

**T248 The effect of treated wheat straw with molasses, urea and calcium hydroxide on performance of feedlot lambs.** R. Feizi\*<sup>1</sup> and A. Mohrrey<sup>2</sup>, <sup>1</sup>*Agricultural and Natural Resources Research Center of Khorasan, Mashhad, Khorasan, Iran*, <sup>2</sup>*Shahrekord University, Shahrekord, Chaharmahal Bakhtiari, Iran*.

In order to study the effect of wheat straw (WS) treated with molasses, urea and calcium hydroxide on average daily gain (ADG), feed intake (FI), feed conversion (FC) and carcass characteristics, 36 Iranian Balouchi lambs weighing 31 ± 3.25 kg and average age of eight months were used in a completely randomized design with 6 treatments, each consisting of 6 animals. Wheat straw was treated with solutions (1 liter/kg DM) containing molasses (M) plus either urea (U) or limestone powder (LP) and ensiled for 21 days. Dietary treatments were: 1) WS + 10% M + 0% U 2) WS + 10% M + 4% U 3) WS + 10% M + 8% U 4) WS + 10% M + 4% LP 5) WS + 10% M + 8% LP and 6) Alfalfa hay was considered as control. Concentrate part of diet were balanced based on start weight and daily gain according to recommendation of NRC (1989). Lambs were fed individually on total mixed ration TMR (roughage:concentrate; 40:60) ad lib. Data were analysed using the GLM procedure of SAS. ADG, FI and FC in lambs fed alfalfa were 212, 1726 g/day and 8.25, respectively. These parameters were significantly better (P<0.05) in alfalfa treatment compared with other treatments. Among the diets including treated wheat straw, the greatest rate (P<0.05) of ADG were observed for ration with 8% of urea. Economic comparison indicated that treated wheat straw with 8% of urea caused reduced feed costs per kg live weight gain compared with other treatments.

**Effect of treated wheat straw with molasses, urea and calcium hydroxide on performance of lambs**

	0% U	Wheat 4% U	Straw + 10% M 8% U	4% LP	8% LP	Alfalfa	SEM
ADG (g/day)	149 <sup>c</sup>	157 <sup>bc</sup>	171 <sup>b</sup>	162 <sup>bc</sup>	148 <sup>c</sup>	212 <sup>a</sup>	7.738
FI (g/day)	1456 <sup>d</sup>	1478 <sup>cd</sup>	1583 <sup>bc</sup>	1631 <sup>ab</sup>	1497 <sup>cd</sup>	1726 <sup>a</sup>	43.725
FC	9.75 <sup>ab</sup>	9.56 <sup>ab</sup>	9.28 <sup>b</sup>	9.98 <sup>ab</sup>	10.35 <sup>a</sup>	8.25 <sup>c</sup>	0.355
dressing percent	46.95 <sup>b</sup>	47.18 <sup>b</sup>	47.90 <sup>b</sup>	47.95 <sup>b</sup>	48.46 <sup>b</sup>	51.71 <sup>a</sup>	0.763

Means on the same row with different superscripts significantly differ (P<0.05).

**Key Words:** Lamb, Urea, Calcium Hydroxide

**T249 Growth performance of sheep fed with diets containing soybean meal, cull chickpeas or cull chickpeas-fish meal as protein source.** J. F. Obregon\*, E. Ibarra, A. Gomez, A. Estrada, and F. G. Rios, *FMVZ-Universidad Autonoma de Sinaloa, Culiacan, Sinaloa, Mexico*.

For comparison of growth performance, sheep were fed diets containing soybean meal, cull chickpeas or cull chickpeas-fish meal. Seventy five hair sheep (males; BW = 17.33 ± 2.3 kg) were used in a complete randomized block experiment design. The sheep were weighed and blocked by weight, in groups of five were placed in fifteen pens (2 x 3 m), and assigned to consume one of three diets (DM basis) in that consisted the treatments: 1) Diet with 17.27% CP and 3.48 Mcal of DE/kg, containing: soybean meal 18%, corn 54.5%, stover corn 15%, sugarcane molasses 10% and mineral premix 2.5% (CONT); 2) Diet containing: soybean meal 5.5%, cull chickpeas 40%, corn 27%, stover corn 15%, sugarcane molasses 10% and mineral premix 2.5% (CHP); and 3) Diet with: cull chickpeas 40%, corn 29%, fish meal 3.5%, stover corn 15%, sugarcane molasses 10% and mineral premix 2.5% (CHPFM). Animals were weighed on day 1 and day 56 at the finish of the trail, feed was offered twice a day under free access condition. Treatments did not affect (P = 0.62) end weight (30.91, 30.58 and 31.46 kg) for CONT, CHP and CHPFM, respectively. Average daily gain (0.242, 0.236, and 0.254 kg) were similar (P = 0.55) between dietary treatments. Feed intake in dry matter basis (0.880, 0.901 and 0.913 kg/day) was not modified (P = 0.54) by treatments. Feed/gain ratio were similar (P = 0.42) between treatments with values of 3.65, 3.84 and 3.73 for CONT, CHP and CHPFM, respectively. It is concluded, that cull chickpeas and cull chickpeas-fish meal can be used in diets as protein source without affecting growth performance of sheep.

