



WESTERN SECTION

**American Society of
Animal Science
89th Annual Meeting**

**FargoDome®
Fargo, ND
June 20-23, 2017**

CAMERA, VIDEO CAMERA, AND CELL PHONE POLICY

Use of cameras, video cameras, and cell phones (for calls or as cameras) is prohibited during oral and poster presentations to minimize disruption and unauthorized dissemination of data. Violators may be asked to leave the session/conference.

Exceptions to this policy must be approved in advance by WSASAS Scientific Program Coordinator.

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**2017 Western Section American Society of
Animal Science Annual Meeting**

**SUMMARY OF SCHEDULE
OF EVENTS**

Unless otherwise noted, all events will be held in
rooms of the FargoDome.

MONDAY, JUNE 19, 2017

- | | |
|-----------------|--|
| 4:00 PM–6:00 PM | Registration
Lobby |
| 4:00 PM–6:00 PM | WSASAS Executive
Committee Pre-
Conference Meeting |

TUESDAY, JUNE 20, 2017

- | | |
|-----------------|--|
| 7:00 AM–4:00 PM | Registration
Lobby |
| 8:00 AM–4:00 PM | Beef Symposium:
Are We Still Fulfilling the
Land Grant Mission?
201/202/203/204 |
| 2:00 PM–4:00 PM | NDSU Tours
Lobby |
| 5:30 PM–7:00 PM | Opening Reception
North Dakota Horse Park |

WEDNESDAY, JUNE 21, 2017

7:00 AM–4:00 PM	Registration Lobby
7:00 AM–8:00 AM	Place Posters 204
7:55 AM–5:00 PM	Graduate Student Paper Competition 201/202/203/204
12:00 PM–1:00 PM	Lunch on Your Own
5:30 PM–7:30 PM	NDSU Tours Lobby
7:00 PM	Grad Student Mixer Homewood Suites Lobby

THURSDAY, JUNE 22, 2017

7:30 AM–4:00 PM	Registration Lobby
8:00 AM–9:30 AM	Young Scholar Recognition Program 201/202/203/204
9:30 AM–11:00 AM	Oral Session 1 201/202/203/204
8:00 AM–10:45 AM	Oral Session 2 101
11:00 AM–12:30 PM	Poster Session 204
12:00 PM–1:30 PM	Graduate Student Lunch and Learn: Grant Writing for Success 201/202/203/204
12:00 PM–1:30 PM	Committee Meetings 101
2:00 PM–5:00 PM	Dennis Hallford Symposium 201/202/203/204
6:30 PM–7:15 PM	Presentation by 2016 Distinguished Service Award Recipient Dr. Michael Galyean Fargo Air Museum
6:30 PM–9:30 PM	Awards Banquet Fargo Air Museum

FRIDAY, JUNE 23, 2017

- | | |
|------------------|---|
| 8:00 AM–9:30 AM | Business Meeting
Fargo Air Museum |
| 9:30 AM–11:00 AM | WSASAS Executive
Committee Post-Conference
Meeting Fargo Air Museum |
| 9:30 AM–11:30 AM | NDSU Tours
Fargo Air Museum Entrance |

ARPAS exams will be scheduled as applications are received. Contact the ARPAS headquarters office to schedule an exam (arpas@assoqhq.org).

UPLOADING PRESENTATION FILES

Only PowerPoint presentations will be accommodated (i.e., no slides, no overheads, no alternative programs allowed).

1. All session rooms will have Master PCs running PowerPoint 2007/2010/2012 in Windows 7.
2. Individual laptops may not be connected to the projectors in the session rooms.
3. **Presentations for Wednesday and Thursday MUST be presented to a volunteer manning a laptop computer in the "WSASAS Registration Area" in the FargoDome Lobby on Tuesday and Wednesday between 7:00 AM and 4:00 PM. Preferably, presentations for upload should be on flash drives.**

PREVIEW ROOMS FOR ORAL PRESENTATIONS

There will be at least one room for preview of oral presentations. It will have equipment for this purpose. You must provide your own flash drive. There will be a sign up sheet for use of this room. The room is 104 in the FargoDome. Closed 8:00 AM - 4:00 PM on Tuesday, June 20 and 10:45AM - 4:00 PM on Thursday, June 22.

Tuesday, June 20, 2017

Symposium

**BEEF SYMPOSIUM:
ARE WE STILL FULFILLING
THE LAND GRANT MISSION?**

Sponsored by North Dakota Beef Commission

*Chair: Eric Scholljegerdes,
New Mexico State University*

Rooms: 201/202/203/204

- 8:00 AM Welcoming Remarks
*Dr. Eric Scholljegerdes,
New Mexico State University*
- 8:15 AM Historical Perspective
*Dr. David Buchanan,
North Dakota State University*
- 9:00 AM Rancher Perspective
*Stacy Davies,
Roaring Springs Ranch, OR*
- 9:30 AM Rancher Perspective
*Jose Valera Lopez,
Puerta del Cañón Ranch, NM*
- 10:00 AM Rancher Perspective
*Dean Peterson,
E. L. Peterson Ranch, MT*
- 10:30 AM Break
- 10:45 AM Rancher Perspective
*Jerry Doan,
Black Leg Ranch, ND*
- 11:15 AM Experiment Station Perspective
*Dr. Bret Hess,
University of Wyoming*
- 12:15 PM Lunch
- 1:00 PM USDA Perspective
*Dr. Mark Mirando,
USDA-NIFA*
- 2:00 PM Roundtable
- 3:00 PM Concluding Remarks
*Dr. Eric Scholljegerdes,
New Mexico State University*

Wednesday, June 21, 2017

ORAL PRESENTATIONS

GRADUATE STUDENT PAPER
COMPETITION

Sponsored by Western Section, ASAS

*Chair: Reinaldo Cooke,
Oregon State University*

Rooms: 201/202/203/204

- 7:55 AM Welcome and Orientation
- 8:00 AM 010 Effects of one or two prostaglandin F_{2α} injections on progesterone concentrations and luteolysis in suckling beef cows subjected to a five-day controlled internal drug release–Co-Synch protocol.
J. A. Spencer, K. Carnahan,* W. Price,† B. Shafii,† A. Ahmadzadeh
Department of Animal and Veterinary Science and †Statistical Programs, University of Idaho, Moscow
- 8:15 AM 011 Locomotor activity changes in primiparous and multiparous beef cows during the final 72 hours prepartum.
N. B. Duncan and A. M. Meyer*
Department of Animal Science, University of Missouri, Columbia
- 8:30 AM 012 Influence of increased nutrient intake before and after breeding on performance and reproductive efficiency of beef heifers.
S. L. Rosasco, E. J. Scholljegerdes,* S. H. Cox,† R. C. Dunlap,† D. M. Hallford,* and A. F. Summers*
Department of Animal and Range Sciences New Mexico State University, Las Cruces; and †Corona Range and Livestock Research Center, Corona, NM
- 8:45 AM 013 In utero inhibition of chemokine receptor four signaling alters peripheral blood immune response during early pregnancy in ewes.
S. Z. Prosser, C. J. Maxam,* K. E. Quinn,* and R. L. Ashley*
Department of Animal and Range Sciences, New Mexico State University, Las Cruces

