

BREEDING AND GENETICS 7

Molecular Genetics

Chair: J. Cassady, MARC-USDA, Clay Center, NE

Thursday, 8:00 a.m. - 9:30 a.m.

Room: 315

Time	Abstract Number	
8:00	263	Optimizing single-generation selection on QTL in crossbreeding programs. J. C. M. Dekkers* ¹ and R. Chakraborty ¹ , ¹ Iowa State University, Ames.
8:15	264	Verifying the hypothesis of more than one QTL on chromosome 6 influencing the relation between both yield and percentage of milk protein and milk fat. G. Freyer* ¹ , C. Kuehn ¹ , and I. Hoeschele ² , ¹ Research Institute for the Biology of Farm Animals, ² Virginia Polytech Institute and State University, Blacksburg.
8:30	265	Accounting for uncertainty of QTL location in marker assisted selection in dairy cattle. A. Stella*, J. Gibson, and G. Jansen, University of Guelph, Ontario, Canada.
8:45	266	Stochastic estimation of exclusion probabilities. S. D. Kachman* ¹ and G. B. Sherman ¹ , ¹ University of Nebraska, Lincoln.
9:00	267	Discovery of novel genes controlling feed intake in cattle. D. R. Glimm* ¹ , F. Dong ¹ , P. K. Chelikani ¹ , E. K. Okine ² , G. R. Khorasani ¹ , and J. J. Kennelly ¹ , ¹ University of Alberta, ² Western Forage/Beef Group, Lacombe Research Centre, Alberta, Canada.
9:15	268	The National Animal Germplasm Program. H. D. Blackburn* ¹ and S. M. Kappes ² , ¹ USDA-ARS, Ft. Collins, CO, ² USDA-ARS, Beltsville, MD.

BREEDING AND GENETICS 8

MINI-SYMPOSIUM

Inbreeding in Animal Agriculture

Sponsored by *Holstein Foundation*

Chair: R. Shanks, University of Illinois, Urbana

Thursday, 8:30 a.m. - 10:45 a.m.

Room: 314

Time	Abstract Number	
8:30		INVITED Uncontrolled inbreeding. B. T. McDaniel, North Carolina State University, Raleigh
9:15	19	INVITED Controlling inbreeding in modern breeding programs. K. A. Weigel*, University of Wisconsin, Madison.
10:00	20	The Effect of Combined Crossbred Purebred Selection on the Rate of Inbreeding. P. Bijma* ¹ , J. A. M. Van Arendonk ¹ , and J. A. Woolliams ² , ¹ Animal Breeding and Genetics Group, Wageningen University, The Netherlands, ² Roslin Institute (Edinburgh), Roslin, Midlothian, UK.
10:15	21	Implementation of the Genetic Contribution Theory to Predict Rates of Inbreeding in Livestock Breeding Programs. P. Bijma* ¹ and J. A. Woolliams ² , ¹ Animal Breeding and Genetics Group, Wageningen University, ² Roslin Institute (Edinburgh), Roslin, Midlothian, UK.

10:30 22 Estimation of Non-additive Genetic Variances and Maternal Inbreeding Depression in Canadian Herefords. Monchai Duangjinda^{*1}, Tom Druet², Ignacy Misztal¹, and Keith Bertrand¹, ¹The University of Georgia, Athens, ²National Fund for Scientific Research, Brussels, Belgium.

ELANCO CONTEMPORARY AND EMERGING ISSUES 5 AND FASS COMMITTEE ON ENVIRONMENT, WASTE MANAGEMENT, AND ECOSYSTEMS

New Concepts on the Role of Nitrogen in Optimizing Ecosystems

Sponsored by *Elanco Animal Health,*
ASAS Foundation

Chair: Alan Sutton, Purdue University, West Lafayette, IN

Thursday, 9:15 a.m. – 11:00 a.m.
Room: 316

Time

- 9:15 **INVITED** The Nitrogen Cycle: Optimizing Nitrogen Management in Food and Energy Production and Environmental Protection. Ellis B. Cowling, North Carolina State University, Raleigh.
- 10:00 **INVITED** Ammonia Emissions: Fate of Nitrogen Leaving Livestock Operations. Henry F. Tyrrell, USDA, CSREES, Washington.
- 10:45 **DISCUSSION**

DAIRY FOODS 13

SYMPOSIUM

Educating Dairy Foods Scientists for the 21st Century

Chair: S. Duncan, Virginia Tech, Blacksburg

Thursday 8:00 a.m. - 9:55 a.m.
Room: 320

Time	Abstract Number	
8:00	40	Educating dairy foods scientists for the 21st century. S. Duncan ^{*1} and K. Kaylegian ² , ¹ Virginia Polytechnic Institute and State University, Blacksburg, ² Wisconsin Center for Dairy Research, University of Wisconsin, Madison.
8:15	41	INVITED Issues of education for dairy foods scientists. R. Marshall [*] , University of Missouri, Columbia.
8:30	42	INVITED Successful teaching techniques in dairy foods courses. John A. Partridge [*] , Michigan State University, East Lansing, MI.
8:45	43	INVITED Critical course topics needed for entry level industry opportunities. T. Gruetzmacher [*] , Dean Foods Company, Rockford, IL.

9:00 44 **INVITED** Meeting the need through adult education short courses. R.L. Bradley*, University of Wisconsin-Madison.

9:15 **ROUND TABLE DISCUSSION**

Marschall Rhodia International Dairy Science Award Lecture

Chair: T. J. Gruetzmacher, Dean Foods Company, Rockford, IL

Thursday, 10:00 a.m. - 11:00 a.m.

Room: 309

Speaker: V. L. Crow, New Zealand Dairy Research Institute, Palmerston North, New Zealand

Title: From Tradition To New World Cheese: Putting Science Into The Art Of Cheese Ripening.

EXTENSION EDUCATION 4

POSTER SESSION

Thursday, 8:00 a.m. - 5:00 p.m.

Authors present 9:00 a.m. - 11:00 a.m.

Room: Exhibit Hall AB

Board Abstract No. No.

- | | | |
|---|-----|--|
| 1 | 445 | A study on the demography of milkers in Pennsylvania and their influence on milk quality. C. Burns*, D. Wolfgang, and B. Jayarao, Pennsylvania State University, University Park. |
| 2 | 446 | DairyNew: An Internet-based electronic mail distribution system for dairy production related newsletters. M.A. Varner* ¹ , S.W. Fultz ¹ , and K.E. Olson ² , ¹ University of Maryland, College Park, ² American Farm Bureau Federation. |
| 3 | 447 | Silage-L: Electronically connecting the silage industry. T.E. Schmidt*, K.K. Bolsen, M.K. Siefers, and M.E. Uriarte, Kansas State University, Manhattan. |
| 4 | 448 | An interactive web site to help producers select the most economically desirable Holstein sire portfolio. P. R. Tozer*, G. W. Rogers, J. B. Cooper, and H. J. Oberholtzer, The Pennsylvania State University, University Park. |
| 5 | 449 | Field implementation of nutrition and herd management practices to reduce nutrient losses from Shenandoah Valley dairy farms. F. P. Wydner, III* ¹ , G. M. Jones ¹ , and K. F. Knowlton ¹ , ¹ Virginia Polytechnic Institute and State University, Blacksburg. |
| 6 | 450 | Nitrogen cycling on pasture based dairies. T.W. Downing* ¹ , ¹ Oregon State University, Corvallis. |

GROWTH AND DEVELOPMENT 5 AND PHYSIOLOGY 8

JOINT SYMPOSIUM

From Genome to Function: Application of Genomics/Functional Genomics to Animal Agriculture

Sponsored by *Elanco Animal Health R & D, Milk Specialties – M. S. BioSciences, Monsanto Company, Pfizer Animal Health, VetLife, a division of Ivy Animal Health, USDA, NRI*

Co-Chairs: C. C. Chase Jr., USDA/ARS, Brooksville, FL; K.L. Houseknecht, Pfizer Inc., Groton, CT; D.L. Hancock, Elanco Inc., Greenfield, IN; and, T.J. Earleywine, T.C. Products Company, Madison, WI

Thursday, 8:00 a.m. - 11:00 a.m. and
1:00 p.m. - 5:30 p.m.
Room: 307

Time	Abstract Number	
8:00		Welcome
8:10	76	INVITED Commercialization of biotechnology In Agriculture. C.A. Baile*, University of Georgia, Athens.
8:30		INVITED Genomics techniques: An overview. D. Moody, Purdue University, West Lafayette, IN.
9:00		BREAK
9:15		INVITED CART: A novel gene and discovery of its functions. M. Kuhar, Yerkes Regional Primate Center, Atlanta, GA.
9:45	77	INVITED Database management of high throughput EST sequencing and SNP discovery. J. W. Keele*, J. E. Wray Jr., T. P. L. Smith, S. C. Fahrenkrug, E. Casas, B. A. Freking, and R. T. Stone, U. S. Meat Animal Research Center, Clay Center, NE.
10:15		INVITED Transgenics and cloning: cattle and swine. S. Stice, ProLina, Athens, GA.
10:45		PANEL DISCUSSION
11:00 - 1:00		ASAS & ADSA Business Meetings and Lunch
1:00		INVITED Transgenics and cloning: poultry. B. Ivarie, Avigenics, Athens, GA.
1:30		INVITED Quantitative genomics: discovery of genes for economically relevant traits in pigs. D. Pomp, University of Nebraska, Lincoln.
2:00		INVITED Genetic markers for reproduction in beef cattle. R. M. Thallman, USDA/ARS, Aurora, NE.
2:30	78	INVITED Dairy cattle genomics: Tools to accelerate genetic improvement?. T.S. Sonstegard* ¹ , C.P. Van Tassell ^{1,2} , and M.S. Ashwell ¹ , ¹ Gene Evaluation and Mapping Laboratory, ² Animal Improvement Programs Laboratory, ARS, USDA, Beltsville, MD.
3:00	79	INVITED Sheep genomics: searching for genes involved in mammalian reproduction. S. M. Galloway* ¹ , K. P. McNatty ² , and G. H. Davis ³ , ¹ AgResearch Molecular Biology Unit, Dunedin, New Zealand, ² AgResearch, Wallaceville Animal Research Centre, Upper Hutt, New Zealand, ³ AgResearch, Invermay Agricultural Centre, Mosgiel, New Zealand.
3:30		BREAK
3:45		INVITED Livestock producer perspective. M. T. Coffey, Murphy Farms, Inc., Rose Hill, NC.

- 4:10 80 **INVITED** An FDA perspective on the regulation of genetic engineering in animals. J.C. Matheson*, US FDA Center for Veterinary Medicine, Rockville, MD.
- 4:30 **INVITED** Plant delivery of proteins, vaccines and drugs. W. White, Monsanto Co., Chesterfield, MO.
- 5:00 **PANEL DISCUSSION**

FASS COMMITTEE ON ENVIRONMENT, WASTE MANAGEMENT, AND ECOSYSTEMS AND ELANCO CONTEMPORARY AND EMERGING ISSUES 5

New Concepts on the Role of Nitrogen in Optimizing Ecosystems

Sponsored by *Elanco Animal Health,*
ASAS Foundation

Chair: Alan Sutton, Purdue University, West Lafayette, IN

Thursday, 9:15 a.m. – 11:00 a.m.
Room: 316

INTERNATIONAL ANIMAL AGRICULTURE 2

POSTER SESSION

International Animal Agriculture Research in Action

Thursday, 8:00 a.m. - 5:00 p.m.
Authors present: 9:00 a.m. - 11:00 a.m.
Room: Exhibit Hall AB

Board No.	Abstract No.	
7	648	Evaluation of three different feeding systems for dairy calves in Mexicali, Mexico. J. S. Saucedo-Quintero ¹ , L. Avendano-Reyes ^{*1} , and F. D. Alvarez-Valenzuela ¹ , ¹ Instituto de Ciencias Agricolas, Universidad Autonoma de Baja California, Mexico.
8	649	Recovery of degraded tropical pastures using the Barreirao system. I. P. Oliveira ¹ , J. Kluthcouski ¹ , C. U. Magnabosco ^{*2} , L. C. Balbino ¹ , R. S. M. Santos ¹ , L. P. Yokoyama ¹ , and R. D. Sainz ³ , ¹ Embrapa Arroz e Feijao, ² Embrapa Cerrados, ³ University of California, Davis.
9	650	Hydropic-Fetal Membranes in Cows from an Endemic Region in Southern Zacatecas State, Mexico. F Flores ¹ , J Valencia ² , R Rosiles ² , R Banuelos-Valenzuela ^{*1} , and CF Arechiga ¹ , ¹ FMVZ-Universidad Autonoma de Zacatecas, ² FMVZ-Universidad Nacional Autonoma de Mexico.

- 10 651 Effect of Male Presence on Reproductive Function and Estrous Cycle Sucession in Mexican-Criollo Goats Exposed to a Controlled Photoperiod. RM Rincon^{**}, F de la Colina¹, FJ Escobar¹, R Banuelos-Valenzuela¹, J Valencia², and CF Arechiga¹, ¹FMVZ-Universidad Autonoma de Zacatecas, ²FMVZ-Universidad Nacional Autonoma de Mexico.
- 11 652 Serum calcium and phosphorus levels throughout the year in six beef cow genotypes grazing semi-arid range at the northeast of Mexico. E.M. Romero-Treviño^{*}, M. Castillo-Martinez, E. Gutierrez-Ornelas, E. Olivares-Saenz, H. Bernal-Barragan, and C. De-Luna-Villarreal, Universidad Autonoma de Nuevo Leon, Mexico.
- 12 653 The effect of molasses-urea supplementation on high fiber buffalo diets in Gujarat State, India on production parameters and methane losses. G.W. Turnbull^{*}, B. Ducharme, R. Livingston, and R. Bowman, Global Livestock Group.
- 13 654 SUPEROVULATORY Response and Embryo Recovery in Buffalo Heifers and Cows Treated with Super-Ov and LH Gonadotropins. A.M. Osman^{*}, S.H. Shehata, and G.A. Megahid, Assiut University, Assiut.

MEAT SCIENCE AND MUSCLE BIOLOGY 5

POSTER SESSION

Meat Composition and Quality

Thursday, 8:00 a.m. - 5:00 p.m.
 Authors present 9:00 a.m. - 11:00 a.m.
 Exhibit Hall AB

Board Abstract No. No.

- 14 680 Correlations among selected pork quality traits in a Berkshire by Yorkshire F2 population. E. Huff-Lonergan^{*}, T. J. Baas, M. Malek, J. Dekkers, K. Prusa, and M. F. Rothschild, Iowa State University, Ames.
- 15 681 Quality characteristics of PSE hams. C. Perez-Linares¹, A. Alarcon-Rojo^{*1}, and J. Jimenez-Castro¹, Universidad Autonoma de Chihuahua. Chihuahua, Chih. Mexico.
- 16 682 Relationship of beef carcass traits to chemical and tissue composition of rib samples by X-ray computer tomography. G. Hollo¹, F. Szabo^{*2}, E. Szuecs¹, J. Tozser¹, J. Csapo³, B. Huth³, and I. Hollo³, ¹Szent Istvan University, Godollo, ²University of Veszprem, Georgicon Faculty, Keszthely, ³University of Kaposvar, Faculty of Animal Science, Hungary.
- 17 682 Comparison of two different containers for performing hydrodynamic pressure process. M.B. Solomon^{*} and B.W. Berry, USDA, ARS, MSRL.
- 18 684 Tenderizing meat from Brahman cattle: Hydrodynamic pressure process and within-muscle effects for bottom round. J. S. Eastridge^{*1}, M. B. Solomon¹, R. L. West², and C. C. Chase, Jr.³, ¹USDA, ARS, Beltsville, MD, ²University of Florida, Gainesville, ³USDA, ARS, STARS, Brooksville, FL.
- 19 685 Application of hydrodynamic pressure processing for further processed meat products. B. W. Berry^{*1}, M. B. Solomon¹, and A. G. Senecal², ¹ARS-USDA, Beltsville, Maryland, USA, ²US Army Natick R, D & E Center, Natick, Massachusetts.
- 20 686 Intramuscular collagen properties of *longissimus* muscle of *Bison bison*. G. Maiorano^{*1}, F. Filetti¹, R. J. McCormick², D. C. Rule², and A. Manchisi¹, ¹Universiti degli Studi del Molise, Campobasso, Italy, ²University of Wyoming, Laramie.
- 21 687 Influence of diet on amino acid profiles of two muscles in Chianina beef. F Nicastro^{*1}, R Gallo¹, A Caputi Jambrenghi¹, and L Zezza¹, ¹Department of Animal production, University of Bari, Bari, Italy.
- 22 688 Fiber type (Myosin Heavy Chain I) and biochemical traits of *Longissimus thoracis* from three European beef breed types. M. Gil^{*1}, X. Serra¹, M.A. Oliver¹, C. Sa'udo², J.L. Olleta², M.D. Garcia-Cachn³, M.C. Olivn³, M.M. Lopez-Parra⁴, R. Quintanilla⁵, and J. Piedrafita⁵, ¹IRTA- CTC, Monells, Spain, ²Univ. Zaragoza, Zaragoza, Spain, ³ETC, Guijuelo y CIATA, Villaviciosa, Spain, ⁴SIAEX, Badajoz, Spain, ⁵UAB, Barcelona, Spain.

