dollar value ranging from \$10,000 to \$24,999.

The dollar value of travel expenditures associated with the collegiate livestock judging program was reported by 28 subjects to be between \$1 and \$49,999. Ten (35.7%) respondents reported \$10,000 to \$24,999, eight (28.6%) subjects reported

*\$25,000 to \$49,999*, two (7.1%) respondents reported *\$1 to \$4,999* and *\$5,000 to \$9,999*, respectively.

Expenditures incurred for contest entry fees were reported by 28 subjects. Twenty-six (92.9%) respondents selected *\$1 to \$4,999*, one (3.6%) subject reported *\$0* and one (3.6%) subject reported the expenditure to range from *\$5,000 to \$9,999*.

Twenty-seven subjects reported scholarship expenditures associated with their livestock judging program. Sixteen (59.3%) respondents indicated that no funding was expended for scholarships to students in support of the livestock judging program. Scholarships were reported by five (18.5%) subjects in the *\$1 to \$4,999* category, four (14.8%) in the *\$10,000 to \$24,999* category, and two (7.4%) in the *\$5,000 to \$9,999* category.

Subjects (n=27) reported the dollar value of livestock judging program awards ranging from *\$0 to \$4,999*. Fourteen (51.9%) respondents selected *\$1 to \$4,999* and 13 (48.1%) subjects selected *\$0* to reflect no expenditure for awards for the livestock judging program at their respective institution.

Expenditures associated with instructional resources were reported by 28 subjects. Sixteen (57.1%) respondents indicated expenditures ranging from *\$1 to \$4,999* and 12 subjects reported that no funding was expended on instructional resources to support the livestock judging program.

For all other financial expenditures, 16 of 25 subjects (64.0%) reported no other funds were expended in support of the livestock judging program. Seven (28.0%)

respondents reported in the *\$1 to \$4,999*, category and three (8.0%) reported in the *\$5,000 to \$9,999* category for other financial expenditures in support of their respective livestock judging program.

Table 2.

*Financial Expenditures in Support of Collegiate Livestock Judging Programs at Four-Year Colleges and Universities during Fiscal Year 2013-2014.*

Frequency (Percentage)						
Type of Expenditure	\$0	\$1 to \$4,999	\$5,000 to \$9,999	\$10,000 to \$24,999	\$25,000 to \$49,999	\$50,000 to \$74,999
Salary (n=29)	6 (20.7)	4 (13.8)	1 (3.4)	9 (31.0)	8 (27.6)	1 (3.4)
Employee benefits (n=28)	14 (50.0)	8 (28.6)	4 (14.3)	2 (7.1)	0 (.00)	0 (.00)
Travel (n=28)	0 (.00)	2 (7.1)	2 (7.1)	10 (35.7)	8 (28.6)	0 (.00)
Contest entry fees (n=28)	1 (3.6)	26 (92.9)	1 (3.6)	0 (.00)	0 (.00)	0 (.00)
Scholarships (n=27)	16 (59.3)	5 (18.5)	2 (7.4)	4 (14.8)	0 (.00)	0 (.00)
Team awards (n=27)	13 (48.1)	14 (51.9)	0 (.00)	0 (.00)	0 (.00)	0 (.00)
Instructional resources (n=28)	12 (42.9)	16 (57.1)	0 (.00)	0 (.00)	0 (.00)	0 (.00)
All other types of financial expenditures (n=25)	16 (64.0)	7 (28.0)	3 (8.0)	0 (.00)	0 (.00)	0 (.00)

Note. No subjects reported financial expenditures above \$75,000 for any expenditure category.

### *Findings for Research Objective Three*

The third research objective was to describe anticipated trends of funding support for university livestock judging programs. Subjects (n=29) were asked to report their perception of anticipated changes in each of seven funding sources identified in the first research objective (e.g. *decrease, stay the same or increase*) over the next five years (Table 3).

Funding for livestock judging programs received from academic units was expected to remain constant at 18 (62.1%) institutions, decrease at ten (34.5%) institutions and increase at one (3.4%) institution. Sixteen (55.2%) respondents expected donations from stakeholders to remain the same over the next five years, while 11 (37.9%) expected an increase and two (6.9%) expected a decrease. Funding support from development accounts was expected to increase or stay the same at 14 (48.3%) institutions, respectively, over the next five years, however one (3.4%) subject expected development funding to decrease. Twenty-one (72.4%) respondents expected funding from student participants for collegiate livestock judging programs to remain constant over the next five years, seven (24.1%) perceived this type of funding to increase, and one (3.4%) respondent anticipated decreased dollar student participant funding. Fundraising revenue was projected to increase by 16 (55.2%) respondents, stay the same by 12 (41.4%) respondents, and decrease by one (3.4%) respondent. Twenty-one (72.4%) survey responses indicated that in-kind support was expected to remain constant and eight (27.6%) respondents expected an increase in in-kind support. Overall financial

support was expected to increase at 15 (51.7%) institutions, stay the same at 12 (41.4%), and decrease at two institutions (6.9%) over the next five years.

Table 3.

*Anticipated Changes in Financial Support for Collegiate Livestock Judging Programs at Four-Year Colleges and Universities Over the Next Five Years (n=29).*

Source of Funding Support	Frequency (Percentage)		
	Decrease	Stay the Same	Increase
Academic unit(s)	10 (34.5)	18 (62.1)	1 (3.4)
Stakeholder donations	2 (6.9)	16 (55.2)	11 (37.9)
Development accounts	1 (3.4)	14 (48.3)	14 (48.3)
Student participants	1 (3.4)	21 (72.4)	7 (24.1)
Fundraising revenue	1 (3.4)	12 (41.4)	16 (55.2)
In-kind support	0 (0.0)	21 (72.4)	8 (27.6)
Overall financial support	2 (6.9)	12 (41.4)	15 (51.7)

### *Findings for Research Objective Four*

Research objective four was to describe anticipated changes in the amount expended in each expense category for university livestock judging programs over the next five years. Subjects (n=29) provided responses indicating their perceptions on whether expenditures in each of the eight expenditure categories identified in the second research objective would *decrease*, *stay the same* or *increase* over the next five years. Frequency data for each funding source are reported in Table 4.

Eighteen (62.1%) respondents expected salary expenditures to be unchanged, eight (27.6%) anticipated an increase, and three (10.3%) projected a decrease over the next five years. Employee benefits were projected to stay constant by 22 (75.9%) subjects, four (13.8%) predicted a decrease and three (10.3%) expected an increase in employee benefits. Seventeen (58.6%) survey responses indicated travel expenditures were expected to increase over the next five years, nine (31.0%) projected they will travel expenditures to remain constant, and three (10.3%) anticipated a decrease. Contest entry fees were expected to increase by 16 (55.2%) respondents, 12 (41.4%) respondents anticipated no change, and one predicted contest entry fees to decrease (3.4%). Scholarships for livestock judging team students were projected to stay the same by 23 respondents (79.3%), and increase by six (20.7%) respondents (none of the respondents anticipated a decrease in scholarship support). Nineteen (65.5%) subjects expected expenditures for livestock judging program awards to remain the same, eight (27.6%) anticipated award expenditures to increase, and two (6.9%) projected a decrease in that expenditure category. The value of expenditures for instructional resources was

projected to stay constant by 21 (72.4%) subjects, increase by seven (24.1%) respondents and to decrease according to one (3.4%) subject. Overall financial expenditures were anticipated to increase by 16 (55.2%) survey participants, 12 (41.4%) expected them to stay the same, and one subject (3.4%) predicted overall financial expenditures for the livestock judging program to decrease.

Table 4.

*Anticipated Changes in Financial Expenditures for Collegiate Livestock Judging Programs at Four-Year Colleges and Universities Over the Next Five Years (n=29).*

Source of Financial Expenditure	Frequency (Percentage)		
	Decrease	Stay the Same	Increase
Salary	3 (10.3)	18 (62.1)	8 (27.6)
Employee benefits	4 (13.8)	22 (75.9)	3 (10.3)
Travel	3 (10.3)	9 (31.0)	17 (58.6)
Contest entry fees	1 (3.4)	12 (41.4)	16 (55.2)
Scholarships	0 (0.0)	23 (79.3)	6 (20.7)
Team awards	2 (6.9)	19 (65.5)	8 (27.6)
Instructional resources	1 (3.4)	21 (72.4)	7 (24.1)
Overall financial expenditures	1 (3.4)	12 (41.4)	16 (55.2)

### *Findings for Research Objective Five*

The fifth research objective was to describe anticipated trends in espoused stakeholder support for university livestock judging programs. Respondents (n=29) provided a benchmark support level by reporting their perception of the current level of espoused support and the anticipated trend in espoused support for each of 13 stakeholder groups for collegiate livestock judging programs. Response options available to respondents to indicate perceived espoused support included *not applicable*, *consistently negative*, *mixed*, *ambivalent*, and *consistently positive*. Frequency data are presented in Table 5.

Eleven (37.9%) respondents perceived current espoused support from institutional administrators to be *ambivalent*, ten (34.5%) reported administrator support to be *consistently positive*, and six (20.7%) responses indicated *mixed* espoused support from their administrations. Two (6.9%) respondents reported institutional administrative support as being *consistently negative* toward their collegiate livestock judging program. Responses for the anticipated trend in espoused support from institution administrators revealed ten (35.5%) respondents projected *consistently positive* support, nine (31.0%) expected *mixed*, eight (27.6%) assumed support would be ambivalent, one (3.4%) forecasted *consistently negative* support, and one (3.4%) marked *not applicable*.

Eighteen (62.1%) coaches responded that current espoused support from departmental faculty with primarily teaching appointments was *consistently positive* at their institution, eight (27.6%) reported *mixed* levels of faculty support, and three responded that faculty support was *ambivalent*. None of the subjects indicated that

departmental teaching faculty were negative regarding their support for the livestock judging team. Nineteen respondents (65.5%) expected future support from teaching faculty to be *consistently positive*, six (20.7) projected support to be *mixed*, and four anticipated *ambivalent* support.

Respondents were asked to rate their perception of current support from departmental faculty with primarily a research appointment. Twelve (41.4) reported *mixed* support, five (17.2 %) selected *consistently negative*, and four (13.8%) responded that support was *ambivalent*, *consistently positive*, or *not applicable*, respectively. The anticipated trend in espoused support from research faculty reflected the same frequency dispersion for the *ambivalent*, *consistently positive* and *not applicable* response categories. Ten (34.5%) respondents expected *mixed* support and six (20.7%) predicted *ambivalent* support.

*Consistently positive* was selected by 15 (51.7%) respondents to describe the current level of espoused support expressed toward livestock judging programs from faculty members that are primarily involved with extension/outreach activities. Six (20.7%) respondents selected either *mixed* or *not applicable*, respectively, and two (6.9%) responded that support from the extension/outreach faculty group was *ambivalent*. Thirteen (44.8%) subjects selected *consistently positive* to describe anticipated support from faculty with primarily an extension/outreach appointment, six (20.7%) reported either *mixed* or *not applicable*, respectively, and four (13.8%) expected *ambivalent* support.

Current espoused support from other college faculty was described as *mixed* by 19 (65.5%) respondents, *ambivalent* by seven (24.1%), *consistently positive* by 2 (6.9%) and one (3.4%) chose *not applicable*. Seventeen (58.6%) respondents anticipated espoused support from other college faculty members to be *mixed*, seven (24.1%) expected *ambivalent* support, three (10.3%) projected *consistently positive* support and one (3.4%) selected either *consistently negative* or *not applicable*, respectively.

Eighteen (62.1%) subjects described the current espoused support from retired departmental faculty to be *consistently positive*, four (13.8%) coaches responded either *mixed* or *ambivalent*, respectively, and three (10.3%) chose *not applicable*. The anticipated trend in espoused support from retired faculty was described as *consistently positive* by 15 (51.7%) respondents, *mixed* by six (20.7%) respondents, *ambivalent* by five (17.2%), and three selected *not applicable*.

Current espoused support from departmental staff was reported by 12 (41.4%) subjects to be *consistently positive*, ten indicated support to be *ambivalent* four (13.8%) respondents selected *mixed*, two (6.9%) chose *consistently negative*, and one (3.4%) deemed the group *not applicable*. Eleven (37.9%) respondents perceived support from administrative staff would remain *consistently positive* in the future, ten (34.5%) anticipated support to become *ambivalent*, six (20.7%) thought staff support would be *mixed*, one (3.4%) respondent selected *consistently negative*, and one (3.4%) respondent marked *not applicable*.

The support level from animal care staff was reported to be *consistently positive* by 18 (62.1%) respondents, *ambivalent* by (20.7%) six, *mixed* by (13.8) four and one

(3.4%) reported *consistently negative*. Anticipated support from animal care staff was reported with a similar frequency dispersion as the current level of support for the *consistently positive* and *consistently negative* options. The *mixed* and *ambivalent* choices were both selected by five (17.2%) respondents.

Current and anticipated support levels from departmental graduate students for collegiate livestock judging programs were reported with identical frequencies with *ambivalent* selected by 11 (37.9%) subjects, *consistently positive* by eight (27.6%), *mixed* by (20.7%) six, and *not applicable* by four (13.8%) subjects.