- 9:00 AM 014 Change of season impacts ruminal fermentation and microbiome in heifers grazing native range.
K. E. Smith, S. L. Rosasco, J. K. Beard, E. R. Oosthuysen, B. Meyerhoff, E. J. Scholljegerdes, A. F. Summers, and S. L. Ivey
Department of Animal and Range Sciences New Mexico State University, Las Cruces
- 9:15 AM 015 Supplementing an immunomodulatory feed ingredient to modulate thermoregulation, physiological, and production responses in lactating dairy cows under heat stress conditions.
A. P. Brandão, R. F. Cooke,* T. Leiva,† and J. L. M. Vasconcelos†*
**Oregon State University - Eastern Oregon Agricultural Research Center, Burns; and †UNESP - Faculdade de Medicina Veterinária e Zootecnia, Botucatu, Brazil*
- 9:30 AM Break
- 9:45 AM 016 Supplementing a yeast-derived product to enhance productive and health responses of feeder steers.
K. M. Schubach, R. F. Cooke,* L. G. T. Silva,* A. P. Brandão,* K. D. Lippolis,* R. S. Marques,* and D. W. Bohnert**
Oregon State University - Eastern Oregon Agricultural Research Center, Burns
- 10:00 AM 017 Effects of zinc source and dietary concentration on zinc status, growth performance, and wool characteristics in developing rams.
C. M. Page, I. McGregor,* M. L. Van Emon,* T. W. Murphy,* C. K. Larson,† J. G. Berardinelli,* and W. C. Stewart,**
**Department of Animal and Range Sciences, Montana State University, Bozeman; and †Zinpro Corporation, Eden Prairie, MN*
- 10:15 AM 018 Effects of early administration of Ralgro to Holstein calves on feedlot performance and carcass characteristics.
K. L. McCarthy, E. J. Scholljegerdes,† J. A. Gould,‡ J. Hepton,‡ and W. T. Nichols§*
**Department of Animal Sciences, North Dakota State University, Fargo; †Department of Animal and Range Sciences, New Mexico State University, Las Cruces; ‡Reynolds Creek Calf Ranch, Melba, ID; and §Merck Animal Health, Idalou, TX*

- 10:30 AM 019 Intensive late-season sheep grazing following early-season steer grazing is an effective biological control mechanism for sericea lespedeza (*Lespedeza cuneata*) in the Kansas Flint Hills.
J. Lemmon, W. H. Fick,† J. A. Alexander,* G. A. Gatson,* and K. C. Olson**
**Department of Animal Sciences & Industry, Kansas State University, Manhattan; and †Department of Agronomy, Kansas State University, Manhattan*
- 10:45 AM 020 Impact of heifer development system and winter supplementation of May calving cows on subsequent growth and reproduction in two different breeding seasons.
S. A. Springman, H. R. Nielson,* and R. N. Funston**
**University of Nebraska, West Central Research and Extension Center, North Platte*
- 11:00 AM 021 Effects of late gestation supplementation, synchronization, and creep feeding in a spring calving beef herd in the Nebraska Sandhills.
D. L. Broadhead, L. A. Stalker,* J. A. Musgrave,* and R. N. Funston**
**University of Nebraska, West Central Research and Extension Center, North Platte*
- 11:15 AM 022 Management of lethal recessive alleles while optimizing genetic gain in beef cattle.
L. R. Upperman, B. P. Kinghorn,† M. D. MacNeil,‡ and A. L. Van Eenennaam**
**Department of Animal Science, University of California-Davis; †Department of Environmental and Rural Science, University of New England, Armidale, Australia; ‡Delta G, Miles City, MT*
- 11:30 AM 023 Identifying hyperthermia in heat-stressed lambs and its effects on β agonist-stimulated glucose oxidation in muscle.
T. L. Barnes, R. M. Kubik,* C. N. Cadaret,* K. A. Beede,* E. M. Merrick,* S. Chung,† T. S. Schmidt,* J. L. Petersen,* and D. T. Yates**
**Department of Animal Science and †Department of Nutrition and Health Sciences, University of Nebraska-Lincoln*

- 11:45 PM 024 Estimation of the requirement for water and ecosystem benefits of beef production on California rangelands.
*E. Andreini**, *J. Finzelt†*, *D. Rao†*, *S. Larson†*, and *J. W. Oltjen*†*
**Department of Animal Science, University of California-Davis, †University of California Cooperative Extension*
- 12:00 PM Lunch
- 1:00 PM 025 Effect of a low vitamin A diet on marbling and carcass characteristics of Angus cross and Simmental steers.
*E. E. Knutson**, *X. Sun**, *A. B. P. Fontoura**, *J. Gaspers**, *J. H. Liu**, *K. R. Carlin**, *M. Bauer**, *K. C. Swanson**, and *A. K. Ward**
**Department of Animal Sciences, North Dakota State University, Fargo*
- 1:15 PM 026 Effects of prescribed-burn timing on vigor of the noxious weed sericea lespedeza (*Lespedeza cuneata*) on native tallgrass range in the Kansas Flint Hills.
*J. A. Alexander**, *W. H. Fick†*, *J. Lemmon**, *G. A. Gatson**, and *K. C. Olson**
**Department of Animal Sciences & Industry, Kansas State University, Manhattan; and †Department of Agronomy, Kansas State University, Manhattan*
- 1:30 AM 027 Metabolic regulation by stress systems in bovine myoblasts and ovine fetal skeletal muscle.
E. M. Merrick, *C. N. Cadaret*, *T. L. Barnes*, *K. A. Beede*, and *D. T. Yates*
Department of Animal Science, University of Nebraska-Lincoln
- 1:45 AM 028 The effects of shredded sugar beets on sheep nutrient metabolism and ruminal characteristics.
I. McGregor, *C.M. Page*, *C. Ryan*, *A.R. Hubbard*, *M. Manoukian*, *W.C. Stewart*, and *M.L. Van Emon*
Department of Animal and Range Sciences, Montana State University, Bozeman

- 2:00 PM 029 Effect of supplementation during the breeding season on a May-calving herd in the Nebraska Sandhills
A. C. Lansford, J. Musgrave,* and R. N. Funston**
**University of Nebraska, West Central Research and Extension Center, North Platte*
- 2:15 PM 030 Glycerin supplementation via drinking water alters nitrogen balance and immune response of beef steers during an endotoxin challenge.
R. E. Carey, K. L. Samuelson,* E. R. Oosthuysen,* F. A. Lopez,* S. L. Pillmore,* L. T. Klump,* N. C. Burdick Sanchez,† J. A. Carroll,† J. A. Hernandez Gifford,* and C. A. Löest**
**Department of Animal and Range Sciences, New Mexico State University, Las Cruces; and †Livestock Issues Research Unit, USDA-ARS, Lubbock, TX*
- 2:30 PM 031 The effects of feeding reduced-lignin alfalfa on growing beef cattle performance.
D. M. Staudenmeyer, J. G. P. Bowman,* R. L. Endecott,* A. L. Mack,† and E. C. Glunk**
**Department of Animal and Range Sciences, Montana State University, Bozeman; and † Department of Mathematical Sciences, Montana State University, Bozeman*
- 2:45 PM 032 Effects of metabolizable protein supply and fetal number on placental binucleate cells in pregnant sheep during late gestation.
H. H. Mansour, A. Reyaz*, V. A. Valkov*, L. A. Lekatz†, M. L. Van Emon‡, C. S. Schauer§, K. A. Vonnahme**
**Department of Animal Sciences, North Dakota State University, Fargo; †Department of Agriculture and Natural Resources, University of Minnesota-Crookston; ‡Department of Animal and Range Sciences Montana State University, Bozeman; and §Hettinger Research Extension Center, North Dakota State University, Hettinger*

