

**WESTERN SECTION
American Society
of Animal Science
85th Annual Meeting**



**Montana State University
Bozeman, Montana
June 19-21, 2013**



**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 Secretary.

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2013 Western Section American Society of Animal Science Annual Meeting

SUMMARY OF SCHEDULED OF EVENTS

Unless otherwise noted, all events will be held in rooms of the Animal Bioscience Building (ABB) on the Montana State University Campus.

MONDAY, JUNE 17, 2013

1:30 pm - 7:30 pm AQ Written Exams and Oral Presentations, 134, 136, 138 ABB

TUESDAY, JUNE 18, 2013

8:00 am - 12:00 pm AQ Lab Practicum, Bozeman Agriculture Research and Teaching Facility

1:00 pm - 4:00 pm Quiz bowl, Common Area, 1st floor, ABB

4:00 pm – 6:00 pm Registration, Comfort Inn

4:00 pm – 6:00 pm WSASAS Executive Committee Pre-conference Meeting, 145 ABB

WEDNESDAY, JUNE 19, 2013

7:00 am – 6:00 pm Registration, Museum of the Rockies, Lobby

8:30 am – 5:00 pm Posters should be placed for display in rooms 236 and 238 ABB

8:00 am – 4:00 pm WERA-39/WSASAS Sheep Symposium: Integrating Advanced Concepts into Traditional Practices. This symposium will include invited speakers from around the nation. Museum of Rockies; Hager Auditorium

7:30 am – 5:00 pm Beef Symposium: Sustainable Production and Management Practices of Ranches in Southwestern Montana. This symposium is a tour to ranches in the Gallatin and Madison Valleys and includes invited speakers at each stop. Meet in ABB parking lot.

5:10 pm – 6:25 pm **New this Year:** Young Scholars Recognition Program, Museum of Rockies; Hager Auditorium

6:30 pm – 9:00 pm Opening Reception, Bobcat Stadium; Stadium Corporate Room

THURSDAY, JUNE 20, 2013

7:00 am – 12:00 pm Registration, Museum of the Rockies, Lobby

7:30 am – 1:30 pm Graduate Student Paper Competition, Museum of Rockies; Hager Auditorium

1:00 pm – 6:00 pm Registration, 1st floor Commons Area, ABB

2:00 pm – 4:00 pm Graduate Student “Snack and Fact”, room 134 ABB (following Paper Competition Presentations)

2:00 pm – 4:00 pm WSASAS Committee Meetings, rooms 138, 145, 245, 305

3:00 pm – 4:45 pm	Oral Presentations, rooms 136 and 138 ABB
4:00 pm – 5:30 pm	Poster Presentations, room 236 and 238 ABB
6:30 pm – 9:00 pm	Awards Banquet, Copper Spring Ranch Pavilion, Bozeman, MT
9:30 pm	Graduate Student Mixer, Pour House, Main St., Bozeman, MT

FRIDAY, JUNE 21, 2013

7:30 am – 9:00 am	WSASAS Business Meeting, room 138 ABB
9:00 am – 10:45 am	Oral Presentations, rooms 136 and 138 ABB
11:00 am – 12:30 pm	Poster Presentations, room 236 and 238 ABB
12:30 pm	Meeting Adjourn
12:30 pm – 2:00 pm	WSASAS Executive Committee Post-conference Meeting, 145 ABB

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 in Windows 7.
2. Individual laptops may not be connected to the projectors in the session rooms.
3. Oral presentations for Wednesday's Sheep Symposium **MUST** see Pat Hatfield who will upload them onto the computer in the Museum of the Rockies.
4. Presentations for Thursday and Friday **MUST** be presented to a volunteer manning a laptop computer in the "Commons Area" on the 1st floor of the Animal Bioscience Building on Wednesday and Thursday between 8:00 am and 5:00 pm, respectively. Preferably, presentations for upload should be on flash drives.

PREVIEW ROOMS FOR ORAL PRESENTATIONS

There will be rooms for preview of oral presentations. Equipment will be provided for this purpose. You must provide your own flash drive. There will be a sign up sheet for use of these rooms. One room (Seminar Room) is in the Museum of the Rockies (for Grad Student Paper Competition) and the others are in the Animal Bioscience Building (ABB), rooms 145 and 305.

Wednesday, June 19, 2013

Scientific Sessions

SYMPOSIA AND ORAL PRESENTATIONS

WERA-39-WSASAS SHEEP SYMPOSIUM INTEGRATING ADVANCED CONCEPTS INTO TRADITIONAL PRACTICES

Chair: Patrick G. Hatfield, Montana State University, Bozeman
Hager Auditorium, Museum of the Rockies

- 8:25 am **Introductions**
- 8:30 am SS1 **Keynote speaker: Impact of research on the sheep industry.** Rodney Kott, Professor and Sheep Extension Specialist, Montana State University, Bozeman.
- 9:10 am SS2 **Applying genomic selection technology to the sheep industry.** Rebecca Cockrum; Postdoctoral Fellow, Animal Science, Colorado State University, Fort Collins.
- 9:40 am SS3 **Sheep parasites: problems, resistance, new products and practices for parasite control.** Thomas Craig, Professor Veterinary Parasitologist, Texas A&M, College Station.
- 10:20 am **Break**
- 10:40 am SS4 **Factors related to the ewe that affect prolificacy in sheep.** Keith Inskeep, Professor, Animal Reproduction and Management, West Virginia University, Morgantown.
- 11:20 am SS5 **Maternal environment impacts fetal and offspring outcomes in sheep.** Kim Vonnahme, Associate Professor Animal Scientist, North Dakota State University, Fargo.
- 12:00 pm **Lunch**
- 1:30 pm SS6 **ASI initiatives for industry growth.** Peter Orwick, Executive Director, American Sheep Industry, Englewood, CO.
- 1:50 pm SS7 **Alternative feeds: for a temporary crisis or permanent problem?** Travis Whitney, Associate Professor, Ruminant Nutrition, Texas A&M AgriLife Research, San Angelo.
- 2:20 pm SS8 **Alternative grazing strategies for industry diversification and rangeland improvement.** Rachel Frost, Research Scientist, Range Science, Montana State University, Bozeman.
- 2:40 pm **Break**
- 3:00 pm SS9 **The U.S. lamb market.** David Anderson, Professor and Extension Economist, Texas A&M AgriLife Extension Service, College Station.
- 3:30 pm SS10 **Sheep, black swans and the future of agriculture.** John Walker, Professor and Resident Director of Research, Texas A&M AgriLife Research, San Angelo.
- 4:00 pm **MONTANA WOOLGROWERS ASSOCIATION
PANEL: REVIEW AND DISCUSSION**
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WSASAS BEEF SYMPOSIUM