**Acknowledgements:** The authors acknowledgment to PROMEP-SEP-México for financial support.

**Key Words:** Cull Chickpeas, Growth Performance, Sheep

## Teaching/Undergraduate and Graduate Education

**T250 Determining graduation rate of students who initially enrolled as animal science majors at the University of Missouri during a consecutive four-year period.** G. Jesse\* and M. Ellersieck, *University of Missouri, Columbia*.

Data obtained primarily from the University of Missouri's Student Information System (SIS) were used to determine graduation rate of students who initially enrolled as Animal Science majors as freshmen or transfer students during the fall semester of 1996, 1997, 1998 or 1999. Objectives of this study included: 1) determine the percentage of students who completed a B.S. degree in Animal Science (A.S.), 2) determine graduation rate for all students who enrolled as A.S. majors regardless of what degree they completed, 3) determine why students changed their major or failed to complete their B.S. degree, and 4) determine the predictability of graduation rate. Variables included in the analysis of data included: gender, composite ACT score, high school class rank, advising group, high school graduation class size, predicted grade point average, first semester grade point, cumulative grade point and the student's background (farm/ranch, non-farm/ranch or urban). The total number of students in the data set was 457 representing 378 who enrolled as first semester freshmen and 79 transfer students. The data were statistically analyzed using various procedures of SAS. A questionnaire was sent to 256 former students who either did not complete a degree at MU (126) or completed a baccalaureate degree in a major other than A.S. (130) to attempt to ascertain their reason(s) for changing major

or leaving MU. Thirty-five percent of the students completed a B.S. degree in A.S. Approximately 14% completed a B.S. degree in some other major in the College of Agriculture, Food and Natural Resources (CAFNR) and 15% completed a baccalaureate degree in some major outside of CAFNR at the university. Graduation rate was 63.9% which was similar to the campus average. The use of five independent variables resulted in a 64% accuracy at predicting graduation rate. Poor academic performance was the primary reason students did not complete a B.S. degree.

**Acknowledgements:** This project was approved by the University of Missouri Campus Institutional Review Board (Project #1042765).

**Key Words:** Graduation Rate, Undergraduates, Animal Science Majors

**T251 Digital image gallery to assist learning animal, dairy and poultry sciences: Photos and illustrations solicited.** J. Riesen\*<sup>1</sup>, H. Hafs<sup>2</sup>, L. Katz<sup>2</sup>, G. McCone<sup>3</sup>, P. Schoknecht<sup>4</sup>, and M. Stokes<sup>5</sup>, <sup>1</sup>*University of Connecticut, Storrs*, <sup>2</sup>*Rutgers University, New Brunswick, NJ*, <sup>3</sup>*National Agricultural Library, Beltsville, MD*, <sup>4</sup>*University of Richmond, Richmond, VA*, <sup>5</sup>*University of Maine, Orono*.

To assist teaching baccalaureate level Animal Sciences, we are accumulating digitized images and animations at the URL listed below. Sections for Nutrition, Reproduction and Ethology are already installed and the first images are available. For the long term, we aim to add sections for other animal science areas such as genetics, biotechnology, animal management, lactation, zoo and wild animals, individual food animal species, and companion animals including horses. Instructors everywhere are encouraged to contribute images, following the instructions at [http://cygnet.richmond.edu/image\\_gallery](http://cygnet.richmond.edu/image_gallery). Submitted images and their annotations are peer reviewed to optimize their use in learning. The site will be transferred late in 2005 to the National Agricultural Library (NAL) where the images will be available in perpetuity and without cost. The gallery uses the NAL thesaurus, includes a glossary, and is searchable either by keyword or by advanced search methods.

**Acknowledgements:** Supported by USDA HEC Grant #2003-04009, and the NE Section of ADSA/ASAS.

**Key Words:** Image Gallery, Teaching, Learning

**T252 Perceptions of high school students towards Advanced Life Science: Animals, academic honors curricula.** A. Huerta\*, B. Hains, and M. Balschweid, *Purdue University, West Lafayette, IN.*

The objective of this study was to evaluate high school students' perceptions, opinions, and perceived benefits gained towards a new academically rigorous

animal science curriculum. Two decades have passed since a call for excellence in education suggested that students needed a more rigorous, focused approach to their secondary education as opposed to the general educational tract that provided neither high level academics nor high level workforce preparation skills. With the implementation of the No Child Left Behind Act many high school agriscience and business programs feel the pressure of being an elective-based program. With the recent influx of biomedical and bio-agricultural companies relocating to the regions of the Midwest, advocates of high school agriscience and business programs in one particular Midwestern state have implemented a highly academic animal science curriculum titled Advanced Life Science: Animals. This state's Department of Education put this curriculum into action accounting for a core science academic honors credit without losing its vocational implementation. Utilizing a mixed methodology approach, both quantitative and qualitative data were collected through a survey questionnaire. This work represents a fundamental shift in the way many in the state view agricultural education and its role within the context of the total curricular offerings. For the first time, agriscience and business teachers have the opportunity to offer an advanced animal science course built upon rigorous, measurable, world-class standards of performance. This research topic gives promise for other states to begin the implementation process for new course standards to be developed based upon these same standards. This process can allow for the opportunity to expand the circle of stakeholders currently involved in agricultural education and can strengthen and broaden the impact agricultural education has upon all students regardless of their future aspirations. Results indicated students perceive an added benefit to using animal science to teach basic biology, and feel they are learning science more effectively.

**Key Words:** Education, Animals, Science