- 3:00 PM Break
- 3:15 PM 033 Using corn supplementation for overwintered beef cows during mid- to late-gestation: Uterine hemodynamics, placental vascularity, and neonatal performance.
*A. R. Tanner**, *V. C. Kennedy**,
*J. D. Kirsch**, *J. Gaspers**, *N. Negrin Pereira**, *A. B. P. Fontoura**,
*M. L. Bauer**, *K. C. Swanson**,
*L. P. Reynolds**, *G. Stokka**,
A. Rodas-González†, *A. Ward**,
*C. R. Dahlen**, *B. Neville‡*,
K. Wittenberg†, *E. McGeough†*,
K. H. Ominski†, and *K. A. Vonnahme**
**North Dakota State University, Department of Animal Sciences, Fargo; †University of Manitoba, Department of Animal Sciences, Winnipeg, MB, Canada; and ‡Central Grasslands Research Extension Center, North Dakota State University, Streeter*
- 3:30 PM 034 Umbilical blood flow and conceptus measurements in single and twin pregnancies in ewes.
M. A. Vasquez-Hidalgo and K. A. Vonnahme
Department of Animal Sciences, North Dakota State University, Fargo
- 3:45 PM 035 Effect of nutrient restriction and central administration of beta-hydroxybutyrate on circulating metabolites in ovariectomized ewes.
E. R. Cope, J. D. Hobbs, Z. D. McFarlane, and J. T. Mulliniks
Department of Animal Science, University of Tennessee, Knoxville
- 4:00 PM 036 Moderate nutrient restriction influences transcript abundance of genes impacting production efficiencies of beef cattle in fetal liver, muscle, and cerebrum by d 50 of gestation.
*M. S. Crouse**, *J. S. Caton**,
R. A. Cushman†, *K. J. McLean*,‡*
*C. R. Dahlen**, *P. P. Borowicz**,
*L. P. Reynolds**, and *A. K. Ward**
**Department of Animal Sciences, North Dakota State University, Fargo; †USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE; and ‡Department of Animal and Food Sciences, University of Kentucky, Lexington*

- 4:15 PM 037 Heifer development using stockpiled, dormant native forages and protein supplementation delays body weight gain without altering reproductive performance. *Z. D. McFarlane,* E. R. Cope,* J. D. Hobbs,* R. N. Oakes,† and J. T. Mulliniks,**
**Department of Animal Science and of †Department of Plant Science, University of Tennessee, Knoxville*
- 4:30 PM 038 Effects of intravenous lipopolysaccharide administration on feed intake, ruminal forage degradability and liquid parameters, and physiological responses in beef cattle. *K. D. Lippolis, R. F. Cooke, K. M. Schubach, R. S. Marques, and D. W. Bohnert*
Oregon State University - Eastern Oregon Agricultural Research Center, Burns
- 4:45 AM 039 Effects of rumen-protected EFA supplementation to late-gestating beef cows on performance and physiological responses of the offspring. *R. S. Marques,* R. F. Cooke,* M. C. Rodrigues,† A. P. Brandão,* K. M. Schubach,* K. D. Lippolis,* P. Moriel,‡ G. A. Perry,§ and D. W. Bohnert**
**Oregon State University - Eastern Oregon Agricultural Research Center, Burns; †UNESP - Faculdade de Medicina Veterinária e Zootecnia, Botucatu, Brazil; ‡University of Florida - Range Cattle Research and Education Center, Ona; and §South Dakota State University - Department of Animal Science, Brookings*

Thursday, June 22, 2017

ORAL PRESENTATIONS

YOUNG SCHOLAR SESSION

*Chair: Ryan Ashley,
New Mexico State University*

Rooms: 201/202/203/204

- 8:00 AM 062 Interactions between dietary protein concentration, protein degradability, and beta-adrenergic agonist administration in finishing cattle.
K. L. Samuelson*, *M. E. Hubbert[†], and C. A. Löest**
**Department of Animal and Range Sciences, New Mexico State University, Las Cruces, NM; and[†]Clayton Livestock Research Center, New Mexico State University, Clayton, NM*
- 8:30 AM 063 Impacts of stocking density on growth and puberty attainment of replacement beef heifers.
K. M. Schubach,* *R. F. Cooke,* A. P. Brandão,[†] K. D. Lippolis,* L.G.T. Silva,[†] R.S. Marques,* and D. W. Bohnert**
**Oregon State University - Eastern Oregon Agricultural Research Center, Burns, OR, and[†]São Paulo State University, FMVZ, Botucatu, SP, Brazil*
- 9:00 AM 064 Effects of maternal nutritional status on nutrient transporter expression and nutrient concentrations in bovine utero placental tissues and fluids on days 16 to 50 of gestation.
M. S. Crouse,* *K. J. McLean,[§] N. P. Greseth,* M. R. Crosswhite,*[‡] N. Negrin Pereira,* A. K. Ward,* L. P. Reynolds,* C. R. Dahlen,* P. P. Borowicz,* and J. S. Caton**
**Department of Animal Sciences, North Dakota State University, Fargo;[§]Department of Animal and Food Sciences, University of Kentucky, Lexington, and[‡]Department of Animal, Oklahoma State University, Stillwater, Oklahoma*

ORAL SESSION ONE

*Chair: Adam Summers,
New Mexico State University*

Breeding and Genetics

- 9:30 AM 001 Estimation of genetic parameters and effects of birth type, sex, and age of dam on lamb mortality.
*P. W. Holland**, *L. L. Hulsman Hanna[†]*,
K. A. Vonnahme[†], *L. P. Reynolds[†]*,
J. B. Taylor[‡], *D. G. Riley**
**Department of Animal Science,
Texas A&M University, College
Station, TX; [†]Department of Animal
Sciences, North Dakota State
University, Fargo, ND; [‡]USDA, ARS,
U.S. Sheep Experiment Station,
Dubois*
- 9:45 AM 002 Wool characteristics of
Rambouillet, Polypay, and
Romanov-White Dorper
x Rambouillet ewes in an extensive
rangeland production system.
*W. C. Stewart**, *T. W. Murphy**,
D. R. Notter[†], *M. R. Mousel[‡]*,
G. S. Lewis[‡], *K. A. Leymaster[§]*, and
J. B. Taylor[‡]
**Montana Wool Lab, Department
of Animal and Range Sciences,
Montana State University, Bozeman
[†]Department of Animal and Poultry
Sciences, Virginia Tech, Blacksburg;
[‡]USDA, ARS, Range Sheep Production
Efficiency Research Unit, U.S. Sheep
Experiment Station, Dubois, ID; and
[§]Roman L. Hruska U.S. Meat Animal
Research Center, Clay Center, NE*

Physiology

- 10:00 AM 046 Relationships of circulating energy and protein metabolites from 0 to 72 hours of age in suckling neonatal beef calves from fall- and spring-calving herds.
*A. M. Meyer**, *M. C. Heller[†]*,
*N. B. Duncan**, *J. M. Larson**, and
B. L. Vander Ley[‡]
**Department of Animal Science,
University of Missouri, Columbia;
[†]Department of Veterinary Medicine
and Epidemiology, University of
California-Davis; and [‡]Great Plains
Veterinary Educational Center, Clay
Center, NE.*

- 10:15 AM 047 Biweekly administration of bovine somatotropin during early pregnancy on binucleate cell and conceptus development in beef heifers.
*M. A. Nelson**, *C. D. Sanford[†]*,
*A. Reyaz**, *P. L. P. Fontes[†]*,
N. Oosthuizen[†], *N. DiLorenzo[†]*,
C. O. Lemley[‡], *G. C. Lamb[§]*, and
*K. A. Vonnahme**
**Department of Animal Science, North Dakota State University, Fargo; [†]North Florida Research and Education Center, University of Florida, Marianna; [‡]Department of Animal Science and Dairy Science, Mississippi State University, Mississippi State; and [§]Department of Animal Sciences, Texas A&M University, College Station*
- 10:30 AM 048 Restriction and realimentation in pregnant beef cows: Impacts on mammary gland hemodynamics.
*F. Alves Correa**, *L. E. Camacho[†]*,
C. O. Lemley[‡], *D. M. Hallford[§]*,
*K. C. Swanson**, and *K. A. Vonnahme**
**Department of Animal Sciences, North Dakota State University, Fargo; [†]School of Animal and Comparative Biomedical Sciences, The University of Arizona, Tucson; [‡]Department of Animal and Dairy Sciences, Mississippi State University, Mississippi State; and [§]Department of Animal and Range Sciences, New Mexico State University, Las Cruces*
- 10:45 AM 049 Maternal inflammation at mid-gestation in pregnant rats impairs fetal muscle growth and development at term.
*C. N. Cadaret**, *K. A. Beede**,
*E. M. Merrick**, *T. L. Barnes**,
J. D. Loy[†], and *D. T. Yates**
**Department of Animal Science and [†]School of Veterinary Medicine and Biomedical Sciences, University of Nebraska-Lincoln*