SUSTAINABLE PRODUCTION AND MANAGEMENT PRACTICES OF RANCHES IN SOUTHWESTERN MONTANA

Chair: John B. Hall, University of Idaho

Registrants to Meet in ABB Parking Lot by 7:30 am for Tour

- 8:30 am **Stop 1 MZBar Ranch Belgrade, MT. Tom Milesnick, Owner**
- BS1 **Supplementation during drought.** Rachel. L. Endecott, Beef Extension Specialist, Montana State University, Bozeman, MT.
- BS2 **Multi-sire breeding, how many calves will each bull produce?** Andy J. Roberts, L. Alexander, T. Geary, R. Waterman, and M. MacNeil. USDA, ARS, Fort Keogh LARRL, Miles City, MT.
- 11:00 am **Stop 2 Churchill Cattle Co. Manhattan, MT. Dale and Nancy Venhuizen, Owners**
- BS3 **Heterosis: The forgotten free lunch.** Don Kress, Professor Emeritus, Montana State University, Bozeman.
- BS4 **Relationship of voluntary intake and cow survival under range conditions.** D. Faulkner, University of Arizona, and S. Lake, University of Wyoming.
- 1:00 pm **Lunch**
- 2:00 pm **Stop 3 Red Bluff Ranch, Norris, MT. Montana Agricultural Experiment Station, Dept. of Animal and Range Sciences.**
- BS5 **Does the cattle cycle still exist?** Gary Brester, Ag Economist, Montana State University, Bozeman.
- 4:00 pm **Stop 4 Bozeman Agriculture Research and Teaching Facility (BART), Bozeman, MT.**

YOUNG SCHOLARS RECOGNITION PROGRAM

Chair: Connie Larson, Zinpro Corporation, Eden Prairie, MN
Room 134 ABB

- 5:10 pm **Introduction.** Connie Larson, Chair of Program
- 5:20 pm 01 **Effects of on-arrival, delayed vaccination and supplemental lysine on performance, antibody titer, temperature and metabolic profiles in response to modified-live viral respiratory vaccination.** Kate P. Sharon, M.S Graduate Student. Montana State University, Bozeman.
- 5:50 pm 02 **Evaluation of the novel feedstuff, lipid extracted algae, for ruminant animals in forage and concentrate diets.** Melanie Beckman, M.S. Graduate Student, New Mexico State University, Las Cruces.

Thursday, June 20, 2013

Scientific Sessions

GRADUATE STUDENT PAPER COMPETITION

Chair: Chad J. Mueller, Oregon State University,
Eastern Oregon Agricultural Research Center
Hager Auditorium, Museum of the Rockies

- 8:00 am 03 **Effects of flunixin meglumine administration on acute-phase and performance responses of transported feeder cattle.** B. I. Cappellozza*, R. F. Cooke, J. M. Neto, T. Guarnieri Filho, R. Almeida, D. McGuire, F. N. T. Cooke, D. W. Bohnert, Eastern Oregon Agricultural Research Center, Oregon State University, Burns.
- 8:15 am 04 **Mean pulmonary arterial pressure in beef calves is positively associated with mixed venous CO₂ tension and oxygen extraction ratio when controlling for alveolar oxygen tension.** J. M. Neary^{1,*}, F. B. Garry¹, M. G. Thomas², R. M. Enns², T. N. Holt¹, E. C. Orton¹, ¹Clinical Science, ²Animal Science, Colorado State University, Fort Collins.
- 8:30 am 05 **The effect of diet and feed efficiency status on rumen microbial profiles in sheep.** M. J. Ellison^{1,*}, G. Conant², W. R. Lamberson², K. J. Austin¹, R. R. Cockrum³, K. M. Cammack¹, ¹Department of Animal Science, University of Wyoming, Laramie, WY, ²Department of Animal Sciences, University of Missouri, Columbia, MO, ³Department of Animal Sciences, Colorado State University, Fort Collins.
- 8:45 am 06 **Maternal nutrient restriction followed by re-alimentation during early to mid-gestation on mammary gland development in beef cows.** L. E. Camacho^{1,*}, C. O. Lemley², J. S. Haring¹, D. M. Hallford³, K. C. Swanson¹, K. A. Vonnahme¹, P. P. Borowicz⁴, ¹Animal Sciences, North Dakota State University, Fargo, ²Animal and Dairy Sciences, Mississippi State University, Mississippi State, ³Animal and Range Sciences, New Mexico State University, Las Cruces, ⁴Animal Sciences, North Dakota State University, Fargo.
- 9:00 am 07 **Effects of maternal nutrition and rumen-protected arginine supplementation on ewe and postnatal lamb performance.** J. L. Peine^{1,*}, G. Q. Jia¹, M. L. Van Emon¹, T. L. Neville¹, J. D. Kirsch¹, C. J. Hammer¹, S. T. O'Rourke², L. P. Reynolds¹, J. S. Caton¹, ¹Animal Sciences, ²Pharmaceutical Sciences, North Dakota State University, Fargo.
- 9:15 am 08 **Effects of human chorionic gonadotropin administration in ewes post mating on serum progesterone concentration and number of corpora lutea and concepti.** M. P. T. Coleson*, C. M. Richardson, R. L. Ashley, K. E. Quinn, C. A. Gurule, R. Halalsheh, D. M. Hallford, T. T. Ross, Animal & Range Science, New Mexico State University, Las Cruces.

