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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University of Wyoming, Laramie

Stacia Prosser
Graduate Student Representative
New Mexico State University, Las Cruces
6

**SUMMARY OF SCHEDULE OF EVENTS**

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

### MONDAY, JUNE 19, 2017

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:00 PM–6:00 PM</td>
<td>Registration Lobby</td>
</tr>
<tr>
<td>4:00 PM–6:00 PM</td>
<td>WSASAS Executive Committee Pre-Conference Meeting</td>
</tr>
</tbody>
</table>

### TUESDAY, JUNE 20, 2017

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>7:00 AM–4:00 PM</td>
<td>Registration Lobby</td>
</tr>
<tr>
<td>8:00 AM–4:00 PM</td>
<td>Beef Symposium: Are We Still Fulfilling the Land Grant Mission? 201/202/203/204</td>
</tr>
<tr>
<td>2:00 PM–4:00 PM</td>
<td>NDSU Tours Lobby</td>
</tr>
<tr>
<td>5:30 PM–7:00 PM</td>
<td>Opening Reception North Dakota Horse Park</td>
</tr>
</tbody>
</table>
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  WSAS 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@assochq.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.
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
ORAL PRESENTATIONS

Wednesday, June 21, 2017

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 F2α 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. Halford,* 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.
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.
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, Idaho, TX
10:45 AM 019 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. Nielsen,* and R. N. Funston*
*University of Nebraska, West Central Research and Extension Center, North Platte

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. Nielsen,* 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

11:00 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

11:00 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
Estimation of the requirement for water and ecosystem benefits of beef production on California rangelands.

E. Andreini*, J. Finzel†, D. Rao†, S. Larson†, and J. W. Oltjen*†
*Department of Animal Science, University of California-Davis,
†University of California Cooperative Extension

Effect of a low vitamin A diet on marbling and carcass characteristics of Angus cross and Simmental steers.

*Department of Animal Sciences, North Dakota State University, Fargo

Lunch

Effects of prescribed-burn timing on vigor of the noxious weed sericea lespedeza (Lespedeza cuneata) on native tallgrass range in the Kansas Flint Hills.

*Department of Animal Sciences & Industry, Kansas State University, Manhattan; and †Department of Agronomy, Kansas State University, Manhattan

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

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
Glycerin supplementation via drinking water alters nitrogen balance and immune response of beef steers during an endotoxin challenge.

*Department of Animal and Range Sciences, New Mexico State University, Las Cruces; and †Livestock Issues Research Unit, USDA-ARS, Lubbock, TX

The effects of feeding reduced-lignin alfalfa on growing beef cattle performance.

*Department of Animal and Range Sciences, Montana State University, Bozeman; and †Department of Mathematical Sciences, Montana State University, Bozeman

Effects of metabolizable protein supply and fetal number on placental binucleate cells in pregnant sheep during late gestation.

*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
Using corn supplementation for overwintered beef cows during mid- to late-gestation: Uterine hemodynamics, placental vascularity, and neonatal performance.


*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

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

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

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
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 †Department of Plant Science, University of Tennessee, Knoxville

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


*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
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

Impacts of stocking density on growth and puberty attainment of replacement beef heifers.

*Oregon State University - Eastern Oregon Agricultural Research Center, Burns, OR, and †São Paulo State University, FMVZ, Botucatu, SP, Brazil

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.

*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.


*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 × Rambouillet ewes in an extensive rangeland production system.


*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.
*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. Gateke,* 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 Science, 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. Şentürkülü*, 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
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
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.  
*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
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. Kraisoon,† 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.


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
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

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

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, Carman; and †Division of Animal Sciences, University of Missouri, Columbia

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.
California State University, Chico

Undergraduate Student Competition:
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
Environment and Livestock Management:

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

Environment and Livestock Management:

Impact of pre- and postpartum nutrition on March-calving cow and progeny productivity.

University of Nebraska, West Central Research and Extension Center, North Platte

Undergraduate Student Competition:
Evaluating the use of BMR (Brown Midrib) corn as an acceptable forage source for grazing cattle.

A. Williams
Bozeman, MT

Environment and Livestock Management:

Postweaning feed efficiency decreased in progeny from high milk producing beef cows.

‘Department of Animal Science, University of Tennessee, Knoxville

Undergraduate Student Competition:
Volatile fatty acids concentrations of preweaned beef calves from birth to weaning.

‘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.
†Department of Animal and Range Sciences, New Mexico State University, Las Cruces
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

Ruminant Nutrition:
L-Lysine and L-taurine HCL in Nellore 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

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‡
*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 D\(_{65}\) 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**

<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation</th>
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| 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
Distinguished Service Awards

Past Awards
WSASAS

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, MT
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, Larrl, 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
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
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

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

## Executive Board Outstanding Service Award

<table>
<thead>
<tr>
<th>Year</th>
<th>Award Winner</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>Paula Schultz, ASAS</td>
</tr>
</tbody>
</table>
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. 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
The Western Section American Society of Animal Science gratefully acknowledges the financial contributions of the following organizations:

**MEETING SPONSORS**

- Beaver Creek Farm
- Elanco Animal Health
- North Dakota Beef Commission
- North Dakota State University Department of Animal Sciences
- North Dakota State University Hettinger Research Extension Center
- Zinpro Corporation

**AWARD AND RECOGNITION DONORS**

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- Elanco Animal Health
- Western Section, American Society of Animal Science

**DISTINGUISHED TEACHING AWARD**
- Elanco Animal Health
- Western Section, American Society of Animal Science

**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