ORAL SESSION TWO

*Chair: Megan Van Emon,
Montana State University*

Room: 101

Pastures and Forages

- 8:00 AM 041 Variation of forage yield and quality within different forage groups for western Canada.
J. Zhang,[‡] A.D. Iwaasa,* H. Wang,* and G. Han[‡]*
**Agriculture and Agri-Food Canada, Swift-Current Research and Development Centre, Swift Current, Canada; [‡]College of Grassland, Resources and Environment Science, Inner Mongolia Agricultural University, Hohhot, Inner Mongolia, China*
- 8:15 AM 042 The effects of nitrogen addition on AC Saltlander forage production on saline soils.
C. Gu,[†] A. D. Iwaasa,* K. Wall,[‡] C. Gatzke,* H. Steppuhn,[‡] and M. Zhao[†]*
**Agriculture and Agri-Food Canada, Swift-Current Research and Development Centre, Swift Current, Canada; [†]College of Grassland, Resources and Environment, Inner Mongolia Agricultural University, Hohhot, Inner Mongolia, China; and [‡]Swift Current, SK, Canada*
- 8:30 AM 043 Effect of retained ownership and vertical integration within an integrated cropping system among yearling steers of differing frame score on feedlot performance, carcass measurements, and systems economics following delayed feedlot entry.
S. Şentürklü[†], D. G. Landblom*, R. J. Maddock[‡], T. Petry[§], and S. I. Paisley[#]*
**Dickinson Research Extension Center, North Dakota State University, Dickinson; [†]Animal Science Department, Canakkale Onsekiz Mart Universitesi, Canakkale, Turkey; [‡]Animal Sciences Department, North Dakota State University, Fargo; [§]Extension Agribusiness and Applied Economics Department, North Dakota State University, Fargo; and [#]Animal Science Department, University of Wyoming, Laramie*

Environment and Livestock Management

- 8:45 AM 004 The effect of precipitation received during gestation on progeny performance in *Bos indicus*-influenced beef cattle.
J. K. Beard, G. A. Silver,* E. J. Scholljegerdes,* and A. F. Summers**
**Department of Animal and Range Sciences New Mexico State University, Las Cruces*
- 9:00 AM 005 Retrospective analyses of birthdate and growth in beef heifers categorized by puberty and pregnancy status.
A. Gomes da Silva, A. J. Roberts,† T. L. Meyer,‡ and R. N. Funston‡*
**Famez – Faculdade de Medicina Veterinária e Zootecnia, Universidade Federal de Mato Grosso do Sul, Campo Grande, MS, Brazil; †USDA-ARS, Fort Keogh Livestock and Range Laboratory, Miles City, MT; and ‡University of Nebraska, West Central Research and Extension Center, North Platte*
- 9:15 AM 006 Absorption and elimination of [¹⁴C]-dicoumarol in goats.
S. Chakrabarty and D. J. Smith*
ORISE Post-Doctoral Fellow, USDA-Agricultural Research Service, Biosciences Research Laboratory, Fargo, ND
- 9:30 AM 007 Response of pregnant ewes to ovalbumin inoculation, antiovalbumin antibody transfer to lambs, and temporal changes in antiovalbumin antibody.
G. S. Lewis, S. Wang,* and J. B. Taylor**
**USDA, ARS, Range Sheep Production Efficiency Research Unit, U.S. Sheep Experiment Station, Dubois, ID*

Ruminant Nutrition

- 9:45 AM 052 Effects of fish meal supplementation on forage intake and metabolizable protein of beef cows grazing winter wheat pasture.
J. A. Rodela, C. A. Hebbert, and S. A. Soto-Navarro
Department of Animal and Range Sciences, New Mexico State University, Las Cruces
- 10:00 AM 053 Blood oximetry responses of glycerin-supplemented and immune-challenged calves.
E. R. Oosthuysen, M. E. Hubbert,† R. E. Carey,* K. L. Samuelson,* F. A. Lopez,* L. T. Klump,* S. L. Pillmore,* and C. A. Löest**
**Department of Animal and Range Sciences, New Mexico State University, Las Cruces; and †Clayton Livestock Research Center, New Mexico State University, Clayton*
- 10:15 AM 054 Substituting ground juniper for ground alfalfa hay in steer feedlot diets: Growth performance and blood serum characteristics.
T. R. Whitney, J. T. Sawyer,† and C. Hartz†*
**Texas A&M AgriLife Research, San Angelo, TX; and †Texas A&M University, College Station*

POSTER PRESENTATIONS AND UNDERGRADUATE POSTER COMPETITION

Sponsored by Beaver Creek Ranch

Room: 204

- Board 01 050 **Physiology:**
Corpora lutea in superovulated ewes:
Cell proliferation, vascularity, and
protein expression of endothelial
nitric oxide synthase and soluble
guanylyl cyclase.
A. Kraison, D. A. Redmer,† C. S. Bass,†
C. Navanukraw,* S. T. Dorsam,†
V. Valkov,† A. Reyaz,† and
A. T. Grazul-Bilska†*
**Department of Animal Science,
Faculty of Agriculture, Khon Kaen
University, Khon Kaen, Thailand;
†Department of Animal Sciences,
North Dakota State University, Fargo;
and ‡Agricultural Biotechnology
Research Center for Sustainable
Economy, Khon Kaen University, Khon
Kaen, Thailand*
- Board 02 065 **Undergraduate Student
Competition:**
Lipid droplets (LD) in the corpora
lutea (CL) during early pregnancy
in cows fed different planes of
nutrition.
*M. R. Eckholm, J. S. Caton,
K. J. McLean, M. S. Crouse,
M. R. Crosswhite, N. Negrin-Pereira,
C. R. Dahlen, P. P. Borowicz,
L. P. Reynolds, A. K. Ward, B. W. Neville,
and A. T. Grazul-Bilska*
*Department of Animal Sciences,
North Dakota State University, Fargo*
- Board 03 051 **Physiology:**
Changes in temporal concentrations
of fibroblast growth factor 21 in beef
heifers.
L. D. Prezotto, J. F. Thorson,* and
D. L. Boss**
**Northern Agricultural Research
Center, Department of Research
Centers, Montana State University,
Havre*

- Board 04 066 **Undergraduate Student Competition:**
 Effect of feed efficiency and sexed semen on pregnancy rate and early embryonic mortality in beef heifers.
*M. M. Woods**, *M. J. Ellison**,
J. M. Thomas[†], and *J. B. Hall**
**Department of Animal and Veterinary Science, University of Idaho, Carmen; and [†]Division of Animal Sciences, University of Missouri, Columbia*
- Board 05 044 **Pastures and Forages:**
 Effects of frequency of protein supplementation on performance by beef calves grazing dormant native range.
*G. W. Preedy**, *J. R. Jaeger[†]*,
J. W. Waggoner[†], and *K. C. Olson**
**Department of Animal Sciences and Industry, Kansas State University, Manhattan; and [†]Western Kansas Agricultural Research Center, Kansas State University, Hays*
- Board 06 067 **Undergraduate Student Competition:**
 Effects of supplementing CRINA[®] ruminant blend essential oil to Suffolk x Hampshire feeder lambs on growth, intake, feed efficiency, and carcass traits.
J. Conner, *C. R. Phillips*, *K. A. Moore*,
S. P. Doyle, and *K. L. DeAtley*
California State University, Chico
- Board 07 045 **Pastures and Forages:**
 The effects of AC Saltlander seeding rate on forage production and foxtail barley weed suppression on saline soils.
C. Gu,^{‡} A. D. Iwaasa,^{*} K. Wall,[†]*
C. Gatzke,^{} H. Steppuhn,^{††} and M. Zhao[‡]*
**Agriculture and Agri-Food Canada, Swift-Current Research and Development Centre, Swift Current, Canada; [‡]College of Grassland, Resources and Environment, Inner Mongolia Agricultural University, Hohhot, Inner Mongolia, China; [†]Box 1975, Swift Current, SK, Canada; ^{††} Swift Current, Canada*

