

Teaching/Undergraduate and Graduate Education: Teaching in the Animal Sciences

T287 Use of an informal taste panel to teach students concepts related to beef palatability. J. A. Daniel*¹ and T. D. Pringle², ¹Berry College, Mount Berry, GA, ²University of Georgia, Athens.

As a lab experience, students (n = 31) enrolled in Introduction to Agriculture (ANS 105; a general education science course for non-science majors) at Berry College participated in an informal taste panel. Students received no classroom instruction in beef palatability assessment prior to this lab. At the beginning of the lab, students completed a quiz (pre-quiz) consisting of 12 questions. Ten of the questions were designed to test the students' knowledge of different attributes of beef quality, and two of the questions were designed to assess students' steak preferences. A rating sheet was then distributed to the students and they moved to a desk with apple juice and crackers. Students were presented with the following bite sized samples (approximately 2x2x2 cm cubes) for evaluation: an infraspinatus steak cooked to 66°C, 71°C, or 82°C, a longissimus steak aged for 1, 7 or 21 days, and a low, medium, and high choice longissimus steak. All longissimus steaks were cooked to 71°C. The longissimus steaks aged for 1, 7 or 21 days were all obtained from the same animal, choice infraspinatus steaks were purchased from a local grocery store, and all steaks were stored frozen until the day prior to the experiment. Students were asked to take a bite of cracker and drink of apple juice between each sample. After completion of the taste panel, evaluation sheets were collected and results and beef palatability attributes were discussed with the class. Students then completed the previously mentioned quiz (post-quiz). Scores on the 10 questions designed to test students' knowledge of different attributes of beef quality were improved ($58.5 \pm 0.2\%$ on the pre-quiz vs $82.8 \pm 0.2\%$ on the post-quiz; $P < 0.0001$). For the 2 questions accessing students' steak preference, one addressed preferred degree of doneness and the second asked students to choose a steak based on USDA Quality Grade, weight, cut, aging, and degree of doneness. Interestingly, 24 of the 31 students changed one or more of their answers for these questions, and 10 students changed their preferred degree of doneness following the taste panel. These results suggest an informal taste panel is an effective means of teaching students beef palatability attributes.

Key Words: Beef, Taste Panel, Teaching

T288 Student demographic profile for Mississippi State University riding courses. M. Nicodemus*, *Mississippi State University, Mississippi State.*

Management of a riding herd for University riding courses is costly, and yet, the popularity of such courses attracts new students to equine programs. Laboratory fees attached to these courses have assisted in paying for associated management fees, but this approach requires offering of courses that attracts large student enrollment. In preparation for recent expansion of the equine courses offered at Mississippi State University, students (n = 44) enrolled in riding courses were asked to fill out a researcher-developed, 16-item survey instrument with questions focusing on student academic history and horse background. Eighty-three % of students were majors outside of the Animal & Dairy Sciences department with the largest number of these students coming from the biology department (17%) followed by the business department (13%). Fifty-two % of the students were seniors and were taking the course as a free elective (78%). While these riding courses were open to all levels of riding, 39% of students had ridden a limited number of

times (1-5 times) followed by 35% of students having ridden between 6-30 times. Majority of students (57%) had never taken a formal riding lesson nor had they ever had any experience in training a horse (74%). Eighty-three % of the students were not current horse owners and 48% had never owned a horse. Forty-eight % of students had only ridden in trail rides for recreational purposes with 47% of students riding mostly stock-type breeds (Quarter Horse, Paint Horse, Appaloosa). While the majority of students (57%) were not planning on a career in the equine industry, 65% planned on owning their own horse in the future. Forty-three % of students planned on taking another University riding course and of those students 86% were students with limited riding experience (ridden 1-5 times). Results from this survey suggest riding courses geared more towards less experienced riders with the focus more on recreational riding will attract more student enrollment. Plans for the equine curriculum are to offer an additional introductory riding course in the upcoming semester.