NONRUMINANT NUTRITION 9

Nutritional Factors influencing Environmental Issues

Chair: K. Purser, Prince Agri Products, Inc.,
Quincy, IL

Thursday, 9:30 a.m. - 11:00 a.m.
Room: 317

Time	Abstract Number	
9:30	788	Utilization of low heat increment diets at high ambient temperatures in growing pigs. L. Le Bellego ¹ , J. Van Milgen ¹ , M. Rademacher ² , S. Van Cauwenberghe ³ , and J. Noblet ^{*1} , ¹ INRA, Saint Gilles, France, ² Degussa-Hals, Hanau, Germany, ³ Eurolysine, Paris, France.
9:45	789	Effects of the addition of <i>Yucca schidigera</i> extract and an acidified diet on reducing ammonia emission in nursery pig facilities. J. J. Colina*, A. J. Lewis, P. S. Miller, and R. L. Fischer, University of Nebraska, Lincoln.
10:00	790	Diet modification to reduce odorous compounds in pig manure. S. Hankins ^{*1} , A. Sutton ¹ , J. Patterson ¹ , O. Adeola ¹ , B. Richert ¹ , A. Heber ¹ , D. Kelly ¹ , and K. Kephart ² , ¹ Purdue University, West Lafayette, IN, ² Pennsylvania State University, University Park.
10:15	791	Effects of dietary supplementation of exogenous fibers on ammonia and hydrogen sulfide emission from growing-finishing pigs fed corn and soybean meal-based diets. Y. Gao ^{*1} , T. Rideout ¹ , D. Lackeyram ¹ , T. Archbold ¹ , M. Z. Fan ¹ , E. J. Squires ¹ , C. F. M. de Lange ¹ , T. K. Smith ¹ , and G. Duns ¹ , ¹ University of Guelph, Ontario, Canada.
10:30		What have we learned? Jim Pettigrew, Pettigrew Consulting, Louisiana, MO

NONRUMINANT NUTRITION 10

POSTER SESSION

General Nonruminant Nutrition

Thursday, 8:00 a.m. - 5:00 p.m.
Authors of even numbered boards present
8:00 a.m. - 10:00 a.m.
Authors of odd numbered boards present
9:00 a.m. - 11:00 a.m.
Room: Exhibit Hall AB

Board No.	Abstract No.	
23	792	Lipogenic enzyme activities in adipose and muscular tissues of Landrace and Iberian pigs fed on different sources of carbohydrates. J. Morales ¹ , J.F. Perez ^{*1} , J. Mouro ² , M.D. Baucells ¹ , and J. Gasa ¹ , ¹ Universidad Autònoma de Barcelona, Spain, ² INRA, St-Gilles, France.
24	793	Soybean meal versus other protein sources on growth and carcass traits of swine. J. L. Shelton ^{*1} , R. M. Strode ² , M. D. Hemann ² , G. L. Brashear ² , F. K. McKeith ² , M. Ellis ² , L. L. Southern ¹ , and T. D. Bidner ¹ , ¹ Louisiana State University Agricultural Center, ² University of Illinois, Urbana.
25	794	The use of near infrared spectroscopy and in vitro methods to predict the digestibility of compounded pig diets. J.V. O' Doherty*, M.G. Dore, and F.P. O' Mara, University College Dublin, Ireland.
26	795	Evaluation of a diet formulation method that assigns nutrient values to microbial phytase in swine diets. J.S. Radcliffe*, A.F. Harper, and E.T. Kornegay, Virginia Polytechnic Institute and State University, Blacksburg.

- 27 796 Dietary Conjugated Linoleic Acid Alters Fatty Acid Composition of Pig Skeletal Muscle and Fat. T.G. Ramsay^{*1}, C.M. Evoke-Clover¹, N.C. Steele¹, and M.J. Azain², ¹USDA-ARS, Beltsville, MD, ²University of Georgia, Athens.
- 28 797 Amino-Lac as a substitute for spray-dried animal plasma in starter diets for weanling pigs. G.L. Cromwell, M.D Lindemann, and H.J. Monegue^{*}, University of Kentucky, Lexington.
- 29 798 Use of animal protein sources in combination with different types of milk protein in diets for early-weaned piglets. P. Medel^{*1}, F. Baucells², M.J. Aranibar¹, and G. G. Mateos¹, ¹Dpto. Producción Animal, Universidad Politécnica de Madrid, ²Pinos Baucells, Barcelona, Spain.
- 30 799 Efficacy and pH dependence of phytate-phosphorus hydrolysis by four different phytases are modulated by buffer and substrate specificities. T. Xiang^{*}, E. Rodriguez, J.R. Thornton, and X.G. Lei, Cornell University, Ithaca, NY.
- 31 800 Effects of betaine levels in reduced energy diets for finishing pigs. G.L. Cromwell^{*}, M.D Lindemann, J.R. Randolph, K.M. Laurent, G.R. Parker, and R.D. Coffey, University of Kentucky, Lexington.
- 32 801 Effects of nursery diet and supplementation with a combination of dietary acidifiers, enzymes and flavor on pig performance. B. F. Wolter^{*1}, M. Ellis¹, A. V. Frampton¹, R. A. Easter¹, E. Roura², J. Brenes², and J. Sola², ¹University of Illinois, Urbana, IL, ²Lucta SA, Barcelona, Spain.
- 33 802 Phytase in low phosphorus corn-soybean meal diets for finishing swine: Calcium and phosphorus absorption and excretion. T. L. Veum^{*1}, D.W. Bollinger¹, and D.R. Ledoux¹, ¹University of Missouri, Columbia.
- 34 803 Soybean protein products affect nutrient digestibilities and fecal characteristics of dogs. G. M. Clapper^{*1}, C. M. Grieshop¹, N. R. Merchen¹, J. C. Russett², and G. C. Fahey, Jr.¹, ¹ University of Illinois, Urbana, IL, ²Central Soya Company, Inc., Fort Wayne, IN.
- 35 804 Effect of liquid whey and L-glutamine supplementation on the productive parameters and intestinal integrity of the piglet and early-weaned pig. Benjamin Sanchez¹, Anita De la Cruz¹, Gonzalo Villar¹, Roxana Mendoza¹, Gerardo Mariscal², and German Borbolla^{*1}, ¹Facultad de Medicina Veterinaria y Zootecnia U.N.A.M., ²Centro Nacional de Investigación Disciplinaria.
- 36 805 Order of limiting amino acids in a practical corn-soy diet for growing pigs. M.E. Johnston^{*1}, R.D. Boyd¹, C.E. Fralick², and J.L. Usry³, ¹PIC USA Inc., Franklin, KY, ²Swine-Tek Research and Consulting, Van Wert, OH, ³Heartland Lysine Inc., Chicago, IL.
- 37 806 Pork quality characteristics of pigs fed different types of fat and high levels of vitamin E. E. van Heugten^{*} and M. T. See, North Carolina State University, Raleigh.
- 38 807 Effect of iron supplementation of piglets on bioavailability of iron in ferrous sulfate. B. K. Anderson^{*}, N. R. Augspurger, and M. Ellis, University of Illinois, Urbana.
- 39 808 Growth rate, carcass composition and onset of estrus in developing gilts fed cottonseed meal. T.C. Schell^{*1}, C.R. Dove¹, and D.K. Bishop², ¹University of Georgia, ²Brown's of Carolina.
- 40 809 Iron bioavailability in Methiron 65 measured by hemoglobin regeneration in anemic rats. Ignacio Mejia-Haro^{*1} and Hsin-yi Chen², ¹CIGA ITA de Ags., Mexico, UNL, ²University of Nebraska, Lincoln.
- 41 810 Effects of vitamins and minerals on growth performance and pork quality in finishing pigs. J. S. Park^{*}, J. D. Hancock, D. H. Kropf, R. H. Hines, C. L. Jones, D. J. Lee, D. W. Dean, and N. Amornthewaphat, Kansas State University, Manhattan.
- 42 811 Separation and detection of essential amino acids using High Performance Liquid Chromatography (HPLC). J. Aranda-Ruiz^{*}, R. Gonzalez-Gonzalez, E. Gutierrez-Ornelas, H. Bernal-Barragan, and E. Olivares-Saenz, Universidad Autonoma de Nuevo Leon, Mexico.
- 43 812 Methodology of measuring phosphorous digestibility in feedstuffs for pigs. M. Z. Fan^{*1}, T. Archbold¹, D. Lackeyram¹, T. Rideout¹, Y. Gao¹, R. R. Hacker¹, C. F. M. de Lange¹, W. C. Sauer², and E. J. Squires¹, ¹University of Guelph, ²University of Alberta, Canada.
- 44 813 A Dynamic Model to Estimate Nutrient Requirements in Pregnant and Lactating Sows. J. G. Kim^{*}, Y. W. Shin, and K. Y. Whang, Korea University, Seoul, Korea.
- 45 814 Effects of dietary supplementation of diatomaceous earth and zeolite on ammonia and hydrogen sulfide emission from growing-finishing pigs fed corn and soybean meal-based diets. Y. Gao^{*1}, T. Rideout¹, D. Lackeyram¹, T. Archbold¹, M. Z. Fan¹, E. J. Squires¹, C. F. M. de Lange¹, T. K. Smith¹, and G. Duns¹, ¹University of Guelph.
- 46 815 Effects of early-weaning versus suckling on the gastrointestinal tract and whole body growth in neonatal pigs. D. Lackeyram^{*1}, M. Z. Fan¹, T. Archbold¹, T. Rideout¹, Y. Gao¹, M. Borysenko¹, A. M. Gibbins¹, E. J. Squires¹, and D. G. Burrin¹, ¹University of Guelph, ²Baylor College of Medicine.

- 47 816 Effects of early-weaning versus suckling on the gastrointestinal tract and whole body growth in neonatal pigs. D. Lackeyram*¹, M. Z. Fan¹, T. Archbold¹, T. Rideout¹, Y. Gao¹, M. Borysenko¹, A. M. Gibbins¹, E. J. Squires¹, and D. G. Burrin¹, ¹University of Guelph, Ontario, ²Baylor College of Medicine.
- 48 817 Postprandial kinetics of supplemental K-diformate in duodenal digesta of weaned piglets. Z. Mroz*¹, A.W. Jongbloed¹, and M. Overland², ¹Institute for Animal Science and Health, Lelystad, Holland, ²Norsk Hydro ASA (Hydro Nutrition), Oslo, Norway.

PHYSIOLOGY 8 AND GROWTH AND DEVELOPMENT 5

JOINT SYMPOSIUM

From Genome to Function: Application of Genomics/Functional Genomics to Animal Agriculture

*Sponsored by Elanco Animal Health R & D, Milk Specialties – M. S. BioSciences, Monsanto
Company, Pfizer Animal Health, VetLife,
a division of Ivy Animal Health, USDA, NRI*

Co-Chairs: C. C. Chase Jr., USDA/ARS, Brooksville, FL; K.L. Houseknecht, Pfizer Inc., Groton, CT; D.L.
Hancock, Elanco Inc., Greenfield, IN; and, T.J. Earleywine, T.C. Products Company, Madison, WI

Thursday, 8:00 a.m. - 11:00 a.m. and
1:00 p.m. - 5:30 p.m.
Room: 307

PRODUCTION AND MANAGEMENT 8

MINI-SYMPOSIUM

Lameness in Cattle, Sheep, and Swine

Sponsored by Zinpro

Chair: T. Troxel, University of Arkansas, Little Rock.

Thursday, 8:00 a.m. - 10:15 a.m.
Room: 310

Time	Abstract Number	
8:00	INVITED	Lameness in cattle. C. L. Guard, Cornell University, Ithaca.
8:45	118	INVITED Lower leg and foot lameness related to the environment in commercial sheep and swine operations. G Kennedy* ¹ , ¹ Pipestone Veterinary Clinic, MN.
9:30	119	A novel force plate system that detects lameness of dairy cattle. Parimal Rajkondawar* ¹ , Uri Tasch ¹ , Alan Lefcourt ² , Benny

Erez³, and Robert Dyer³, ¹UMBC, ²USDA, ³UMCP.

9:45

DISCUSSION

PRODUCTION AND MANAGEMENT 9

Dairy Calves, Replacements and Lactating Cows

Chair: J. Heinrichs, Pennsylvania State University, University Park

Thursday, 8:00 a.m. - 11:00 a.m.

Room: 318

Time	Abstract Number	
8:00	987	Methods of processing affect absorption of IgG from colostrum supplement products in neonatal calves. J. D. Quigley*, M. L. Miller, and C. A. Jaynes, American Protein Corp., Ames, IA.
8:15	988	Effect of pH on IgG absorption in neonatal calves. J. D. Quigley* ¹ , R. E. James ² , and P. French ² , ¹ American Protein Corp., Ames, IA, ² Virginia Tech, Blacksburg.
8:30	989	Effects of accelerated milk replacer feeding at 2 protein levels on performance and economics in Holstein heifer calves. D. R. Catherman*, Strauss Feeds, LLC, Watertown, WI.
8:45	990	The Impacts of Management Factors on the Costs of Replacement Dairy Heifer Programs. P. R. Tozer, The Pennsylvania State University, University Park.
9:00	991	Predicting body weight in Holstein heifers using pelvic width measured between greater trochanters of the femurs. A. L. Skidmore* ¹ , C. J. Sniffen ² , and K. Ballard ² , ¹ Attica Veterinary Associates, PC, Attica, NY, ² W. H. Miner Agricultural Research Institute, Chazy, NY.
9:15		BREAK
9:30	992	Effects of monensin and lasalocid on growth, feed intake, and feed efficiency in dairy calves. J.A. Isch* ¹ , J.E. Shirley ¹ , M.V. Scheffel ¹ , E.C. Titgemeyer ¹ , and E.E. Thomas ² , ¹ Kansas State University, Manhattan, ² Elanco Animal Health, Greenfield, IN.
9:45	993	Assessment of the economics of Megalac [®] use by computer simulation. M. L. Kinsel* ¹ , W. K. Sanchez ² , and E. Block ² , ¹ Agricultural Information Management, Nampa, ID, ² Church & Dwight Company, Inc., Princeton, NJ.
10:00	994	Evaluation of feed additives in the diet of lactating dairy cows. R.H. Phipps* ¹ , J.D. Sutton ¹ , D.E. Beever ¹ , M.K. Bhat ² , G.F. Hartnell ³ , J.L. Vicini ³ , and D.L. Hard ³ , ¹ Centre for Dairy Research, The University of Reading, UK, ² Institute of Food Research, Norwich, UK, ³ Monsanto Company, St Louis, MO.
10:15	995	Effect of cell-wall degrading enzymes and method of application on feed intake and milk production of Holstein-Friesian dairy cows. R.H. Phipps* ¹ , J.D. Sutton ¹ , D.E. Beever ¹ , M.K. Bhat ² , G.F. Hartnell ³ , J. Vicini ³ , and D.L. Hard ³ , ¹ Centre for Dairy Research, The University of Reading, UK., ² Institute of Food Research, Norwich, UK., ³ Monsanto Company, St. Louis, MO.
10:30	996	Rumen-stable choline use in transition dairy cows improves early lactation milk yield. Joanne Siciliano-Jones ¹ and Dana Putnam* ² , ¹ F.A.R.M.E Institute, Homer, NY, ² Balchem Corporation.
10:45	997	Production response of lactating ewes to increasing dosage of recombinant bovine somatotropin. D. K. Aaron*, D. G. Ely, W. P. Deweese, E. Fink, and B. T. Burden, University of Kentucky, Lexington.