- Board 08 068 **Undergraduate Student Competition:**
 Comparison of two estrus synchronization protocols utilized with natural service in young beef cows on reproductive performance and profitability.
C. J. Kassetas, J. K. Beard, S. L. Rosasco, E. J. Scholljegerdes, and A. F. Summers
New Mexico State University, Department of Animal and Range Sciences
- Board 09 008 **Environment and Livestock Management:**
 Impact of pre- and postpartum nutrition on March-calving cow and progeny productivity.
J. A. Musgrave, D. L. Broadhead, L. A. Stalker, and R. N. Funston
University of Nebraska, West Central Research and Extension Center, North Platte
- Board 10 069 **Undergraduate Student Competition:**
 Evaluating the use of BMR (Brown Midrib) corn as an acceptable forage source for grazing cattle.
A. Williams
Bozeman, MT
- Board 11 009 **Environment and Livestock Management:**
 Postweaning feed efficiency decreased in progeny from high milk producing beef cows.
J. T. Mulliniks, S. R. Edwards,* J. D. Hobbs,* Z. D. McFarlane,* and E. R. Cope**
**Department of Animal Science, University of Tennessee, Knoxville*
- Board 12 070 **Undergraduate Student Competition:**
 Volatile fatty acids concentrations of preweaned beef calves from birth to weaning.
K. M. Butterfield, K. E. Smith*, A. L. Garza*, A. M. Dickey†, A. K. Lindholm-Perry†, J. E. Wells†, H. C. Freetly†, and S. L. Lodge-Ivey**
**New Mexico State University, Las Cruces; and †USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE*

- Board 13 055 **Ruminant Nutrition:**
 The effects of delayed processing on hydration status, health, and performance of newly received feedlot heifers.
E. R. Oosthuysen, M. E. Hubbert,† J. R. Graves,* C. A. Löest,* and E. J. Scholljegerdes**
**Department of Animal and Range Sciences, New Mexico State University, Las Cruces; and †Clayton Livestock Research Center, New Mexico State University, Clayton*
- Board 14 071 **Undergraduate Student Competition:**
 Post-weaning growth performance and feed efficiency of commercial and half-blood Lowline-Angus heifers.
R. M. Swanson, J. Wisniewski, S. P. Doyle, and K. L. DeAtley
California State University, Chico
- Board 15 056 **Ruminant Nutrition:**
 Influence of dried distiller's grains with solubles on spermatozoa morphological abnormalities of ram lambs.
A. R. Crane,‡ R. R. Redden,‡ M. S. Crouse,‡ J. D. Kirsch,‡ J. E. Held,‡ P. P. Borowicz,‡ and C. S. Schauer**
**Hettinger Research Extension Center, Hettinger, ND; ‡Department of Animal Sciences, North Dakota State University, Fargo, ND; and †Department of Animal Sciences, South Dakota State University, Brookings, SD*
- Board 16 072 **Undergraduate Student Competition:**
 Impact of ensiling sugar beets with or without a mold inhibitor on internal temperature, nutrient composition, digestibility, and pH.
M. Manoukian, I. McGregor, C. Page, A. Hubbard, W. C. Stewart, and M. L. Van Emon
Department of Animal and Range Sciences, Montana State University, Bozeman
- Board 17 057 **Ruminant Nutrition:**
 Supplemental glycerin alters rumen fermentation and in situ degradation in steers exposed to an endotoxin.
F. A. Lopez, K. L. Samuelson,* R. E. Carey,* S. L. Pillmore,* J. M. Brooks,* L. T. Klump,* E. R. Oosthuysen,* and C. A. Löest**
**Department of Animal and Range Sciences, New Mexico State University, Las Cruces*

- Board 18 073 **Undergraduate Student Competition:**
 Maternal nutrition and day of gestation influence the expression of neutral and acidic amino acid transporters and their substrate concentrations in bovine utero-placental tissues and fluids from d 16 to 50 of gestation.
N. P. Greseth, M. S. Crouse,* K. J. McLean,[†] M. R. Crosswhite,[‡] N. Negrin-Pereira,* A. K. Ward,* L. P. Reynolds,* C. R. Dahlen,* B. W. Neville,* P. P. Borowicz,* and J. S. Caton**
**Department of Animal Sciences, North Dakota State University, Fargo; [†]Department of Animal and Food Sciences, University of Kentucky; and [‡]Department of Animal Science, Oklahoma State University, Stillwater*
- Board 19 059 **Ruminant Nutrition:**
 L-Lysine and L-tyrosine HCL in Nelore young bulls diets without roughage.
G. Balieiro Neto, M. Jorge,[†] M.S.J. Munhoz,[‡] A.W.P. Freitas,* I.C.S. Bueno,[§] R. Franzolin,[§] J.E. Rodini Filho,[#] S.L. Silva[§]*
**São Paulo State Agency for Agribusiness Technology, Ribeirão Preto, São Paulo, Brazil; [†]Federal University of Lavras, Lavras, Minas Gerais, Brazil; [‡]School of Veterinary Medicine, University of Cuiabá, Cuiabá, Brazil; [§]School of Animal Science and Food Engineering, University of São Paulo, Pirassununga, Brazil; [#]Pontifical Catholic University of Paraná, Curitiba, Paraná, Brazil*
- Board 20 074 **Undergraduate Student Competition:**
 Supplementation of crude glycerin via drinking water alters feed intake of sheep.
S. L. Pillmore, R. E. Carey, K. L. Samuelson, L. T. Klump, F. A. Lopez, and C. A. Löest
Department of Animal and Range Sciences, New Mexico State University, Las Cruces

- Board 21 060 **Ruminant Nutrition:**
Effects of injectable trace-mineral supplementation on the reproductive development of beef bulls.
G. W. Preedy and K. C. Olson
Department of Animal Sciences and Industry, Kansas State University, Manhattan
- Board 22 061 **Ruminant Nutrition:**
Effects of IgY antibodies on *Streptococcus equinus* strain JB1 as an antibiotic alternative for improving feedlot performance, ruminal fermentation patterns, and ciliate protozoa counts.
G. Balieiro Neto, M. E. B. S. Nadaletto,† A. W. P. Freitas,* R. Franzolin,‡ I. C. S. Bueno,‡ J. E. Rodini Filho,§ and S. L. Silva‡*
**São Paulo State Agency for Agribusiness Technology, Ribeirão Preto São Paulo, Brazil; †School of Pharmaceutical Sciences of Ribeirão Preto, University of São Paulo, Ribeirão Preto, São Paulo, Brazil; ‡School of Animal Science and Food Engineering, University of São Paulo, Pirassununga SP, Brazil; and §Pontifical Catholic University of Paraná, Curitiba, Paraná, Brazil*
- Board 23 003 **Breeding and Genetics:**
Comparison of growth, feed efficiency, and wool characteristics of commercial Rambouillet × South African Meat Merino crossbred rams to purebred Rambouillet rams.
B. Meyerhoff, W. C. Stewart,† S. H. Cox,* R. L. Dunlap,* N. P. Miller,* R. Pope,‡ and E. J. Scholljegerdes**
**Department of Animal and Range Sciences, New Mexico State University, Las Cruces; †Department of Animal and Range Sciences, Montana State University, Bozeman; and ‡Texas A&M AgriLife Research, San Angelo*
- Board 24 040 **Meat Science and Muscle Biology:**
Comparison of C and D₆₅ illuminants of Minolta colorimeter for assessing pork color.
X. Sun, J. M. Young,* J.-H. Liu,* and D. J. Newman†*
**Department of Animal Sciences, North Dakota State University, Fargo*