Current espoused support from departmental undergraduate students for livestock judging programs was perceived as *mixed* by 16 (55.2%) subjects, *consistently positive* by ten (34.5%) subjects, and *ambivalent* by three (10.3%) subjects. Anticipated support for livestock judging from departmental undergraduate students was projected to be either *mixed* or *consistently positive* by 14 (48.3%) subjects, and *ambivalent* by one (3.4%) subjects.

Undergraduate students enrolled in degree programs outside of the department, but within the college of agriculture, were reported as a *mixed* level of support toward livestock judging programs by 12 (41.14%) subjects. Eight (27.6%) subjects reported support from that population of undergraduate students to be either *ambivalent* or *consistently positive*, respectively. One (3.4%) respondent selected *not applicable* for this section. Respondents reported the anticipated trend in support from other agricultural college undergraduate students with the following frequency *mixed* by 11

(37.9%), *consistently positive* by nine (31.0%), *ambivalent* by eight (27.6%), and *not applicable* by one (3.4%).

Twenty-three (79.3%) subjects reported both the current support and anticipated trend in espoused support from livestock judging team alumni to be *consistently positive*. Four (13.8%) subjects reported *mixed* support, one (3.4%) reported support to be *ambivalent*, and one (3.4%) reported *consistently negative* to describe current support of livestock judging team alumni. Five (17.2%) respondents chose *mixed* and one (3.4%) chose *ambivalent* to describe projected support from judging team alumni.

The level of current espoused support and anticipated trend in espoused support from other departmental alumni reflected a similar frequency distribution. Fifteen (51.7%) subjects reported *consistently positive* support, ten (34.5%) reported *ambivalent* support, two (6.9%) subjects reported *mixed* support, and two (6.9%) subjects reported *consistently negative* support from other departmental alumni.

Table 5.

*Current and Anticipated Trends in Espoused Support, as Perceived by Livestock Judging Team Coaches, for Livestock Judging Programs at Four-Year Colleges and Universities (n=29)*

Source Espoused Stakeholder Support		Frequency (Percentage)				
		Not Applicable	Consistently Negative	Mixed	Ambivalent	Consistently Positive
Institution administrators						
	Current support	0 (0.0)	2 (6.9)	6 (20.7)	11 (37.9)	10 (34.5)
	Anticipated trend in support	1 (3.4)	1 (3.4)	9 (31.0)	8 (27.6)	10 (34.5)
Departmental teaching faculty						
	Current support	0 (0.0)	0 (0.0)	8 (27.6)	3 (10.3)	18 (62.1)
	Anticipated trend in support	0 (0.0)	0 (0.0)	6 (20.7)	4 (13.8)	19 (65.5)
Departmental research faculty						
	Current support	4 (13.8)	5 (17.2)	12 (41.4)	4 (13.8)	4 (13.8)
	Anticipated trend in support	4 (13.8)	5 (17.2)	10 (34.5)	6 (20.7)	4 (13.8)
Departmental extension/outreach faculty						
	Current support	6 (20.7)	0 (0.0)	6 (20.7)	2 (6.9)	15 (51.7)
	Anticipated trend in support	6 (20.7)	0 (0.0)	6 (20.7)	4 (13.8)	13 (44.8)

*Continued*

<i>Table 5 Continued</i>		Frequency (Percentage)				
Source Espoused Stakeholder Support		Not Applicable	Consistently Negative	Mixed	Ambivalent	Consistently Positive
Other college faculty						
	Current support	1 (3.4)	0 (0.0)	19 (65.5)	7 (24.1)	2 (6.9)
	Anticipated trend in support	1 (3.4)	1 (3.4)	17 (58.6)	7 (24.1)	3 (10.3)
Retired departmental faculty						
	Current support	3 (10.3)	0 (0.0)	4 (13.8)	4 (13.8)	18 (62.1)
	Anticipated trend in support	3 (10.3)	0 (0.0)	6 (20.7)	5 (17.2)	15 (51.7)
Departmental administrative staff						
	Current support	1 (3.4)	2 (6.9)	4 (13.8)	10 (34.5)	12 (41.4)
	Anticipated trend in support	1 (3.4)	1 (3.4)	6 (20.7)	10 (34.5)	11 (37.9)
Animal care staff						
	Current support	0 (0.0)	1 (3.4)	4 (13.8)	6 (20.7)	18 (62.1)
	Anticipated trend in support	0 (0.0)	1 (3.4)	5 (17.2)	5 (17.2)	18 (62.1)
Departmental graduate students						
	Current support	4 (13.8)	0 (0.0)	6 (20.7)	11 (37.9)	8 (27.6)
	Anticipated trend in support	4 (13.8)	0 (0.0)	6 (20.7)	11 (37.9)	8 (27.6)
Departmental undergraduate students						
	Current support	0 (0.0)	0 (0.0)	16 (55.2)	3 (10.3)	10 (34.5)
	Anticipated trend in support	0 (0.0)	0 (0.0)	14 (48.3)	1 (3.4)	14 (48.3)

*Continued*

*Table 5 Continued*

<i>Table 5 Continued</i>		Frequency (Percentage)				
Source Espoused Stakeholder Support		Not Applicable	Consistently Negative	Mixed	Ambivalent	Consistently Positive
Other agricultural college undergraduate students						
	Current support	1 (3.4)	0 (0.0)	12 (41.4)	8 (27.6)	8 (27.6)
	Anticipated trend in support	1 (3.4)	0 (0.0)	11 (37.9)	8 (27.6)	9 (31.0)
Alumni of livestock judging team						
	Current support	0 (0.0)	1 (3.4)	4 (13.8)	1 (3.4)	23 (79.3)
	Anticipated trend in support	0 (0.0)	0 (0.0)	5 (17.2)	1 (3.4)	23 (79.3)
Other departmental alumni						
	Current support	2 (6.9)	0 (0.0)	2 (6.9)	10 (34.5)	15 (51.7)
	Anticipated trend in support	2 (6.9)	0 (0.0)	2 (6.9)	10 (34.5)	15 (51.7)

### *Findings for Research Objective Six*

The sixth research objective was to describe the demographic and structural characteristics of collegiate livestock judging programs. Subjects (n=29) from 29 four-year colleges and universities responded to the data collection instrument. Descriptive statistics regarding demographic characteristics are reported in Table 6. Frequency data describing overall structural characteristics of the livestock judging program are reported in Table 7. Characteristics that describe the livestock judging teams that competed in the 2013 NAILE (as reported by survey respondents) are included in Table 8. Frequency data and weighted frequency means pertaining to the level of importance placed on five potential evaluation criteria that may have been considered by the head coach, and the perceived level of importance placed upon those criteria by the head coach's supervisor, to evaluate livestock judging programs are presented in Table 9. T-test scores and p-values associated with pairwise comparisons of weighted frequency means for each criteria are also presented in Table 9.

Fourteen (48.3%) subjects reported the position title (i.e. classification) for the livestock judging team coach to be a non-tenure track faculty, nine (31.0%) indicated the livestock judging team coach was classified as a staff position, and three (10.3%) reported the position was classified as a tenure track faculty member. Three (10.3%) subjects reported the position was filled by a graduate student.

The highest level of education attained by the livestock judging team head coach was reported by 22 (75.9%) respondents to be a master's degree, four (13.8%) indicated the coach held either a Ph.D. or Ed.D, and three (10.3%) responded the coach had

completed a bachelor's degree. Twenty-six (89.7%) of the head livestock judging team coaches were male, two (6.9%) were female, and one (3.4%) did not specify. The mean number of assistant coaches was calculated to be 0.5 with a standard deviation of 0.6. The mean age of the head coach was 33.7 years with a standard deviation of 9.3 and a range in age of 22 to 65 years.

Table 6.

*Demographic Characteristics of Four-Year College and University Livestock Judging Team Head Coaches (n=29).*

Demographic Characteristic		<i>f</i>	<i>%</i>
Position title of livestock judging team head coach	Tenure Track Faculty	3	10.3
	Non-tenure Track Faculty	14	48.3
	Staff	9	31.0
	Graduate Student	3	10.3
Level of education	Bachelor's Degree	3	10.3
	Master's Degree	22	75.9
	Doctorate (Ph.D. or Ed.D.)	4	13.8
Gender	Female	2	6.9
	Male	26	89.7
	Prefer Not to Specify	1	3.4
		<i>Mean</i>	<i>SD</i>
Number of assistant coaches (number)		0.5	0.6
Age of head coach (years of age)		33.7	9.3

Each of the respondents reported that their respective institution offered a livestock judging/evaluation course during the 2013-2014 academic year. Out-of-state tuition waivers for incoming first-year students were reported to be available at eight

(27.6%) institutions. Nine (31.0%) respondents indicated their institution provided out-of-state tuition waivers to transfer students. Three (10.3%) subjects indicated that their institution had a livestock judging team coordinator whose responsibilities differed from the livestock judging team head coach. The title of the livestock judging team head coach's supervisor was reported by 21 (72.4%) subjects to be a department chair/head, four (13.8%) indicated the supervisor was a tenure track faculty member, two (6.9%) identified the supervisor to be the college dean, and two (6.9%) indicated that a non-tenure track faculty member was the supervisor of the head coach of the livestock judging program.

Table 7.

*Structural Characteristics of Four-Year College and University Livestock Judging Programs (n=29).*

Structural Characteristic		<i>f</i>	%
Undergraduate livestock judging/evaluation course offered during 2013-2014	No	0	0.0
	Yes	29	100.0
Out-of-state tuition waivers available to first-year college students	No	21	72.4
	Yes	8	27.6
Out-of-state tuition waivers available to transfer students	No	20	69.0
	Yes	9	31.0
Livestock judging team coordinator whose responsibilities differ from that of the livestock judging team head coach	No	26	89.7
	Yes	3	10.3
Title of the supervisor of the coach of the livestock judging team	Dean of College	2	6.9
	Department Chair/Head	21	72.4
	Tenure Track Faculty	4	13.8
	Non-tenure Track Faculty	2	6.9

Respondents provided numeric data regarding the size and scope of their institution's livestock judging program in 2013. The mean enrollment in the livestock judging/evaluation courses taught at institutions represented in this study during the 2013-2014 academic year was calculated to be 32.6 students with a standard deviation of 27.3. The average size of the livestock judging team at four-year colleges and universities was 7.1 students ( $SD = 4.9$ ). The number of student participants in the livestock judging program in 2013 ranged from zero to 20. An average of 2.9 students ( $SD = 4.2$ ) per program had previously competed on a junior college livestock judging

team. Responses for number of students that had previously competed on the junior college level ranged from zero to 15. The number of students that represented their respective four-year college or university by traveling to the national contest at the NAILE in 2013 ranged from zero to 15 students with a mean of 5.9 students ( $SD = 3.7$ ). An average of 2.4 students ( $SD = 3.3$ ) that traveled to the national contest in 2013 had previously competed on a junior college livestock judging team. Four-year college and university teams at the NAILE in 2013 ranged in size from zero to five students and averaged four student contestants ( $SD = 2.0$ ), of which, 1.8 students ( $SD = 2.1$ ) per team had prior junior college livestock judging team experience. The range amount of students that competed in the NAILE in 2013 with junior college livestock judging experience was zero to five.

Four-year college and university livestock judging teams competed in an average of 7.4 contests ( $SD = 3.8$ ) in 2013. The number of contests entered by each livestock judging team ranged from zero to 12 competitions during the 2013 calendar year. The number of scholarship awards that were contingent upon competing on an institution's livestock judging team ranged from zero to 15 student and were awarded to an average of 1.1 students ( $SD = 3.1$ ) across all teams. Thirty-three students received scholarship awards across five institutions, ranging from three to 15 students, with a mean of 6.6 students ( $SD = 4.8$ ).

Table 8.

*Livestock Judging Program Characteristics at Four-Year Colleges and Universities in 2013 (n=29).*

Team Characteristic	Mean	SD	Range
Number of students enrolled in undergraduate livestock judging/evaluation course during 2013-2014 academic year	32.6	27.3	0 - 140
Total number of team members	7.1	4.9	0 - 20
Total number of team members from JUCO	2.9	4.2	0 - 15
Total number of team members that traveled to NAILE	5.9	3.7	0 - 15
Total number of team members that traveled to NAILE from JUCO	2.4	2.3	0 - 11
Total number of team members that competed at NAILE	4.0	1.9	0 - 5
Total number of team members that competed at NAILE from JUCO	1.8	2.1	0 - 5
Total number of contests in which the team competed in 2013	7.4	3.8	0 - 12
Number of students that received a scholarship that was contingent upon their participation on their institution's 2013 livestock judging team (across all respondents)	1.1	3.1	0 - 15
Number of students that received a scholarship that was contingent upon their participation on their institution's 2013 livestock judging team (across five teams that awarded scholarships)	6.6	4.8	3 - 15

Note. NAILE = North American International Livestock Exposition. JUCO = Junior College. Characteristics reflect the 2013 competition year (i.e. January 1 – November 30, 2013).

Three criteria were rated as extremely important by subjects when evaluating their livestock judging teams. The three criteria included: *graduation rate of student participants, number of participants on the team, and academic*

*performance of students on team*. Most respondents perceived that their supervisor considered *graduation rate of student participants* and *academic performance of students on team* as extremely important criteria when evaluating the livestock judging program.