RABBIT SPECIES 1

POSTER SESSION

Thursday, 8:00 a.m. - 5:00 p.m.
Authors present 9:00 a.m. - 11:00 a.m.
Room: Exhibit Hall AB

Board No.	Abstract No.
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| 49 | 1031 | Carcass composition and meat quality from New Zealand, California, Chinchilla and Rex rabbits. A. Ortiz and M. S. Rubio*, Facultad de Medicina Veterinaria y Zootecnia, Universidad Nacional Autónoma de Mexico, Mexico. |
| 50 | 1032 | Effect of supplementation with animal plasma and antibiotics of starter diets in rabbits. I. Gutierrez ¹ , P. Cachaldora ² , R. Carabao ¹ , P. Medel ^{*1} , and C. de Blas ¹ , ¹ Departamento de Produccion Animal, E.T.S.I. Agronomos, ² COREN, S.C.L. |
| 51 | 1033 | Bovine follicular fluids modulate the release of transaminases, acrosome reaction and motility of rabbit sperm. M.M. Zeitoun*, Faculty of Agriculture, Alexandria University, Egypt. |

RUMINANT NUTRITION 14

POSTER SESSION

Minerals and Vitamins

Thursday, 8:00 a.m. - 5:00 p.m.
Authors present 8:00 a.m. -10:00 a.m.
Room: Exhibit Hall AB

Board No.	Abstract No.
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| 52 | 1199 | The effects of organic chromium on glucose uptake and protein synthesis in primary fetal bovine muscle cells and glucose clearance of ruminants. G.V. Pollard*, J.L. Montgomery, T.C. Bramble, and C.R. Richardson, Texas Tech University, Lubbock. |
| 53 | 1200 | Influence of supplementing cobalt in the receiving ration on performance of heifers new to the feedlot environment. T. J. Wistuba, E. B. Kegley*, D. L. Galloway, and S. M. Williamson, University of Arkansas, Fayetteville. |
| 54 | 1201 | Effects of soybean oil and dietary copper on ruminal and tissue lipid metabolism in finishing steers. T. E. Engle* ¹ , J. W. Spears ² , V. Fellner ² , and J. Odle ² , ¹ Colorado State University, Fort CollinsO, ² North Carolina State University, Raleigh. |
| 55 | 1202 | Metabolic responses of periparturient Holstein cows and heifers supplemented with chromium picolinate. B.T. Crochet* ¹ , C.C. Williams ¹ , L.D. Bunting ¹ , and J.M. Fernandez ¹ , ¹ LSU Agricultural Center, Baton Rouge, LA. |
| 56 | 1203 | Interaction of dietary zinc and Synovex-H® on weight gain, carcass traits and zinc in tissues of growing beef heifers. M. Huerta* ¹ , R. L. Kincaid ¹ , J. R. Busboom ¹ , J. D. Cronrath ¹ , C. K. Swenson ² , and A. B. Johnson ² , ¹ Washington State University, ² Zinpro Corporation. |
| 57 | 1204 | Effect of supplemental copper on copper status, serum cholesterol and milk fatty acids in Holstein cows. T.E. Engle, V. Fellner*, and J.W. Spears, North Carolina State University, Raleigh. |
| 58 | 1205 | Stability in the rumen of protected vitamin A measured by nylon bag technique. J.C. Robert, G Dumont, and S. Bourdeau, Aventis Animal Nutrition, Antony, France. |
| 59 | 1206 | Liver storage of vitamin A as a function of elevated dietary supply in ruminants. J.C. Robert, G. Dumont, and A. Motte, Aventis Animal Nutrition, Antony, France. |
| 60 | 1207 | Starch source affects phosphorus digestion and excretion by lactating dairy cows. A.D. Guyton* ¹ , K.F. Knowlton ^{1,5} , D.P. |

Casper^{2,5} B.P. Glenn^{3,5}, and V.A. Wilkerson^{4,5}, ¹Virginia Polytechnic Institute and State University, Blacksburg, ²Agri-King, Inc., Fulton, IL, ³Federation of Animal Science Societies, Bethesda, MD, ⁴Land O'Lakes, Inc., Denver, CO, ⁵Formerly at USDA-ARS, Beltsville, MD.

RUMINANT NUTRITION 15

SYMPOSIUM

Starch Utilization by Ruminants

Sponsored by *Cargill Animal Nutrition*

Chair: G. Huntington, North Carolina State University, Raleigh

Thursday, 8:00 a.m. - 11:00 a.m.
Room: 308

Time	Abstract Number	
8:00		INVITED Glucose uptake and regulation by intestinal tissues: Implications for whole body energetics and production efficiency. Dave Harmon, University of Kentucky, Lexington.
9:00		INVITED Effects of grain variability and processing on starch utilization by feedlot beef cattle. Richard Zinn, University of California-Davis, El Centro.
10:00	125	INVITED Effects of grain variability and processing on starch utilization by lactating dairy cattle. J. L. Firkins*, M. L. Eastridge, N. R. St-Pierre, and S. M. Noffsger, Ohio State University, Columbia.

RUMINANT NUTRITION 16

POSTER SESSION

Ruminal Fermentation III

Thursday, 8:00 a.m. - 5:00 p.m.
Authors of even numbered boards present
8:00 a.m. - 10:00 a.m.
Authors of odd numbered boards present
9:00 a.m. - 11:00 a.m.
Room: Exhibit Hall AB

Board No.	Abstract No.	
61	1208	Automated system for collection of ruminal fluid and blood of ruminants. M. S. Allen*, M. Oba, and C. S. Mooney, Michigan State University, East Lansing.
62	1209	Diurnal variation in ruminal parameters of lactating dairy cows fed diets varying in fermentability. M. Oba* and M. S. Allen, Michigan State University, East Lansing.

- 63 1210 The Effect of Protein and Energy Supplement Added to a Basal Diet Fed in 2 or 7 Meals Daily on Milk Yield and Urinary Excretion of Purine Derivatives. M.C. Thivierge¹, J.F. Bernier¹, and H. Lapierre², ¹Universite Laval, QC, Canada, ²Dairy and Swine R & D Center, Lennoxville, QC, Canada.
- 64 1211 The role of pH in regulating ammonia production by mixed ruminal bacteria. L. T. Cunha, R. P. Lana^{*}, A. C. Borges, and J. S. Oliveira, Universidade Federal de Vicosa, Vicosa-MG, Brazil.
- 65 1212 A comparison of filter bag methods with conventional tube methods of determining the in vitro digestibility of forages. D. Wilman and A. Adesogan, IRS, University of Wales, Aberystwyth, UK.
- 66 1213 Estimating digestibility from measurements of fermentation by rumen microorganisms in dual-flow continuous cultures. J-S. Eun^{*} and V. Fellner, North Carolina State University, Raleigh.
- 67 1214 In vitro culture of *Entodinium exiguum* and *E. caudatum*, with or without rumen bacteria. M. Fondevila^{*1} and B.A. Dehority², ¹University of Zaragoza, Zaragoza, Spain, ²Ohio State University, Wooster.
- 68 1215 Total purines as a bacterial marker: comparison of two procedures. C. J. Fu^{*} and M. S. Kerley, University of Missouri, Columbia.
- 69 1216 Evaluation of Primary Rumen Epithelial Cell Culture Techniques in Sheep. R.C. Gillis^{*1}, J.L. Klotz¹, R.L. Baldwin, VI², and R.N. Heitmann¹, ¹The University of Tennessee, Knoxville, ²USDA/ARS, Beltsville, MD.
- 70 1217 Comparison of three methods for determining proteolytic activity of ruminal fluid. A. N. Hristov^{*1}, T. A. McAllister², Z. Xu², and C. J. Newbold³, ¹University of Idaho, Moscow, ²Agriculture and Agri-Food Canada, Lethbridge Research Centre, Lethbridge, Canada, ³Rowett Research Institute, Aberdeen UK.
- 71 1218 Assessing the potential of stable carbon and nitrogen isotopes at natural abundance levels for measuring rumen microbial attachment to corn silage. J. G. Andrae¹, C. W. Hunt¹, K. A. Johnson^{*2}, and J. Marshall¹, ¹University of Idaho, Moscow, ²Washington State University, Pullman.
- 72 1219 Methane Oxidation in the rumen. H. Kajikawa^{*1} and C. J. Newbold², ¹National Institute of Animal Industry, Tsukuba, Japan, ²Rowett Research Institute, Aberdeen, UK.
- 73 1220 Effect of enzyme feed additives and method of application on in vitro feed digestibility. D.P. Morgavi, R. Wuerfel, V.L. Nsereko, K.A. Beauchemin, and L.M. Rode, Agriculture and Agri-Food Canada.
- 74 1221 Fermentation of feeds in lactating dairy cow diets by cultures and cocultures of amylolytic, proteolytic, and fibrolytic bacteria. G.A. Busher, A.H. Smith, M.R. Murphy, and E.J. Friedman^{*}, University of Illinois, Urbana.
- 75 1222 Effect of sample processing on *in situ* degradation of corn silage dry matter. R.G.S. Bruno, M.N. Pereira^{*}, R.G. Von Pinho, and A.H. Fonseca, Federal University of Lavras, Lavras, MG/Brazil.
- 76 1223 Effect of a yeast/enzyme supplement on the performance of newly-arrived feeder steers. R. Dvorak^{*}, Alltech Inc., Nicholasville, KY.
- 77 1224 Effects of Hydroxy Methyl Butanoic acid on in vitro and in situ degradability of forages. A. F. Mustafa^{*}, D. A. Christensen, B. Sloan, and J. J. McKinnon, University of Saskatchewan, Saskatoon.
- 78 1225 Potential use of *Propionibacterium acidipropionici*, strain DH42, as a Direct-Fed Microbial for cattle. S.-W. Kim^{*}, D.G. Standorf, H. Roman-Rosario, M.T. Yokoyama, and S.R. Rust, Michigan State University, East Lansing.
- 79 1226 Effect of soy hulls and Fibrozyme on intake, digestion, and milk production by dairy cows fed high corn silage diets. H. Al-Jobeile and R. Shaver^{*}, University of Wisconsin, Madison.
- 80 1227 Microbial degradation of oligofructans may limit their potential as prebiotics for ruminants. Y. Wang^{*}, T. A. McAllister, D. A. Gaudet, L. J. Yanke, and A. Laroche, Agriculture and Agri-Food Canada Research Centre, Lethbridge, AB.
- 81 1228 Effects of exogenous fibrolytic enzymes on epiphytic microbial populations of barley and corn silages. Y. Wang^{*1}, T. A. McAllister¹, L. M. Rode¹, K. A. Beauchemin¹, D. P. Morgavi¹, V. L. Nsereko¹, A. D. Iwaasa², and W. Yang¹, ¹Agriculture and Agri-Food Canada Research Centre, Lethbridge, AB, ²Agriculture and Agri-Food Canada Research Centre, Swift Current, SK.

SHEEP SPECIES 3

POSTER SESSION

Sheep Production

Thursday, 8:00 a.m. - 5:00 p.m.

Authors of even numbered boards present 8:00 a.m. - 10:00 a.m.

Authors of odd numbered boards present 9:00 a.m. - 11:00 a.m.

Room: Exhibit Hall AB

Board No.	Abstract No.	
82	1276	Comparison of three measuring techniques for staple length and strength in U.S. wools. F.A. Pfeiffer* and C.J. Lupton, Texas Agricultural Experiment Station, San Angelo.
83	1277	Carcass composition and sensory characteristics of barbacoa from New Zealand imported and Mexican Pelibuey lambs. N. Torres, J. Gutierrez, M. S. Rubio, and R. D. Mendez*, Facultad de Medicina Veterinaria y Zootecnia, Universidad Nacional Autónoma de Mexico, Mexico.
84	1278	Effects of pen, fleece coats, and breed on growth, meat, and wool traits of feeder lambs. C. J. Lupton* ¹ , J. E. Huston ¹ , B. F. Craddock ² , J. W. Jennings ³ , and F. A. Pfeiffer ¹ , ¹ Texas Agricultural Experiment Station, ² Texas Agricultural Extension Service, ³ Angelo State University, San Angelo.
85	1279	Utilizing real-time ultrasound to predict carcass quality of lambs. R. R. Panting* ¹ , S. N. Harrison ¹ , J. C. Jensen ² , S. Nash ¹ , J. H. Packham ¹ , D. Whittier ² , and S. K. Duckett ¹ , ¹ University of Idaho, Moscow, ² Utah State University, Logan.
86	1280	Body weight, fleece weight, and wool characteristics of Texel x Romney crossbred yearling sheep. T Wuliji* ¹ and K.G Dodds ² , ¹ E (Kika) de la Garza Institute for Goat Research, Langston University, ² AgResearch, Invermay Agricultural Centre, Mosgiel, New Zealand.
87	1281	Effects of sex, birth rearing, and age of dam on yearling crossbred progeny of Texel x Romney sheep. T Wuliji* ¹ and K.G Dodds ² , ¹ E (Kika) de la Garza Institute for Goat Research, Langston University, OK, ² AgResearch Invermay Agricultural Research Center, Mosgiel, New Zealand.
88	1282	The economics of hair sheep production in the US Virgin Islands. R.W. Godfrey* ¹ and G. D'Souza ² , ¹ Agricultural Experiment Station, University of the Virgin Islands, ² College of Agricultural, Forestry and Consumer Sciences, West Virginia University, Morgantown.
89	1283	Parasite burdens of purebred and crossbred hair lambs during the wet season in a tropical environment. R.W. Godfrey*, R.E. Dodson, and E. Panitz, Agricultural Experiment Station, University of the Virgin Islands, St. Croix.
90	1284	Fiber analysis of wool and hair crossbred sheep. R.W. Godfrey* ¹ , J.K. Bultman ¹ , and C.J. Lupton ² , ¹ Agricultural Experiment Station, University of the Virgin Islands, St Croix, ² Texas Agricultural Experiment Station, San Angelo.
91	1285	Carcass characteristics and commercial cuts of Suffolk lambs at creep feeding management system. A.L.G. Monteiro ¹ , M. A. Neres ^{1,2} , C. A. Garcia ¹ , G.J.M. Rosa* ² , and C. Costa ² , ¹ Animal Production Dept., UNIMAR, SP, Brazil, ² Animal Nutrition Dept., UNESP, SP, Brazil.
92	1286	The effects of concentrate and soybean meal level for pregnant ewes offered grass silage on ewe and lamb performance. T.F. Crosby* ¹ , P. Nowakowski ² , J.V. O'Doherty ¹ , P.J. Quinn ¹ , J.J. Callan ¹ , B. Flynn ¹ , D. Cunningham ¹ , P. Reilly ¹ , and W. Byrne ¹ , ¹ University College Dublin, Ireland, ² Agricultural University Wroclaw, Poland.
93	1287	An evaluation of some by-product feeds as the sole diet for early-weaned lambs. T.F. Crosby* ¹ , P.J. Quinn ¹ , J.J. Callan ¹ , B. Flynn ¹ , P. Nowakowski ² , J.V. O'Doherty ¹ , and J.P. Day ¹ , ¹ University College Dublin, Ireland, ² Agricultural University Wroclaw, Poland.
94	1288	Fertility and lambing performance of Katahdin hair sheep under an accelerated breeding system. S. Wildeus* and J. R. Collins, Virginia State University, Petersburg.
95	1289	Vitamin E supplementation during late gestation and lactation on dam and lamb performance. D. G. Morrical* and A. Ali, Iowa State University, Ames.

96 1290 Growth performances and retention rate of small ceramic boluses for electronic identification in fattening lambs. D. Garjn, G. Caja*, and C. Conill, Universitat Autònoma de Barcelona, Bellaterra, Spain.

ADSA BUSINESS MEETING

Chair: H. E. Swaisgood, North Carolina State University, Raleigh

Thursday, 11:00 a.m. – 12:00 noon
Room: 314

ASAS BUSINESS MEETING

Chair: D. H. Beermann, University of Nebraska, Lincoln

Thursday, 11:00 a.m. – 11:45 noon
Room: 315

ASAS/ADSA

NE Section Business Meeting and Luncheon

Chair: M. J. Estienne, Virginia Tech, Suffolk

Thursday, 12:00 noon - 1:30 p.m.
Sheraton Hotel,
Room: Chesapeake Ballroom 3

ANIMAL BEHAVIOR AND WELL-BEING 3

Animal Transport and the Assessment of Well-Being

Co-Chairs: R. J. Grant, University of Nebraska, Lincoln and J. A. Carroll, USDA-ARS, Columbia, MO

Thursday, 1:30 p.m. - 4:30 p.m.
Room: 319

Time	Abstract Number	
1:30	145	Effect of transportation on young pigs. J. Morrow-Tesch ¹ , J. McGlone ² , J. Dailey ¹ , and D. Anderson ² , ¹ USDA-ARS, ² Texas Tech University, Lubbock.
1:45	146	Effect of transportation and commingling on the acute phase protein response of newly weaned calves. J. D. Arthington ¹ , W. E. Kunkle ² , L. B. Davis ² , and S. D. Eicher ³ , ¹ Range Cattle Research and Education Center, University of Florida, Ona, ² University of Florida, Gainesville, ³ USDA-ARS, West Lafayette, IN.
2:00	147	Effects of orientation on balancing ability during horse transportation. M. Toscano* and T. Friend, Texas A&M University, College Station.