- 9:30 am 09 **Effect of ketamine-stun and meloxicam on behavior and performance associated with band castration in cull beef bulls** A. Yager*, Animal Science, Colorado State University, Fort Collins.
- 9:45 am 010 **Impact of maternal nutrition and post-weaning management on steer and heifer progeny in a late spring calving system.** J. D. Harms*, R. N. Funston, L. A. Stalker, A. F. Summers, West Central Research and Extension Center, University of Nebraska, North Platte.
- 10:00 am 011 **Effect of supplementation frequency on performance of spring-calving cows supplemented with dried distillers grain.** B. W. Bennett^{1,*}, J. W. Waggoner¹, J. R. Jaeger¹, A. K. Sexten², K. C. Olson², ¹Western Kansas Agricultural Research Center, Kansas State University, Hays, ²Animal Sciences & Industry, Kansas State University, Manhattan.
- 10:15 am **Break**
- 10:30 am 012 **The effects of winter protein supplementation during the third trimester on cow and subsequent calf performance.** C. L. Marshall^{1,*}, S. R. Fensterseifer¹, R. P. Arias¹, R. N. Funston², S. L. Lake¹, ¹Department of Animal Science, University of Wyoming, Laramie, ²Department of Animal Science, University of Nebraska, Lincoln.
- 10:45 am 013 **Effect of cobalt supplementation on rumen fermentation and blood metabolites.** C. L. Shelley^{1,*}, L. N. Tracey¹, A. L. Salazar¹, K. Marchetti¹, L. Schmitz¹, E. J. Scholljegerdes¹, C. K. Larson², S. Ivey¹, ¹Animal and Range Sciences, New Mexico State University, Las Cruces, NM, ²Zinpro Corporation, Eden Prairie, MN.
- 11:00 am 014 **Regulation of vascular endothelial growth factor (vegf) by (c-x-c motif) ligand 12 (cxcl12) in ovine caruncle explants.** K. E. Quinn*, R. L. Ashley, Animal and Range Science, New Mexico State University, Las Cruces.
- 11:15 am 015 **Effect of pubertal status and number of estrous cycles prior to breeding on pregnancy rate in beef heifers.** R. A. Vraspir^{1,*}, A. F. Summers¹, A. J. Roberts², R. N. Funston¹, ¹University of Nebraska, West Central Research and Extension Center, North Platte, ²USDA-ARS, Fort Keogh Livestock and Range Research Laboratory, Miles City.
- 11:30 am 016 **Effects of forage particle size on digestibility in crossbred lambs.** J. Swartz*, D. L. Ragen, A. Boomer, P. Helmecke, J. Rohrs, K. Sharon, K. Spence, K. Tierney, A. Vogstad, P. G. Hatfield, C. J. Yeoman, Animal and Range Science, Montana State University, Bozeman.

- 11:45 am 017 **Effects of post-AI nutrition on fertility of yearling beef heifers.** R. P. Arias^{1,*}, P. J. Gunn², R. P. Lemenager², G. A. Perry³, G. A. Bridges⁴, S. L. Lake¹, ¹Department of Animal Science, University of Wyoming, Laramie, ²Department of Animal Sciences, Purdue University, West Lafayette, IN, ³Department of Animal Science, South Dakota State University, Brookings, ⁴Department of Animal Science, University of Minnesota, St. Paul.
- 12:00 pm 018 **Optimum performance testing periods for determining feed efficiency and its parameters in beef cattle.** M. M. Culbertson*, S. E. Speidel, R. R. Cockrum, R. K. Peel, D. H. Crews, R. M. Enns, Department of Animal Sciences, Colorado State University, Fort Collins.
- 12:15 pm 019 **Use of a portable metabolic chamber for measuring resting metabolic rates in cattle of varying body weights.** A. R. Vogstad*, B. E. Olson, T. T. Wurtz, G. C. Duff, Animal and Range Sciences, Montana State University, Bozeman.
- 12:30 pm 020 **Supplemental lysine does not affect animal performance, antibody titer, or rectal temperature in response to a modified-live viral respiratory vaccine in neonatal Holstein calves.** K. P. Sharon^{1,*}, G. C. Duff¹, J. W. Dailey², J. A. Carroll², J. K. Hilmer³, B. Bothner³, ¹Animal and Range Science, Montana State University, Bozeman, ²USDA Livestock Issues Unit, Lubbock, ³Department of Chemistry and Biochemistry, Montana State University, Bozeman.
- 12:45 pm 021 **The effect of a 7-d CIDR-based pre-synchronization protocol on response to GnRH at the start of 7-d co-synch and pregnancy rate following timed-AI in yearling beef heifers.** B. Bigler*, Animal Science, Colorado State University, Fort Collins.
- 1:00 pm 022 **Effectiveness of a dried molasses lick tub supplement containing calcium salts of fish oil for increasing omega-3 fatty acids in muscle of forage-finished cattle.** E. Melson*, D. Rule, W. Means, S. Paisley, Animal Science, University of Wyoming, Laramie.
- 1:15 pm 030 **Impacts of supplemental arginine on reproductive performance in sheep.** A. R. Crane^{1,2,*}, R. R. Redden¹, M. L. Van Emon^{1,2}, T. L. Neville¹, J. S. Caton¹, C. S. Schauer², ¹Department of Animal Sciences, North Dakota State University, Fargo, ND, ²Hettinger Research Extension Center, North Dakota State University, Hettinger.