Weighted frequency means were computed with respect to each subjects' self-reported importance and perceived supervisor importance of five livestock judging program evaluation criteria. For each respondent, a response of *Extremely Important* received a weighted score of seven, *Very Important* received a six, *Moderately Important* received a five, *Neutral* received a four, *Slightly Important* received a three, *Low Importance* received a two, and *Not at all Important* received a one. The weighted frequency mean for perceived level of importance placed upon *contest performance* by supervisors was the only criteria with a weighted frequency mean less than 4.50 (*Weighted Frequency Mean*=4.2).

Self-reported importance and perceived supervisor importance weighted frequency means for each criteria that might be used to evaluate collegiate livestock judging teams were compared using paired t-tests. An alpha level of .05 was set *a priori* to determine significance. The level of perceived importance was revealed to be greater among coaches than among supervisors for the areas of contest performance ( $p < .01$ ) and team size ( $p = .02$ ). There was no difference between coaches and supervisors regarding the weighted frequency means of graduation rate ( $p = .33$ ), fundraising ( $p = .35$ ), and academic performance ( $p = .16$ ).

Table 9.

*Level of Importance Placed on Evaluating Livestock Judging Teams by Livestock Judging Team Head Coaches and Head Coaches' Perceived Level of Importance Placed on Evaluating Livestock Judging Teams by Supervisors (n=29)*

Importance Criterion	Frequency							WFM	t	p
	NAI	LI	SI	N	MI	VI	EI			
Contest performance									3.7	< .01
Importance to coach	0 (0.0)	0 (0.0)	1 (3.4)	4 (13.8)	10 (34.5)	10 (34.5)	4 (13.8)	5.4		
Perceived supervisor importance	4 (13.8)	1 (3.4)	2 (6.9)	7 (24.1)	10 (34.5)	3 (10.3)	2 (6.9)	4.2		
Graduation rate									1.0	.33
Importance to coach	0 (0.0)	0 (0.0)	1 (3.4)	0 (0.0)	2 (6.9)	1 (3.4)	25 (86.2)	6.7		
Perceived supervisor importance	0 (0.0)	1 (3.4)	0 (0.0)	0 (0.0)	2 (6.9)	2 (6.9)	24 (82.8)	6.3		
Size of team									2.6	.02
Importance to coach	0 (0.0)	0 (0.0)	1 (3.4)	5 (17.2)	11 (37.9)	7 (24.1)	5 (17.2)	5.7		
Perceived supervisor importance	1 (3.4)	2 (6.9)	3 (10.3)	7 (24.1)	8 (27.6)	5 (17.2)	3 (10.3)	4.6		

*Continued*

<i>Table 9 Continued</i>		Frequency						<i>WFM</i>	<i>t</i>	<i>P</i>
Importance Criterion		NAI	LI	SI	N	MI	VI	EI		
Fundraising for team									1.0	.35
Importance to coach		1 (3.4)	1 (3.4)	1 (3.4)	2 (6.9)	9 (31.0)	9 (31.0)	6 (20.7)	5.3	
Perceived supervisor importance		2 (6.9)	1 (3.4)	1 (3.4)	5 (17.2)	7 (24.1)	7 (24.1)	6 (20.7)	5.0	
Academic performance									1.4	.16
Importance to coach		0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	4 (13.8)	8 (27.6)	17 (58.6)	6.7	
Perceived supervisor importance		0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	4 (13.8)	10 (34.5)	15 (51.7)	6.4	

Note. Frequency response percentages are located directly below numeric frequency responses. NAI =not at all important, LI = little importance, SI = slightly important, N = neutral, MI = moderately important, VI = very important, EI = extremely important and WFM = weighted frequency means. 1.00 – 1.50 = not at all important, 1.51 – 2.50 little importance, 2.51 – 3.50 = slightly important, 3.51 – 4.50 neutral, 4.51 – 5.50 = moderately important, 5.51 – 6.50 = very important, 6.51 – 7.00 = extremely important.

### *Findings for Research Objective Seven*

Research objective seven was to determine the relationship between funding/espoused support variables, demographic and structural characteristics, and a three-year composite measure of livestock judging team performance. Spearman's Rank-Order Correlation coefficients were computed to measure the relationship between independent variables based on ordinal data and the contest performance index dependent variable. Table 10 reports correlation coefficients between the independent variables and livestock judging team contest performance variable. Table 11 presents the results of correlation analysis pertaining to the association between anticipated changes in support or expenditures and the dependent variable. Table 12 presents the correlation analysis results between livestock judging program evaluation criteria and livestock judging team contest performance index.

Pearson's Product-Moment Correlation coefficients were computed to measure the relationship between demographic and structural characteristic data and the contest performance dependent variable (see Table 13). Criteria established by (Cohen, 1988) were used to interpret effect size. The mean contest performance index score was calculated to be 70.1 with a standard deviation of 53.9 and a range of 1 to 172. Statistical significance was established a priori at  $\alpha = .05$ .

The correlation matrix reporting relationships between the seven independent variables (comprised of ordinal data) that were statistically significantly correlated with the dependent variable are presented in Table 14. The correlation matrix describing the relationships between eight independent variables, comprised of ratio data, that were

found to be statistically significantly correlated with the contest performance index dependent variable are presented in Table 15. Eight independent variables (comprised of ratio data) that were statistically significantly correlated with the contest performance index dependent variable were subsequently evaluated using stepwise regression. Table 16 contains a summary of the stepwise regression analysis.

Spearman rank-order correlation analysis revealed that large, positive relationships (Cohen, 1988) existed between the following independent variables and the contest performance index dependent variable: financial support from academic unit(s) ( $r_s = .50, p < .01$ ), stakeholder donations ( $r_s = .51, p < .01$ ), fundraising revenue ( $r_s = .50, p < .01$ ), and salary ( $r_s = .67, p < .01$ ). Positive, moderate relationships existed between the following independent response variables and the contest performance index dependent variable; employee benefits ( $r_s = .46, p = .01$ ), travel ( $r_s = .48, p = .01$ ) and the anticipated trend of funding from development accounts ( $r_s = .37, p = .05$ ).

Pearson product-moment correlation analysis revealed large, positive relationships between the following independent variables and contest performance index dependent variable: number of assistant coaches ( $r = .65, p < .01$ ), total number of students that were members of the 2013 livestock judging team at their institution ( $r = .71, p < .01$ ), number of students participating on their institution's 2013 livestock judging team that had previously competed on a junior college livestock judging team ( $r = .75, p < .01$ ), number of students that traveled with their institution's livestock judging team to the NAILE in 2013 ( $r = .66, p < .01$ ), number of students that traveled with their institution's livestock judging team to the NAILE in 2013 that had previously competed

on a junior college livestock judging team ( $r = .73, p < .01$ ), number of students that competed for their institution's livestock judging team at the NAILE in 2013 that had previously competed on a junior college livestock judging team ( $r = .63, p < .01$ ), and number of contests the institution's livestock judging team competed in during 2013 ( $r = .73, p < .01$ ). A positive, moderate relationship existed between the total number of students that competed for their institution's livestock judging team at the NAILE in 2013 and the contest performance index dependent variable ( $r = .48, p = .01$ ).

Table 10.

*Relationship Between Funding Source and Expenditure Category Variables and the Contest Performance Index Dependent Variable.*

Independent Variables	$r_s$	$p$
Funding Source		
Academic unit(s)	.50*	< .01
Stakeholder donations	.51*	< .01
Development accounts	.34	.07
Student participants	.03	.89
Fundraising revenue	.50*	< .01
In-kind support	.27	.17
All other sources of financial support	-.06	.79
Expenditure Category		
Salary	.67*	< .01
Employee benefits	.46*	.01
Travel	.48*	.01
Contest entry fees	.10	.62
Scholarships	.29	.14
Team awards	.37	.06
Instructional resources	-.04	.84
All other sources of financial expenditures	-.06	.77

Note. Dollar value ranges were recoded as ordinal data to perform correlation analysis, 1 = \$0, 2 = \$1 to \$4,999, 3 = \$5,000 to \$9,999, 4 = \$10,000 to \$24,999, 5 = \$25,000 to \$49,999, 6 = \$50,000 to \$74,999, 7 = \$75,000 to \$99,999, and 8 = >\$100,000.

\* $p < .05$

Table 11.

*Relationships Between Anticipated Change Response Variables and the Contest Performance Index Dependent Variable.*

Independent Variables	$r_s$	$p$
Funding Source		
Academic unit(s)	.19	.33
Stakeholder donations	.09	.65
Development accounts	.37*	.05
Student participants	.16	.42
Fundraising revenue	.04	.84
In-kind support	.36	.06
Overall financial support	.21	.29
Expenditure Category		
Salary	.16	.42
Employee benefits	.24	.21
Travel	.35	.06
Contest entry fees	.10	.61
Scholarships	.05	.81
Team awards	-.16	.41
Instructional resources	.13	.52
Overall financial expenditures	.06	.76

Note. Anticipated change responses were recoded as ordinal data to perform correlation analysis, decrease = 1, stay the same = 2, and increase = 3.

\* $p < .05$

Table 12.

*Relationships Between Perceived Importance Placed on Criteria Used to Evaluate Livestock Judging Programs by Respondents and Supervisors at Four-Year Colleges and Universities and the Contest Performance Index Dependent Variable.*

Importance Criterion	$r_s$	$p$
Contest performance		
Importance to coach	.32	.09
Perceived supervisor importance	.34	.07
Graduation rate of student participants		
Importance to coach	.36	.06
Perceived supervisor importance	.32	.09
Number of participants on the team		
Importance to coach	-.06	.76
Perceived supervisor importance	.04	.82
Fundraising for team		
Importance to coach	.30	.11
Perceived supervisor importance	.33	.08
Academic performance of students on team		
Importance to coach	.31	.10
Perceived supervisor importance	.18	.36

Note. Importance responses were recoded as ordinal data to perform correlation analysis: 1 = not at all important, 2 = little importance, 3 = slightly important, 4 = neutral, 5 = moderately important, 6 = very important, and 7 = extremely important.

Table 13.

*Relationships Between Demographic and Structural Characteristics of Livestock Judging Programs at Four-Year Colleges and Universities and the Contest Performance Index Dependent Variable.*

Independent Variables	<i>r</i>	<i>p</i>
Total number of assistant coaches	.65*	< .01
Age of head coach	-.07	.72
Total number of students enrolled in undergraduate livestock judging/evaluation course during 2013-2014 academic year	-.10	.62
Total number of team members	.71*	< .01
Total number of team members from JUCO	.75*	< .01
Total number of team members that traveled to NAILE	.66*	< .01
Total number of team members that traveled to NAILE from JUCO	.73*	< .01
Total number of team members that competed at NAILE	.48*	.01
Total number of team members that competed at NAILE from JUCO	.63*	< .01
Total number of contests in which the team competed in 2013	.73*	< .01
Number of students that received a scholarship that was contingent upon their participation on their institution's 2013 livestock judging team	.33	.08

Note. NAILE = North American International Livestock Exposition. JUCO = Junior College. Characteristics reflect the 2013 competition year (January 1 – November 30, 2013).

\* $p < .05$

Table 14 presents data from the correlational analysis between the contest performance index (dependent variable) and several independent variables. Statistically significant relationships were revealed with the contest performance index and academic unit funding, stakeholder donations, fundraising revenue, salary expenditures, employee benefit expenditures, travel expenditures and anticipated change in development accounts. Although each of the independent variables were positively correlated with the contest performance index, there was a strong potential for intercorrelations among the independent variables.

Strong (Cohen, 1988), positive intercorrelations were revealed between the dollar value of support from academic unit(s) and the dollar value of salary ( $r_s = .52, p < .01$ ), between the dollar values of stakeholder donations and salary ( $r_s = .62, p < .01$ ), between the dollar values of salary and employee benefits ( $r_s = .54, p < .01$ ), and the between dollar value of salary and the anticipated change in funding support from development accounts ( $r_s = .53, p < .01$ ). Moderate, positive relationships existed between the dollar values of support from academic unit(s) and stakeholder donations ( $r_s = .43, p = .02$ ), fundraising revenue ( $r_s = .38, p = .05$ ) and travel ( $r_s = .49, p < .01$ ). Positive, moderate relationships were revealed between the dollar value of stakeholder donations and fundraising revenue ( $r_s = .45, p = .02$ ), employee benefits ( $r_s = .38, p = .04$ ) and the anticipated change in funding support from development accounts ( $r_s = .48, p = .01$ ). There was a moderate, positive relationship between expenditures associated with travel and the expected change in development account funding ( $r_s = .48, p = .01$ ).

Table 15 presents data from the correlational analysis between the contest performance index (dependent variable) and several demographic and structural characteristics of livestock judging programs. Statistically significant relationships were revealed with the contest performance index and number of assistant coaches, total number of students that were members of the 2013 livestock judging team at their institution, number of students participating on their institution's 2013 livestock judging team that had previously competed on a junior college livestock judging team, number of students that traveled with their institution's livestock judging team to the NAILE in 2013, number of students that traveled with their institution's livestock judging team to the NAILE in 2013 that had previously competed on a junior college livestock judging team, number of students that competed for their institution's livestock judging team at the NAILE in 2013 that had previously competed on a junior college livestock judging team, the total number of students that competed for their institution's livestock judging team at the NAILE in 2013, and the number of contests the institution's livestock judging team competed in during 2013.