Symposium

DENNIS HALLFORD SYMPOSIUM AND RECEPTION

Sponsored by Regional Project W3112

*Chair: Kim Vonnahme,
North Dakota State University*

Rooms: 201/202/203/204

- 2:00 PM Doc Hallford: Chasing Hormones
Ya'll
*Ryan Ashley,
New Mexico State University*
- 2:15 PM Reproductive Endocrinology:
History, Advances and Challenges
for the Future
*Russ Anthony,
Colorado State University*
- 3:00 PM The Manner that Heifers Attain
Puberty may Indicate their
Reproductive Performance and
Longevity
*Andrea Cupp,
University of Nebraska-Lincoln*
- 3:45 PM Open Mic and Reception:
Sharing Stories of Dr. Hallford

Past Presidents WSASAS

2015-16	M. W. Salisbury, Angelo State University
2014-15	J. G. Berardinelli, Montana State University
2013-14	J. B. Taylor, USDA, ARS
2012-13	G. C. Duff, Montana State University
2011-12	A. J. Roberts, USDA, ARS
2010-11	D. H. Crews, Jr., Colorado State University
2009-10	G. E. Moss, University of Wyoming
2008-09	R. A. Battaglia, University of Idaho
2007-08	K. C. Olson, South Dakota State University
2006-07	T. T. Ross, New Mexico State University
2005-06	J. M. Thompson, Oregon State University
2004-05	E. E. Grings, USDA ARS, Miles City, MT
2003-04	J. C. Whittier, Colorado State University
2002-03	P. G. Hatfield, Montana State University
2001-02	J. W. Oltjen, University of California-Davis
2000-01	N. E. Cockett, Utah State University
1999-00	J. A. Paterson, Montana State University
1998-99	M. S. Daugherty, California Polytechnic State University
1997-98	R. E. Short, USDA, Montana
1996-97	G. H. Coulter, Agriculture Canada, Lethbridge
1995-96	M. L. Galyean, New Mexico State University
1994-95	R. A. Roeder, University of Idaho
1993-94	K. G. Odde, Colorado State University
1992-93	R. A. Field, University of Wyoming
1992-92	D. L. Garner, University of Reno-Nevada
1990-91	R. A. Bellows, USDA, Miles City
1989-90	M. Vavra, Oregon State University
1988-89	A. C. Linton, Montana State University
1987-88	D. M. Hallford, New Mexico State University
1986-87	R. C. Bull, University of Idaho
1985-86	D. E. Ray, University of Arizona
1984-85	R. W. Wright, Jr., Washington State University
1983-84	J. D. Wallace, New Mexico State University
1982-83	R. M. Tait, University of British Columbia
1981-82	R. W. Stanley, University of Hawaii
1980-81	C. B. Tueurer, University of Arizona
1979-80	M. H. Kennington, California State Poly University
1978-79	R. W. Gardner, Brigham Young University
1977-78	R. L. Preston, Washington State University
1976-77	T. R. Greathouse, Colorado State University
1975-76	D. C. England, Oregon State University
1974-75	R. L. Blackwell, Montana State University
1973-74	D. M. Bowden, Agriculture Canada Research
1972-73	W. N. Garrett, University of California
1971-72	J. E. Butcher, Utah State University
1970-71	C.J. Kercher, University of Wyoming

1969-70 L. E. Orme, Brigham Young University
 1968-69 V. R. Bohman, University of Nevada-Reno
 1967-68 A. L. Newmann, New Mexico State University
 1966-67 V. B. Swanson, Colorado State University
 1965-66 O. O. Thomas, Montana State University
 1964-65 R. Bogart, Oregon State University
 1963-64 P. O. Stratton, University of Wyoming
 1962-63 T. D. Bell, University of Idaho
 1961-62 J. A. Bennett, Utah State University
 1961 O. F. Pahnish, University of Arizona
 1960 G. P. Lofgreen, University of California
 1959 M. E. Ensminger, Washington State University
 1958 J. F. Kidwell, University of Nevada
 1957 N. W. Hilston, University of Wyoming
 1956 F. F. McKenzie, Oregon State University
 1955 L. E. Washburn, Colorado State University
 1954 H. Heitman, Jr., University of California
 1953 J. L. VanHorn, Montana State University
 1952 L. E. Harris, Utah State University
 1951 C. E. Terrill, USDA, Idaho
 1950 A. W. Oliver, Oregon State University
 1949 R. F. Miller, University of California
 1948 E. B. Stanley, University of Arizona
 1947 F. S. Hultz, University of Wyoming
 1943-46 J. H. Knox, New Mexico State University
 1942 R. T. Clark, Montana State University
 1941 H. R. Guilbert, University of California
 1940 J. Sotola, Washington State University
 1938-39 J. E. Norby, University of Idaho
 1937 E. H. Hughes, University of California
 1935-36 C. W. Hickman, University of Idaho
 1934 F. S. Hultz, University of Wyoming
 1932-33 J. F. Wilson, University of California
 1930-31 J. A. Hill, University of Wyoming
 1929 E. L. Potter, Oregon State University

Past Awards WSASAS

Distinguished Service Awards

- 2016 Michael Galyean, Texas Tech University
2015 Mike Hubbert, New Mexico State University
2014 Timothy Ross, New Mexico State University
2013 Pat Hatfield, Montana State University
2012 Doug Hixon, University of Wyoming
2011 John Paterson, Montana State University
2010 Charles T. Gaskins, Washington State University
2009 Michael D. MacNeil, USDA-ARS, Miles City, M
2008 David R. Ames, Colorado State University
2007 Noelle E. Cockett, Utah State University
2006 Not Given
2005 Mark Petersen, New Mexico State University
2004 Martin Vavra, Oregon State University
2003 Temple Grandin, Colorado State University, Fort Collins
2002 Dennis M Hallford, New Mexico State University, Las Cruces
2001 Peter R. Cheeke, Oregon State University
2000 G. Eric Bradford, University of California-Davis
1999 Robert E. Short, USDA-ARS, Miles City, MT
1998 Donald E. Johnson, Colorado State University
1997 M.W. McCullough, Moorman's High Plains SMA, Fort Collins, CO
1996 Ray A. Field, University of Wyoming
1995 Cheryl Nockels, Colorado State University
1994 Kelvin Koong, Oregon State University
1993 James S. Brinks, Colorado State University
1992 Joe Wallace, New Mexico State University
1991 C. Brent Theurer, University of Arizona
1990 Mack H. Kennington, California State Polytechnic University, Pomona
1989 C. Walter Newman, Montana State University
1988 Conrad J. Kercher, University of Wyoming
1987 David C. England, Oregon State University
1986 William Garrett, University of California-Davis
1985 Robert L. Blackwell, Montana State University
1984 Verle R. Bohman, University of Nevada, Reno
1983 Robert A. Bellows, USDA-ARS, Fort Keogh, Larri, MT
1982 David C. Church, Oregon State University
1981 William H. Hale, University of Arizona
1980 Robert J. Raleigh, Oregon State University Squaw Butte Experiment Station
1979 John K. Matsushima, Colorado State University
1978 Perry T. Cupps, University of California-Davis
1977 John Patterson Bowland, University of Alberta
1976 Glen P. Lofgreen, University of California-Davis
1975 Irwin A. Dyer, Washington State University
1974 James E. Oldfield, Oregon State University
1973 Howard H. Stonaker, Colorado State University
1972 Lorin E. Harris, Utah State University
1971 Ralph Bogart, Oregon State University