2:15	148	Shade and water misting effects on behavior, physiology, performance and carcass traits of heat stressed feedlot cattle. F. M. Mitloehner ^{*1} , J. L. Morrow-Tesch ² , S. C. Wilson ¹ , J. W. Dailey ² , M. L. Galyean ¹ , and J. J. McGlone ¹ , ¹ Texas Tech University, Lubbock, ² USDA-ARS, Lubbock, TX.
2:30	149	Reducing pain after dehorning in dairy calves. P.M. Faulkner and D.M. Weary [*] , University of British Columbia, Vancouver, Canada.
2:45	150	Effects of exogenous corticosterone during development on the physiology and behavior of chickens. D.C. Lay Jr. ^{*1} , M.F. Haussmann ¹ , and M.E. Wilson ² , ¹ Iowa State University, Ames, ² West Virginia University, Morgantown.
3:00		BREAK
3:15	151	Monitoring adrenal activity and stress in dairy cows using fecal cortisol metabolites. C. J. Morrow ^{*1} , E.S. Kolver ² , G.A. Verkerk ² , and L.R. Matthews ¹ , ¹ AgResearch, Hamilton, New Zealand, ² Dairying Research Corporation Ltd., Hamilton, New Zealand.
3:30	152	Elevation of the percentage of cattle that vocalize is associated with handling and equipment problems in slaughter plants. Temple Grandin [*] , Colorado State University, Ft. Collins.
3:45	153	The use of choice tests to evaluate dairy cow handling practices. E.A. Pajor ^{*1} , J. Rushen ² , and A.M. de Passille ² , ¹ Department of Animal Sciences, Purdue University, ² Agriculture and Agri-Food Canada, Lennoxville, Quebec.
4:00	154	Use of remote bunk monitoring to record effects of breed, feeding regimen and weather on feeding behavior and growth performance of cattle. K. S. SchwartzkopfGenswein ¹ , R. Silasi ^{*2} , S. Atwood ² , and T. A. McAllister ² , ¹ Alberta Agriculture, Food and Rural Development, Lethbridge, AB, ² Agriculture and Agri-Food Canada Research Centre, Lethbridge, AB.
4:15	155	New technology for remote identification and 3D localization of livestock. I. Halachmi ^{*1,2} and M. Braiman ¹ , ¹ InfoRay Technologies, Israel, ² SAE Afikim, Israel.

BREEDING AND GENETICS 9

POSTER SESSION

Breeding and Genetics of Beef, Sheep, Swine, Dogs, Horses and Goats

Thursday, 8:00 a.m. – 5:00 p.m.
 Authors of even numbered boards present
 2:00 p.m. - 4:00 p.m.
 Authors of odd numbered boards present
 3:00 p.m. - 5:00 p.m.
 Room: Exhibit Hall AB

Board No.	Abstract No.	
97	269	Reproductive and maternal performance of Angus-, Brangus-, Gelbvieh-, Gelbray-sired, and F ₁ Brahman-Hereford cows. S.M. DeRouen [*] and J.M. Turpin, Louisiana State University Agricultural Center, Homer.
98	270	Evaluation of body measurements of Charolais cows. J. Tozser ¹ , F. Szabo ^{*2} , Z. Domokos ³ , Gy. Tozser ¹ , and E. Szuecs ¹ , ¹ Szent Istvan University, Godollo, ² University of Veszprem, Georgikon Faculty, Keszthely, ³ National Association of Hungarian Charolais Cattle Breeders, Miskolc, Hungary.
99	271	Characterization of Maternal Productivity in the Hereford Breed. C. Gallivan, D. H. Crews Jr., P. B. Mwansa [*] , and R. A. Kemp, Lethbridge Research Centre, AAFC, Alberta, Canada.
100	272	Genetic parameter for meat quality traits evaluated by image analysis method in Japanese Black. K. Kuchida [*] , Y. Hamasaki, M. Suzuki, and S. Miyoshi, Obihiro University of Agriculture and Veterinary Medicine, Japan.
101	273	Evaluation of the heritability values of the most important traits of beef cattle. Ferenc Szabo ^{*1} , Zoltan Lengyel ¹ , Zsombor Wagenhoffer ¹ , and Janos Dohy ² , ¹ University of Veszprem, Georgikon Faculty of Agriculture, Department of Animal Husbandry, ² Szent Istvan University Godollo, Department of Animal Science.

- 102 274 Genetic correlation estimates for weaning weight and postweaning gain across Hereford populations in four countries. D. Lee* and J. Bertrand, University of Georgia, Athens.
- 103 275 Differences between optimum and actual feed intake of various pig genotypes, and consequences for selection. E. Kanis*¹, J.J. Eissen¹, J.W.M. Merks², and K.H. de Greef³, ¹Wageningen Institute of Animal Sciences, Wageningen University, The Netherlands, ²IPG, Institute for Pig Genetics BV, Beuningen, The Netherlands, ³Institute for Animal Science and Health, ID-Lelystad, The Netherlands.
- 104 276 A canonical correlation analysis of production traits in Large White swine. Z. B. Johnson*¹ and R. A. Nugent, III², ¹University of Arkansas, Fayetteville, ²The Pork Group, Rogers, AR.
- 105 277 Estimation of genetic effects for semen quality and quantity in AI boars. S. H. Oh*¹, M. T. See¹, and R. Nugent², ¹North Carolina State University, Raleigh, ²The Pork Group - Tyson Foods Inc., Rogers, AR.
- 106 278 Genetic parameter estimates for real-time ultrasound traits obtained from a multi-breed sheep population. T. Fernandes*, J.W. Wilton, and J.J. Tosh, Centre for Genetic Improvement of Livestock, University of Guelph, Ontario.
- 107 279 Preweaning performance of DorperXColumbia, Columbia and SuffolkXWhiteface lambs. H. D. Blackburn*, USDA-ARS, Ft. Collins, CO.
- 108 280 Investigation of breeding strategies to increase the probability of dog guides attaining optimum size. S. K. Helmink¹, R. D. Shanks*¹, and E. A. Leighton², ¹University of Illinois, Urbana, ²The Seeing Eye, Inc., Morristown, NJ.
- 109 281 Genetic parameters for milk yield in Saanen, French Alpine, La Mancha, Toggenburg, and Nubian goats in a dairy goat herd north west of Mexico. A. P. Marquez*¹, J. H. Herrera², A. Correa¹, F. J. Verdugo¹, H. C. Hernandez³, and H. G. Gonzalez¹, ¹Universidad Autónoma de Baja California, ²Colegio de Postgraduados, ³Universidad Autónoma de Baja California Sur, Mexico.
- 110 282 Environmental factors affecting the racing time of Thoroughbred horses in Brazil. Marcilio Mota, Rodrigo Taveira*, and Henrique Oliveira, Universidade Estadual Paulista, Sao Paulo, Brazil.

BREEDING AND GENETICS 10

Genetics of Swine and Sheep

Chair: R. Bates, Michigan State University, East Lansing

Thursday, 1:00 p.m. - 5:00 p.m.

Room: 311

Time	Abstract Number	
1:00	283	Optimization of pig breeding programs by implementing the Optimal Genetic Contribution Theory. E.H.A.T. Hanenberg* ¹ and J.W.M. Merks ¹ , ¹ IPG, Institute for Pig Genetics BV, The Netherlands.
1:15	284	Direct and correlated responses to selection for ovulation rate or uterine capacity in swine. K. A. Leymaster* and R. K. Christenson, USDA-ARS; U.S. Meat Animal Research Center; Clay Center, NE.
1:30	285	Bayesian analysis of lifetime performance and prolificacy in Landrace sows using a linear mixed model with censoring. S. Guo* ¹ , D. Gianola ¹ , and T. Short ² , ¹ University of Wisconsin-Madison, ² PIC USA.
1:45	286	Genetic parameter estimates from joint evaluation of purebreds and crossbreds in swine. E. Lutaaya ¹ , I. Misztal* ¹ , J. W. Mabry ¹ , T. Short ² , H. H. Timm ² , and R. Holzabauer ² , ¹ University of Georgia, Athens, ² PIC USA, Franklin, KY.
2:00	287	Joint evaluation of purebreds and crossbreds in swine: II. animal rankings. E. Lutaaya ¹ , I. Misztal* ¹ , J. W. Mabry ¹ , T. Short ² , H. H. Timm ² , and R. Holzabauer ² , ¹ University of Georgia, Athens, ² PIC USA, Franklin, KY.
2:15	288	Effects of recombination on weight from birth to 154 days of age in pigs. J. P. Cassady* and K. A. Leymaster, USDA-ARS; U.S. Meat Animal Research Center; Clay Center, NE.
2:30	289	Predicting feed efficiency from associated traits in Duroc pigs selected for lean growth efficiency. D. L. Kuhlers*, K. Nadarajah, and B. L. Anderson, Auburn University, AL.

- 2:45 290 Effect of IMF-level as affected by genotype, sex, slaughter weight and feeding level on pork quality and consumers' perception. J.W.M. Merks¹, P. Walstra², and E. Kanis³, ¹IPG, Institute for Pig Genetics B.V., Beuningen, The Netherlands, ²Institute for Animal Science and Health, ID-Lelystad, Lelystad, The Netherlands, ³Wageningen Institute of Animal Sciences, Wageningen University, The Netherlands.
- 3:00 291 Impact of measurement errors on predicting pork carcass composition. I. Within-sample evaluation. D.L. Lofgren*, A.P. Schinckel, and T.S. Stewart, Purdue University, West Lafayette, IN.
- 3:15 292 Impact of measurement errors on predicting pork carcass composition. II. Out-of-sample evaluation. D.L. Lofgren, A.P. Schinckel, and T.S. Stewart*, Purdue University, West Lafayette, IN.
- 3:30 293 Prediction of kilograms of boneless primal yield and standardized primal cuts in pigs. H. Sellers¹, T. J. Baas², and R. N. Goodwin¹, ¹National Pork Producers Council, Ames, IA, ²Iowa State University, Ames.
- 3:45 294 Correlations among methods of estimation of kilograms of lean in pigs. T. J. Baas¹, H. Sellers², and R. N. Goodwin², ¹Iowa State University, Ames, ²National Pork Producers Council, Ames, IA.
- 4:00 295 Genetic parameter estimates for prolificacy, growth and fleece characteristics of Targhee sheep. K. J. Hanford¹, G. D. Snowden², and L. D. Van Vleck³, ¹University of Nebraska, Lincoln, ²USDA, ARS, US Sheep Experimental Station, Dubois, ID, ³USDA, ARS, US Meat Animal Research Center, Lincoln, NE.
- 4:15 296 Genetic parameter estimates for prolificacy, growth and fleece characteristics of Columbia sheep. K. J. Hanford¹, G. D. Snowden², and L. D. Van Vleck³, ¹University of Nebraska, Lincoln, ²USDA, ARS, US Sheep Experimental Station, Dubois, ID, ³USDA, ARS, US Meat Animal Research Center, Lincoln, NE.
- 4:30 297 Genetic parameter estimates for growth characteristics in a local sheep flock in United Arab Emirates. S. Al-Shorepy¹, United Arab Emirates University, Al Ain, United Arab Emirates.
- 4:45 298 The Genetic Components of Dietary Selection for Mountain Big Sagebrush *Artemisia tridentata ssp. vaseyana* in Rambouillet Sheep. G. D. Snowden¹, J. W. Walker², K. L. Launchbaugh³, and L. D. Van Vleck⁴, ¹USDA, ARS, U.S. Sheep Experiment Station, Dubois, ID, ²Texas A&M University Agricultural Research and Extension Center, San Angelo, ³University of Idaho, Moscow, ⁴USDA, ARS U.S. Meat Animal Research Center, Lincoln, NE.

BREEDING AND GENETICS 11

Dairy Cattle Breeding

Chair: J. Clay, Dairy Record Management Systems, Raleigh, NC

Thursday, 1:00 p.m. - 5:00 p.m.

Room: 315

- | Time | Abstract Number | Abstract |
|------|-----------------|---|
| 1:00 | 312 | Smoothing splines estimation of genetic variation in glucocorticoid-induced down-regulation of adhesion molecules in bovine neutrophils. R. J. Tempelman ¹ , P. M. Saama ¹ , A. E. Freeman ² , S. C. Kelm ² , A. L. Kuck ³ , M. E. Kehrli Jr. ⁴ , and J. L. Burton ¹ , ¹ Department of Animal Science, Michigan State University, East Lansing, ² Department of Animal Science, Iowa State University, Ames, ³ Genex, Inc., Shawano, WI, ⁴ USDA-ARS, National Animal Disease Center, Ames, IA. |
| 1:15 | 299 | Heritability estimates for electrical conductivity of milk and correlations with predicted transmitting abilities for somatic cell scores. R.C. Goodling ¹ , G.W. Rogers ¹ , J.B. Cooper ¹ , and B. Rune ² , ¹ Pennsylvania State University, PA, ² SAE Afikim, Kibbutz Afikim, Israel. |
| 1:30 | 300 | Estimates of genetic parameters for linear type traits, yield traits, and somatic cell scores in Holsteins divergently selected on transmitting ability for type. B. J. DeGroot ¹ , J. F. Keown ¹ , and L. D. Van Vleck ² , ¹ University of Nebraska, Lincoln, ² USDA, ARS, US Meat Animal Research Center, Lincoln, NE. |
| 1:45 | 301 | Prediction of breeding value for milk, fat and protein yield based on endocrine response profiles. M.K. Soerensen*, P. Madsen, K. Sejrsen, M. Vestergaard, and P. Lovendahl, Danish Institute of Agricultural Sciences, Denmark. |
| 2:00 | 302 | Value of bull fertility computed from many states: its effects in single states. B.T. McDaniel*, J.S. Clay, and C.H. Brown, ¹ North Carolina State University, Raleigh. |

- 2:15 303 Genetic parameters of udder, mastitis and milk traits in two different climatic area using animal model analysis. A.A. Amin*¹ and T. Gere², ¹Suez Canal University, Ismailia, Egypt, ²Godollo University of Agriculture Sciences, Gyongyos.
- 2:30 304 Studies on genetics of heat tolerance in dairy cattle with reduced weather information via cluster analysis. O. Ravagnolo and I. Misztal, The University of Georgia, Athens.
- 2:45 305 Overview of progeny-test programs of artificial-insemination organizations in the United States. H.D. Norman*¹, R.L. Powell¹, J.R. Wright¹, and C.G. Sattler², ¹Animal Improvement Programs Laboratory, Agricultural Research Service, USDA, Beltsville, MD, ²National Association of Animal Breeders, Columbia, MO.
- 3:00 **BREAK**
- 3:15 306 Characterization of dairy production systems in Interbull member countries. K.A. Weigel and N.R. Zwald*, University of Wisconsin, Madison.
- 3:30 307 A comparison of Holstein Friesian cows from the Northern Hemisphere and New Zealand grazing pasture or fed a total mixed ration. E.S. Kolver*¹, A.R. Napper¹, and L.D. Muller², ¹Dairying Research Corporation Ltd., Hamilton, New Zealand, ²The Pennsylvania State University, University Park.
- 3:45 308 Associations between Liability to Clinical Mastitis and Culling in Norwegian Cattle. B Heringstad*¹, R Rekaya², D Gianola², G Klemetsdal¹, and K.A. Weigel², ¹Agricultural University of Norway, Ås, Norway, ²University of Wisconsin-Madison.
- 4:00 309 Genetic correlation between fertility and body condition score (change), scored during type classification. R. F. Veerkamp*¹, E. P. C. Koenen², and G. de Jong², ¹ID-Lelystad, The Netherlands, ²NRS, Arnhem, The Netherlands.
- 4:15 310 Genetic and phenotypic correlations between body condition scores and productive and reproductive performance. C.D. Dechow*¹, G.W. Rogers¹, and J.S. Clay², ¹Pennsylvania Sate University, University Park, ²Dairy Record Management Systems, Raleigh, NC.
- 4:30 311 Impact on body weight of divergent selection for body size. B.J. Heins*¹, L.B. Hansen¹, A.J. Seykora¹, and G.D. Marx², ¹University of Minnesota, St. Paul, MN, ²Univesity of Minnesota, Crookston, MN.
- 4:45 313 Relationships among calthood diseases and sire transmitting abilities for measures of immune function. D. L. Nash*¹, A. E. Freeman¹, A. L. Kuck², S. A. Schnell², and M. E. Kehrl Jr.³, ¹Iowa State University, Ames, ²GENEX, ³NADC-USDA-ARS, Ames.

DAIRY FOODS 14

Cheese - Cheddar and Others

Chair: J. McGregor, Clemson University,
Clemson, SC

Thursday, 1:30 p.m. - 3:15 p.m.
Room: 314

- | Time | Abstract Number | |
|-------------|------------------------|--|
| 1:30 | 428 | Reduced fat cheese production by fat removal from aged Cheddar cheese. B. K. Nelson*, C. C. Nicklas, and D. M. Barbano, Northeast Dairy Foods Research Center, Cornell University, Ithaca, NY. |
| 1:45 | 429 | Impact of low concentration factor (CF) microfiltration (MF) on fat, protein, and calcium recovery in Cheddar cheese and cheese yield. M. Neocleous*, D.M. Barbano, and M.A. Rudan, Northeast Dairy Foods Research Center, Cornell University, Ithaca, NY. |
| 2:00 | 430 | Automatic data acquisition and analysis of cheese melt profile. D. Venkatesan ¹ , C. H. Hwang ¹ , and S. Gunasekaran* ¹ , ¹ University of Wisconsin, Madison. |
| 2:15 | | BREAK |
| 2:30 | 431 | Rheological characteristics of Monterey Jack hard goat cheese. R Attaie* ¹ and R. L. Richter ² , ¹ Prairie View A&M University, Prairie View, TX, ² Texas A&M University, College Station. |

- 2:45 432 Effect of cheese making conditions on texture of Arzúa-Ulloa cheese during ripening time. M. Almena-Aliste^{1,2}, Y. Noël¹, and A. Cepeda Sáez², ¹INRA, Dairy Technology and Analysis Research Unit, Poligny (France), ²Hygiene and Inspection of Foods, Faculty of Veterinary-University of Santiago de Compostela (Spain).
- 3:00 433 An empirical method for cheese yield prediction. C. Melilli¹, J.M. Lynch², S. Carpino^{*1}, A. Cappa³, G. Licitra¹, and D.M. Barbano², ¹Consorzio Ricerca Filiera Lattiero-Casearia, Ragusa, Italy, ²Northeast Dairy Foods Research Center, Cornell University, Ithaca, NY, ³Associazione Provinciale Allevatori, Vicenza, Italy.