GRADUATE STUDENT "SNACK AND FACT"

Co-Chairs: Leticia Camacho, North Dakota State University and
Kelsey Quinn, New Mexico State University, WSASAS Exec.
Committee Graduate Representatives
Room 134 ABB

- 2:00 pm **Introduction.** Leticia Camacho, Co-Chair of Program

- 2:10 pm 023 **Abstracts and Proceedings Writing.** Jack Whittier, Colorado State University, Fort Collins
- 2:30 pm 024 **Turning Abstracts and Proceedings into Theses.** Kasey DeAtley, University of California, Chico.
- 2:50 pm 025 **Grant Writing.** Shanna Ivey , New Mexico State University, Las Cruces.
- 3:10 pm 026 **Grant Writing and Grants Available to Students/Postdocs.** Caleb Lemley, New Mexico State University, Las Cruces.
- 3:40 pm **PANEL: Questions and Answers**

WSASAS COMMITTEE MEETINGS

- 6:00 am Young Scholars Recognition Program Committee, Connie Larson, Chair, room 145 ABB
- 2:00 pm Advising and Coordinating Committee, Mike Salisbury, Chair, room 145 ABB
- 2:00 pm Beef Symposium Committee, John Hall, Chair, room 138 ABB
- 2:00 pm Awards Committee, Bret Taylor, Chair, room 245 ABB
- 2:00 pm Graduate Student Paper Competition Committee, Chad Mueller, Chair, room 305 ABB
- 2:00 pm Nominating Committee, Glenn Duff, Chair, room ABB 107
- 2:00 pm Academic Quadrathlon Committee, Dan Rule, Chair, room 234 ABB

PHYSIOLOGY

Chair: Gregory S. Lewis, USDA-ARS, U.S. Sheep Experiment Station
Room 136 ABB

- 3:00 pm 027 **Rest stops during road transport: Impacts on performance and acute-phase protein responses of feeder cattle.** R. F. Cooke, B. I. Cappellozza*, J. M. Neto, T. Guarnieri Filho, R. Almeida, D. McGuire, F. N. T. Cooke, D. W. Bohnert, Eastern Oregon Agricultural Research Center, Oregon State University, Burns.
- 3:15 pm 028 **Analysis of six neuropeptides detected in hypothalamus and pituitary gland of pre- and post-pubertal Brangus heifers.** K. L. Deatley^{1,2,3,*}, M. L. Colgrave⁴, M. G. Thomas⁵, M. R. Fortes⁶, J. F. Medrano⁷, G. Rincon⁷, A. Islas-Trejo⁷, R. L. Ashley², G. Silver², A. Reverter-Gómez⁸, A. Canovas⁷, W. M. Snelling⁹, ¹Animal Sciences, University of California, Davis, ²Animal and Range Sciences, New Mexico State University, Las Cruces, ³College of Agriculture, California State University, Chico, ⁴Animal, Food, and Health Sciences, CSIRO, Brisbane, Australia, ⁵Animal Science, Colorado State University, Fort Collins,

⁶QAAFI, University of Queensland, Gatton, Australia, ⁷Animal Science, University of California, Davis, ⁸Animal, Food, and Health Science, CSIRO, Brisbane, Australia, ⁹ARS, USDA, Clay Center.

- 3:30 pm 029 **Effect of flunixin meglumine on first service conception rate in beef heifers.** B. W. Bennett^{1,*}, J. R. Jaeger¹, J. W. Waggoner¹, A. K. Sexten², K. C. Olson², ¹Western Kansas Agricultural Research Center, Kansas State University, Hays, ²Animal Sciences & Industry, Kansas State University, Manhattan.

RUMINANT AND NON-RUMINANT NUTRITION

Chair: Richard C. Waterman, USDA-ARS, Ft Keogh, LARRL
Room 136 ABB

- 3:45 pm 031 **Effects of monensin sodium and plant extracts containing cinnamaldehyde, capsicum, and eugenol on days to puberty, gain, pregnancy rate, and feed efficiency in developing beef heifers receiving a high roughage diet.** B. Bigler*, Animal Science, Colorado State University, Fort Collins.
- 4:00 pm 032 **Growth performance of rainbow trout (*Oncorhynchus mykiss*) fed plant and animal protein blend feeds.** O. C. Betiku^{1,*}, G. T. Gaylord², F. T. Barrows³, C. Yeoman⁴, G. Duff⁴, W. Sealey², ¹Animal and Range Science, Montana State University, ²Nutrition, Bozeman Fish Technology Center, ³Nutrition, United States Department of Agriculture, ⁴Animal and Range Sciences, Montana States University, Bozeman.
- 4:15 pm 033 **Metabolic and morphologic effects of psyllium supplementation in horses grazing rapidly growing cool season grass.** J. L. Rohrs*, S. J. Moreaux, R. A. Frost, J. G. Berardinelli, Animal & Range Sciences, Montana State University, Bozeman.
- 4:30 pm 034 **Feeding low-phytic acid corn grain to finishing wethers does not alter phosphorus digestion.** J. Taylor^{1,*}, A. Leytem², V. Raboy³, ¹USDA, Agricultural Research Service, Dubois, ID, ²USDA, Agricultural Research Service, Kimberly, ID, ³USDA, Agricultural Research Service, Aberdeen, ID.

BREEDING AND GENETICS

Chair: Jennifer M. Thomson, Montana State University
Room 138 ABB

- 3:00 pm 035 **Genetic evaluation of the probability of lambing in yearling Targhee ewes.** D. P. Kirschten^{1,*}, D. R. Notter², G. S. Lewis¹, ¹ARS-USDA, Dubois, ID, ²Virginia Tech, Blacksburg.