Young Scientist Awards

- 2016 Reinaldo Cooke, Oregon State University
2015 Ryan Ashley, New Mexico State University
2014 Eric Scholljegerdes, New Mexico State University
2013 Kim Vonnahme, North Dakota State University
2012 Shanna Ivey, New Mexico State University
2011 Shawn Archibeque, Colorado State University
2010 Clint A. Loest, New Mexico State University
2009 Joshua Bret Taylor, USDA-ARS, Dubois, ID
2008 Min Du, University of Wyoming
2007 Lance H. Baumgard, University of Arizona
2006 Terry Engle, Colorado State University
2005 David Bohnert, Oregon State University
2004 Denny Crews, Agriculture Canada
2003 Bret W. Hess, University of Wyoming
2002 Thomas W. Geary, USDA ARS, Miles City, MT
2001 Dean E. Hawkins, New Mexico State University
2000 Timothy DelCurto, Oregon State University
1999 Keith E. Belk, Colorado State University
1998 Noelle E. Cockett, Utah State University
1997 Janice G.P. Bowman, Montana State University
1996 Mark A. Mirando, Washington State University
1995 Mark B. Judkins, University of Nevada, Reno
1994 Mark E. Wise, University of Arizona
1993 Joseph D. Tatum, Colorado State University
1992 Mark Peterson, New Mexico State University
1991 William J. Murdoch, University of Wyoming
1990 Don C. Adams, University of Nebraska
1989 Alfred R. Menino, Jr., Oregon State University
1988 Michael L. Galyean, New Mexico State University
1987 Ronald E. Allen, University of Arizona
1986 James R. Males, Washington State University
1985 Gary B. Anderson, University of California-Davis
1984 Edward L. Squires, Colorado State University
1983 George E. Seidel, Jr., Colorado State University
1982 Peter J. Burfening, Montana State University
1981 Raymond W. Wright, Jr., Washington State University
1980 Torrance M. Nett, Colorado State University
1979 Peter R. Cheeke, Oregon State University
1978 Steven L. Davis, University of Idaho
1977 Jerry Reeves, Washington State University
1976 Colin C. Kaltenbach, University of Wyoming
1975 Gordon Niswender, Colorado State University

Extension Awards

- 2016 Douglas Tolleson, University of Arizona
2015 John Hall, University of Idaho
2014 Rick Funston, University of Nebraska
2013 Scott Lake, University of Wyoming
2012 Rachel Endecott, Montana State University
2011 Steven Paisley, University of Wyoming
2010 Allison van Eenennaam, University of California-Davis
2009 James M. Thompson, Oregon State University
2008 J. Benton Glaze, University of Idaho
2007 Daniel J. Drake, University of California-Davis
2006 James Sprinkle, University of Arizona
2005 Clay Mathis, New Mexico State University
2004 Wayne F. Gipp, Montana State University
2003 John A. Paterson, Montana State University
2002 Stephen B. LeValley, Colorado State University, Fort Collins
2001 Dale R. Zobell, Utah State University
2000 Ronald L. Hathaway, Oregon State University
1999 Ann M. Swinker, Colorado State University
1998 Jack C. Whittier, Colorado State University
1997 James W. Oltjen, University of California-Davis
1996 Rodney W. Kott, Montana State University
1995 Norris J. Stenquist, University of Utah
1994 Rodney C. Torrell, University of Nevada, Reno
1993 Johannes E. Nel, University of Wyoming
1992 Doug Hixon, University of Wyoming
1991 Les J. Krysl, University of Nevada
1990 Tim L. Stanton, Colorado State University
1989 Chad C. Gibson, University of Idaho
1988 Roger M. Brownson, Montana State University
1987 James M. Sachse, New Mexico State University

Teaching Awards

- 2016 Ryan Ashley, New Mexico State University
2015 Jason Ahola, Colorado State University
2014 Mark Nelson, Washington State University
2013 Kristen Johnson, Washington State University
2012 James G. Berardinelli, Montana State University
2011 Daniel C. Rule, University of Wyoming
2010 Amin Ahmadzahdeh, University of Idaho
2009 Terry E. Engle, Colorado State University
2008 Paul A. Ludden, University of Wyoming
2007 James R. Carpenter, University of Hawaii
2006 Anita Oberbauer, University of California-Davis
2005 C. Chris Calvert, University of California
2004 Janice G. P. Bowman, Montana State University
2003 Timothy T. Ross, New Mexico State University
2002 Raymond P. Ansotegui, Montana State University, Bozeman
2001 Bok F. Sowell, Montana State University
2000 Thomas R. Famula, University of California-Davis
1999 Dale W. Holcombe, University of Nevada
1998 J. Daryl Tatum, Colorado State University
1997 Jerry J. Reeves, Washington State University
1996 Ronald D. Green, Colorado State University
1995 Thomas G. Field, Colorado State University
1994 Dale W. Weber, Oregon State University
1993 William A. Schurg, University of Arizona
1992 Mel Riley, University of Wyoming
1991 Dennis M. Hallford, New Mexico State University
1990 Leon E. Orme, Brigham Young University
1989 Everett L. Martin, Washington State University
1988 John A. Froseth, Washington State University
1987 Robert E. Taylor, Colorado State University

Executive Board Outstanding Service Award

- 2011 Paula Schultz, ASAS

First Place Recipient of the Competition Paper Awards

- 2016 E. R. Oosthuysen, New Mexico State University
2015 K. Quinn, New Mexico State University
2014 K. Samuelson, New Mexico State University
2013 J. L. Peine, North Dakota State University
2012 M. K. Beckman, New Mexico State University
2011 F. M. Abreu, Ohio State University
2010 P. Moriel, University of Wyoming
2009 C. M. McAllister, Colorado State University
2008 S. A. Kuykendall, New Mexico State University
2007 P. L. Price, University of Wyoming
2006 J. W. Waggoner, New Mexico State University
2005 T. M. Thelen, New Mexico State University
2004 S. L. Lake, University of Wyoming
2003 E. J. Scholljegerdes, University of Wyoming
2002 J. A. Morrison, Oregon State University
2001 D. J. Denniston, New Mexico State University
2000 M. Bertolini, University of California
1999 L. Brokaw, University of Wyoming
1998 L. R. McMahon, University of Saskatchewan
1997 T. E. Ludwig, Washington State University
1996 T. M. M. Bernardini, Montana State University
1995 L. M. M. Surber, Montana State University
1994 S. I. Paisley, University of Wyoming
1993 K. A. Naivar, University of Wyoming
1992 M. J. Guthrie, New Mexico State University
1991 T. W. Geary, Washington State University
1990 M. A. Lane, Montana State University
1989 D. L. Rankins, New Mexico State University
1988 D. M. Grieger, Washington State University
1987 M. Flood, Washington State University
1986 J. M. Miner, Montana State University
1985 J. S. Caton, New Mexico State University
1984 M. J. Garber, Washington State University
1983 J. Brown, Washington State University
1982 D. Honeyfield, Washington State University
1981 M. U. Marcano, Washington State University
1980 J. C. Throckmorton, Oregon State University
1979 C. L. Griggin, New Mexico State University
1978 M. K. Petersen, University of Idaho
1977 C. A. Hildebrand, University of Idaho
1976 S. R. Becker, Washington State University
1975 C. C. Calvert, Montana State University
1974 T. M. Bray, Washington State University
1973 C. Shreffler, Oregon State University
1972 P. V. Rattray, University of California
1971 A. Booren, University of Wyoming
1970 R. L. Quaas, Colorado State University
1969 D. Wideman, Colorado State University
1968 A. A. Howells, Washington State University