FORAGES AND PASTURES 4

POSTER SESSION

Thursday, 8:00 a.m. – 5:00 p.m.
 Authors of even numbered boards present
 2:00 p.m. - 4:00 p.m.
 Authors of odd numbered boards present
 3:00 p.m. - 5:00 p.m.
 Room: Exhibit Hall AB

Board No.	Abstract No.	
111	504	Influence of corn silage fiber content and level of dietary concentrate supplementation on intake, digestion, and milk production by dairy cows. H. Al-Jobeile, M. A. Bal, R. D. Shaver*, and J. G. Lauer, University of Wisconsin, Madison.
112	505	The effects of feeding processed or non-processed corn silage to lactating cows on dry matter intake, milk production, and milk components. C. M. Luhman*, Land O'Lakes, Inc. and Cooperative Research Farms, Webster City, IA.
113	506	The effects of feeding potato leafhopper resistant or non-resistant alfalfa hay to lactating dairy cows. C. M. Luhman*, Land O'Lakes, Inc. and Cooperative Research Farms.
114	507	Effect of storage method, length of fermentation and days of aerobic exposure on dry matter consumption of native tropical grasses ensiled in large round bales in a tropical environment. G. Gonzalez ¹ , A.A. Rodriguez ^{*1} , R. Macchiavelli ² , and E.O. Riquelme ² , ¹ Department of Animal Science, ² Department of Agronomy and Solis, University of Puerto Rico, Mayaguez Campus.
115	508	Effects of sampling site and silo type on fermentation and amino acid content of hay crop silages. M. J. Stevenson ^{*1} , R. A. Patton ² , S. P. Crosby ³ , and J. Zmich ³ , ¹ Degussa-Huls Canada, Burlington, Ontario, Canada, ² Nittany Dairy Nutrition, Mifflinburg, PA, ³ Fingerlakes Nutrition Service Inc., Genoa, NY.
116	509	Prediction of amino acid composition of grass silage and corn silage using near infrared spectroscopy(NIR). M.L. Swift ^{*1} , J.A. Shelford ¹ , and L.M. Rode ² , ¹ Faculty of Agricultural Science, University of British Columbia, Vancouver, Canada., ² Agriculture & Agri-Food Canada, Lethbridge, Alberta, Canada.
117	510	Performance of dairy cows fed corn silage differing in kernel texture or sugarcane as the dietary forage. C.E.S. Correa, M.N. Pereira*, M.H. Ramos, S.G. Oliveira, and M. Ota, Federal University of Lavras, Lavras, MG/Brazil.
118	511	Effects of addition of <i>Acremonium</i> cellulase on tissue structure and ruminal digestion of alfalfa and timothy silages. K. Ataku ^{*1} , A. Aniwari ¹ , T. Watanabe ¹ , H. Terui ¹ , and L. Chase ² , ¹ Rakuno Gakuen University, Hokkaido, Japan, ² Cornell University, Ithaca, NY.
119	512	Efficacy of cellulase/xylanase enzymes in a direct-fed application for dairy cows. T. R. Dhiman ^{*1} , R. R. Gimenez ¹ , I. S. MacQueen ¹ , J. L. Walters ¹ , and R. Treacher ² , ¹ Utah State University, Logan, ² Finnfeeds International Ltd. Wiltshire, UK.
120	513	Effects of Stage of Maturity at Harvest and Kernel Processing on the Nutritive Value of Corn Silage Diets. T. J. Wistuba*, L. A. Whitlock, M. K. Siefers, R. V. Pope, and K. K. Bolsen, Kansas State University, Manhattan.
121	514	The effect of sample physical form on in situ digestion kinetics. K.J. Harvatine*, P.J. Kononoff, and A.J. Heinrichs, The Pennsylvania State University, University Park.
122	515	Reed canarygrass management for dry cow forage. J.H. Cherney*, D.J.R. Cherney, and E. Mikhailova, Cornell University, Ithaca, NY.

- 123 516 Ruminal fermentation and *in situ* degradation of grazing dairy cows supplemented with full-fat roasted soybean or sunflower meal. F. Pineiro*, D. Rearte, F. Santini, and F. Bargo, Fac. Cs. Agr. UNMdP-EEA INTA Balcarce, Argentina.
- 124 517 Effect of full-fat roasted soybean supplementation on performance of grazing dairy cows. F. Pineiro*, D. Rearte, F. Santini, and F. Bargo, Fac. Cs. Agr. UNMdP-EEA INTA Balcarce, Argentina.
- 125 518 Modifications of the purine assay to increase accuracy and precision. K.W. Creighton*, R.A. Mass, and T.J. Klopfenstein, University of Nebraska, Lincoln.
- 126 519 Evaluation of internal markers from fescue hay. E. S. Vanzant*, D. W. Bohnert, K. B. Combs, B. T. Larson, and D. L. Harmon, University of Kentucky, Lexington.
- 127 520 In vitro fermentation patterns of individual and mixed major forage carbohydrates using a computerized gas monitoring system. J.J. Lee* and J.A. Shelford, University of British Columbia, Vancouver, B.C. Canada.
- 128 521 The Accuracy of Using an Accepted Dry Matter Digestibility Prediction Equation on Alfalfa and Mixed Grass Hays. Darryl Chatman*, Derrick Miller, Jim Spain, Ron Belyea, and Mark Ellersieck, University of Missouri, Columbia.

INTERNATIONAL ANIMAL AGRICULTURE 3

SYMPOSIUM

Converting Research to Application in Tropical and Subtropical Animal Production and Processing Systems

Chair: J. C. Forrest, Purdue University, West Lafayette, IN

Thursday, 1:00 p.m. – 5:00 p.m.
Room: 310

Time	Abstract Number	
1:00		Putting a global spin on animal agriculture. J. C. Forrest, Purdue University, West Lafayette, IN.
1:15		INVITED Meeting animal production and product research needs in Latin America by the year 2020. Rafael Nuñez, Mexico.
1:55		INVITED Technology transfer systems to meet animal production and processing goals in Latin America. Alfredo Andrade, Brazil.
2:35		INVITED Potential role of distance learning systems to strengthen academic programs in Latin America. Mickey Latour*, Alan Grant, and Paul R. Collodi, Purdue University, West Lafayette, IN.
3:15	85	INVITED Developing Collaborative Research, Education and Extension Programs among Scientists in North and South America. A. Tewolde* ¹ , ¹ Universidad Autónoma de Tamaulipas.
3:55		INVITED Case study: Successful international collaborative research and education program on recovery of degraded tropical pastures. Roberto D. Sainz, University of California, Davis, and Claudio D. U. Magnabosco, Embrapa Cerrados, Planaltina, Brazil.
4:35		INVITED The role of ASAS and AMPA in optimizing tropical and subtropical animal agriculture systems. A panel discussion led by: Erasmo Gutierrez-Ornelas, University Autonoma De Nuevo Leon, Nuevo Leon, Mexico, and Terry Klopfenstein, University of Nebraska, Lincoln.

NONRUMINANT NUTRITION 11

Protein and Energy Sources for Finishing Pigs

Chair: D. Hall, United Feeds, Sheridan, IN

Thursday, 1:00 p.m. - 3:00 p.m.

Room: 317

Time	Abstract Number	
1:00	818	Evaluating variable feed energy levels for grow-finish pigs. C.T. Herr*, D.C. Kendall, K.A. Bowers, and B.T. Richert, Purdue University, West Lafayette, IN.
1:15	819	Evaluating inclusion levels of soybean hulls in finishing pig diets. K. A. Bowers*, C. T. Herr, T. E. Weber, D. Smith, and B. T. Richert, Purdue University, West Lafayette, IN.
1:30	820	Digestibility of nutrients in diverse soybean genotypes when fed to growing pigs. D. J. Lee* ¹ , J. D. Hancock, R. H. Hines, J. M. DeRouche, C. A. Maloney, D. W. Dean, H. Cao, and J. S. Park, ¹ Kansas State University, Manhattan.
1:45	821	Digestibility of nutrients in food-grade sorghum for finishing pigs. D. W. Dean*, J. D. Hancock, R. H. Hines, and D. J. Lee, Kansas State University, Manhattan.
2:00	822	Effect of high oil corn and method of substitution on grow-finish pig performance and dust production. R.C. Thaler* and S.H. Pohl, South Dakota State University, Brookings..
2:15	823	Nutrient digestibilities of intact and insect damaged high oil corn and commercial corn fed to growing pigs. R. F. Gilliam*, C. S. Darroch, and K. R. Robbins, University of Tennessee, Knoxville, TN..
2:30		INVITED Value of high oil corn in finishing swine diets. Dan Jones, Optimum Quality Grains, West Des Moines, IA.

NONRUMINANT NUTRITION 12

Nutritional Factors Influencing Finishing Pigs

Chair: R. Walker, Land O'Lakes, Fort Dodge, IA

Thursday, 3:00 p.m. - 5:00 p.m.

Room: 317

Time	Abstract Number	
3:00	824	Effect of creatine monohydrate on finishing pig growth performance, carcass characteristics, and meat quality. B. W. James*, R. D. Goodband, J. A. Unruh, M. D. Tokach, J. L. Nelssen, P. R. O'Quinn, and B. S. Andrews, Kansas State University, Manhattan.
3:15	825	Effects of feeding supra-nutritional levels of vitamin E on pork quality in two different genotypes. J. L. Hasty*, E. van Heugten, and M. T. See, North Carolina State University, Raleigh, NC.
3:30	826	Effects of increasing L-lysine HCl on growth performance and carcass characteristics of gilts from 27 to 120 kg. M. De La LLata*, S.S. Dritz, M.D. Tokach, R.D. Goodband, and J.L. Nelssen, Kansas State University, Manhattan.
3:45	827	Growth performance of gilts fed low-crude protein diets supplemented with crystalline amino acids including valine, isoleucine, and histidine. J. L. Figueroa*, A. J. Lewis, P. S. Miller, and R. L. Fischer, University of Nebraska, Lincoln.
4:00	828	Influence of energy and lysine concentration on performance and carcass yield of heavy weight pigs. M. A. Latorre* ¹ , P. Medel ¹ , A. Fuentetaja ² , E. Gomez ³ , and G.G. Mateos ¹ , ¹ Dpto Produccion Animal, Universidad Politecnica de Madrid,

²COPESE S.A., Segovia, ³Centro de Pruebas de Porcino, Junta de Castilla y Leon.

- 4:15 829 Modeling of dietary lysine requirements for pigs fed Ractopamine. A. P. Schinckel*¹, L.E. Watkins², D. J. Jones², and M. E. Einstein¹, ¹Purdue University, West Lafayette, IN, ²Elanco Animal Health, a Division of Eli Lilly and Co, Greenfield, IN.
- 4:30 **INVITED** Review of Ractopamine in finishing swine diets. Bill Weldon, Elanco Animal Health, Wilmington, NC.

PRODUCTION AND MANAGEMENT 10

Swine Management

Chair: L. Johnston, University of Minnesota, Morris

Thursday, 1:00 p.m. - 2:15 p.m.

Room: 312

Time	Abstract Number	
1:00	998	Phosphorus characteristics in swine manure fed with control vs. phytase treated diets. Z Dou* ¹ , R Allshouse ¹ , P Pitcher ¹ , J Toth ¹ , D Galligan ¹ , J Ferguson ¹ , and C Ramberg ¹ , ¹ University of Pennsylvania, Kennett Square.
1:15	999	Fender design and insulation effects of farrowing huts on productivity of outdoor sows and piglets. A. K. Johnson* ¹ , J. L. Morrow-Tesch ² , and J. J. McGlone ¹ , ¹ Pork Industry Institute, Texas Tech University, Lubbock, ² USDA-ARS, Lubbock, TX.
1:30	1000	Effects of stocking rate and diet on ground cover, soil-nitrate and sow performance in a sustainable production system. H. A. Rachuonyo* ¹ , V. G. Allen ¹ , W. G. Pond ² , and J. J. McGlone ¹ , ¹ Texas Tech University, Lubbock, ² Cornell University, Ithaca, NY.
1:45	1001	Use of Lutalyse to facilitate the training of boars for semen collection. M.J. Estienne and A.F. Harper*, Virginia Polytechnic Institute and State University, Blacksburg.
2:00	1002	Developing a method for testing breeding products using data from commercial pig farms. J.W.G.M. Swinkels* ¹ , G.W.J. Giesen ² , J.W. van Riel ¹ , and G.B.C. Backus ¹ , ¹ Research Institute for Pig Husbandry, Rosmalen, The Netherlands, ² Wageningen Agricultural University, The Netherlands.

PRODUCTION AND MANAGEMENT 11

POSTER SESSION

Production and Management of Nonruminants

Thursday 8:00 a.m. - 5:00 p.m.

Authors of even numbered boards present

3:00 p.m. - 5:00 p.m.

Authors of odd numbered boards present

2:00 p.m. - 4:00 p.m.

Room: Exhibit Hall AB

Board No.	Abstract No.	
129	1003	Effect of modifications to pen design formation on the performance of weaned pigs housed in large group systems. P.C. Penny*, JSR Healthbred Ltd, Southburn, UK.
130	1004	Effect of adjustments to feeding space allocation on pigs provided with a reduced floor space allowance. P.C. Penny* and P.J. Penny, JSR Healthbred Ltd, Southburn, UK.

- 131 1005 Effectiveness of obtaining gilts differing in body composition at farrowing. P.C. Penny*¹ and H.M. Miller², ¹JSR Healthbred Ltd, Southburn, UK, ²University of Leeds, School of Biology, Leeds, UK.
- 132 1006 Effect of zinc oxide inclusion level on diet selection of weaned pigs. P.C. Penny*¹ and S. Tibble², ¹JSR Healthbred Ltd, Southburn, UK, ²SCA Iberica S.A. Mequinenza, Espana.
- 133 1007 The Growth Performance of the Progeny of Two Sire Lines Reared under Differing Environmental Conditions. D. N. Hamilton*¹, M. Ellis¹, B. F. Wolter¹, N. R. Augspurger¹, F. K. McKeith¹, and E. R. Wilson², ¹University of Illinois, Urbana, ²PIC, Franklin, KY.
- 134 1008 The Meat Quality Characteristics of the Progeny of Two Sire Lines Reared under Differing Environmental Conditions. D. N. Hamilton*¹, M. Ellis¹, B. F. Wolter¹, F. K. McKeith¹, and E. R. Wilson², ¹University of Illinois at Urbana-Champaign, ²PIC, USA, Franklin, KY.
- 135 1009 Effect of sprit-weaning on sow and piglet performance. G. E. Bressenr*, S. W. Kim, and R. A. Easter, University of Illinois.
- 136 1010 Effects of a polyaspartate biopolymer (PAB) on growth performance of weanling pigs. A.F. Harper* and M.J. Estienne, Virginia Polytechnic Institute and State University, Blacksburg.
- 137 1011 Effects of Acclimate on the incidence of aggression and growth performance in weaned pigs. M. Amstutz*, K. Bennett-Wimbush, T. Meek, and S. Courtney, The Ohio State University Agricultural Technical Institute, Wooster.
- 137A 1012 The feed intake behavior of the progeny of two sire lines monitored by a computerized feed intake recording system. N. R. Augspurger*¹, M. Ellis¹, D. N. Hamilton¹, B. F. Wolter¹, J. L. Beverly¹, E. R. Wilson², ¹University of Illinois at Urbana-Champaign, ²PIC, USA, Franklin, KY.
- 138 1013 Effect of oil spraying on dust reduction and on subsequent pig performance. B. K. Anderson*, X. Wang, M. Ellis, and G. Riskowski, University of Illinois, Urbana.
- 139 1014 Effect of varying the amount of potato chip scraps in the diet of pigs at different stages of growth on their performance. Sha Rahnema* and Ron Borton, Ohio State University, Agricultural Technical Institute, Wooster.
- 140 1015 Effect of chromium methionine supplementation on egg hatching response of Japanese quail under controlled temperature condition in dry tropic weather. G. Contreras*, R. Barajas, and A. Montoya, Universidad Autonoma de Sinaloa.
- 141 1016 Effect of supplementation in drinking water with two organic chromium sources on blood glucose level and weight gain of Japanese quail (*Coturnix coturnix japonica*) in their first week of live. G. Contreras*, N. Montesinos, and R. Barajas, Universidad Autonoma de Sinaloa.

