

## CURRICULUM VITAE

### NAME

Brummer, Joe E

### ADDRESS

Soil and Crop Sciences  
College of Agricultural Sciences

Plant Sciences

### PHONE

(970) 491-4988

### EDUCATION

BS, Colo State Univ

MS, Oklahoma State Univ

Ph D, Univ of Nebraska

### OTHER POSITIONS

2005 - Present Associate Professor, Colorado State University.

2003 - 2005 Research Scientist/ Scholar III, Colorado State University.

2002 - 2003 Research Scientist/ Scholar III/ Superintendent, Colorado State University.

1994 - 2002 Research Scientist/ Superintendent, Colorado State University.

1987 - 1994 Range Research Coordinator, University Of Nebraska.

### PUBLISHED WORKS

#### **Refereed Journal Articles**

Canopy analysis as a technique to characterize defoliation intensity on Sandhills range. *J Range Manage*, 52, 357-362.

Characteristics of hummocked and non-hummocked Colorado riparian areas and wetlands. *Wetlands Ecol Manage*, 20, 409-418.

Deficit irrigation of alfalfa for water-savings in the Great Plains and Intermountain West: A review and analysis of the literature. *Agron J*, 103, 45-50.

Earthworm abundance and species composition in organic forage production systems of northern Colorado receiving different soil amendments. *Appl Soil Ecol*, 48, 219-226.

Effect of water table on willows grown in amended mine tailing. *J Environ Qual*, 34, 782-792.

Establishment and Growth of Two Willow Species in a Riparian Zone Impacted by Mine Tailings. *J Environ*

*Qual*, 38, 693-701.

Growth and Metal Accumulation of Geyer and Mountain Willow Grown in Topsoil versus Amended Mine Tailings. *Water Air Soil Poll*, 198, 17-29.

Interactions among Western ragweed and other sandhills species after drought. *J Range Manage*, 57, 583-589.

Interactive effects of soil amendments and depth of incorporation on Geyer willow. *J Environ Qual*, 29, 1786-1793.

Irrigated mountain meadow fertilizer application timing effects on overland flow water quality. *J Environ Qual*, 32, 1802-1808.

Manganese and zinc toxicity thresholds for mountain and Geyer willow. *Int J Phytoremediat*, 9, 437-452.

(in press). Nitrogen mineralization in two irrigated perennial pastures undergoing transition to organic management is unchanged by composted dairy manure addition in a two-year survey period. *Org Agri*.

Rapid changes in microbial biomass and aggregate size distribution in response to changes in organic matter management in grass pasture. *Geoderma*, 193-194, 68-75.

Riparian shrub metal concentrations and growth in amended fluvial mine tailings. *Water, Air, Soil Pollut*, 223, 1815-1828.

Root and shoot responses of sand bluestem to defoliation. *J Range Manage*, 51, 42-46.

Use of alternative temperature expressions with Blaney-Criddle. *J Irr Drain Manage*, 137, 573-584.

Wang, L., Qian, Y., Brummer, J. E., Wilhelm, S. J., Parton, W. J. (2015). Simulated biomass, environmental impacts and best management practices for long-term switchgrass systems in a semi-arid region. *Biomass and Bioenergy*, 75, 254-266.

Villalobos, L. A., Brummer, J. E. (2015). Forage brassicas stockpiled for fall grazing: Yield and nutritive value. *Crop, Forage & Turfgrass Mgt.*

Wang, L., Qian, Y., Brummer, J. E., Wilhelm, S. J., Keough, C. Simulated biomass, environmental impacts and best management practices for long-term switchgrass systems on marginal land in a semi-arid region. *Biomass and Bioenergy*.

Wang, L., Qian, Y., Brummer, J. E., Wilhelm, S. J., Parton, B. Simulated biomass, environmental impacts and best management practices for long-term switchgrass systems on marginal land in a semi-arid region. *Biomass and Bioenergy*.