- 3:15 pm 036 **Estimating economic values of traits for maternal beef production system.** X. Zeng*, S. E. Speidel, M. G. Thomas, R. M. Enns, Animal Sciences, Colorado State University, Fort Collins.
- 3:30 pm 037 **Relationships among temperament, immune function, and carcass merit in beef cattle.** K. E. Bates^{1*}, R. L. Weaber¹, J. M. Bormann¹, D. W. Moser¹, J. L. Salak-Johnson², C. C. L. Chase³, R. K. Peel⁴, H. Van Campen⁵, G. H. Loneragan⁶, J. J. Wagner⁴, P. Bodhireddy⁷, K. Prayaga⁷, R. M. Enns⁴, ¹Department of Animal Sciences and Industry, Kansas State University, Manhattan, KS, ²Department of Animal Sciences, University of Illinois, Urbana, IL, ³Department of Veterinary and Biomedical Sciences, South Dakota State University, Brookings, SD, ⁴Department of Animal Sciences, ⁵Department of Microbiology, Immunology, and Pathology, Colorado State University, Fort Collins, CO, ⁶Department of Food Safety and Public Health, Texas Tech University, Lubbock, TX, ⁷Zoetis, Kalamazoo, MI.
- 3:45 pm 038 **Improving genomic prediction in Simmental beef cattle using a multi-breed reference population.** M. Saatchi*, D. Garrick, Animal Science, Iowa State University, Ames.
- 4:00 pm 039 **Factors influencing selection for pulmonary arterial pressure in cattle at high elevations.** N. F. Berge^{1*}, M. G. Thomas¹, S. E. Speidel¹, B. LaShell², R. M. Enns¹, ¹Animal Science, Colorado State University, Fort Collins, ²Old Fort at Hesperus, Fort Lewis College, Durango.

EXTENSION

Chair: James E. Sprinkle, Area Extension Agent, University of Arizona
Room 138 ABB

- 4:15 pm 040 **beefSD: An integrated and intensive extension curriculum for beginning beef cattle producers in South Dakota.** K. C. Olson^{1*}, J. A. Walker², S. Hadrick¹, ¹Animal Science, South Dakota State University, Rapid City, ²Animal Science, South Dakota State University, Brookings.

GROWTH AND DEVELOPMENT/MEAT SCIENCE AND MUSCLE BIOLOGY

Chair: Micheal W. Salisbury, Angelo State University, TX
Room 138 ABB

- 4:30 pm 041 **Effects of ewe efficiency classification and method of diet processing on subsequent forage based growth test.** R. Redden^{1*}, L. Surber², R. Kott², ¹Animal Science, North Dakota State University, Fargo, ²Animal Science, Montana State University, Bozeman.

Thursday, June 20, 2013
POSTER PRESENTATIONS

ENVIRONMENT AND LIVESTOCK MANAGEMENT

Chair: Eric J. Scholljegerdes, New Mexico State University
4:00 pm – 5:30 pm • Room 238 ABB

- P1 **What is the effect of Sheep Grazing for Cover-Crop Termination on Associated Biodiversity?** S. Mckenzie^{1,*}, H. Goosey², K. O'Neill¹, F. Menalled¹, ¹Land Resources and Environmental Sciences, ²Animal and Range Sciences, Montana State University, Bozeman.
- P2 **Evaluation of mosquito responses to pyrethroid insecticides topically applied to sheep.** G. D. Johnson¹, H. B. Goosey^{1,*}, M. G. Rolston¹, W. L. Miller², D. G. Hokit³, R. R. Redden⁴, R. W. Kott¹, ¹Animal and Range Sciences, Montana State University, Bozeman, MT, ²Carroll College, Helena, MT, ³Biochemistry/Molecular Biology, Carroll College, Helena, MT, ⁴Animal Sciences, North Dakota State University, Fargo.
- P3 **The effects of tick species on fecal near infrared spectroscopy (FNIRS) predicted diet quality of cattle.** D. Tolleson^{1,*}, P. Teel², O. Strey², S. Prince³, ¹School of Natural Resources and the Environment, University of Arizona, Camp Verde, ²Department of Entomology, Texas A&M University, College Station, ³Blackland Research Center, Texas A&M University, Temple.
- P4 **Impact of number of estrous cycles exhibited prior to start of breeding on reproductive performance in beef heifers.** A. J. Roberts¹, J. Ketchum^{2,*}, R. N. Funston³, T. W. Geary¹, ¹USDA, ARS, Miles City, ²Carter County High School, Ekalaka, ³West Central Research and Extension Center, University of Nebraska, North Platte.
- P5 **A preliminary assessment of year long relative loose mineral intake and range cow productivity in Northern Great Plains.** M. K. Petersen^{1,*}, J. M. Muscha¹, J. T. Mulliniks², A. J. Roberts¹, R. C. Waterman¹, ¹Fort Keogh Livestock & Range Research Laboratory, USDA-ARS, Miles City, ²Department Animal Science, University Tennessee, Knoxville.
- P6 **Fall pasture quality for cows in mid-pregnancy has minimal effects on off-spring growth.** E. E. Grings^{1,*}, A. Roberts², ¹Department of Animal Science, South Dakota State University, Brookings, ²USDA, ARS, Ft Keogh, Miles City.

PASTURES AND FORAGES

Chair: James W. Oltjen, University of California, Davis, CA
4:00 pm – 5:30 pm • Room 238 ABB

- P7 **Growth performance and ruminal fermentation characteristics of growing beef steers fed brown midrib corn silage-based diet.** C. S. Saunders¹, M. S. Holt¹, J.-S. Eun¹, D. R. ZoBell^{1,*}, A. J. Young¹, K. E. Nestor Jr.², ¹Animal, Dairy, and Veterinary Sciences, Utah State University, Logan, ²Mycogen Seeds, Indianapolis.
- P8 **Effect of fibrozyme on in vitro digestibility of alfalfa hay manipulating maturity stage and medium pH.** J. Cruz^{*}, D. Dominguez, G. Villalobos, L. Duran, L. Carlos, E. Santellano, Facultad de Zootecnia y Ecologia, Universidad Autónoma de Chihuahua, Chihuahua, Mexico.