PRODUCTION AND MANAGEMENT 12

POSTER SESSION

Dairy Production and Management

Thursday, 8:00 a.m. - 5:00 p.m.

Authors of even numbered boards present

2:30 p.m. - 4:30 p.m.

Authors of odd numbered boards present

1:00 p.m. - 3:00 p.m.

Room: Exhibit Hall AB

Board Abstract No. No.

- 142 1017 Dairy business analysis project: 1998 performance summary. M. J. Hoekema¹, R. Giesy¹, M. Sowerby¹, T. Seawright¹, P. Miller¹, A. Andreasen¹, C. Vann¹, and L. O. Ely*², ¹University of Florida, Gainesville, ²University of Georgia, Athens.
- 143 1018 Producing milk economically in Quebec by increasing forages in dairy cow rations. K. Valiquette*¹, D.G. Pellerin¹, G. Allard¹, D. Lefebvre², L.P. Vezina³, P. Paquin¹, and D. Pellerin¹, ¹Universite Laval, ²PATLQ inc., ³Agriculture and Agri-Food Canada.

- 144 1019 Impact of improving environmental conditions during milking time on milk production. S. Pietrosevoli*, J. Cubillan, and A. Del Villar, ¹Facultad de Agronomia. La Universidad del Zulia. Venezuela.
- 145 1020 The effects of six times a day milking in early lactation on milk yield, milk composition, body condition, and reproduction. A. H. Sanders*¹, M. A. Varner¹, and R. E. Erdman¹, ¹University of Maryland, College Park.
- 146 1021 Relationship between milk and plasma urea nitrogen concentrations and feeding time. E.E. Ferdinand*, J.E. Shirley, M.J. Meyer, A.F. Park, M.J. VanBaale, and E.C. Titgemeyer, Kansas State University, Manhattan.
- 147 1022 Measurement of critical collapse pressure difference and touch point pressure difference using various milking machine liners. J. S. Kikta*¹ and S. B. Spencer², ¹John Kikta, Dairy Consultant, ²Spencer Consulting.
- 148 1023 Clinical and sub-clinical mastitis in cows fed monensin. J.I.D. Wilkinson*, H.B. Green, J.T. Symanowski, D.G. McClary, J.R. Wagner, J.S. Davis, and M.R. Himstedt, Elanco Animal Health, Greenfield, IN.
- 149 1024 Environmental effects on somatic cell count in Holstein cows from Parana State, Brazil. A. Ostrensky¹, N.P. Ribas¹, H.G. Monardes², R. Almeida*¹, D.R. Veiga³, and J.A. Horst³, ¹Universidade Federal do Parana, Curitiba - PR, Brazil, ²McGill University, Montreal, Canada, ³Assoc. Paranaense Criadores Bov. Raca Holandesa, Curitiba - PR, Brazil.
- 150 1025 Transition management: Effect of a post-calving drench RumenKickstart® on feed intake and milk production in primiparous Holstein/Friesian cows. R. H. Phipps* and D.E. Beever, Centre for Dairy Research, Department of Agriculture, The University of Reading, UK.
- 151 1026 Influence of late lactation protein supplementation on full lactation productive and reproductive performance of Holstein cows. P.H. Robinson*¹, J.M. Moorby², M. Arana³, R. Hinders⁴, T. Graham⁵, L. Castelanelli⁶, and N. Barney⁷, ¹UCCE, Davis, CA, ²IGER, Aberystwyth, UK, ³UCCE, Stockton, CA, ⁴Hinders Nutr. Cons., Acampo, CA, ⁵Graham & Assoc., Davis, CA., ⁶Castelanelli Dairy, Lodi, CA., ⁷Lignotech USA, Overland Park, KS.
- 152 1027 Intestinal disappearance, mesenteric and portal appearance of amino acids (AA) in dairy cows fed rumen protected methionine (RPM). R. Berthiaume*¹, P. Dubreuil², M. Stevenson³, B.W. McBride¹, and H. Lapierre⁴, ¹University of Guelph, Guelph, ON, Canada, ²Universite de Montreal, QC, Canada, ³Degussa Huls, Burlington, ON, Canada, ⁴Agriculture & Agri-Food Canada, Lennoxville, QC, Canada.
- 153 1028 IMPEDANCE of subdermal tissue, and its relationship to body condition score of dairy cows along lactation. F. N. Domatob-Fokum* and S. L. Spahr, University of Illinois, Urbana.
- 154 1029 Reproductive efficiency of cows fed monensin. H.B. Green*, J.T. Symanowski, D.G. McClary, J.R. Wagner, J.I.D. Wilkinson, J.S. Davis, and M.R. Himstedt, Elanco Animal Health, Greenfield, IN.
- 155 1030 Management tools for assessing passive immunity transfer in dairy calves. K.M. Kouri*, D.D. LaCoss, D.E. Watkin, J.W. Barlow, and J.R. Knapp, University of Vermont, Burlington.

RABBIT SPECIES 2

SYMPOSIUM

Value-Added Rabbit Production

Chair: H. A. Swartz, Lincoln University, Jefferson City, MO.

Thursday, 1:00 p.m. - 4:30 p.m.

Room: 313

Time	Abstract Number	
1:00	120	INVITED How to feed the rabbit gastrointestinal tract. Nancy Irlbeck*, Colorado State University, Ft. Collins.
1:40		INVITED Further processing rabbit meat to increase profits. James McNitt, Southern University, Baton Rouge, LA.
2:15		INVITED Deboning rabbit meat for value-added production. Zeleke Negatu, Southern University, Baton Rouge, LA.

- 3:00 **INVITED** How to add value to a rabbit operation marketing research rabbits to labs. Mark Grobner, California State University, Stanislaus-Turlock.
- 3:30 **INVITED** Processing Angora fiber from rabbits and marketing on the Internet. Helen A. Swartz, Lincoln University, Jefferson City, MO.
- 3:50 **INVITED Show and Tell.** Robin Keyser and Maryland 4-H Club Members.

RUMINANT NUTRITION 17

Dairy Calves and Heifers

Chair: J. Woodford, Nutrition Professionals,
Madison, WI

Thursday, 1:00 p.m. - 1:45 p.m.
Room: 320

Time	Abstract Number	
1:00	1229	Evaluation of folic acid supplementation in calf milk replacer on calf performance and health. M. A. Fowler*, B. L. Miller, T. E. Johnson, D. E. Housken, H. B. Perry, and M. R. Higgins, Land O'Lakes, Inc., Webster City, IA.
1:15	1230	The effect of Fermenten feeding on growth parameters in Holstein replacement heifers. B.N. Ellison ¹ , I.J. Lean* ² , M.A. Curtis ³ , and W.E. Julien ¹ , ¹ Biovance Technologies, Inc., Omaha, NE, ² Bovine Research Australia, Camden, NSW, ³ Picton, NSW.
1:30	1231	Effect of increasing level of dietary protein on growth and mammary development of Holstein heifers consuming a moderate-energy diet. R. Lopez*, C.R. Krehbiel, M.G. Thomas, B. Obeidat, D.M. Hallford, E. Castellanos, G. Bethard, R. Flores, and L. Balstad, New Mexico State University, Las Cruces.

RUMINANT NUTRITION 18

Forages and Ruminal Fermentation IV

Co-Chairs: K. Knowlton, Virginia Tech University, Blacksburg and J. Firkins, Ohio State University, Columbus

Thursday, 1:30 p.m. - 5:00 p.m.
Room: 308

Time	Abstract Number	
1:30	1233	Effect of NDF from corn silage in diets of lactating dairy cows. D.M. Allen* ¹ , C.S. Kuehn ¹ , J.G. Linn ¹ , W.P. Hansen ¹ , H.G. Jung ^{1,2} , and M.I. Endres ³ , ¹ University of Minnesota, St. Paul, ² USDA-ARS, St. Paul, MN, ³ Mycogen Plant Sciences, Eagan, MN.
1:45	1234	Effects of brown midrib-3 mutation in corn silage on lactational performance of dairy cows. R. A. Longuski*, M. S. Allen, and R. J. Tempelman, Michigan State University, East Lansing.
2:00	1235	Effect of hybrid, maturity, and mechanical processing of corn silage on intake and digestibility by beef cattle. J. G. Andrae* ¹ , C. W. Hunt ¹ , L. R. Kennington ¹ , G. T. Pritchard ¹ , W. Kezar ² , and W. Mahanna ² , ¹ University of Idaho, Moscow, ² Pioneer HiBred International, Johnston, IA.
2:15	1236	Influence of the Particle Size of Barley Silage on the Effective Fiber Characteristics. H.W. Soita*, D.A. Christensen, and J.J. McKinnon, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

- 2:30 1237 Effects of feeding pea silage on milk yield and composition of dairy cows. A. F. Mustafa*, D. A. Christensen, and J. J. McKinnon, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.
- 2:45 **BREAK**
- 3:00 1238 Comparative timed intakes of grain supplements for lactating Jerseys and Holsteins on pasture. S.L. White*¹, S.P. Washburn¹, C. Arellano¹, and J.T. Green, Jr.¹, ¹North Carolina State University, Raleigh.
- 3:15 1239 Short periods of sub-optimal pH reduce digestibility of pasture *in vitro*. M.J. de Veth* and E.S. Kolver, Dairying Research Corporation Ltd, Hamilton, New Zealand.
- 3:30 1240 Digestibility of diets containing whole linted cottonseed as a forage substitute when fed with ground or steam-flaked corn. D.I. Harvatine* and J.L. Firkins, The Ohio State University, Columbus.
- 3:45 1241 Effects of cottonseed hulls in the diets of dairy cows. A. M. Akinyode*, M. B. Hall, C. R. Staples, H. H. Head, and W. E. Kunkle, University of Florida, Gainesville.
- 4:00 1242 Altering diurnal pH and *in situ* digestion in dairy cows with ruminal supplementation of direct fed microbials (DFM) and yeast. J.E. Nocek*¹, W.P. Kautz², J.A.Z. Leedle², and J.G. Allman², ¹Spruce Haven Farm and Research Ctr, ²Chr. Hansen BioSystems.
- 4:15 1243 The effect of various combinations of fibrolytic enzymes on the feeding value of a TMR fed to lactating cows. L. Kung, Jr.¹, J. A. Lazartic*¹, R. L. Wuerfel², L. M. Rode², K. A. Beauchemin², and R. J. Treacher³, ¹University of Delaware, Newark, ²Agriculture and Agri-Food Canada, Lethbridge, ³Finnfeeds Intl., Marlborough, UK.
- 4:30 1244 Effects of Tween 60 and Tween 80 on protease activity, thiol group reactivity, protein adsorption and cellulose degradation by rumen microbial enzymes. G. M. Kamande¹, J. Baah*², K.-J. Cheng³, T. A. McAllister², and J. A. Shelford³, ¹PMT Inc. (Prairie Microtech), Regina, SK, ²Agriculture and Agri-Food Canada Research Centre, Lethbridge, AB, ³University of British Columbia, Vancouver, BC.
- 4:45 1314 Meta analysis of multiple responses of dairy cow to diet NDF content. D. Sauvant*¹, D. R. Mertens², ¹Institut National Agronomique, Paris, and ²US Dairy Forage Research Center, Madison, WI.

RUMINANT NUTRITION 19

POSTER SESSION

Protein and Amino Acids III

Thursday, 8:00 a.m. - 5:00 p.m.
 Authors of even numbered boards present
 3:00 p.m. - 5:00 p.m.
 Authors of odd numbered boards present
 2:00 p.m. - 4:00 p.m.
 Room: Exhibit Hall AB

- | Board No. | Abstract No. | |
|-----------|--------------|--|
| 156 | 1245 | Protein value of wet brewers grain for dairy cattle. A. M. van Vuuren* ¹ , A. Klop ¹ , G.A.L. Meijer ¹ , J. Kogut ¹ , and E. de Koning ² , ¹ ID-Lelystad, ² Bonda's Veevoederbureau, Hillegom, The Netherlands. |
| 157 | 1246 | Effect of increasing ruminally degraded protein on ruminal and total tract digestion of nutrients in dairy cows. K. F. Kalscheur* ^{1,2} , B. P. Glenn ² , R. L. Baldwin VI ² , and R. A. Kohn ¹ , ¹ University of Maryland, College Park, MD, ² USDA, Agricultural Research Service, Beltsville, MD. |
| 158 | 1247 | Influence of ruminally degradable carbohydrates and nitrogen on microbial crude protein supply and N efficiency of lactating Holstein cows. R.A. Sannes* ¹ , D.B. Vagnoni ² , and M.A. Messman ² , ¹ Utah State University, Logan, UT, ² Cargill Animal Nutrition Center, Elk River, MN. |
| 159 | 1248 | Effect of each amino acid on growth efficiency of ruminal bacteria. H. Kajikawa* ¹ , ¹ National Institute of Animal Industry, Tsukuba, Japan. |

- 160 1249 Effect of feeding protein supplements with differing ruminal degradabilities on milk production and rumen metabolites in dairy cows. S. M. Reynal^{*1}, G. A. Broderick², and S. Ahvenjarvi³, ¹University of Wisconsin, Madison, ²U.S. Dairy Forage Research Center, Madison, WI, ³Agricultural Research Center of Finland, Jokioinen.
- 161 1250 Effects of diet protein level and abomasal amino acid infusion on phenylalanine and tyrosine metabolism in lactating dairy cows. C. K. Reynolds^{*1}, L. A. Crompton¹, B. J. Bequette², J. France¹, D. E. Beever¹, and J. C. MacRae², ¹University of Reading, Reading, UK, ²Rowett Research Institute, Aberdeen, UK.
- 162 1251 Effects of diet protein level and abomasal amino acid infusions on splanchnic metabolism in lactating dairy cows. C. K. Reynolds^{*1}, B. Lupoli¹, P. C. Aikman¹, J. A. Benson¹, D. J. Humphries¹, L. A. Crompton¹, J. France¹, D. E. Beever¹, and J. C. MacRae², ¹University of Reading, Reading, UK, ²Rowett Research Institute, Aberdeen, UK.
- 163 1252 Splanchnic metabolism of gut peptides in dairy cows abomasally infused with long chain fatty acids at two stages of lactation. J. A. Benson^{*} and C. K. Reynolds, University of Reading, UK.
- 164 1253 Evaluation of Molly, a dynamic, metabolic model of a dairy cow for predicting milk production. H.A. Johnson^{*}, R.L. Baldwin, and D. Meyer, University of California, Davis.
- 165 1254 Effect of duodenal infusion of α -ketoglutarate (α -KG) on nitrogen metabolism of dairy cows. F. Rossi¹, L. Fiorentini¹, H.G. Jungvid², and G. Piva^{*1}, ¹Istituto di Scienze degli Alimenti e della Nutrizione, Facoltà di Agraria, Piacenza, Italy., ²Gramineer International AB, Lund, Sweden.
- 166 1255 Estimating the undegradability of intake protein using duodenal flows: a literature study. R. A. Patton^{*1} and M. J. Stevenson², ¹Nittany Dairy Nutrition, Mifflinburg, PA, ²Degussa Huls Canada, Burlington, ON/Canada.
- 167 1256 Molecular cloning, in vitro expression, and functional characterization of an ovine gastrointestinal peptide transporter (oPepT1). Y. Pan^{*}, E. A. Wong, J. R. Bloomquist, and K. E. Webb, Jr., Virginia Tech, Blacksburg.
- 168 1257 Transport of peptides in CHO cells expressing the cloned ovine gastrointestinal peptide transporter (oPepT1). H. Chen, Y. Pan, E. A. Wong, J. R. Bloomquist, and K. E. Webb, Jr., Virginia Tech, Blacksburg.
- 169 1258 Determination of enzyme secretion from bovine pancreas using an in vitro tissue model. K. C. Swanson^{*}, J. C. Matthews, C. J. Richards, and D. L. Harmon, University of Kentucky, Lexington.
- 170 1259 Estimating the uptake of circulating free and peptide-bound Methionine and Leucine by the udder of goats at two stages of lactation. S. J. Mabweesh^{*1}, C. E. Kyle², J. C. MacRae², and B. J. Bequette², ¹Hebrew University of Jerusalem, Israel, ²Rowett Research Institute, Scotland.
- 171 1260 Effect of ruminally protected betaine on the productivity of Angora goats. T. Shenkoru^{*1}, F.N. Owens², R. Puchala¹, T. Sahlu¹, and E. Virtanen³, ¹E (Kika) de la Garza Institute for Goat Research, Langston University, Langston, OK, ²Animal Science Department, Oklahoma State University, Stillwater, ³Cultor, Helsinki, Finland.
- 172 1261 Influence of raw and dry roasted whole lupin seeds (*lupinus angustifolius*) and whole faba beans (*vicia faba*) as protein supplements on performance of growing lambs. P. Yu^{*}, B.L. Leury, M. Sprague, L. Boon-ek, and A.R. Egan, University of Melbourne, Australia.
- 173 1262 Using the DVE/OEB model to determine optimal conditions of pressure toasting on horse beans (*vicia faba*) for dairy feed industry P. Yu^{*}, J.O. Goelema, and S. Tamminga, Department of Animal Nutrition, Wageningen Agricultural University, The Netherlands.
- 174 1263 Effect of the substitution of safflower meal by chickpeas on organic matter digestibility and digestible energy value of finishing diets for sheep. R. Barajas^{*}, J.F. Obregon, and A. Estrada, Universidad Autonoma de Sinaloa.
- 175 1264 The substitution of canola meal by chickpeas as protein supplement in finishing diets for sheep: effect on apparent digestibility. J.F. Obregon^{*}, R. Barajas, and A. Estrada, Universidad Autonoma de Sinaloa.
- 176 1265 Nitrogen metabolism of beef steers fed endophyte-free fescue hay: effects of rumen protected methionine supplementation. S. L. Archibeque^{*}, J. C. Burns, and G. B. Huntington, North Carolina State University, Raleigh.
- 177 1266 Effect of nitrogen source in high-concentrate diets on microbial fermentation in vitro. M. Devant, A. Ferret^{*}, S. Calsamiglia, R. Casals, and J. Gasa, Univeristat Autonoma de Barcelona.
- 178 1267 Influence of dietary metabolizable protein on production rates and N use by steers fed high grain content diets. R.H. Pritchard, C.J. Mueller^{*}, K.W. Bruns, and S.J. Bierman, South Dakota State University, Brookings.