First Place Recipient of the Applied Animal Science Awards

- 2016 S. L. Rosasco, New Mexico State University
- 2015 B. C. Krehbiel, Colorado State University
- 2014 T. A. Guarnieri Filho, Oregon State University
- 2013 R. P. Arias, University of Wyoming
- 2012 J. T. Mulliniks, New Mexico State University
- 2011 J. E. Sprinkle, University of Arizona
- 2010 A. F. Summers, University of Nebraska
- 2009 J. T. Mulliniks, New Mexico State University
- 2008 A. J. Roberts, USDA, ARS, Fort Keogh Livestock
and Range Research Lab
- 2007 C. P. Mathis, New Mexico State University
- 2006 J. J. Martin, University of Nebraska
- 2005 R. R. Salverson, South Dakota State University
- 2004 E. H. Ward, South Dakota State University
- 2003 H. H. Patterson, South Dakota State University
- 2002 H. H. Patterson, South Dakota State University
- 2001 D. D. Kress, Montana State University
- 2001 R. L. Hathaway, Oregon State University

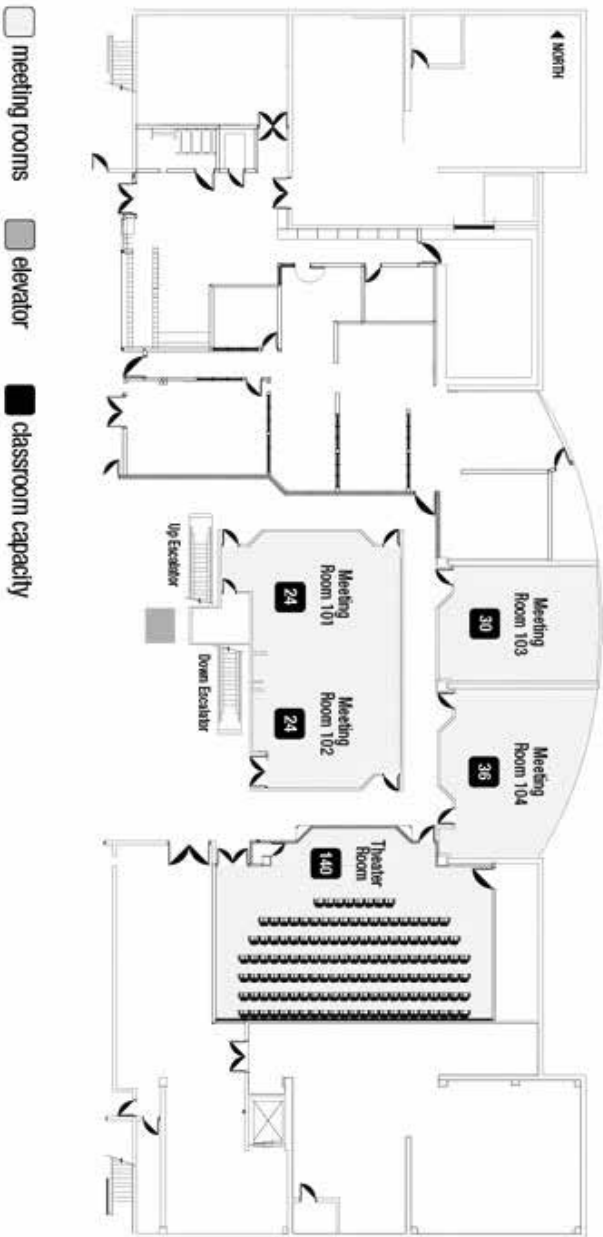
Institutional Graduate Student Paper Competition Awards

- 2016 New Mexico State University
- 2015 Oklahoma State University
- 2014 New Mexico State University
- 2013 New Mexico State University
- 2012 New Mexico State University
- 2011 New Mexico State University
- 2010 New Mexico State University
- 2009 University of Wyoming
- 2008 New Mexico State University
- 2007 University of Wyoming
- 2006 University of Wyoming
- 2005 University of Wyoming
- 2004 New Mexico State University
- 2003 University of Wyoming

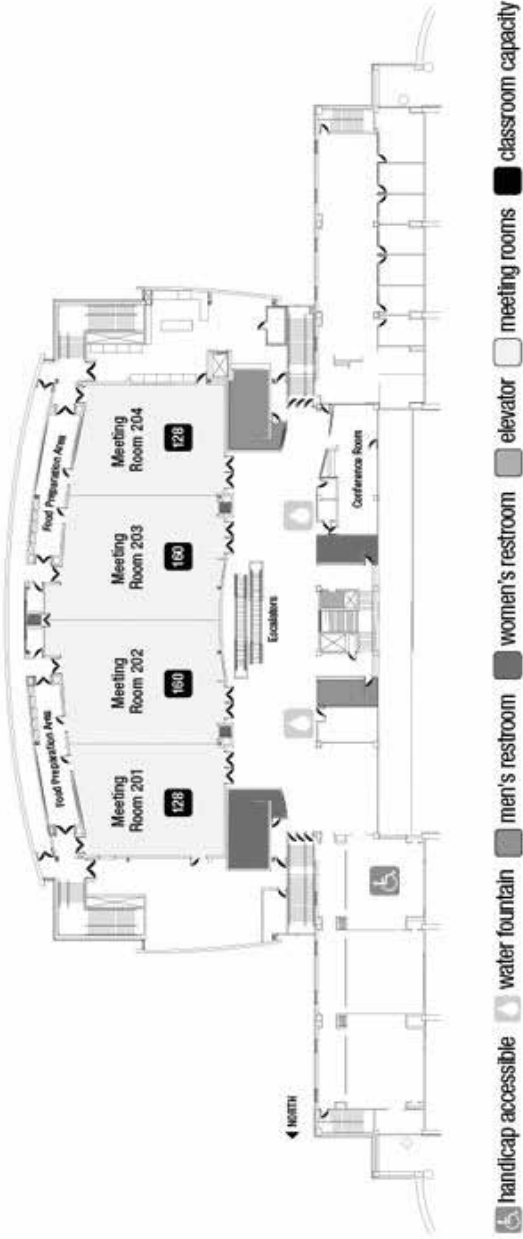
Young Scholars Recognition

- 2016 A. Abrams, M.S., University of Wyoming
S. Prosser, M.S., New Mexico State University
R. da Silva Marques, Ph.D., Oregon State University
- 2015 K. Marchetti, M.S., New Mexico State University
W. Stewart, Ph.D., New Mexico State University
- 2014 B. Welly, M.S., University of California–Davis
H. Cunningham, M.S., University of Wyoming
Leticia Camacho, Ph.D., North Dakota State University
- 2013 K. P. Sharon, M.S., Montana State University
M. K. Beckman, M.S., New Mexico State University

FargoDome Floor 1



FargoDome Floor 2





The Western Section American Society of Animal Science gratefully acknowledges the financial contributions of the following organizations:

MEETING SPONSORS

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Elanco Animal Health
Western Section, American Society of Animal Science

DISTINGUISHED TEACHING AWARD

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EXTENSION AWARD

Elanco Animal Health
Western Section, American Society of Animal Science

YOUNG SCIENTIST AWARD

Western Section, American Society of Animal Science

GRADUATE STUDENT INSTITUTION AWARD

Zinpro Corporation

YOUNG SCHOLARS RECOGNITION RECIPIENTS

Zinpro Corporation

FIRST PLACE RECIPIENT OF THE APPLIED ANIMAL SCIENCE AWARDS

Western Section, American Society of Animal Science

UNDERGRADUATE POSTER COMPETITION

Beaver Creek Farm

GRADUATE STUDENT PAPER COMPETITION

Western Section, ASAS



FUTURE MEETING LOCATIONS

2018	Bend, OR
2019	Boise, ID
2020	Sacramento, CA