Positive, strong relationships also existed between the number of assistant coaches and the number of team members with previous junior college livestock judging experience ( $r = .62, p < .01$ ), the number of students that traveled to the NAILE with previous junior college livestock judging experience ( $r = .61, p < .01$ ), and the number of students that competed at the NAILE with previous junior college livestock judging experience ( $r = .56, p < .01$ ). Strong, positive relationships were also revealed between the number of team members that participated on their institution's livestock judging

team in 2013 and the number of team members with previous junior college livestock judging experience ( $r = .76, p < .01$ ), the number of students that traveled to the NAILE ( $r = .84, p < .01$ ), the number of students that traveled to the NAILE with previous junior college livestock judging experience ( $r = .69, p < .01$ ), the number of team members that competed at the NAILE ( $r = .60, p < .01$ ), the number of students that competed at the NAILE with junior college livestock judging experience ( $r = .57, p = .01$ ), and the number of contests entered ( $r = .75, p = .01$ ). Relationships between the number of team members with junior college judging experience and the size of the team that traveled to the NAILE ( $r = .64, p < .01$ ), the number of students with junior college experience on the NAILE traveling team ( $r = .94, p < .01$ ), the number of students with junior college experience that competed at the NAILE ( $r = .82, p < .01$ ), and the number of contests the team entered ( $r = .62, p < .01$ ) were found to be strong and positive.

Strong, positive associations also existed between the number of students that traveled to the NAILE and the number of students that traveled to the NAILE with previous junior college judging experience ( $r = .71, p < .01$ ), the number of students that competed at the NAILE ( $r = .76, p < .01$ ), the number of NAILE contestants with junior college experience ( $r = .56, p < .01$ ), and the number of contests entered ( $r = .83, p < .01$ ). Strong, positive relationships were also revealed between the number of students that traveled to the NAILE with junior college livestock judging experience and the number of junior college transfer students that competed on the team at the NAILE ( $r = .85, p < .01$ ), and the number of contests in which the team participated ( $r = .66, p < .01$ ). There was a strong, positive relationship between the number of students who competed

on the team at the NAILE and the number of contests entered ( $r = .85, p < .01$ ), and between the number of students that competed on the NAILE team that had previous junior college experience and the number of contests entered ( $r = .66, p < .01$ ).

Moderately strong associations existed between the number of assistant coaches and the size of the team ( $r = .48, p < .01$ ), the size of NAILE traveling team ( $r = .44, p = .02$ ), and the number of contests entered ( $r = .42, p = .02$ ). There was a moderately strong correlation between the number of students that competed at the NAILE and the number of student competitors at the NAILE that had judged in junior college ( $r = .43, p = .02$ ).

Table 14.

*Relationships Between Sources of Funding Support and Expenditure Category Independent Variables and the Contest Performance Index Dependent Variable.*

Characteristic	1.	2.	3.	4.	5.	6.	7.	8.
1. Contest Performance Index	--	.50*	.51*	.50*	.67*	.46*	.48*	.37*
2. Academic unit(s) funding support		--	.43*	.38*	.52*	.22	.49*	.26
3. Stakeholder donations funding support			--	.45*	.62*	.38*	.11	.48*
4. Fundraising revenue funding support				--	.35	.07	.36	.35
5. Salary expenditure					--	.54*	.19	.53*
6. Employee benefits expenditure						--	.02	.48*
7. Travel expenditure							--	.14
8. Anticipated change in development accounts								--

\* $p < .05$

Table 15.

*Relationships Between Demographic and Structural Characteristic Independent Variables and the Contest Performance Index  
Dependent Variable.*

Characteristic	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Contest Performance Index	--	.65*	.71*	.75*	.66*	.77*	.49*	.63*	.73*
2. Total number of assistant coaches		--	.48*	.62*	.44*	.61*	.26	.56*	.42*
3. Total number of team members			--	.76*	.84*	.69*	.60*	.57*	.75*
4. Total number of team members from JUCO				--	.64*	.94*	.33	.82*	.61*
5. Total number of team members that traveled to NAILE					--	.71*	.76*	.60*	.83*
6. Total number of team members that traveled to NAILE from JUCO						--	.35	.85*	.66*
7. Total number of team members that competed at NAILE							--	.43*	.85*
8. Total number of team members that competed at NAILE from JUCO								--	.66*
9. Total number of contests in which the team competed in 2013									--

95 Note. NAILE = North American International Livestock Exposition. JUCO = Junior College. Characteristics reflect the 2013 competition year.

\* $p < .05$

Relationships between eight independent variables consisting of ratio data were found to be significantly related to the contest performance index were entered into a stepwise linear regression model (see Table 17).

- Number of assistant coaches.
- Number of students that were members of the 2013 livestock judging team at their institution
- Number of students participating on their institution's 2013 livestock judging team that had previously competed on a junior college livestock judging team.
- Number of students that traveled with their institution's livestock judging team to the NAILE in 2013.
- Number of students that traveled with their institution's livestock judging team to the NAILE in 2013 that had previously competed on a junior college livestock judging team
- Number of students that competed for their institution's livestock judging team at the NAILE in 2013.
- Number of students that competed for their institution's livestock judging team at the NAILE in 2013 that had previously competed on a junior college livestock judging team.
- Number of contests the institution's livestock judging team competed in during 2013).

The full model containing the independent variables, number of students participating on their institution's 2013 livestock judging team that had previously competed on a

junior college livestock judging team, number of contests the institution's livestock judging team competed in during 2013, and number of assistant coaches, was significant ( $p < .01$ ). The three predictor variables included in the regression model explained 70% of the variance associated with the contest performance index dependent variable. The number of students on the livestock judging team at a four-year college or university who had previously competed on a junior college livestock judging team explained 54% of the variance in the contest performance index variable. Additionally, the number of contests that a team participated in and the number of assistant coaches at an institution increased the explained variance by 11% and 9%, respectively.

Table 16.

*Summary of Stepwise Regression Analysis for Variables Explaining Contest Performance Index.*

Variable	<i>B</i>	<i>SE B</i>	<i>t</i>	<i>p</i>	Adj. $R^2$	$R^2$ Change
Total number of team members from JUCO	3.93	1.919	2.05	.05	.54	.54
Total number of contests in which the team competed in 2013	5.86	1.837	3.19	< .01	.65	.11
Number of assistant coaches	26.38	12.28	2.15	.04	.70	.09
(Constant)	12.544					

*Note.* Full Model:  $R^2 = .73$ ; *Adjusted*  $R^2 = .70$ ;  $F = 22.35$ ;  $p = < .01$

### *Major Findings*

Based on the results of this study the following major findings were revealed:

- Most collegiate livestock judging programs receive funding support from their academic unit(s), stakeholders, development accounts and via fundraising revenue.
- Less than half of collegiate livestock judging teams receive funding support from student participants, in-kind support, or other sources.
- Most respondents anticipated academic unit(s) support to stay the same. However, among those who expected a change in academic unit(s) support, ten anticipated a decrease and only one, anticipated an increase.
- Over half of the respondents anticipated expenditures for travel, contest entry fees, and overall expenditures to increase over the next five years.
- Departmental research faculty were the only stakeholder group perceived to espouse consistently negative support toward livestock judging teams.
- Most head coaches were relatively young, male, had completed Master's degrees, and were employed in non-tenure track positions.
- Age of head coach was not associated with the contest performance index.
- Less than half of collegiate livestock judging teams had one (or more) assistant coach.
- Less than one-third of the four-year colleges and universities with collegiate livestock judging teams offered out-of-state tuition waivers.
- Less than half of the collegiate livestock judging teams included members with junior college livestock judging experience. Coincidentally, forty percent of the contestants

on four-year college and university livestock judging teams had previously judged in junior college.

- Five respondents reported that their institutions provided student scholarships that were contingent upon livestock judging participation.
- Contest performance was related to most funding support variables, most team membership measures (including amount of students with junior college experience), the amount of assistant coaches, and number of contests attended.
- Over half of the variance associated with contest performance was explained by the number of students on a livestock judging team at a four-year college or university with junior college livestock judging experience.
- Amount of assistant coaches is the factor with the greatest singular impact on contest performance.

### *Summary*

Findings of this study are presented and summarized in this chapter. Seven research objectives provided a framework for this research. The findings presented in this chapter matched the order in which the objectives were introduced. Findings focused on sources of funding support and categories of expenditures of four-year college and university livestock judging programs, espoused support for four-year college and university livestock judging programs and demographic and structural characteristics of four-year college and university livestock judging programs. Correlation and regression

analysis was conducted to examine the relationship between independent variables and a computed measure of contest performance.

## Chapter 5: Discussion

This chapter provides an overview of the results of this research. Discussion is organized and based upon the seven research objectives that guided this research. Conclusions, implications, and recommendations are also provided. Suggestions for future research and a summary conclude the chapter.

### *Overview*

Emphasis placed on livestock judging at the collegiate level has transitioned away from primarily preparing students to become animal breeders toward a more inclusive transferrable career skill preparation context. Laboratory exercises in livestock evaluation were included in the curriculum when animal husbandry departments were first established in the U.S., during the late 1800s. Primarily, because visual appraisal was the predominant means of assessing the value of livestock during that era. Advancements in technology have resulted in more objective approaches to assess the quality and value of livestock. Contemporary methods include performance records, ultrasound measurements, genomic testing and research results.

Students entering careers in the animal sciences will not only need knowledge of basic and applied science, but also an understanding of animal husbandry and handling. Animal science career paths will involve the incorporation of technological advancements and scientific discoveries into the workplace. Collegiate livestock judging

activities provide hands-on training for students by challenging their understanding of innovation in the livestock production industries. Many livestock judging contest classes in collegiate competitions incorporate real-world production scenarios and newly developed genetic technology information in addition to visual livestock appraisal. These technologies may include, but are not limited to expected progeny differences, bioeconomic indices, embryo transfer, standardized performance analysis (SPA), and genetic defect genotyping.

Five essential skills sought by employers include obtaining and processing information, setting priorities, decision-making, communication skills, and working in a team environment. Participation in collegiate livestock judging serves to reinforce many of these skills. Reviewing, interpreting and processing information about animals through visual appraisal and production records is essential for success in livestock judging competitions. Students independently use information to assign values and develop a logical, ordinal ranking in a class of four animals based on a range of criteria. Extemporaneous oral summaries are then presented by contestants to explain and defend their placement decisions.

Economic pressures have forced collegiate administrators to critically evaluate the value of programs such as livestock judging. Faculty support might also be a point of contention for livestock judging programs due a perceived lack of need for visual livestock appraisal. Information regarding funding allocation for collegiate livestock judging teams will contribute to the general knowledge base of funding and support

within colleges of agriculture, and could provide a platform for sustainability and growth of competition-centered academic programs.

The purpose of this study was to describe current sources of support and expenditures, anticipated support trends and characteristics of collegiate livestock judging programs at four-year colleges and universities in the United States. The data collection instrument was designed specifically for this research. The data were collected using the online survey engine SurveyMonkey<sup>®</sup>. Usable responses were collected from 29 out of 39 potential survey participants yielding a final response rate of 74%. Data were analyzed using IBM SPSS Statistics 18 – PASW Statistics 18 (formerly SPSS Statistics). Findings were presented in Chapter 4 focusing on the seven objectives that directed this research. Fourteen major findings were revealed from the research results.

### *Major Findings*

Based on the results of this study the following major findings were revealed:

- Most collegiate livestock judging programs receive funding support from their academic unit(s), stakeholders, development accounts and via fundraising revenue.
- Less than half of collegiate livestock judging teams receive funding support from student participants, in-kind support, or other sources.
- Most respondents anticipated academic unit(s) support to stay the same. However, among those who expected a change in academic unit(s) support, ten anticipated a decrease and only one, anticipated an increase.

- Over half of the respondents anticipated expenditures for travel, contest entry fees, and overall expenditures to increase over the next five years.
- Departmental research faculty were the only stakeholder group perceived to espouse consistently negative support toward livestock judging teams.
- Most head coaches were relatively young, male, had completed Master's degrees, and were employed in non-tenure track positions.
- Age of head coach was not associated with the contest performance index.
- Less than half of collegiate livestock judging teams had one (or more) assistant coach.
- Less than one-third of the four-year colleges and universities with collegiate livestock judging teams offered out-of-state tuition waivers.
- Less than half of the collegiate livestock judging teams included members with junior college livestock judging experience. Coincidentally, forty percent of the contestants on four-year college and university livestock judging teams had previously judged in junior college.
- Five respondents reported that their institutions provided student scholarships that were contingent upon livestock judging participation.
- Contest performance was related to most funding support variables, most team membership measures (including amount of students with junior college experience), the amount of assistant coaches, and number of contests attended.
- Over half of the variance associated with contest performance was explained by the number of students on a livestock judging team at a four-year college or university with junior college livestock judging experience.

- Amount of assistant coaches is the factor with the greatest singular impact on contest performance.