RUMINANT AND NON-RUMINANT NUTRITION

Chair: Richard C. Waterman, USDA-ARS, Ft Keogh, LARRL
4:00 pm – 5:30 pm • Room 238 ABB

- P9 **Effects of diet and feed efficiency on small intestinal gene expression of angiogenic factors in growing lambs.** C. J. Clarkson^{*}, H. C. Cunningham, M. J. Ellison, K. J. Austin, K. M. Cammack, A. M. Meyer, University of Wyoming, Laramie.
- P10 **Effects of swath grazing pea-barley forage, bale-fed pea-barley forage, and straw stubble grazing on ewe body weight and number of lambs born.** D. L. Ragen^{*}, E. E. Nix, W. A. Whitehurst, T. M. Norvell, R. B. Sager, E. S. Read, B. S. Hauptman, C. G. Hooley, P. G. Hatfield, Department of Animal and Range Sciences, Montana State University,
- P11 **Visceral organ mass and jejunum cell proliferation of lambs fed alfalfa hay, locoweed, and feed additives.** F. A. Al-lataifeh^{*}, M. N. Sawalhah, S. A. Soto-Navarro, C. A. Loest, Animal and Range Sciences, New Mexico State University, Las Cruces.
- P12 **Effects of rumen protected arginine on lamb growth performance.** C. B. Gardner^{1,*}, S. H. Cox², J. R. Graves¹, C. M. Buck¹, E. J. Scholljegerdes¹, ¹Department of Animal and Range Sciences, New Mexico State University, Las Cruces, ²Corona Range and Livestock Research Center, New Mexico State University, Corona.
- P13 **Use of oregano essential oil on finishing hair lambs.** D. Enriquez^{1,*}, G. Villalobos¹, D. Dominguez¹, M. G. Flores¹, J. A. Ortega¹, F. Castillo², L. Duran¹, R. Silva-Vazquez³, ¹Facultad de Zootecnia y Ecologia, Universidad Autonoma de Chihuahua, ²INIFAP, SAGARPA, Chihuahua, ³CIRENA, SEP, Salaires, Mexico.
- P14 **Effects of mid- to late gestational energy source on jejunal mucosal angiogenic factor mRNA expression in mature ewes.** J. D. Garrison^{1,*}, K. J. Austin¹, H. C. Cunningham¹, M. A. Berg², A. E. Radunz³, A. M. Meyer¹, ¹Department of Animal Science, University of Wyoming, Laramie, WY, ²Department of Animal Sciences, University of Wisconsin-Madison, Madison, WI, ³Department of Animal and Food Science, University of Wisconsin-River Falls, River Falls.

Friday, June 21, 2013
WSASAS Annual Business Meeting
Room 138 ABB • 7:30 to 9:00 am

Scientific Sessions
ORAL PRESENTATIONS

PASTURES AND FORAGES

Chair: James W. Oltjen, University of California, Davis, CA
Room 138 ABB

- 9:00 am 042 **Protein supplementation of low-quality cool-season and warm-season forages.** D. W. Bohnert¹, R. F. Cooke¹, R. S. Marques¹, C. L. Francisco¹, B. I. Cappelozza¹, D. L. McGuire^{1,*}, S. J. Falck², ¹Eastern Oregon Agricultural Research Center - Burns, Oregon State University, ²Eastern Oregon Agricultural Research Center - Burns, USDA-ARS, Burns.
- 9:15 am 043 **High-tannin forage utilization by beef cows IV. Effects of corn steep liquor supplementation on performance and herbivory patterns of beef cows grazing native range infested by sericea lespedeza (*Lespedeza cuneata*).** G. W. Preedy^{1,*}, W. H. Fick², L. W. Murray³, L. A. Pacheco¹, E. A. Bailey¹, D. L. Davis¹, A. V. Siverson¹, K. C. Olson¹, ¹Animal Sciences & Industry, ²Agronomy, ³Statistics, Kansas State University, Manhattan.
- 9:30 am 044 **High-tannin forage utilization by beef cows V. Effects of corn steep liquor supplementation on dietary botanical composition of beef cows grazing native range infested by sericea lespedeza (*Lespedeza cuneata*).** G. W. Preedy^{1,*}, L. W. Murray², W. H. Fick³, L. A. Pacheco¹, E. A. Bailey¹, D. L. Davis¹, A. V. Siverson¹, K. C. Olson¹, ¹Animal Sciences & Industry, ²Statistics, ³Agronomy, Kansas State University, Manhattan.
- 9:45 am 045 **CinnaGar supplementation of cattle grazing wheat or native pasture in Northwest Oklahoma.** S. A. Gunter^{1,*}, G. F. Combs, Jr.², ¹USDA, Agricultural Research Service, Woodward, OK, ²USDA, Agricultural Research Service, Grand Forks, ND.
- 10:00 am 046 **Grazing effects on Nebraska Sandhills Meadow nutrient composition.** J. V. Judy^{*}, J. A. Musgrave, L. A. Stalker, K. H. Jenkins, T. J. Klopfenstein, University of Nebraska, Lincoln.
- 10:15 am 047 **Influence of beef cattle stocking density on utilization of vegetative communities in a late-spring early-summer native bunchgrass prairie.** S. Wyffels^{1,*}, T. DelCurto², A. Clark³, ¹Natural Resources Conservation Service, Baker City, Oregon, ²Oregon State University, Union, Oregon, ³Natural Resource Conservation Service, Dillion, Montana.

- 10:30 am 048 **The influence of habitat type on vegetation quality in mixed-conifer forested rangelands.** T. DelCurto^{1,*}, S. Wyffels¹, C. Mueller¹, D. Damiran², E. Darambazar², M. Vavra¹, R. Riggs¹, ¹Oregon State University, Union, Oregon, ²University of Saskatchewan, Humboldt, Saskatchewan, Canada.
- 10:45 am 049 **The influence of habitat type and overstory characteristics on understory vegetation quality in mixed-conifer forested rangelands.** T. DelCurto^{1,*}, S. Wyffels¹, C. Mueller¹, D. Damiran², E. Darambazar², M. Vavra¹, R. Riggs¹, ¹Oregon State University, Union, Oregon, ²University of Saskatchewan, Humboldt, Saskatchewan, Canada.