Key Words: Equine Curriculum, Riding Courses, Undergraduate Teaching

T289 Developing an internet-based course on milk and dairy products. A. D. Fogleman*, C. R. Summers, H. J. Hickman, L. G. Turner, and J. C. Allen, *North Carolina State University, Raleigh.*

With fewer dairy farms and processing plants in NC and the Southeastern States, students and citizens have less opportunity to become familiar with the dairy industry, technology, safety, and regulations required to bring milk and dairy products to the table. New distance education technology provided an opportunity to bring a new course titled "Milk and Dairy Products", delivered entirely by Internet, to our students and others around the country. Two graduate teaching assistants, with guidance from two faculty and a technician, developed a course outline, investigated available literature and requested that the library purchase needed reference material. Lecture outlines, text and illustrations were developed in PowerPoint™ and reviewed by the team. An audio track of the lecture content was attached to each PowerPoint™ presentation using LecShare Pro™. The program created higher quality and smaller virtual lecture files than traditional video-taping. Other videos gave a virtual guided tour of the NCSU dairy farm and dairy processing pilot plant. Homework and quizzes accompany the 15 weekly course units. Background reading assignments were posted on the library's electronic reserve system, saving the students the need for a textbook purchase. The course is available to the campus and to individuals around the country through distance.ncsu.edu. The course is able to take advantage of the diverse experience and knowledge of dairy products of two faculty, and combine the perspective of a team of developers to make a consistent and uniform presentation of course content. Students enrolled had little prior knowledge or experience in dairy processing, but are very excited by their overview of the course outline and website. Increasing the number of students and citizens who have a sound knowledge of milk and dairy processing methods will help the dairy industry assure the public of the need for land preservation for agriculture, of the safety of the dairy food supply, and dispel misinformation about the healthfulness and nutritional importance of milk consumption. Students in this course will be more interested in employment in the dairy industry.

Key Words: Teaching, Milk Processing, Distance Education

T290 Species preference of incoming animal science freshmen at North Carolina State University. J. A. Moore*, W. L. Flowers, and R. L. McCraw, *North Carolina State University, Raleigh.*

Understanding student interests is important when assessing and updating curricula and courses. Incoming freshmen (12 years of data) answered a survey at orientation to indicate their first and second choices for species preference. Species were companion animal (comp), horse, beef, dairy, small ruminant (SR), and other. Data were blocked by year (1996-1999, 2000-2003, 2004-2007) in order to evaluate changes over time. The number of students annually taking the survey for the three blocks was 88^a, 93^a, and 124^b, respectively ($P < 0.02$); there was a 95% response rate for the past 6 years, but numbers of actual incoming Animal Science majors prior to 2002 are not available because students did not have to declare a major prior to attending. The percentage of students indicating pre-vet as their career choice was 75^a, 81^{a,b}, and 85^b for the three blocks, respectively ($P < 0.02$). There was no block by species interaction for first or second choices ($P > 0.51$), indicating a consistent response over the 12 year period. In Table 1, means within a row that do not share a superscript differ ($P < .05$). The data show consistent interest in companion animals as first choice and horses as second choice over the 12 year period, and livestock species accounted for just 10% of first choice responses and 23% of second choice responses. Students who chose "other" were asked to specify, and responses commonly included exotic animals, marine animals, and reptiles. These data help us understand the interests of our incoming students as we work to keep our curricula and courses current.

Table 1. Species preference of incoming freshmen (percentage of respondents)

	Comp	Horse	Beef	Dairy	SR	Swine	Other	SEM
1st, 96-99	52.5 ^a	31.5 ^b	7.0 ^c	2.0 ^d	0.5 ^d	1.8 ^d	4.8 ^{c,d}	1.8
1st, 00-03	53.8 ^a	29.8 ^b	5.3 ^{c,d}	2.5 ^d	0.8 ^d	0.5 ^d	7.8 ^c	1.8
1st, 04-07	53.3 ^a	30.5 ^b	7.0 ^c	1.5 ^d	1.5 ^d	0.8 ^d	5.5 ^{c,d}	1.8
2nd, 96-99	28.3 ^b	43.3 ^a	7.3 ^c	8.3 ^c	4.3 ^{c,d}	1.0 ^d	7.5 ^c	1.9
2nd, 00-03	30.3 ^b	37.5 ^a	6.8 ^{c,d}	7.3 ^{c,d}	6.3 ^{c,d}	2.3 ^d	9.5 ^c	1.9
2nd, 04-07	25.0 ^b	39.8 ^a	7.3 ^{c,d}	8.8 ^c	6.3 ^{c,d}	3.0 ^d	10.5 ^c	1.9
1st, 12 yr	53.1 ^a	30.6 ^b	6.4 ^c	2.0 ^d	0.9 ^d	1.0 ^d	6.0 ^c	1.0
2nd, 12 yr	27.8 ^b	40.2 ^a	7.1 ^{c,d}	8.1 ^{c,d}	5.6 ^d	2.1 ^e	9.2 ^c	1.1