## Discussion

Based on the findings presented in this study, it was determined that the primary sources of funding support for collegiate livestock judging teams were academic unit(s), stakeholders, development accounts and annual fundraising. Students, in-kind giving and other sources did not provide support for the annual livestock judging program budget at over half of the institutions that participated in this study. Although most respondents indicated that funding support from academic unit(s) is not likely to change, of those that anticipated change, ten respondents anticipated a decrease over the next five years compared to only one that anticipated an increase. Most respondents also expected expenditures for travel and contest entry fees to increase over the same time period. Subsequently, overall expenditures were expected to increase by most respondents.

Financial data were collected within ranges to encourage participation in the reporting process, which inhibited precise budget determination. However, some benchmarks were defined for discussion purposes. Three hypothetical budget amounts were computed by summing the low end of the lowest category selected by at least one respondent to reflect the lowest level of funding provided by each source for the livestock judging program. A second hypothetical budget was computed by summing the top end of the range of the highest category selected by at least one respondent. A third hypothetical budget was determined by summing the midpoint of the range of the modal

category (i.e. most frequently selected) by respondents. Using this process, the lowest possible budget was \$0, the highest possible budget was \$349,993, and the modal category midpoint summation was \$32,000. Hypothetical financial expenditures were also computed using a similar procedure, which yielded hypothesized annual expenditures of \$1, \$40,000, and \$249,993 for low end, modal midpoint, and high end expenditure budgets, respectively.

Contest performance appears to be directly related to both revenue and expenditure components of the livestock judging program budget. However, it was not possible in this study to determine causality. Specifically, it is not clear if greater levels of funding support and/or greater levels of expenditures for an institution's livestock judging program contributed to higher levels of team performance. Or vice versa, if higher levels of team performance contributed to higher levels of funding support and/or higher levels of expenditures for the livestock judging team. In reality, it is quite likely that there is somewhat of a reciprocal effect, in which incremental improvements in funding (whether support or expenditures) may contribute to better team performance; which in turn may also lead to higher levels of funding support (from a variety of sources), which may also contribute to higher expenditures.

Funding support from academic unit(s), stakeholders, and fundraising activities, in addition to expenditures for salary, employee benefits, and travel were all positively related to competitive performance of collegiate livestock judging teams. The variance in financial support and expenditures might be reflective of the value placed upon contest performance by an institution rather than the educational value placed on the collegiate

livestock judging program in general. Generally, more competitive livestock judging teams reported characteristics (e.g. higher salaries and assistant coaches) that contribute to larger expenditures, which also require more financial support. There is also evidence to suggest that teams at the highest level of the competitive spectrum had more students on the livestock judging team, more junior college transfer students on the team, utilized the services of one or more assistant coach(es), and participated in more contests. The positive relationship between contest performance and funding support from stakeholders and fundraising activities, coupled with the anticipated increase in development account earnings may be of particular importance regarding program sustainability.

Most respondents anticipated funding from academic units to either stay the same or decline over the next five years, which could result in a funding shortfall for programs that rely heavily on departmental support. This scenario is somewhat analogous to a business in a capitalist economy. Businesses that generate higher rates of return on investment are more likely to attract additional funding to grow and expand. Conversely, less profitable businesses often face challenges associated with declining resources, meeting cash flow obligations, and may eventually face bankruptcy and/or cease to exist. Therefore, competitive livestock judging teams are more likely to attract external funding and thrive as a result of their competitive success, while underfunded and less competitive teams may cease to exist due to the eventual effects of funding limitations. Although administrators did not view contest performance as the most important factor in evaluating their livestock judging team program, contest performance certainly appears to be an important factor regarding sustainability of collegiate livestock judging program.

Field, et al. (1998) reported (from a national survey) that non-salary expenditures for all judging programs (livestock, meats, dairy, horse, wool and meat animal evaluation teams) were paid by academic institutions (50%), team members (15.2%), development accounts (12.2%) and annual stakeholder giving (11.2%). Field, et al. (1998) also noted that livestock judging team members contributed the second highest amount of funding support for livestock judging program activities in the late 1990s. However, this study revealed that team members at most institutions did not provide funding support for the annual livestock judging program budget. Coincidentally, fundraising activities were not mentioned in previous literature, but were identified as a major source of funding support in this study. In addition, most respondents expect annual fundraising to increase over the next five years and fundraising was at least moderately important to a majority of the coaches and their supervisors. Therefore, it appears that the expectation of students to directly contribute funding support for the livestock judging team budget may have been supplanted with an expectation of team members to service fundraising activities. Many institutions host youth livestock judging camps that are frequently staffed by team members during the summer months, which may provide funding support for the livestock judging program budget (2014 Judging Camps, 2014).

Increased fundraising activities could also be in response to the expected changes in funding support from academic unit(s) that were revealed in this study. Most respondents expect funding support from academic unit(s) to either stay the same or decrease over the next five years. Independently, either of these scenarios would result in a net decrease of funding available to support judging programs if overall expenditures

increase, which was the expectation shared by a majority of the respondents in this study. Travel expenditures was one area of additional cost that most respondents anticipated. Hotel accommodations, food, transportation, and other costs associated with travel will likely continue to increase as a result of economic inflation.

Some institutions also reported that they awarded scholarships to students participating on livestock judging team. The rising cost of higher education might result in some programs seeking additional opportunities to provide financial assistance in order to recruit students to participate in livestock judging. According to data from this research, approximately, 200 students competed on collegiate livestock judging teams in 2013 out of an estimated 950 students that were enrolled in a livestock judging course during 2013-2014. Therefore, it appears that nearly 750 students did not to participate in the livestock judging program for some reason. This research did not investigate why students do or do not participate on a livestock judging teams but perhaps the possibility of receiving a scholarship would result in higher levels of student to participation in the livestock judging program. Contest entry fees were also anticipated to increase by most respondents, which could be the result of higher fees charged at individual contests or larger expenditures if teams decided to participate in more contests on an annual basis.

Contest participation is one of three factors found to be associated with a livestock judging team's competitive performance. The number of students on a four-year college or university livestock judging team that had previously competed on a junior college livestock judging team and the number of livestock judging team assistant coaches were the other two factors associated with team performance. Each factor would

require additional funding in order to be increased. The link between fundraising and contest performance might have been recognized prior to this study by some of the respondents. These two criteria were ranked as moderately important or greater by the same proportion of respondents and represented a majority. Over half of the respondents reported that contest performance was at least moderately important to their supervisor, which was of less importance than fundraising.

Unfortunately, this study failed to determine if coaches perceive there to be an ideal number of students that comprise a livestock judging team. However, the size (i.e. number of members) of the livestock judging team was more important to coaches than their supervisors. Perhaps coaches place more value on larger team sizes in order to achieve a competitive advantage. The relationship between team size and competitive success uncovered in this study might aid in the explanation of why fundraising is important to coaches. Nearly all of the travel expenditures associated with a collegiate livestock judging program are directly related to the size of the group that is traveling (e.g. meals, hotel rooms, vans, airline tickets). Therefore, coaches might value fundraising as a means to achieve their competitive goals, whereas supervisors might view extramural funding support as one method of decreasing the financial burden that McCann and McCann (1992) partially attributed to the decline in the number of livestock judging programs across the country. Anticipated reductions in funding support provided by academic units for collegiate livestock judging teams may be counteracted with increased fundraising activities, which would simultaneously enable coaches to direct funding toward areas viewed as more important for their specific team goals and improve

espoused support within academic unit(s) while contributing to long term program sustainability.

A major finding revealed in this study was the perceived lack of support for collegiate livestock judging teams by faculty members whose primary appointment is research (as opposed to teaching and/or extension). Research faculty were the only stakeholder group perceived to be negative in their support for the livestock judging program. Animal science departments operate on annual budgets within certain limitations; where internal competition for funds may create a culture/environment where some faculty perceive that their individual funding support may be in direct competition with funding for the livestock judging program. Faculty members in need of financial resources to successfully navigate the promotion and tenure process might view activities such as livestock judging as competitors for limited departmental resources. Therefore, some faculty members may be under the impression that eliminating or reducing funding for the livestock judging team would allow more funding to be directed toward their own research program.

Another reason for perceived negative support expressed from research faculty could be due to a de-emphasis on livestock judging within academia, which McCann and McCann (1992) identified as one of the factors contributing to declining support for livestock judging programs. Emphasis on technical applications began to fade in academic settings in the 1960s when the shift toward basic science research that could be applied across multiple species rose to prominence (Britt et al., 2008). Curricular changes coincided with the shift toward basic science, which resulted in livestock judging

transitioning from a required course to an elective course during the 1980s (Taylor & Kauffman, 1983). In addition, most current livestock judging team coaches are appointed in non-tenure track positions and do not possess a doctoral degree; which is in contrast to research faculty members. Furthermore, the educational focus of collegiate judging programs has shifted from farm animal production emphasis toward soft skill (e.g. critical thinking, interpersonal skills, decision making) development (Cavinder et al., 2011; McCann & McCann, 1992; Smith, 1989), which may not be viewed as rigorous or important to some faculty members. Soft skills were ranked third out of four skill categories (discipline knowledge and discipline technical skills, were rated first and second, respectively) as necessary prerequisites for new graduates entering the workforce by faculty members within colleges of agriculture and related sciences (Crawford, Lang, Fink, Dalton, & Fielitz, 2011). Disciplinary knowledge and technical skills are more aligned with the emphasis on basic science education, which is the focus of contemporary animal sciences curricula. The perceived role and outcomes of collegiate judging programs simply may not align with what is perceived to be important by some research faculty members, and as a result, support from those faculty members may be more negative than positive.

Positive support was perceived by respondents for every other stakeholder group that was considered in this study. However, espoused support from administrators, other college faculty, departmental administrative staff, departmental graduate students, departmental undergraduate students, and other agricultural college undergraduate students was perceived to either be mixed or ambivalent by most respondents.

Stakeholder groups, whose espoused support is viewed to be somewhat ambivalent (neither positive nor negative), represents an opportunity for livestock judging programs to cultivate more positive, supportive relationships. Persuading groups of people may be a difficult task; however apathy toward these groups could lead to an increased negativity that would be even more difficult to overcome.

Nearly every funding support variable investigated in this study was positively related to contest performance. However, demographic and structural characteristics of collegiate livestock judging teams explained most of the variance in contest performance. As previously discussed, the three specific variables that explained most of the variance in contest performance were: number of contests attended, number of junior college transfer students that competed on the livestock judging team, and the number of assistant coaches. The first two variables appear to be directly linked to the overall amount of livestock judging experience students had acquired. The most active teams in 2013 competed in 12 contests, while the overall average number of contests entered was 7.4 per institution. Therefore, if a student had competed in the maximum number of contests each year, they would have judged in almost five times the number of competitive events than the average contestant without junior college livestock judging experience. In addition, junior college transfer students have an additional two years of competitive judging experience prior to their matriculation into a four-year institution. Whereas, students who had not attended a junior college are eligible to compete for only one year at a four-year institution. Therefore, students with junior college livestock judging experience could have potentially competed in as many as 36 collegiate livestock judging

contests (based upon the upper-most range of 12 contests per year for three years; two years of junior college and one year at a four-year institution) throughout their academic career; which is approximately five times more than the average non-transfer student. Students with junior college livestock judging experience are concentrated in relatively few four-year colleges and universities. Less than half of the institutions surveyed reported having junior college transfer students on their 2013 team, yet 40 percent of the students that competed at NAILE in 2013 were junior college transfer students. In addition, all but one of the four-year institutions that had junior college transfer students on their 2013 livestock judging team had competed in nine or more contests. Therefore, junior college students who transfer into four year institutions often have much more livestock judging experience than their non-transfer counterparts. In most cases, junior college students further expand upon their experience advantage by attending institutions that participate in more contests on an annual basis compared to institutions that do not attract students with junior college livestock judging experience.

A similar relationship was revealed concerning the number of assistant coaches for livestock judging teams. Ten of the 14 institutions that reported having junior college transfer students on their 2013 livestock judging team had at least one assistant coach. Conversely, there were only three institutions that had at least one assistant coach, but no junior college transfer students on the livestock judging team. Therefore, it appears that a collinear relationship exists between the variables that contribute to competitive success and funding support.

Viewing competitive livestock judging through a lens that is analogous to competitive sports may shed some light on a phenomenon uncovered in this research. Gifted and talented high school athletes often strive to attend colleges with competitive collegiate athletic programs that also provide opportunities to hone their skills and achieve competitive success. In many instances, collegiate underclassmen serve as understudies to upper class students until they earn a starting position. Similarly, high school students that are interested in collegiate livestock judging are likely attracted to junior colleges with competitive livestock judging programs in order to gain two additional years of experience before competing at the four-year college level. According to the data collected and reported in this research, junior college students transferred to a relatively small number of four-year institutions that competed in more contests than average institutions and had at least one assistant coach. Considerable funding support would be required in order to provide judging programs with the means necessary to support each of these factors. The reciprocal relationship between funding and contest performance variables appear to strengthen program sustainability in the form of competitive success, which is somewhat analogous to donor support for winning college athletic programs. Unfortunately, this research was unable to determine which factor within the cycle (student recruitment, assistant coach attainment, increased contest participation or funding) was the initial catalyst. However, some expenditures were linked to contest performance that might provide insight for institutions seeking to establish or revitalize sustainable livestock judging programs.