ENVIRONMENT AND LIVESTOCK MANAGEMENT

Chair: Eric J. Scholljegerdes, New Mexico State University
Room 136 ABB

- 9:00 am 050 **Criteria for optimum feedlot harvest endpoint.** J. W. Oltjen, Department of Animal Science, University of California, Davis.
- 9:15 am 051 **Effects of transport duration prior to feedlot placement on performance of preconditioned beef calves during receiving and finishing.** E. A. Bailey^{1,*}, J. R. Jaeger², J. W. Waggoner², T. B. Schmidt³, G. W. Preedy¹, L. A. Pacheco¹, K. C. Olson¹, ¹Animal Sciences & Industry, Kansas State University, Manhattan, KS, ²Western Kansas Agricultural Research Center, Kansas State University, Hays, KS, ³Animal Sciences, University of Nebraska, Lincoln.
- 9:30 am 052 **Effect of weaning method on finishing performance of beef calves.** E. A. Bailey^{1,*}, J. R. Jaeger², J. W. Waggoner², T. B. Schmidt³, G. W. Preedy¹, L. A. Pacheco¹, K. C. Olson¹, ¹Animal Sciences & Industry, Kansas State University, Manhattan, KS, ²Western Kansas Agricultural Research Center, Kansas State University, Hays, KS, ³Animal Sciences, University of Nebraska, Lincoln.
- 9:45 am 053 **Efficiency of early-weaned beef calves is not improved by restricting feed intake during an 84-d growing phase.** E. A. Bailey^{1,*}, J. R. Jaeger², J. W. Waggoner², G. W. Preedy¹, L. A. Pacheco¹, K. C. Olson¹, ¹Animal Sciences & Industry, Kansas State University, Manhattan, KS, ²Western Kansas Agricultural Research Center, Kansas State University, Hays.
- 10:00 am 054 **Relationship of arrival Bovine Respiratory Disease titers and subsequent morbidity and performance of newly received cattle.** J. R. Graves^{1,*}, M. E. Hubbert², J. S. Schutz², C. A. Löest¹, E. J. Scholljegerdes¹, ¹Department of Animal and Range Sciences, New Mexico State University, Las Cruces, ²Clayton Livestock and Research Center, New Mexico State University, Clayton.

- 10:15 am 055 **Cover systems for wet distiller's grain stored in concrete bunkers.** J. W. Waggoner*, J. R. Jaeger, B. W. Bennett, Western Kansas Agricultural Research Center, Kansas State University, Hays.
- 10:30 am 056 **Effect of Zuprevo as a mass medication of receiving cattle on feedlot performance and health.** J. D. Caballero^{1,*}, J. R. Graves¹, E. J. Scholljerggerdes¹, J. S. Schutz², M. E. Hubbert², S. A. Soto-Navarro¹, ¹Animal and Range Sciences, New Mexico State University, Las Cruces, ²Clayton Livestock Research Center, New Mexico State University, Clayton.
- 10:45 am 057 **Impact of supplemental protein source on ADG, feed intake, calf birth BW, and rebreeding in pregnant beef heifers.** T. L. Meyer*, A. F. Summers, R. N. Funston, West Central Research and Extension Center, University of Nebraska, North Platte.

Friday, June 21, 2013

POSTER PRESENTATIONS

BREEDING AND GENETICS

Chair: Jennifer M. Thomson, Montana State University
11:00 am – 12:30 pm • Room 236 ABB

- P15 **Estimates of genetic parameters of carcass traits in the progeny from crosses involving Charolais, Brahman, Brangus, Hereford, Holstein, and Angus inheritance.** A. Perez^{*}, S. Quintero, U. Macias, M. Montaña, Animal Science, Universidad Autónoma de Baja California, Calexico.
- P16 **Effects of dietary aflatoxin on hepatic expression of immune genes in growing barrows.** K. J. Austin^{1*}, S. M. Rustemeyer¹, D. R. Ledoux², K. Wells², K. M. Cammack¹, ¹Animal Science, University of Wyoming, Laramie, ²Animal Science, University of Missouri, Columbia.
- P17 **Reproductive parameters in dairy cattle in semi-arid climate.** M. P. Gallegos^{1*}, P. Rodriguez¹, J. A. Toca¹, J. S. Saucedo², E. Avelar², ¹Medicina Veterinaria, Universidad Juarez del Estado de Durango, Durango, ²Produccion Animal, Universidad Autonoma de Baja California, Mexicali, B.C., Mexico.
- P18 **Induction of reproductive activity in dairy goats in an oestrus in arid region of northern Mexico.** R. Zuñiga¹, M. P. Gallegos^{1*}, H. Garcia¹, J. S. Saucedo², E. Avelar², ¹Medicina Veterinaria, Universidad Juarez del Estado de Durango, Durango, Dgo., ²Produccion Animal, Universidad Autonoma de Baja California, Mexicali, B.C., Mexico.
- P19 **Association of stat2 snp genotypes and growth phenotypes in heifers from an Angus, Brahman and Romosinuano diallel population.** P. Luna^{1*}, P. Lopez¹, G. Rincón², D. G. Riley³, C. C. Chase⁴, J. F. Medrano², D. VanLeeuwen⁵, G. A. Silver⁶, M. G. Thomas⁷, ¹Ciencias Agronómicas y Veterinarias, Instituto Tecnológico de Sonora, Ciudad Obregón, Sonora, Mexico, ²Animal Science, University of California-Davis, Davis, CA, ³Agriculture and Life Sciences, Texas A&M University, College Station, TX, ⁴U.S. Meat Animal Research Center, USDA, ARS, NPA, Clay Center, NE, ⁵Economics, Applied Statistics & International Business, ⁶Animal and Range Sciences, New Mexico State University, Las Cruces, NM, ⁷Animal Sciences, Colorado State University, Fort Collins.
- P20 **Phenotypic differences for growth, body composition, and feed efficiency among Angus, Hereford and Red Angus bulls grouped on residual feed intake.** S. P. Doyle^{*}, J. N. Brimlow, C. R. Phillips, Agriculture, California State University, Chico.