Key Words: Undergraduate, Students, Livestock

T291 Changes in species preference reported by animal science graduating seniors at North Carolina State University. J. A. Moore*, W. L. Flowers, and R. L. McCraw, *North Carolina State University, Raleigh.*

Understanding changes in student interests over time assists in the evaluation of our curricula, courses, and extracurricular opportunities. Graduating seniors (5 years of data) were asked what their first and second choice species had been upon arrival and at graduation (average = 22% external transfer students). Species were companion animal (comp), horse, beef, dairy, small ruminant (SR), and other. An average of 45% of graduating seniors (42 of 94 per year) completed the survey. In Table 1, means within a row that do not share a superscript differ ($P < .05$), and "Leaving minus arrival" is the sum of "leaving" first plus second choice minus sum of "arriving" first plus second choice (a positive number indicates a shift in preference toward that species

while a student was enrolled as an undergraduate). The data show a shift in preference away from companion animals and horses toward livestock and "other" animals, but the top two first choice preferences remained companion animals and horses. Graduates indicated that livestock accounted for 15% of first choice preferences on arrival and 27% of first choice preferences upon graduation. The data indicate that experiences while enrolled as undergraduates have an impact on student species preference.

Table 1. Species preference reported by graduating seniors

	Comp	Horse	Beef	Dairy	SR	Swine	Other	SEM
1st (%), arrival	46.6 ^a	35.2 ^b	8.0 ^c	4.4 ^{c,d}	0.6 ^d	2.2 ^{c,d}	3.0 ^{c,d}	2.2
2nd (%), arrival	30.0 ^a	20.0 ^b	12.8 ^c	11.8 ^c	9.0 ^c	8.2 ^c	8.0 ^c	2.5
1st (%), leaving	29.4 ^a	31.6 ^a	8.8 ^{b,c}	7.4 ^c	2.2 ^c	9.0 ^{b,c}	11.2 ^b	2.5
2nd (%), leaving	27.6 ^a	13.4 ^{b,c}	15.6 ^{b,c}	19.6 ^b	10.0 ^{c,d}	8.6 ^{c,d}	5.6 ^d	2.6
1st + 2nd, arrival	76.6 ^a	55.2 ^b	20.8 ^c	16.2 ^{c,d}	9.6 ^d	10.4 ^d	11.0 ^d	2.8
1st + 2nd, leaving	57.0 ^a	45.0 ^b	24.4 ^c	27.0 ^c	12.2 ^d	17.6 ^{c,d}	16.8 ^{c,d}	3.8
Leaving minus arrival	-19.6 ^c	-10.2 ^b	3.6 ^a	10.8 ^a	2.6 ^a	7.2 ^a	5.8 ^a	3.1

Key Words: Undergraduate, Students, Livestock

T292 Equine internships: Factors that predict success. K. Bennett-Wimbush*, *Ohio State Agricultural Technical Institute, Wooster.*