Salary and employee benefits were both related to contest performance. This research purposefully combined the total salary and benefits of all coaches from each institution in order to reflect to total dollar value invested in livestock judging personnel. The disparity in funding resources and variables associated with contest performance complicates the assessment of coaching quality across livestock judging programs. Livestock judging team coaches are a largely homogenous group that consists primarily of young men. However, there is no evidence that the coaches' age, which could be a proxy for experience or possibly coaching success is associated with livestock judging program performance or sustainability. Coaching expertise likely influenced the preparation and performance of student contestants. However, data from this research suggests that successful livestock judging programs are the result of collinear relationships driven by effective structural systems combined with resource availability. Therefore, the ability to design and execute effective systems and obtain resources could be more valuable to judging programs than coaches' livestock judging expertise. Perhaps livestock judging programs are able to be revitalized and sustained by persons with the same entrepreneurial skills used to build successful businesses.

Increased extramural funding support may result in sustainability and at least maintain the number of collegiate livestock judging teams. Both respondents and supervisors are interested in raising funds to be used by livestock judging programs, but perhaps for different reasons. Coaches likely place more emphasis on contest performance and the number of students on their livestock judging team than their supervisors. Supervisors might view fundraising as mechanism to reduce or supplant

academic unit funding. Regardless of the identified need for fundraising, the wide disparity in funding that likely exists across livestock judging programs suggests that some institutions may benefit from increased extramural funding resources. Contest performance is clearly a function of junior college transfer students, the number of assistant coaches, and contest participation. Each of these variables require additional funding resources to implement a change within an institution. Therefore, a collinear relationship exists between contest performance and program funding. Salary and benefits were also positively related to contest performance, however coaching expertise might be of secondary importance to entrepreneurial skills. Successful coaches need to be able to obtain funding and recruit students, and assistant coaches in order to build successful programs that are sustainable.

Some stakeholder groups are perceived to espouse mixed or ambivalent support for university livestock judging programs. Coaches or other livestock judging program supporters should capitalize on opportunities to strengthen those perceptions by improving the image and perceived benefits within their academic environment. Building stakeholder relationships is important for coaches seeking additional resources to improve program sustainability. Livestock judging is an activity that fosters soft skill development among participants. This message may be well-received by stakeholders because of the perceived importance of soft skills to employers. However, coaches that are interested in establishing and building rapport among faculty (especially research faculty) should be aware that many faculty perceive disciplinary knowledge as the most important component of the undergraduate curriculum. Building relationships with

faculty members whose support for livestock judging is less than positive could be included in discussion about the application of new evaluation technologies into competitive livestock judging, which coincidentally bolsters students' disciplinary knowledge.

Most of this discussion has focused on variables that were revealed to be related to team success and sustainability. However, graduation rate and academic performance were rated by respondents with the highest importance ratings among the five importance criteria examined in the study. Graduation rate and academic performance were rated extremely important by livestock judging team coaches, and were also perceived to be very important to the coaches' supervisors. Contest performance, size of team and fundraising for the team were rated as moderately important to coaches. Supervisor perceptions of team size and fundraising were rated as moderately important; but contest performance was rated as neutral. Therefore, coaches and supervisors were perceived to place greater importance on academics and graduation rates than contest performance.

## Conclusions

Previous research involving collegiate judging programs focused primarily on student development outcomes or funding. The research problem for this study was to determine how collegiate livestock judging programs have been supported in the past and to identify trends that will likely impact future support and program sustainability. Data from this study provided evidence that competitive success and funding resources appear to have a collinear relationship. Evidence of this relationship suggests that programs

need to secure sufficient resources in order to be competitive at the national level, or that ongoing competitive performance is requisite to continued funding support; although the relative mix of funding sources may continue to evolve over time.

Funding for livestock judging programs in the future will likely shift from academic unit support to extramural sources, e.g. fundraising and donations. Although some academic unit funding is expected to continue, the proportion of academic unit support in the total budget is expected to decline over time. Extramural funding appears to be directly linked to competitive performance. Thus, livestock judging team coaches may need to become more entrepreneurial in conducting fundraising activities to build or maintain sustainable programs.

There is clearly a direct relationship between team member experience and team performance. Teams comprised of junior college transfer students generally out-perform teams with few or no junior college transfer students. Likewise, teams that compete in a greater number of contests each year are more competitive in the national contest than teams that compete in fewer contests. Thus, the effect of team member experience is compounded when a junior college transfer student attends an institution that competes in the greatest number of contests; which was revealed to be commonplace.

Exacerbating the competitive advantage that results from junior college transfer and the greater number of contests, is the benefit of having one or more assistant coaches. Institutions with one or more assistant coach(es) were found to benefit the most in terms of a team's competitive performance. Four-year colleges and universities that recruit junior college students that compete in the most contests and have at least one assistant

coach, achieved higher levels of performance. Although only a few institutions share all three characteristics, these factors certainly help to explain much of the disparity across livestock judging programs in terms of funding resources and contest performance. Thus, the collinear relationship between competitive success and funding support suggests that institutions with structural characteristics that promote contest performance are more likely to secure sufficient funding for livestock judging program sustainability, and vice versa.

Despite a moderate emphasis on contest performance, most coaches perceived academic performance and graduation rates to be of greater importance than contest performance. Originally, livestock judging was introduced as a supplemental activity to demonstrate application of knowledge presented via classroom instruction; which seems to have remained the focus of most programs. Therefore, evidence from this study refutes the perception that collegiate livestock judging programs embrace a win at all costs philosophy. Apparently, the intent of most coaches is to provide educational experiences that supplement the academic pursuits of students. Communicating this orientation and value system to stakeholder groups that espouse less than positive support for the livestock judging program may stimulate a more beneficial relationship and generate additional support for the livestock judging program, or at the very least reduce the negative tension that exists within some academic units.

## Implications

Team participation in collegiate livestock judging events involving four-year colleges and universities has declined since the 1980s, which coincides with a de-emphasis on livestock judging in some animal science departments. During that same period of time, funding resources in higher education have become more closely scrutinized in response to the American economic recession. Consequently, many institutions have trimmed budgets and redirected funding allocations, which has prompted the need for many collegiate livestock judging teams to become more self-sufficient. This research provides evidence of the need for a strategy to define a pathway to building and maintaining sustainable livestock judging programs based upon the strength of the relationship between competitive success and funding availability. However, there are currently only a handful (i.e. approximately five) institutions that appear to have the resources needed to be sustainable and competitive in the long run. Therefore, collegiate livestock judging program coaches and administrative staff should consider the potential benefits that might be derived from individual teams working together to address the disparities that currently exist. Such cooperative efforts might include information sharing or implementing regulatory guidelines to encourage sustainability among teams that lack the means to be competitive, financially stable, or both.

Cooperation among livestock judging program stakeholders should make every effort to assist teams that are in danger of losing support and/or are on the brink of ceasing to function. Losing one or more team(s) per year would quickly result in an environment where questions may be raised about the need for livestock judging teams at

four-year colleges and universities. Most coaches perceive the importance of livestock judging to be more closely aligned with academic pursuits and graduation, above winning contests. There must be a balance between the pursuit of competitive success and the academic intent of the competition itself.

Livestock judging advocates could incorporate data from this study to support the need for continued funding support and competitive opportunities. Institutions intent on sponsoring livestock judging programs, and reducing funding support from academic units should first consider the potential outcomes of funding reduction. The collinear relationship between funding support and contest performance variables suggest that reduced funding will yield diminished contest results. A perpetual decline in contest performance will likely result in a gradual decrease in overall funding. Eventually, underfunded programs may cease to exist. Therefore, funding should be replaced with alternative sources, rather than reduced. Stakeholders could work collaboratively with administrators and development personnel to identify external funding sources that can supplant academic unit funding.

Negative perceptions regarding livestock judging should also be addressed immediately. Some individuals and/or stakeholder groups may never become supportive of livestock judging at the collegiate level. However, failing to identify and address negative perceptions among stakeholders who are closely associated with the academic unit that provides administrative oversight for the livestock judging program may ultimately undermine support from other stakeholder groups. Strong and proactive messaging that promotes the benefits of the collegiate livestock judging programs, its role

in student development, and the educational benefits for individual students, could help to offset the effects of negative perceptions.

### Recommendations

Collegiate livestock judging programs in pursuit of financial sustainability should take steps to increase the amount of funding support received from extramural sources. The collinear relationship between funding and contest performance revealed in this study indicates that increased competitive success could bolster a program's ability to generate off-campus funding. Contest participation, the number of junior college transfer students that compete for an institution, and the size of the assistant coaching staff were all determined to be related to contest performance. Therefore, institutions interested in advancing sustainable efforts for livestock judging programs should implement methods to increase the amount of one or more of these variables in order to increase the likelihood of competitive success that might lead to opportunities for additional funding.

Strategies to improve funding resources should be employed by the leadership of collegiate livestock judging programs. Working relationships between coaches, administrators and development personnel should be established and maintained. These persons can work together to identify potential program donors and supporters. Data from this study suggest that funding for livestock judging programs of the future will most likely be sources from extramural sources. Communication with external stakeholders in the form of social media updates, newsletters, annual gatherings, etc., could be used as outlets to express the need for programmatic funding. These efforts

might also develop into support systems that demonstrate the value livestock judging programs can return to academic institutions in the form of alumni donations.

The most cost effective variable to increase might be the addition of one or more assistant coach(es) because assistant coach(es) had the greatest overall effect on contest performance. Graduate students, undergraduate students, colleagues, volunteers, and other stakeholders may have technical expertise and training to positively contribute to the coaching staff. Programs struggling financially could possibly seek out volunteer (perhaps undergraduate students that had previously competed on the livestock judging team) assistant coaches. Volunteers require negligible financial support, therefore, programs could possibly expect positive returns from minimal financial investment.

The number of junior college transfer students on a livestock judging team explained a portion of the variance associated with contest performance. In order to sustain long term competitive success, four-year college and university livestock judging programs need to recruit students who had competed at the junior college level. Most junior college transfer students attended colleges and universities that competed in more than the average amount of contests and had at least one assistant coach. Therefore, institutions with at least one assistant coach might have a greater likelihood of recruiting junior college transfers, especially if those institutions attend at least the mean number of contests reported in this study (7.4). Collectively, employing at least one assistant coach could result in an upward spiral leading to securing additional resources that might contribute to contest performance and program sustainability.

Conversely, a downward spiral might also exist in relation to livestock judging programs. Data from this study indicate that access to certain resources are positively associated with sustaining livestock judging programs. Thus, the collinear relationship between these resources might indicate that their absence could result in the eventual dissolution of livestock judging programs. Accordingly, it is recommended that institutions provide enough temporary funding resources for programs to construct support systems that allow for the development of these collinear relations.

Livestock judging competitions should be continually evaluated to determine if the methods of assessing the value of livestock are consistent with industry practices. Most coaches perceive livestock judging to be an extension of classroom instruction and contests should reflect that perception. Contest superintendents should incorporate technology and data-based evaluation scenarios into contest formats to ensure the validity of the activity. However, visual livestock appraisal should remain an important component of livestock judging competitions because visual appraisal (subjective assessment) and data-based criteria (objective assessment) are not mutually exclusive and should collectively result in a better overall selection decision.

Visual appraisal is one tool that livestock producers may want to continue to utilize even as selection procedures become more data-driven. Incorporation of live evaluation can reduce unintended consequences that sometimes arise from single-trait or data-only selection procedures. Structural correctness, udder quality, physical abnormalities and animal health and well-being are some examples of traits not evaluated when visual appraisal is eliminated from selection procedures. These factors will likely

be of particular importance to livestock producers in contemporary societies that are demanding greater accountability for how livestock are raised.

### Suggestions for Further Research

The opportunities to investigate support systems for co-curricular educational programs are endless. Several animal science judging programs (i.e. meats, horses, animal welfare, meat animal evaluation, dairy cattle) other agriculturally focused activities currently exist on the college level. This study could be tailored to accommodate differences across each program. The following are suggestions for research specific to collegiate livestock judging:

1. Determine the impact of livestock judging on post-secondary education choices of students.
2. Determine the impact of livestock judging on the attainment of extramural funding support.
3. Determine why collegiate livestock judging head coaches are primarily homogenous in terms of age, gender and ethnic background.
4. Determine which factors influence the duration that head coaches remain in their coaching roles.
5. Determine which factors influence the attrition rate of students from livestock evaluation courses to livestock judging teams.
6. Determine which factors shape the perceived role and value of livestock judging programs across stakeholder groups.

7. Determine to influence regional location has on the support for collegiate livestock judging.

### Summary

Competitive livestock judging has been incorporated into collegiate animal sciences curricula since the late 19<sup>th</sup> century. Advanced methods of assessing the value of livestock have evolved to become more precise than visual evaluation over time, which has resulted in deemphasized training for visually appraising livestock. However, visual appraisal is still broadly employed by livestock producers as one method of reducing the emergence of undesirable traits (i.e. structural correctness and physical abnormalities) that are not detected by most objective evaluation techniques. When combined with increased economic scrutiny within higher education, this devaluation could result in the elimination of collegiate livestock judging programs. Thus, this research was conducted to determine factors associated with sustainability of these educational activities.

This study was descriptive in nature, and employed correlation and regression analysis. The target population was livestock judging programs at four-year colleges and universities in the U.S. whose livestock judging teams had competed at the NAILE in 2012, 2013, or both years. Data collection was completed using an online survey instrument.