EXTENSION

Chair: James E. Sprinkle, Area Extension Agent, University of Arizona
11:00 am – 12:30 pm • Room 236 ABB

- P21 **Safety of a vaccine for epizootic bovine abortion.** M. Merrill^{1*}, J. L. Stott², M. Blanchard², M. Anderson³, M. Teglas⁴, D. Myers⁵, T. Talbot⁶, ¹Cooperative Extension, University of California, Alturas, ²Veterinary Medicine, ³California Animal Health and Food Safety, University of California, Davis, ⁴Agriculture, Nutrition and Veterinary Sciences, University of Nevada, Reno, ⁵Animal Science, University of California, Davis, ⁶Bishop Veterinary Hospital, Bishop.

GROWTH AND DEVELOPMENT/MEAT SCIENCE AND MUSCLE BIOLOGY

Chair: Micheal W. Salisbury, Angelo State University, TX

11:00 am – 12:30 pm • Room 236 ABB

- P22 **Supplying pectin to cattle: a possible way to reduce cholesterol in meat.** R. G. Cruz Monterrosa^{1*}, E. Ramírez Bribiesca², I. Guerrero Legarreta³, ¹Alimentos, Universidad Autónoma Metropolitana, Estado de México, ²Alimentos, Colegio de Postgraduados, Estado de México, ³Biotechnología, Universidad Autónoma Metropolitana, Distrito Federal, Mexico.
- P23 **The alveolar-arterial oxygen pressure gradient of pre-weaned beef calves is negatively associated with the cross-sectional area of the longissimus dorsi muscle.** J. M. Neary^{1*}, F. B. Garry¹, R. K. Peel², T. N. Holt¹, ¹Clinical Science, ²Animal Science, Colorado State University, Fort Collins.
- P24 **The effects of high sulfate water on expression of meat quality genes in lambs.** L. Speiser^{1*}, A. M. Jons¹, R. R. Cockrum², K. J. Austin¹, K. M. Cammack¹, ¹Animal Science, University of Wyoming, Laramie, ²Animal Science, Colorado State University, Ft. Collins.
- P25 **Effect of meal alfalfa mixed (10%) calves starter on the behavior of dairy calves in raising in an arid region of Mexico.** J. S. Saucedo^{1*}, E. Avelar¹, L. Avendaño¹, A. Perez¹, M. P. Gallegos², ¹Produccion Animal, Universidad Autonoma de Baja California, Mexicali B.C., ²Medicina Veterinaria, Universidad Juarez del Estado de Durango, Durango, Mexico.
- P26 **Glucose tolerance and growth characteristics of yearling beef heifers from different nutritionally developed Angus grandsires.** C. J. Mueller*, E. C. Thompson, EOARC-Union Station, Oregon State University, Union.

PHYSIOLOGY

Chair: Gregory S. Lewis, USDA-ARS, U.S. Sheep Experiment Station

11:00 am – 12:30 pm • Room 236 ABB

- P27 **Effect of feed efficiency classification on mRNA expression of angiogenic factors in the jejunum of finishing steers.** H. C. Cunningham*, K. J. Austin, S. I. Paisley, A. M. Meyer, Animal Science, University of Wyoming, Laramie.
- P28 **Physiological mechanisms during variable gestation length in reindeer.** J. Rowell*, M. Shipka, High Latitude Agriculture, University of Alaska Fairbanks, Fairbanks.

PAST PRESIDENTS
WESTERN SECTION
AMERICAN SOCIETY OF ANIMAL SCIENCE

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 Univ.
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

AWARDS
WESTERN SECTION
AMERICAN SOCIETY OF ANIMAL SCIENCE

Distinguished Service Awards

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

Young Scientists

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 Award

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 Award

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
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First Place Recipient of the Competition Paper Award

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	O.J. Dennison, 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

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

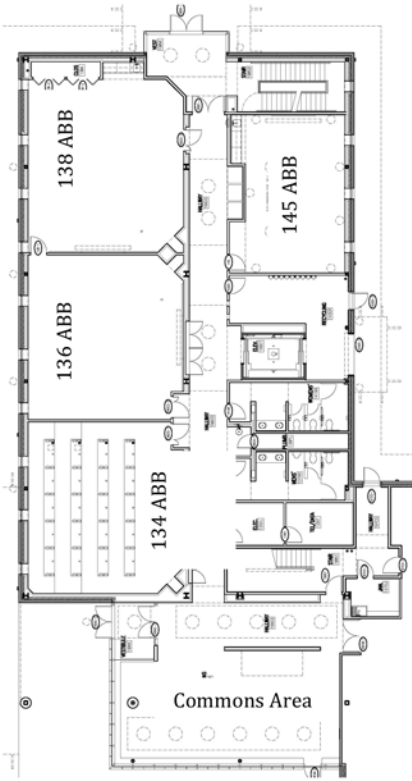
Institutional Graduate Student Paper Competition

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

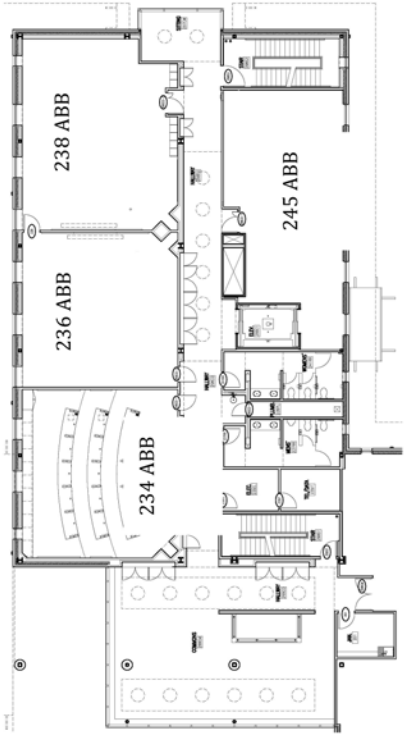
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