Pearson, C. H., Brummer, J. E., Beahm, A., Hansen, N. C. (2014). Kura Clover Living Mulch Cropping System in Furrow-Irrigated Corn in the Intermountain West. *Agronomy Journal*, 106, 1324-1328.

Clark, L. V., Brummer, J. E., Głowacka, K., Hall, M. C., Heo, K., Peng, J., Yamada, T., Yoo, J. H., Yu, C. Y., Zhao, H., Long, S. P., Sacks, E. J. (2014). A footprint of past climate change on the diversity and population structure of *Miscanthus sinensis*. *Annals of Botany*, 114(1), 97-107.

Hurisso, T. T., Davis, J. G., Brummer, J. E., Stromberger, M. E., Mikha, M. M., Booher, M. R. (2012). Short-term nitrogen mineralization during transition from conventional to organic management is unchanged by composted dairy manure addition in perennial forage systems. *Org. Agr.*, 2, 219-232.

## Non-Refereed Journal Articles

Wang, L., Qian, Y., Brummer, J. E., Zheng, J., Wilhelm, S. J., Keough, C. Biomass, Soil C and N Dynamics, and Greenhouse Gas Budget of Switchgrass Grown on Marginal Quality Soil in a Semi-Arid Region. *GCB Bioenergy*, John Wiley & Sons Ltd.

## Non-Refereed Proceedings or Transactions

Villalobos, L., Brummer, J. E. (2015). *Interseeding cool-season forages into corn to increase yield and quality of residue grazed in the fall* (vol. 66, pp. 268-271). Western Section Amer. Soc. Ani. Sci..

Villalobos, L., Brummer, J. E. (2013). *Evaluation of Brassicas for Fall Forage* (pp. 143-151). Davis, CA: Proceedings 2013 Western Alfalfa and Forage Symposium, Univ. of California Cooperative Extension. alfalfa.ucdavis.edu/+symposium/proceedings/2013/13WAS-23\_Villalobos\_Brassicas.pdf

Ottman, M., Putnam, D., Barlow, V., Brummer, J. E., Bohle, M., Creech, E., Davison, J., Foster, S., Long, R., Marsalis, M., Norberg, S., Orloff, S., Shewmaker, G. (2013). *Long Term Trends and the Future of the Alfalfa & Forage Industry* (pp. 15-32). Davis, CA: Proceedings 2013 Western Alfalfa and Forage Symposium, Univ. of California Cooperative Extension. alfalfa.ucdavis.edu/+symposium/proceedings/2013/13WAS-04\_Ottman\_LongTerm.pdf

*Abundance relationships between Geyer's larkspur and other coexisting plant species*. Abstr 0225, Soc Range Manage 65th Annu Meeting, Spokane, WA.

*Biomass yield, bioenergy characteristics, and cell-wall composition of dryland sweet pearl millet grown at multiple locations in Colorado*. Abstr 187-6, ASA-CSSA-SSSA Annu Meeting, Cincinnati, OH.

*Challenges and benefits of interseeding legumes into grass dominated stands*. Proceedings of the 5th National Conference on Grazing Lands, December 9-12, 2012, Orlando, FL.

*Challenges and benefits of interseeding legumes into grass dominated stands* (pp. 72-78). Proceedings, 2011 Western Alfalfa & Forage Conference, Las Vegas, NV, December 11-13, 2011, Univ Calif Cooperative Extension, Davis, CA.

*Characteristics of hummocked and non-hummocked riparian areas and wetlands in Colorado*. Abstr Soc Range Manage 63rd Annu Meeting, Denver, CO.

*Characteristics of hummocked and non-hummocked riparian areas and wetlands in Colorado*. Abstr Book, Institute for Livestock and the Environment 2nd Ann Stakeholder Summit, Nov 19, 2009, Fort Collins, CO.