Competitive success and funding resources appear to exhibit a collinear relationship. This relationship suggests that sustainable livestock judging programs need

to either be competitive at contests or entrepreneurial to secure sufficient financial resources. The collinear relationship that exists between funding and contest performance reveals that these factors can and do contribute to one another. Thus, being competitive at the national level is requisite to continued funding support.

The livestock judging experience of team members also is directly related to team performance. Four-year college and university teams comprised of junior college transfer students generally out-perform teams with few or no junior college transfer students. Likewise, teams that compete in a greater number of contests each year are more competitive in the national contest than teams that compete in fewer contests. The effect of team member experience is compounded when a junior college transfer student attends an institution that competes in the greatest number of contests; which was revealed to be somewhat commonplace.

Most coaches perceived academic performance and graduation rates to be of greater importance than contest performance. This perception aligns with the original intent of livestock judging in the late 19<sup>th</sup> century. The activity was introduced as a supplemental activity to demonstrate application of knowledge presented via classroom instruction; which seems to have remained the focus of most programs. Therefore, evidence from this study refutes the perception that collegiate livestock judging programs embrace a win at all costs philosophy. Apparently, the intent of most coaches is to provide educational experiences that supplement the academic pursuits of students. Communicating this orientation and value system to stakeholder groups that espouse less than positive support for the livestock judging program may stimulate a more beneficial

relationship and generate additional espoused support for livestock judging, or at the very least reduce the negative tension that exists in some academic units.

## References

- 108th National Collegiate Livestock Judging Contest Awards Breakfast Program* (2013).  
Louisville, KY: North American International Livestock Exposition.
- 2014 Judging Camps. (2014). Retrieved from <http://drivelivestock.com/2014/03/17/2014-judging-camps/>
- Anderson, K., & Karr-Lilienthal. (2011). Team members perceptions of benefits of participation on a university equestrian team. *NACTA Journal*, 55(3), 8-13.
- Baum, S., & Ma, J. (2012). Trends in college pricing, 2012. Trends in Higher Education series. *College Board Advocacy & Policy Center*, Washington DC: The College Board.
- Biemiller, L. (2012). As land-grant law turns 150, students crowd into agriculture colleges. (June 18, 2012) *Chronicle of Higher Education*, Retrieved from <http://chronicle.com/article/As-Land-Grant-Law-Turns-150/132301/>
- Birkenholz, R. J., & Schumacher, L. G. (1994). Leadership skills of college of agriculture graduates. *Journal of Agricultural Education*, 35(4), 1-8.
- Britt, J. H., Aberle, E. D., Esbenshade, K. L., & Males, J. R. (2008). Invited Review: Animal science departments of the future. *Journal of Animal Science*, 86(11), 3235-3244. doi:10.2527/jas.2008-1015

- Camp, W. G. (1987). Smith, Hughes, Page, and Prosser. *The Agricultural Education Magazine*, 59
- Cavinder, C. A., Byrd, B., Franke, J., & Holub, G. (2011). Texas A&M university student life skill development and professional achievement from participation on a collegiate judging team. *NACTA Journal*, 55(1) 60-62.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Crawford, P., Lang, S., Fink, W., Dalton, R., & Fielitz, L. (2011). Comparative analysis of soft skills: What is important for new graduates. *Michigan State University and the University Industry Consortium*, 1-24.
- Desrochers, D. M., Lenihan, C. M., & Wellman, J. V. (2010). Trends in college spending 1998-2008: Where does the money come from? Where does it go? What does it buy? A report of the delta cost project. *Delta Project on Postsecondary Education Costs, Productivity and Accountability*,
- DeVellis, R. F. (2003). *Scale development: Theory and applications* (2nd ed.). Thousand Oaks, CA: Sage Publications, Inc.
- Dewey, J. (1916). *Democracy and education*. New York: Macmillan.
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2008). *Internet, mail, and mixed-mode surveys: The tailored design method*. New York, NY: Wiley Publishing.
- Esbenshade, K. L. (2007). Changing demographics and enrollment trends. [Abstract]. *Journal of Animal Science*, 85(Suppl. 1) 413.

- Ewing, J. C., Bruce, J. A., & Ricketts, K. G. (2009). Effective leadership development for undergraduates: How important is active participation in collegiate organizations? *Journal of Leadership Education*, 7(3), 118.
- Field, T., Green, R., Gosey, J., Ritchie, H., & Radakovich, S. (1998). A summary of intercollegiate judging activity, funding and philosophy. *NACTA Journal*, 42(3), 27-31.
- Fletcher, S. W. (1959). The Philadelphia. Society for promoting agriculture, 1785-1955. *The Philadelphia Society for Promoting Agriculture, 1785-1955*.
- Food and Agricultural Education Information System. (2012). Baccalaureate enrollment in agriculture, agriculture operations, and related sciences at private and land grant and non-land grant institutions. Retrieved from <http://faeis.ag.vt.edu/FAEISR.cfm?CFID=380389&CFTOKEN=61329928>
- Foreman, E. A., & Retallick, M. S. (2012). Undergraduate involvement in extracurricular activities and leadership development in college of agriculture and life sciences students. *Journal of Agricultural Education*, 53(3), 111-123.
- Hanushek, E. A. (1997). Assessing the effects of school resources on student performance: An update. *Educational Evaluation and Policy Analysis*, 19(2), 141-164.
- Herren, R. V., & Edwards, M. C. (2002). Whence we came: The land-grant tradition-origin, evolution, and implications for the 21st century. *Journal of Agricultural Education*, 43(4), 88-98.

- Herren, R. V., & Hillison, J. (1996). Agricultural education and the 1862 land-grant institutions: The rest of the story. *Journal of Agricultural Education*, 37, 26-32.
- Huffman, W. E., & Evenson, R. E. (1993). *Science for agriculture: A long-term perspective*. Ames, Iowa: Iowa State University Press.
- Kellogg, C. E., & Knapp, D. C. (1966). *The college of agriculture: Science in the public service*. New York, NY: McGraw-Hill.
- Kerr, N. A. (1987). The legacy: A centennial history of the state agricultural experiment stations, 1887-1987. *Special Report-University of Missouri-Columbia, Agricultural Experiment Station*, Columbia, MO: University of Missouri Press.
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice-Hall.
- Layfield, K. D., Radhakrishna, R. B., & Andreasen, R. J. (2000). Self-perceived leadership skills of students in a leadership programs in agriculture course. *Journal of Southern Agricultural Education Research*, 50(1), 62-68.
- Liefner, I. (2003). Funding, resource allocation, and performance in higher education systems. *Higher Education*, 46(4), 469-489.
- Lindner, J. R., Murphy, T. H., & Briers, G. E. (2001). Handling nonresponse in social science research. *Journal of Agricultural Education*, 42(4), 43-53.
- Love, G. M., & Yoder, E. P. (1989). An assessment of undergraduate education in American colleges of agriculture. State College, PA: Pennsylvania State University Press.

- Madsen, D. (1976). The land-grant university: Myth and reality. In *Land-Grant Universities and their Continuing Challenge* (23-48). East Lansing, MI: Michigan State University Press.
- McCann, J., & McCann, M. (1992). Judging team members reflection on the value of livestock, horse, meats, and wool judging programs. *Professional Animal Scientist*, 8(3), 7.
- Meyer, J. H. (1998). *The historical trek of the land grant college of agriculture: Past, present and future*. Davis, CA: University of California Press.
- Miller, C., Carr, C., Brendemuhl, J., Ricketts, J., Myers, B., & Roberts, T. (2011). Quantifying the critical thinking skills of students who receive instruction in meat-animal or meat product evaluation. *NACTA Journal*, 55(1) 50-54.
- Moore, G. E. (1988). The forgotten leader in agricultural education: Rufus W. stimson. *The Journal of the American Association of Teacher Educators in Agriculture*, 29(3), 50-58.
- Nash, S. A., & Sant, L. L. (2005). Life-skill development found in 4-H animal judging. *Journal of Extension*, 43(2)
- National 4-H Council. (2013). The birth of 4-H programs. Retrieved from <http://www.4-h.org/about/4-h-history/>
- National Association of Colleges and Employers. (2012). *Job outlook report*. (). Bethlehem, PA: NACE.

- National Collegiate Livestock Coaches' Association. (2013). Eligibility requirements for intercollegiate livestock judging contests. Retrieved from <http://livestockcoaches.com/>
- National institutes of health. (2014). Retrieved from <http://www.nih.gov/about/>
- National Research Council. (1996). *Colleges of agriculture at the land grant universities: Public service and public policy*. Washington D.C.: National Academy Press.
- The national science foundation. (2014). Retrieved from <http://www.nsf.gov/about/>
- Nunnally, J., & Bernstein, I. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.
- Parker, W. B. (1971). *The life and public services of Justin Smith Morrill*. Boston, MA: Da Capo Press.
- Peffer, P. A. L. (2010). Demographics of an undergraduate animal sciences course and the influence of gender and major on course performance. *NACTA Journal*, 54(3), 25-30.
- Phelps, R. H., & Shanteau, J. (1978). Livestock judges: How much information can an expert use? *Organizational Behavior and Human Performance*, 21(2), 209-219.  
doi:[http://dx.doi.org/10.1016/0030-5073\(78\)90050-8](http://dx.doi.org/10.1016/0030-5073(78)90050-8)
- Rhoades, E. B., Ricketts, J., & Friedel, C. (2009). Cognitive potential: How different are agriculture students? *Journal of Agricultural Education*, 50(3), 43.
- Robison, C., & Jenks, F. (1913). Agricultural instruction in high schools. Bulletin, 1913, no. 6. Whole number 513. Washington, DC: United States Bureau of Education, Department of the Interior.

- Rossiter, M. (1979). *The organization of the agricultural sciences in W.E. huffman, and R. E. evenson, science for agriculture: A long-term perspective*. Ames, Iowa: Iowa State University Press.
- Rusk, C. P., Martin, C. A., Talbert, B. A., & Balschweid, M. A. (2002). Attributes of Indiana's 4-H livestock judging program. *Journal of Extension*. [Online]. Available at <http://www.joe.org/joe/2002april/rb5.php>
- Scott, R. V. (1970). *The reluctant farmer: The rise of agricultural extension to 1914*. Urbana, IL: University of Illinois Press.
- Smith, G. (1989). Developing critical thinking, communication skills, and leadership in animal science students. *Journal of Animal Science*, 67(1), 601.
- Sterle, J. A. (2007). Animal sciences curricula: A historical perspective. [Abstract]. *Journal of Animal Science*, 85(Suppl. 1) 412.
- Taylor, R., & Kauffman, R. (1983). Teaching animal science: Changes and challenges. *Journal of Animal Science*, 57(Supplement 2), 171-196.
- Toma, J. D., & Cross, M. E. (1998). Intercollegiate athletics and student college choice: Exploring the impact of championship seasons on undergraduate applications. *Research in Higher Education*, 39(6), 633-661.
- Tow, C. (2006). *The Effects of School Funding on Student Academic Achievement* (Unpublished undergraduate thesis). University of California, Berkeley, Berkeley, CA.
- True, A. C. (1929). *A history of agricultural education in the United States: 1785-1925*. Washington, DC: US Government Printing Office.

USDA NIFA (National Institute of Food and Agriculture). (2011). *NIFA factsheet*  
(R9.indd)

USDA-NASS. (2009). *2007 census of agriculture*. Washington DC US Department of  
Agriculture.

Weatherford, D. E., & Weatherford, C. G. (1987). *A review of theory and research found  
in selected experiential education, life skill development and 4-H program impacts  
literature*, Raleigh, NC: North Carolina Agricultural Extension Service.

Willham, R. (2008). *Change : An illustrated history of the american society of animal  
science : 1908 to 2008*. Savoy, IL: American Society of Animal Science.

APPENDIX A  
SURVEY INSTRUMENT

## National Survey of Collegiate Livestock Judging Programs

### Section I. Funding Support and Expenditures.

This section is designed to collect data regarding sources and amounts of funding support and expenditures associated with university livestock judging programs during the 2013-2014 fiscal year (FY).

**\*1. Please provide information about the dollar value of funding support received from each of the following sources for your institution's livestock judging program during the 2013-2014 FY.**

	Dollar Value Ranges
Academic Units(s) (please include funding that is specifically allocated for supporting the livestock judging program, such as the dollar value of the coach's total salary apportioned for coaching the livestock judging team, assistantships provided to graduate students for compensation to coach the livestock judging team, travel, and scholarships awarded specifically to students for participating on the livestock judging team, which was obtained from the college, department, or other institutional sources)	<input type="text"/>
Stakeholder Donations (e.g. annual financial)	<input type="text"/>
Development Accounts (e.g. endowment earnings)	<input type="text"/>
Student Participants (e.g. student paid travel)	<input type="text"/>
Fundraising Revenue (e.g. judging camps, auctions, raffles)	<input type="text"/>
In-Kind Support (non-financial gifts)	<input type="text"/>
All Other Sources of Financial Support	<input type="text"/>

**\*2. Please provide information about the dollar value of expenditures associated with your institution's livestock judging program for each of the following expense categories during the 2013-2014 FY.**

	Dollar Value Ranges
Salary (please only report the portion of financial compensation that is apportioned specifically for duties associated with coaching the livestock judging team from all paid personnel, including assistant coaches if applicable; EXAMPLE - If your total salary is \$60,000 and 25% of your appointment is for coaching the livestock judging team, the salary that is being requested is \$15,000)	<input type="text"/>
Benefits (please only report the portion of compensation that reflects your response salary)	<input type="text"/>
Travel (combination of transportation, lodging and meals)	<input type="text"/>
Contest Entry Fees	<input type="text"/>
Scholarships (awarded specifically to students for competing on the livestock judging team)	<input type="text"/>
Team Awards and/or Recognition Paid by Institution (e.g. belt buckles, trophies, plaques, banquet)	<input type="text"/>
Instructional Resources (e.g. DVDs, video equipment, online subscriptions)	<input type="text"/>
All Other Sources of Financial Expenditures	<input type="text"/>

## National Survey of Collegiate Livestock Judging Programs

### Section II. Anticipated Trends Related to Funding Support and Expenditures

Anticipated trends related to funding support and expenditures associated with your institution's livestock judging programs.