Traditional employee screening processes usually are based on academic performance, however, there can be a dichotomy between academic achievement and employee job performance. This study examined the records from 140 equine industry internships from students enrolled in an Associate of Applied Science program from 1999 to 2006. Employers evaluated employees on thirteen criteria including: punctuality; willingness/learn; dependability; work quality; acceptance of constructive criticism; personal appearance; cooperation w/co-workers; productivity; professionalism; supervisor acceptance; customer acceptance; technical knowledge and overall performance using a Likert scale of 1-5 (1=poor, 2=fair, 3=average, 4=good, 5=excellent). Pearson's correlation analysis was performed between employer evaluation and employee salary (0=no pay, 1=below minimum wage (mw), 2=mw, 3=above mw, 4=50% above mw); cumulative grade point average (gpa) at the time of the internship; practicum gpa and graduation status. The cumulative gpa at the time of the internship was not different between students who graduated (2.88 ± 0.49) compared to students who did not graduate (2.47 ± 0.58) so data was combined for analysis. The average intern earned minimum wage. Those areas that were scored the lowest by employers were work speed (4.3 ± 0.77) and technical knowledge (4.2 ± 0.76) while cooperation w/co-workers and acceptance by supervisors were evaluated the highest (4.6 ± 0.55). Quality of work was positively correlated ($p < 0.05$, $r = 0.16$) with both cumulative gpa and salary. Technical knowledge was positively correlated ($p < 0.01$, $r = 0.20$) with salary. Based on this data, academic success may not be the best predictor of employee performance and students with a higher degree of technical skills may receive higher starting salaries.

Key Words: Internships, Equine

T293 Technical note: Equine gastrointestinal tract preservation techniques to enhance teaching effectiveness. B. T. Gutierrez* and J. S. Pendergraft, *Sul Ross State University, Alpine, TX.*

When the decision was made to euthanize a Quarter Horse mare suffering from chronic colic, students from the Department of Animal Science preserved the gastrointestinal tract (GIT) organs and tissues for use as a teaching tool. The specimens were removed from the horse within 1 h of death, separated into sections (stomach, small intestine, cecum, large colons, and small colon) and immediately cleaned with water. Digesta was flushed continuously from the GIT sections with water until the exiting water was clear. The fresh specimens were trimmed of any excess tissues and then filled with and submerged in a 10% formalin solution for 5 d. The GIT were then removed and rinsed with water and allowed to air dry for 2 h. Each section of the GIT were individually dried with forced air. The external portions of the GIT were allowed to remain moist to prevent tearing. The dried internal sections were filled with expanding polyurethane foam. The foam was administered throughout the GIT and then each end of the tracts were sealed. The GIT were positioned and orientated as in situ and the foam was allowed to expand and cure for 1 d. Excess foam, external fat, and other unwanted tissues were removed from the GIT. A clear coat of polyurethane was applied to the outside of the tract and allowed to dry for 1 d. This process was repeated three times. This method of GIT preservation resulted in a durable light weight specimen that has no unpleasant odor and is reasonably resistant to handling. The impact from the project will be the continual enhance of the educational experiences of future animal science students by the use of this visual learning tool.

Key Words: Gastrointestinal, Anatomy, Equine

T294 Impact of a herpes (EHV-1) outbreak on incoming equestrian students, horse numbers and outside generated revenue at The University of Findlay. E. D. Bonnette*, F. D. McCarthy, and R. Koehler, *The University of Findlay, Findlay, OH.*

In January 2003, a neurologic strain of the Equine Rhinopneumonitis (EHV-1) virus infected the majority of the horses at one of The University of Findlay horse farms. Over a five week period, roughly 80% of the 140 horses housed at the university's English equestrian facility showed clinical symptoms and fourteen of those horses were ultimately euthanized. The farm was put on a self-imposed quarantine, while access to the university's western equestrian facilities was severely limited. Once the causative agent was identified and the affected horses treated, policies were implemented to reduce the likelihood of another outbreak of this kind. Because of the significance of this event in the equestrian world, publicity regarding this outbreak was intense and created concerns that incoming fall equestrian students, retention of existing students and outside owned horses for the training programs might be adversely affected. Significant income generating events were potentially at risk with a negative public perception of the facility and programs. Data obtained from various university sources were summarized for the academic years 2003 - 2007. Total number of equestrian majors over the five year period following the outbreak indicated a linear increase in students at the end of each academic year. During that same period, applications and acceptance of outside-owned horses trained by equestrian students remained relatively consistent to those before the outbreak. The most notable adverse effect was to the non-academic revenue being generated by non-university organizations utilizing either equestrian facility. Gross revenue for the first fiscal year following the outbreak was reduced by nearly 50% and has shown a steady increase to overtake the pre-outbreak levels. From the data, The University of Findlay has apparently seen no long-term detrimental effects to student enrollment, incoming outside owned horse numbers or total outside revenues in the five years after the initial outbreak event.

Key Words: Horse, EHV-1