UNDERGRADUATE AND GRADUATE EDUCATION 4

ROUND TABLE DISCUSSION

Development of Teaching Portfolios

Co-Chairs: D. Aaron, University of Kentucky,
Lexington and C. Williams, Louisiana State
University, Baton Rouge

Thursday, 1:00 p.m. - 2:30 p.m.
Room: 316

Description:

A panel discussion with ASAS and ADSA professional members about their experiences with teaching portfolio development. Open to all meeting attendees.

SPECIAL WORKSHOP

Mixed Models for Experimental Scientists in Animal Agriculture Using SAS PROC MIXED

Co-Sponsored by: *NRC - 170* (Research Advances in Agricultural Statistics).

Presenters: R. J. Tempelman, Michigan State University, East Lansing and L. D. Douglass, University of Maryland, College Park.

Workshop presented in two sessions (registrants should attend both sessions).

Thursday, 3:00 p.m. - 5:00 p.m.
Friday, 8:00 a.m. - 11:00 a.m.
Room: 318

A professional development opportunity in the use of mixed models for the analyses of common experimental designs in animal and dairy science. Emphasis on SAS® PROC MIXED. All professional and graduate student members of ADSA and ASAS are invited to register.

Pre-registration required: \$50/ person (enrollment limited to 100).

BREEDING AND GENETICS 12

Beef Cattle Breeding

Chair: D. Kress, Montana State University, Bozeman

Friday, 8:00 a.m. - 9:30 a.m.

Room: 315

Time	Abstract Numer	
8:00	314	Genotype x environment interactions in milk yield and quality in Angus, Brahman, and reciprocal-cross cows on different forage systems. M. A. Brown ^{*1} , A. H. Brown, Jr. ² , W. G. Jackson ³ , and J. R. Miesner ³ , ¹ USDA-ARS, El Reno, OK, ² University of Arkansas, Fayetteville, ³ USDA-ARS, Booneville, AR.
8:15	315	Analyses of cow weight in beef cattle with random regression models. J. Arango ^{*1} , L. V. Cundiff ² , and L. D. Van Vleck ³ , ¹ University of Nebraska, Lincoln, ^{2,3} USDA, ARS, US Meat Animal Research Center, ² Clay Center, NE, ³ Lincoln, NE.
8:30	316	Parameterization of random regression models for beef cattle data. L. A. Kuehn [*] , B. L. Golden, and R. M. Bourdon, Colorado State University, Fort Collins.
8:45	317	Comparison of models for estimation of genetic parameters of mature weight of Hereford cattle. J. M. Rumph ^{*1} , R. M. Koch ¹ , K. E. Gregory ² , L. V. Cundiff ² , and L. D. Van Vleck ³ , ¹ University of Nebraska, Lincoln, ^{2,3} USDA, ARS, US Meat Animal Research Center, ² Clay Center, NE, ³ Lincoln, NE.
9:00	318	Birth and weaning traits of progeny of Hereford, Angus, Norwegian Red-Swedish Red and White, Friesian and Wagyu sires. L.V. Cundiff ^{*1} , ¹ USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE.
9:15	319	Correlation amongst five body linear measurements of Zebu cattle. O.T.F. Abanikannda ^{*1} , A.O. Leigh ² , O. Olutogun ² , and O.Y. Apena ² , ¹ Lagos State University, ² University of Ibadan.

BREEDING AND GENETICS 13

POSTER SESSION

Molecular Genetics

Friday, 8:00 a.m. - 12:00 Noon

Authors present 8:00 a.m. - 10:00 a.m.

Room: Exhibit Hall A

Board No.	Abstract No.	
1	320	Effects of the calpastatin system on growth of Angus bulls. M. E. Davis ^{*1} , H. Y. Chung ¹ , H. C. Hines ¹ , and D. M. Wulf ² , ¹ The Ohio State University, Columbus, ² South Dakota State University, Brookings.
2	321	Effects of calpain and calpastatin genotypes on calpastatin activity and meat tenderness in Angus bulls. H. Y. Chung ^{*1} , M. E. Davis ¹ , H. C. Hines ¹ , and D. M. Wulf ² , ¹ The Ohio State University, ² South Dakota State University.
3	322	Association of two Pit-1 gene polymorphisms with growth rate in beef cattle. Qun Zhao [*] , M.E. Davis, and H.C. Hines, The Ohio State University, Columbus.
4	323	Identification of quantitative trait loci affecting meat quality in a Berkshire by Yorkshire 3 generation family. M. Malek, J.C.M. Dekkers [*] , H.K. Lee, T.J. Baas, K.P. Prusa, E. Huff-Lonergan, and M.F. Rothschild, Iowa State University, Ames.
5	324	Accuracy of DNA pooling to estimate microsatellite allele frequency. J. P. McElroy [*] , H. Zhou, J. C. M. Dekkers, and S. J. Lamont, Iowa State University, Ames.

- 6 325 Maximizing cumulative discounted response with selection on an identified QTL. R. Chakraborty* and J. C. M. Dekkers, Iowa State University, Ames.
- 7 326 Genome scan for quantitative trait loci for growth and reproductive traits in female mice. F. Siewerd^{1,2}, E. J. Eisen¹, and D. Pomp³, ¹North Carolina State University, Raleigh, ²Universidade Federal de Pelotas, ³University of Nebraska, Lincoln.
- 8 327 Comparison of approaches for determining significance threshold values for QTL detection. H. K. Lee^{*1}, J. C. M. Dekkers², M. Malek², M. Soller³, R. L. Fernando², and M. F. Rothschild², ¹National Livestock Research Institute, Korea, ²Iowa State University, Ames, ³Hebrew University of Jerusalem.
- 9 328 Fitness of sheep metallothionein 1-a sheep growth hormone (oMt1a-oGH) transgenic mice. E. J. Eisen^{*1} and J. D. Murray², ¹North Carolina State University, Raleigh, ²University of California, Davis.
- 10 329 Mutation in exon 5 of bovine prolactin gene is not associated with milk traits in Holstein bulls. Isabelle Parmentier¹, Nicolas Gengler¹, Pierre Laliberte², Wilfried Holtmann², Carlo Bertozzi¹, Valerie Haezebroeck¹, Daniel Portetelle¹, and Robert Renaville^{*1}, ¹Gembloux Agricultural University, Gembloux, Canada, ²Semex Alliance, Guelph, Canada.
- 11 330 Genetic analysis of candidate gene (RELN) for Weaver Syndrome in Brown Swiss Cattle. S.E. Speidel^{*1}, E. Oberg¹, M. Ben Abdallah¹, and S.K. DeNise¹, University of Arizona, Tucson.
- 12 331 Genetic analysis of Bovine Progressive Degenerative Myeloencephalopathy (PDME) or Weaver Syndrome in Brown Swiss Cattle. S.K. DeNise* and E. Oberg, University of Arizona, Tucson.
- 13 332 The effects of storage and preservative on genomic DNA extraction from bovine milk somatic cells. G. Robitaille*, M. Britten, and D. Petitclerc, Agriculture and Agri-Food Canada.

FORAGES AND PASTURES 5

Forage and Pasture Management

Chair: C. P. Bagley, Sam Houston State University, Huntsville, TX

Friday, 8:30 a.m. - 11:45 a.m.
Room: 317

Time	Abstract Number	
8:30	522	INVITED Advances in bermudagrass research involving new cultivars for beef and dairy production. G. M. Hill ^{*1} , R. N. Gates ² , and J. W. West ¹ , ¹ The University of Georgia, Tifton, ² USDA-ARS, Coastal Plain Exp. Sta., Tifton, GA.
9:00	523	In vitro digestion kinetics as influenced by forage species and harvest date. D.J.R. Cherney*, J.H. Cherney, and L.E. Chase, Cornell University.
9:15	524	Milk production of fall-calving cows during summer grazing. L. D. Satter*, Z. Wu, V. R. Kanneganti, and L. J. Massingill, US Dairy Forage Research Center, USDA-ARS, and University of Wisconsin, Madison.
9:30	525	Fermentation characteristics of alfalfa and whole crop barley round bale silage as influenced by bag type. G. R. Khorasani* and J. J. Kennelly, University of Alberta, Edmonton, AB, Canada.
9:45		BREAK
10:00	526	INVITED Tasco TM : Influence of brown seaweed on antioxidants in forages and livestock. V. G. Allen ^{*1} , K. R. Pond ¹ , J. P. Fontenot ² , K. E. Saker ² , C. P. Bagley ³ , R. L. Ivy ⁴ , R. R. Evans ⁴ , R. E. Schmidt ² , J. H. Fike ² , and D. B. Webster ¹ , ¹ Texas Tech University, Lubbock, ² Virginia Tech, Blacksburg, ³ Sam Houston State University, Huntsville, TX, ⁴ Mississippi State University, Prairie.
10:30	527	Alleviating tall fescue toxicosis with non-toxic endophytes. M.A. McCann ^{*1} , J.A. Bondurant ¹ , L.L. Hawkins ¹ , N.S. Hill ¹ , C.S. Hoveland ¹ , F.N. Thompson ¹ , G.C.M. Latch ² , and J.H. Bouton ¹ , ¹ University of Georgia, Athens, ² AgResearch Grasslands, Palmerston North, New Zealand.
10:45	528	Supplementation of Growing Heifers Grazing Stockpiled Fescue. M.E. Scott*, M.H. Poore, J.T. Green, S.P. Morgan, and

H.K. Jones, North Carolina State University, Raleigh.

- 11:00 529 A novel system to estimate protein degradability in legume and grass hays. M.E. Dorshorst and P.C. Hoffman, University of Wisconsin, Madison.
- 11:15 530 Genotypic differences in chemical composition and ruminal degradability of oat hulls. R. K. Thompson^{*1}, A. F. Mustafa¹, J. J. McKinnon¹, D. D. Maenz², and B. Rossnagel³, ¹University of Saskatchewan, Saskatoon, SK, Canada, ²Prairie Feed Resource Center, Saskatoon, SK, Canada, ³Crop Development Center, Saskatoon, SK, Canada.
- 11:30 531 Effect of undegradable intake protein supplements, forage protein level, and incubation time on *in vitro* fermentation. L.A. Richards^{*1}, M.K. Petersen², J.B. Richards², and M. Remmenga², ¹USDA-ARS Grazinglands Research Laboratory, El Reno, OK, ²New Mexico State University, Las Cruces.

GROWTH AND DEVELOPMENT 6

POSTER SESSION

Friday, 8:00 a.m. - 12:00 noon

Authors of even numbered boards present

8:00 a.m. - 10:00 a.m.

Authors of odd numbered boards present

10:00 a.m. - 12:00 noon

Room: Exhibit Hall A

Board Abstract No. No.

- 14 603 Growth control of mouse mammary epithelial cells by keratin antibody-targeted liposomes containing oligonucleotides antisense to epidermal growth factor receptor. In-Suh Yuh^{*}, Seung-Youp Lee, and Byong-Ju Hong, College of Animal Resources Sciences, Kangwon Natl. University, Chuncheon, Korea.
- 15 604 The effect of glucagon and insulin on b-oxidation of 1-¹⁴C-palmitate by piglet hepatocytes in primary culture. G. Matsey^{*}, X. Lin, and J. Odle, North Carolina State University, Raleigh.
- 16 605 Association of Endocrine Factors (Insulin-like Growth Factor-I and Binding Protein-3) with Litter Size in Yorkshire Breed. S.H. Yang, D.S. Seo, J.S. Yun^{*}, W.J. Kang, K.C. Hong, S.S. Park, and Y. Ko, Korea University.
- 17 606 Quantification of bovine liver pyruvate carboxylase and phosphoenolpyruvate carboxykinase mRNA by Northern blot analysis. C. Agca^{*} and S.S. Donkin, Purdue University, West Lafayette, IN.
- 18 607 Cloning of bovine hepatic cytosolic and mitochondrial phosphoenolpyruvate carboxykinase mRNA and expression in bovine liver. C. Agca^{*}, R.B. Greenfield, and S.S. Donkin, Purdue University, West Lafayette, IN.
- 20 609 Thyroid hormones regulate somatotroph abundance during chicken embryonic development. Lixin Liu^{*} and Tom E. Porter, University of Maryland, College Park.
- 21 610 Effects of recombinant bovine somatotropin (rbST) and nutrition on growth and muscle fiber profiles in early-weaned beef steers. K. E. Moulton^{*1}, T. G. Althen¹, A. R. Williams¹, L. R. Jefcoat¹, A. B. Moore¹, M. B. Solomon², and J. S. Eastridge², ¹Mississippi State University, Mississippi State, ²Beltsville Agricultural Research Center, USDA, Beltsville, MD.
- 22 611 Location and ontogeny of thyrotrophs during chicken embryonic development. M. Muchow^{*}, I. Bossis, and Tom E. Porter, University of Maryland, College Park.
- 23 612 Partial feed restriction induces pyruvate carboxylase mRNA but not phosphoenolpyruvate carboxykinase mRNA in liver of lactating dairy cattle. J.C. Velez^{*} and S.S. Donkin, Purdue University, West Lafayette, IN.
- 24 613 Production responses to different porcine somatotropin injection regimes. F.R. Dunshea^{*1}, ¹Agriculture Victoria, Victorian Institute of Animal Science, Werribee, Australia.
- 25 614 Response to repeated bST challenges around weaning in Holstein heifer and bull calves. J.M. Smith^{*}, M.E. Van Amburgh, A.L. Bork, and M.R. Foote, Cornell University, Ithaca, NY.
- 26 615 Accuracy of volume measurements by magnetic resonance imaging. A.M. Scholz^{*1}, A.D. Mitchell², P.C. Wang³, and H