**\*3. What changes do you anticipate in each of the following sources of support for the livestock judging program hosted by your institution over the next five (5) years?**

	Anticipated Change
Academic Unit(s) (e.g. college, department, institution)	<input type="text"/>
Stakeholder Donations (e.g. annual financial)	<input type="text"/>
Development/Foundation Accounts (e.g. endowment earnings)	<input type="text"/>
Student Participants (e.g. student paid travel, registrations)	<input type="text"/>
Fundraising Revenue (e.g. judging camps, auctions, raffles)	<input type="text"/>
In-Kind Support (gifts only)	<input type="text"/>
Overall Support:	<input type="text"/>

**\*4. What changes do you anticipate in each of the following expenditure categories for the livestock judging program hosted by your institution over the next five (5) years?**

	Anticipated Change
Salary (combination of all paid personnel)	<input type="text"/>
Benefits (for all paid personnel)	<input type="text"/>
Travel (combination of transportation lodging and meals)	<input type="text"/>
Contest Entry Fees	<input type="text"/>
Scholarships (specifically for livestock judging team participants)	<input type="text"/>
Team Awards and/or Recognition (e.g. belt buckles, trophies, plaques)	<input type="text"/>
Instructional Resources (e.g. DVDs, video equipment, online subscriptions)	<input type="text"/>
Overall Expenditures:	<input type="text"/>

## National Survey of Collegiate Livestock Judging Programs

### Section III. Anticipated Trends in Espoused Stakeholder Support

Anticipated trends in espoused (non-financial) stakeholder support for your institution's livestock judging program.

**\*5. What is the current and anticipated trend (over the next five years) in espoused support for your institution's livestock judging program by stakeholder group?**

**Directions:** For each source of espoused support, indicate the current level of support received for your livestock judging program, and the anticipated trend in support from the source.

	Current Support	Anticipated Trend in Support
Institution Administrators	<input type="text"/>	<input type="text"/>
Departmental Faculty with Primarily a Teaching Appointment	<input type="text"/>	<input type="text"/>
Departmental Faculty with Primarily a Research Appointment	<input type="text"/>	<input type="text"/>
Departmental Faculty with Primarily a Extension/Outreach Appointment	<input type="text"/>	<input type="text"/>
Other College Faculty	<input type="text"/>	<input type="text"/>
Retired Departmental Faculty	<input type="text"/>	<input type="text"/>
Departmental Administrative Staff (e.g. accountants, secretaries)	<input type="text"/>	<input type="text"/>
Animal Care Staff (e.g. farm managers)	<input type="text"/>	<input type="text"/>
Departmental Graduate Students	<input type="text"/>	<input type="text"/>
Departmental Undergraduate Students	<input type="text"/>	<input type="text"/>
Other Agricultural College Undergraduate Students	<input type="text"/>	<input type="text"/>
Alumni of Livestock Judging Team	<input type="text"/>	<input type="text"/>
Other Departmental Alumni	<input type="text"/>	<input type="text"/>

## National Survey of Collegiate Livestock Judging Programs

**\*6. Did your institution offer an undergraduate livestock judging/evaluation course during FY 2013-2014?**

☐ Yes

☐ No

## National Survey of Collegiate Livestock Judging Programs

**7. How many students were enrolled in your institution's undergraduate livestock judging/evaluation course during the 2013-2014 academic year?**

Number of Students

**\*8. How many students were members of the livestock judging team at your institution during the 2013 judging season?**

Number of Students

## National Survey of Collegiate Livestock Judging Programs

**\*9. How many students on your institution's 2013 livestock judging team had competed on a junior college livestock judging team?**

Number of Students

**\*10. How many students comprised your institution's traveling team that attended the NAILE in 2013?**

Number of Students

## National Survey of Collegiate Livestock Judging Programs

**\*11. How many students that traveled with your team to the NAILE in 2013 had competed on a junior college livestock judging team?**

Number of Students

**\*12. How many students from your institution actually competed in the livestock judging contest at the NAILE in 2013?**

Number of Students



## National Survey of Collegiate Livestock Judging Programs

**\*13. How many students that competed on your institution's livestock judging team at the NAILE in 2013 had prior junior college livestock judging experience?**

Number of Students

**\*14. How many contests (where awards were presented) did your institution's livestock judging team compete in during 2013?**

Number of Contests

**\*15. Are out-of-state tuition waivers available to first-year college students at your institution?**

☐ Yes

☐ No

**\*16. Are out-of-state tuition waivers available to transfer (e.g. not first-year college) students at your institution?**

☐ Yes

☐ No

**\*17. How many students received a scholarship to compete on your institution's 2013 livestock judging team that was contingent upon their participation on the livestock judging team?**

Number of Students

## National Survey of Collegiate Livestock Judging Programs

**\*18. What is the position title of the livestock judging team head coach at your institution?**

- ☐ Tenure Track Faculty
- ☐ Non-Tenure Track Faculty
- ☐ Staff (Lecturer/Instructor/Farm Manager, etc.)
- ☐ Graduate Student
- ☐ Unpaid Volunteer

Other (please specify)

**\*19. What is the highest level of education obtained by the livestock judging team head coach at your institution?**

- ☐ Associate's Degree
- ☐ Bachelor's Degree
- ☐ Master's Degree
- ☐ Doctorate (Ph.D. or Ed.D.)
- ☐ Doctor of Veterinary Medicine

Other (please specify)

**20. What is the age of the livestock judging team head coach at your institution?**

Age In Years

**\*21. What is the gender of the livestock judging team head coach at your institution?**

- ☐ Female
- ☐ Male
- ☐ Prefer Not to Specify

**\*22. How many assistant livestock judging team coaches does your institution have?**

Number of Assistant  
Coaches

## National Survey of Collegiate Livestock Judging Programs

**\*23. Did your institution have a livestock judging team "coordinator" (or similar position beyond the head or assistant coach) position during FY 2013-2014?**

☐ Yes

☐ No

**\*24. What is the title of the immediate supervisor of the head coach of your institution's livestock judging team?**

☐ Dean of College

☐ Department Chair/Head

☐ Tenure track Faculty

☐ Non-tenure track Faculty

☐ Staff

☐ Unpaid volunteer

Other (please specify)

**\*25. Please indicate the level of importance you place on each criterion, and the level of perceived importance your supervisor places on each criterion during an annual performance review.**

	Importance to Head Coach on Evaluating Your Institution's Livestock Judging Team	Perceived Importance to Supervisor of Head Coach on Evaluating Your Institution's Livestock Judging Team
Contest Performance	<input type="text"/>	<input type="text"/>
Graduation Rate of Student Participants	<input type="text"/>	<input type="text"/>
Number of Participants on the Team	<input type="text"/>	<input type="text"/>
Fundraising for Team	<input type="text"/>	<input type="text"/>
Academic Performance of Students on the Team	<input type="text"/>	<input type="text"/>

Other (please specify)

**\*26. Are there any other issues or topics related to the support of your institution's livestock judging team that were not addressed in this questionnaire?**

☐ Yes

☐ No

If you answered yes, please explain:

APPENDIX B  
PANEL OF EXPERTS

## PANEL OF EXPERTS

Dr. Robert J. Birkenholz, Professor, The Ohio State University

Dr. Ronald Kensinger, Professor, The Ohio State University

Dr. Bobby Moser, Dean Emeritus, The Ohio State University

APPENDIX C  
PRE-NOTIFICATION LETTER

## PRE-NOTIFICATION LETTER

DATE

<<First Name>> <<Last Name>>

<<School>>

<<Address>>

<<City>>, <<State>> <<Zip>>

Dear <<First Name>>,

Livestock judging teams are important components of animal sciences undergraduate education. In a few days you will receive an email inviting you to participate in an important research study that is being conducted by The Ohio State University about the collegiate judging program at your institution.

The study is designed to describe current funding and expenses, anticipated trends in funding and expenses, and anticipated espoused support for collegiate livestock judging programs. The information gained will be used to describe current and potential funding models that might be used to sustain and grow collegiate livestock judging programs across the country.

We are contacting you in advance so that you will know what the questionnaire is when you receive the email, and to be prepared to complete the questionnaire. One section of the questionnaire will ask for you to provide the amount and sources of funding and expenditures from fiscal year 2013-2014 for your institution's livestock judging program. We encourage you to gather this data prior to completing the questionnaire. The questionnaire should take less than 10 minutes to complete.

Financial information will be summarized to represent the population of collegiate livestock judging programs across the country. Individual school data will not be identified in any publications as a result of participating in this study. If a questionnaire does not reach you, please email ([culp.1045@osu.edu](mailto:culp.1045@osu.edu)) or give us a call (260-223-3578) so we can forward you a copy. Your input is valuable to us and to all livestock judging programs across the country.

Thank you for your time and consideration. Only with the professional support of people like you are we able to conduct research that benefits students and educators.

Sincerely,

Robert J. Birkenholz  
Professor

Kyle C. Culp  
Lecturer & Graduate Student

APPENDIX D  
COVER LETTER

## COVER LETTER

Dear Collegiate Livestock Judging Team Coach,

Livestock judging teams are important components of animal sciences undergraduate education. We are asking for your assistance in a study to identify current sources of funding and expenditures, anticipated trends for funding and expenditures, and anticipated trends in espoused support for collegiate livestock judging programs. The information gained will be used to describe current and potential funding models that might be used to sustain and grow collegiate livestock judging programs across the country.

Please click on the link below that will take you to a secure website to complete the questionnaire. We ask that you complete the questionnaire by November 24th to ensure your valuable input is included in the research. The survey should take less than 10 minutes if you have immediate access to your institution's 2013-2014 fiscal year funding and expense records for the collegiate livestock judging program. Your participation is voluntary and you may leave the study at any time. You may skip any questions that you feel uncomfortable answering. If you decide to stop participating in the study, there will be no penalty to you, and you will not lose any benefits to which you are otherwise entitled. Your decision to participate will not affect your future relationship with The Ohio State University. There are no anticipated risks from your participation and you will not benefit directly from participating in the study. There is no cost to you except your time.

Efforts will be made to keep your study-related information confidential. However, there may be circumstances where this information must be released. For example, personal information regarding your participation in this study may be disclosed if required by state law. Also, your records may be reviewed by the Office for Human Research Protections or other federal, state, or international regulatory agencies; or The Ohio State University Institutional Review Board or Office of Responsible Research Practices. You may refuse to participate in this study without penalty or loss of benefits to which you are otherwise entitled. Financial information will be summarized to represent the population of collegiate livestock judging programs across the country. Individual school data will not be identified in any publications as a result of participating in this study.

If you choose to participate in the study, you may discontinue participation at any time without penalty or loss of benefits. By participating in this study, you do not give up any personal legal rights you may have as a participant in this study.

For questions, concerns, or complaints about the study you may contact Dr. Robert Birkenholz at 614-292-8921 or Kyle C. Culp at 260-223-3578. For questions about your rights as a participant in this study or to discuss other study-related concern or complaints

with someone who is not a part of the research team, you may contact the Office of Responsible Research Practices at 1-800-678-6251.

Thank you very much for helping with this important study.

Sincerely

Robert J. Birkenholz  
Professor

Kyle C. Culp  
Lecturer & Graduate Student

Click on this link to begin the questionnaire: XXXXXXXXXXXXXXXXX

Click on this link to be removed from our mailing list: XXXXXXXXXXXXX

## APPENDIX E

### LIST OF INSTITUTIONS WITHIN POPULATION FRAME

## LIST OF INSTITUTIONS WITHIN POPULATION FRAME

Angelo State University  
Auburn University  
California State University – Chico  
Clemson University  
Colorado State University  
Delaware Valley College  
Iowa State University  
Kansas State University  
Michigan State University  
Morehead State University  
New Mexico State University  
North Dakota State University  
Oklahoma State University  
Oregon State University  
Penn State University  
Purdue University  
Sam Houston State University  
South Dakota State University  
Tarleton State University  
Texas A&M University  
The Ohio State University

University of Arizona  
University of Arkansas  
University of Florida  
University of Georgia  
University of Idaho  
University of Kentucky  
University of Minnesota  
University of Missouri  
University of Nebraska  
University of Tennessee  
University of Wyoming  
West Texas A&M University  
West Virginia University  
Western Illinois University  
Western Kentucky University