- Song³, ¹University Munich, Experimental Station Oberschleissheim, Germany, ²USDA, ARS, Growth Biology Lab, Beltsville, MD, ³Howard University, Washington, DC.
- 27 616 Changes in total body and regional bone mineral content and bone density in pigs from 4 to 137-kilograms body weight. A. D. Mitchell^{*1}, A. M. Scholz², and V. G. Pursel¹, ¹USDA, Agricultural Research Service, Beltsville, MD, ²Ludwig Maximillians University-Munich, Oberschleissheim, Germany.
- 28 617 Dual energy X-ray absorptiometry accurately predicts whole body and carcass composition in pigs. D. Suster^{*1}, B.J. Leury², J.D. Wark³, D.J. Kerton¹, E. Ostrowska¹, and F.R. Dunshea¹, ¹Agriculture Victoria, Werribee, ²University of Melbourne, Victoria, ³Royal Melbourne Hospital, Victoria.
- 29 618 Body composition changes of Angus females from breeding through second parturition determined by real-time ultrasound. G. H. Rouse^{*}, D. E. Wilson, C. L. Hays, and A. Hassen, Iowa State University, Ames.
- 30 619 Assessment of alternative linear statistical models for studying growth in crossbred lambs. G.J.M. Rosa^{*1,2}, M. A. Neres^{1,3}, C. Costa¹, and D. Gianola², ¹FMVZ-UNESP, Botucatu, SP, Brazil, ²Animal Sci. Department, UW-Madison, WI, ³FCA-UNIMAR, Marilia, SP, Brazil.
- 31 620 A random regression model for analysis of lamb growth. G.J.M. Rosa^{*1,2}, M. A. Neres^{1,3}, C. Costa¹, and D. Gianola², ¹FMVZ-UNESP, Botucatu, SP, Brazil, ²Animal Sci. Department, UW-Madison, WI, ³FCA-UNIMAR, Marilia, SP, Brazil.
- 32 621 Dietary betaine does not effect whole body palmitate oxidation. D. Wray-Cahen^{*1}, T.J. Caperna², E. Virtanen³, and N.C. Steele², ¹FDA/CDRH, Rockville, MD, ²USDA/ARS, Beltsville, MD, ³Finnfeeds Intl., Wiltshire, UK.
- 33 622 Effects of betaine on nutrient partitioning in feed-restricted pigs. I. Fernandez-Figares^{*1}, D. Wray-Cahen², N.C. Steele¹, R.G. Campbell³, D.D. Hall⁴, E. Virtanen⁵, and T.J. Caperna¹, ¹USDA/ARS, Beltsville, MD, ²FDA/CDRH, Rockville, MD, ³BMI, Gridley, IL, ⁴United Feeds, Sheridan, IN, ⁵Finnfeeds Intl., Wiltshire, UK.
- 34 623 Effect of yeast culture in calf starters fed to Holstein heifer calves. P.C. Hoffman^{*1}, G.J. Swart¹, J.E. Garrett², and A.J. Nytes³, ¹University of Wisconsin, Madison, ²Diamond V Mills, Cedar Rapids, IA, ³Vita Plus Corp., Madison, WI.
- 35 624 Effect of Lean Growth Rate on Puberty Attainment of Gilts. J. L. Patterson^{*1}, R. O. Ball¹, H. J. Willis², F. X. Aherne², and G. R. Foxcroft¹, ¹University of Alberta, Edmonton, Alberta, ²Alberta Agriculture, Food and Rural Development, Edmonton, Alberta.
- 36 625 The importance of a high feed intake during lactation of primiparous sows nursing large litters. J.J. Eissen¹, J.W.M. Merks^{*2}, M.W.A. Verstegen¹, and K.H. de Greef³, ¹Wageningen University, The Netherlands, ²Institute for Pig Genetics B.V., Beuningen, The Netherlands, ³Institute for Animal Science and Health, ID-Lelystad, Lelystad, The Netherlands.
- 37 626 Effect of increasing nutrient intake to sows from day 28-56 of gestation on subsequent progeny performance. P.C. Penny^{*1}, M.A. Varley², and S. Tibble³, ¹JSR Healthbred Ltd, Southburn, UK, ²SCA Nutrition Ltd, Thirsk, UK, ³SCA Iberica S.A. Mequinenza, Espana.
- 37A 608 The somatotropic axis of young calves can be modulated by nutrition and bST. A.L. Bork^{*}, J.M. Smith, M.R. Foote, and M.E. Van Amburgh, Cornell University, Ithaca, NY.
- 37B 576 Effects of dietary energy and protein on the immunological performance of milk replacer-fed Holstein bull calves. B. J. Nonnecke^{*1}, M. E. VanAmburgh², M. R. Foote², J. M. Smith², and T. H. Elsasser³, ¹National Animal Disease Center, USDA, ARS, Ames, IA, ²Cornell University, Ithaca, NY, ³BARC-East, USDA, ARS, Beltsville, MD.

PHYSIOLOGY 9

POSTER SESSION

Estrous Synchronization, Progesterone, Milk Production, and Nutrition

Friday, 8:00 a.m. - 12:00 p.m.

Authors of even numbered boards present

8:00 a.m. - 10:00 a.m.

Authors of odd numbered boards present

10:00 a.m. - 12:00 noon

Room: Exhibit Hall A

Board No.	Abstract No.	
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| 38 | 902 | Ovulation and synchronization rates in Holstein and crossbred lactating dairy cows during two seasons when receiving the PGF _{2a} injection on d 6 or 7 of the Ovsynch protocol. J.L.M. Vasconcelos*, T.P.B. Araujo, R.L.A. Cerri, R.L. Valarelli, and F.S. Wechsler, FMVZ, Botucatu-Brazil. |
| 39 | 903 | Evaluation of injection intervals in a modified ovulation-synchronization protocol in dairy heifers. C. Rose* ¹ , J. Fuquay ¹ , A. Moore ¹ , S. Whisnant ² , A. Williams ¹ , S. Willard ¹ , W. Tucker ¹ , and P. Ryan ¹ , ¹ Mississippi State University, Mississippi State, ² North Carolina State University, Raleigh. |
| 40 | 904 | Concentrations of progesterone in lactating dairy cows with ovarian follicular cysts. I. Formation of cysts during the early postpartum period. W.J. Silvia*, L.F. Laranja da Fonseca, and S.H. Hayes, University of Kentucky, Lexington. |
| 41 | 905 | Concentrations of progesterone in lactating dairy cows with ovarian follicular cysts. II. Relationship to subsequent follicular development. T.B. Hatler*, D.W. Yelton, S.H. Hayes, A.M. Nugent, and W.J. Silvia, University of Kentucky, Lexington. |
| 42 | 906 | Effect of ergotamine on plasma metabolite concentrations in norgestomet-treated cows. R. Browning, Jr.*, Tennessee State University, Nashville. |
| 43 | 907 | Evaluation of pregnancy rates in lactating dairy cows using two systematic breeding protocols for first and second service. B. G. Dransfield, R. L. Nebel*, J. H. Bame, and D. A. Henderson, Virginia Polytechnic Institute and State University, Blacksburg. |
| 44 | 908 | Comparison of modified target breeding and presynch-timed artificial insemination at first insemination postpartum. E. Jordan* ¹ , M. Schouten ² , J. Quast ³ , A. Belschner ⁴ , and M. Tomaszewski ¹ , ¹ Texas A&M University, College Station, ² Hico, TX, ³ Comanche, TX, ⁴ Pharmacia & Upjohn, Kalamazoo, MI. |
| 45 | 909 | Evaluation of two timed artificial insemination (TAI) protocols for reproductive management of lactating dairy cows in grazing-based dairy systems. M. C. Cordoba* and P. M. Fricke, University of Wisconsin, Madison. |
| 46 | 910 | Use of estradiol cypionate for timed insemination. F.L. Lopes*, D.R. Arnold, J. Williams, S.M. Pancarci, M-J. Thatcher, M. Drost, and W.W. Thatcher, University of Florida, Gainesville. |
| 47 | 911 | Stage of cycle, incidence and timing of ovulation, and pregnancy rates in dairy cattle after three timed breeding protocols. J.A. Cartmill* ¹ , S.Z. El-Zarkouny ¹ , B.A. Hensley ¹ , G.C. Lamb ² , and J.S. Stevenson ¹ , ¹ Kansas State University, Manhattan, ² University of Minnesota, Grand Rapids. |
| 48 | 912 | Reproductive characteristics of dairy cows following early nonpregnant diagnosis by ultrasonography on days 27 to 29 after AI and subsequent treatments with PGF _{2a} and(or) GnRH. J.S. Stevenson*, J.A. Cartmill, B.A. Hensley, and S.Z. El-Zarkouny, Kansas State University, Manhattan. |
| 49 | 913 | Progesterone increases pregnancy rates and embryo survival in lactating dairy cows. S.Z. El-Zarkouny*, J.A. Cartmill, B.A. Hensley, and J.S. Stevenson, Kansas State University. |
| 50 | 914 | An estrous synchronization field study comparing estradiol benzoate (EB) and GnRH in combination with an intravaginal progesterone insert (CIDR) for timed-AI in crossbred <i>Bos indicus</i> cows. J. K. Fullenwider, J. R. Kempfer, C. L. Barnett, G. E. Portillo, C. R. Barthle, and J. V. Yelich*, University of Florida. |
| 51 | 915 | Effect of dosage of gonadotropin-releasing hormone (GnRH) in an estrus synchronization protocol on conception rates to a fixed-time insemination in postpartum beef cows. D.L. Funk* and L.H. Anderson, University of Kentucky, Lexington. |

- 52 916 Addition of GnRH or an intravaginal progesterone insert to a GnRH-PGF synchronization system to enhance response to timed breeding in postpartum beef cows. S.K. Johnson¹, D.E. Grum², and M.L. Day², ¹Kansas State University, Colby, KS, ²The Ohio State University, Columbus.
- 53 917 Effect of an orally active progestin on follicular dynamics in cycling and anestrous postpartum beef cows. G. A. Perry^{*}, F. N. Kojima, B. E. Salfen, J. F. Bader, D. J. Patterson, and M. F. Smith, University of Missouri, Columbia.
- 54 918 Inclusion of an intravaginal progesterone insert plus GnRH and prostaglandin F_{2a} for ovulation control in postpartum suckled beef cows. G. C. Lamb^{*1}, J. S. Stevenson², D. J. Kesler³, H. A. Garverick⁴, D. R. Brown¹, and B. E. Salfen⁴, ¹North Central Research and Outreach Center, University of Minnesota, Grand Rapids, ²Kansas State University, Manhattan, ³University of Illinois, Urbana, ⁴University of Missouri, Columbia.
- 55 919 Improved synchronization of estrus in postpartum suckled beef cows with a progestin-GnRH-prostaglandin F_{2a} (PG) protocol. D. J. Patterson^{*}, S. L. Wood, F. N. Kojima, and M. F. Smith, University of Missouri, Columbia.
- 56 920 Reduced dose GnRH in Select Synch and CO-Synch protocols to synchronize estrus or ovulation in beef cows. B.W.P. Sasongko¹, J.C. Whittier^{*1}, T.W. Geary², D.N. Schutz¹, E.R. Downing¹, P. Burna¹, R.G. Mortimer¹, and G.E. Seidel, Jr., ¹Colorado State University, Ft. Collins, ²Livestock and Range Research Center, Miles City, MT.
- 57 921 Effects of estradiol benzoate (EB) on ovulation of newly emerged and mature dominant ovarian follicles in prepubertal heifers. C.R. Burke^{*1,2}, M.L. Mussard¹, and M.L. Day¹, ¹The Ohio State University, Columbus, ²Dairying Research Corporation, Hamilton, New Zealand.
- 58 922 Evaluation of four selective media for isolation of catalase-negative gram-positive cocci from bulk tank milk. B. Jayarao^{*}, S. Pillai, and A. Sawant, Pennsylvania State University, University Park.
- 59 923 Physiological responses of Holstein cows to bovine somatotropin (bST) treatments during the transition period. M. S. Gulay^{*1}, A. Garcia-Gavidia², C. J. Wilcox¹, J. M. Hayen¹, and Herbert H. Head¹, ¹University of Florida, ²Universidad del Zulia, Maracaibo, Venezuela.
- 60 924 Responses of Holstein cows to prepartum and postpartum injections of bovine somatotropin (bST). A. Garcia-Gavidia², M. S. Gulay^{*1}, M.J. Hayen¹, C.J. Wilcox¹, T.I. Bellos¹, and H.H. Head¹, ¹University of Florida, ²Universidad del Zulia, Maracaibo, Venezuela.
- 61 925 Effect of fan and sprinkler configuration upon summer milk production of cows housed in 2-row freestall barns. M.J. Brouk^{*}, J.F. Smith, J.P. Harner III, and J.E. Shirley, Kansas State University, Manhattan.
- 62 926 Effect of fan configuration on summer milk production of dairy cows housed in a 4-row freestall barn. M.J. Brouk, J.F. Smith, J.P. Harner III, and J.E. Shirley, Kansas State University, Manhattan.
- 63 927 Endocrine changes associated with the effect of nutrition on postpartum anestrus and reconception in dairy cows. G. Luna-Pinto^{*} and P.B. Cronje, University of Pretoria, Gaugteng, South Africa.
- 64 928 Effect of fat on plasma hormones and metabolites in early lactation grazing dairy cows. G.F. Schroeder^{*1}, D. Becu-Villalobos², I. Lacau-Mengido², and G.A. Gagliostro³, ¹CONICET- Fac. Cs. Agrarias UNMDP, ²IBYME-CONICET, ³INTA EEA Balcarce, Argentina.
- 65 929 Effect of level of feed intake on plasma progesterone concentrations in deslorelin-implanted dairy cows treated with a CIDR device. A.R. Rabiee^{*1}, K.L. Macmillan¹, and F. Schwarzenberger², ¹University of Melbourne, Melbourne, Australia, ²University of Veterinary Medicine, Venna, Austria.
- 66 930 Effect of level of feed intake on the concentration and yield of fecal progesterone metabolites in deslorelin-implanted dairy cows treated with a CIDR device. A.R. Rabiee^{*1}, K.L. Macmillan¹, and F. Schwarzenberger², ¹University of Melbourne, Melbourne, Australia, ²University of Veterinary Medicine, Vienna, Austria.
- 67 931 Liver blood flow and steroid metabolism are increased by both acute feeding and hypertrophy of the digestive tract. S. Sangsritavong^{*}, D.K. Combs, R.F. Sartori, and M.C. Wiltbank, University of Wisconsin, Madison.
- 68 932 Effect of conjugated linoleic acids (CLA) on parameters of adipose tissue metabolism in the lactating dairy cow. L.H. Baumgard^{*}, B.A. Corl, S.S. Block, D.A. Dwyer, Y.R. Boisclair, and D.E. Bauman, Cornell University, Ithaca, NY.
- 69 933 Acute nutritional restriction alters endocrine function and causes anovulation in beef heifers. F.J. White^{*}, C.A. Lents, L.N. Floyd, L.J. Spicer, and R.P. Wettemann, Oklahoma Agricultural Experiment Station, Stillwater.
- 70 934 Effect of source of Romosinuano germplasm and preweaning creep grazing on postweaning growth and puberty in heifers. C. C. Chase, Jr.^{*1}, M. J. Williams¹, A. C. Hammond², and T. A. Olson³, ¹USDA, ARS, Brooksville, FL, ²USDA, ARS, Albany, CA, ³University of Florida, Gainesville.

RUMINANT NUTRITION 20

Minerals

Chair: W. Greene, Texas Agriculture Research and Extension Center, Amarillo

Friday, 8:00 a.m. - 10:00 a.m.

Room: 316

Time	Abstract Number	
8:00	1268	Phosphorus balance throughout early lactation in dairy cows fed diets varying in phosphorus content. K.F. Knowlton*, W.A. Wark, and J.H. Herbein, Virginia Polytechnic Institute and State University, Blacksburg.
8:15	1269	Milk production and bone characteristics of dairy cows fed different amounts of phosphorus for two or three lactations. Z. Wu* ¹ , L. D. Satter ¹ , A. J. Blohowiak ¹ , R. H. Stauffacher ¹ , and J. H. Wilson ² , ¹ US Dairy Forage Research Center, USDA-ARS, and University Wisconsin, Madison, ² Virginia Polytechnic Institute & State Univ., Blacksburg.
8:30	1270	Effect of dietary Vitamin D and phosphorous intake on mineral excretion in dairy cattle. K.M. Dooley*, J.A. Bertrand, R.J. Thurston, A.B. Bodine, and T. Gimenez, Clemson University, Clemson, SC.
8:45	1271	Effects of dietary iron on copper metabolism and milk production in Holstein and Jersey cattle. P. D. French*, R. E. James, M. E. Lissow, S. Nadir, and M. L. McGilliard, Virginia Polytechnic Institute and State University, Blacksburg.
9:00	1272	Effect of feeding complexed zinc methionine, manganese methionine, copper lysine, and cobalt glucoheptonate on lactational and reproductive performances by lactating Holstein cows. P. Mandebvu* ¹ , K. C. Uchida ² , C. J. Sniffen ¹ , C. S. Ballard ¹ , and M. P. Carter ¹ , ¹ W. H. Miner Agricultural Research Institute, Chazy, NY, ² Zen-Noh National Federation of Agricultural Co-operative Associations, Tokyo, Japan.
9:15	1273	Zinc-methionine improves udder health and Zn metabolism in lactating dairy goats. A. Salama, G. Caja*, E. Albanell, X. Such, R. Casals, and R. Pars, Universitat Autònoma de Barcelona, Bellaterra, Spain.
9:30	1274	Comparison of the blood and urine acidifying activity of common dietary chloride and sulfate supplements. J.P. Goff* and R.L. Horst, USDA-Agricultural Research Service, Ames, IA.
9:45	1275	Direct fed microbial and anionic salt supplementation to dairy cows fed 21 days pre- to 70 days postpartum. E Block ¹ , J.E. Nocek ² , W.P. Kautz* ³ , and J.A.Z. Leedle ³ , ¹ McGill University, ² Spruce Haven Farm and Research Ctr, ³ Chr. Hansen BioSystems.

SPECIAL WORKSHOP

Mixed Models for Experimental Scientists in Animal Agriculture Using SAS PROC MIXED

Co-Sponsored by: *NRC - 170* (Research Advances in Agricultural Statistics).

Presenters: R. J. Tempelman, Michigan State University, East Lansing and L. D. Douglass, University of Maryland, College Park.

Workshop presented in two sessions (registrants should attend both sessions).

Thursday, 3:00 p.m. - 5:00 p.m.

Friday, 8:00 a.m. - 11:00 a.m.

Room: 318