*Characteristics of hummocked and non-hummocked wetlands in Colorado, USA*. IX International Rangeland Congress, Rosario, Santa Fe, Argentina.

*Clover seeding for sage-grouse habitat and forage production on mountain meadows*. Proc 4th National Conf on Grazing Lands, December 13-16, 2009, Sparks, Nev 6 p.

*Clover seeding for sage-grouse habitat and forage production on mountain meadows*. Abstr 423, Soc Range Manage 64th Annu Meeting, Billings, MT.

*Co-establishment of legumes and corn in a living mulch cropping system under furrow irrigation* (pp. 19-Oct).

Western Colorado Research Center 2009 Annual Report, Colo Agri Exp Sta Tech Rep TR10-07, Fort Collins, Colo, R Zimmerman (ed).

*Colorado Forage Guide*. CSU Ext Bull 563A, Fort Collins, CO.

*CRIS progress report*. Project No COLO 212.

*CRIS progress report*. Project No COLO 212.

*CRIS progress report*. Project No COLO 608.

*CRIS progress report*. Project No COLO 608.

*CRIS progress report*. Project No COLO 668.

*CRIS progress report*. Project No COLO 212.

*CRIS progress report*. Project No COLO 668.

*CRIS progress report*. Project No COLO 608.

*CRIS progress report*. Project No. COLO 668.

*CRIS progress report*. Project No COLO 650.

*CRIS progress report*. Project No COLO 608.

*CRIS progress report*. Project No COLO 651.

*CRIS progress report*. Project No COLO 608.

*CRIS progress report*. Project No COLO 212.

*Determining nitrogen mineralization from composted manure and impact on irrigated perennial grass mixes*. Abstr 177-5, ASA-CSSA- SSSA Annu Meeting, Long Beach, CA.

*Does it pay to fertilize grass hayfields with nitrogen?* (pp. 13-Nov). Proc 2009 Idaho Alfalfa and Forage Conf, February 3-4, 2009, Burley, Ida Available online at: [http://www.idahohay.com/Brummer\\_Nitrogen%20Fertilization%20Idaho%202009.pdf](http://www.idahohay.com/Brummer_Nitrogen%20Fertilization%20Idaho%202009.pdf).

*Does it pay to fertilize grass hayfields?* (4th ed., vol. 9, pp. 23-25). Progressive Hay Grower.

*Does it pay to fertilize grass hayfields?* (2nd ed., vol. 27, pp. 14-Dec). From the Ground Up Agronomy News.

*Effect of rain on hay quality*. CSU Livestock Links Newsletter published by the Institute for Livestock and the Environment for the Colorado Livestock Association, August 12, 2009.

*Establishment and renovation of pastures, hayfields, and mountain meadows* (pp. 15-27). CH Pearson, JE Brummer, B Hammon, and ML Franklin (eds), Intermountain Grass and Legume Forage Production Manual (2nd ed), Colo Agri Exp Stat Tech Bull TB11-02, Colo State Univ, Fort Collins, CO.

*Estimating composted dairy manure nitrogen mineralization for irrigated organic perennial pasture production*. Abstr Book, Institute for Livestock and the Environment 3rd Ann Stakeholder Summit, Dec 2, 2010, Fort

Collins, CO.

*Evaluation of freeze-thaw dynamics in hummocked wetlands.* Abstr 364, Soc Range Manage 64th Annu Meeting, Billings, MT.

*Evaluation of teff as an alternative forage crop for western Colorado 2008* (pp. 17-20). Western Colorado Research Center 2008 Annual Report, Colo Agri Exp Sta Tech Rep TR09-12, Fort Collins, Colo, R Godin and H Larsen (eds).

*Fertility management: Irrigated pasture/mountain meadows* (pp. 55-61). CH Pearson, JE Brummer, B Hammon, and ML Franklin (eds), Intermountain Grass and Legume Forage Production Manual (2nd ed), Colo Agri Exp Stat Tech Bull TB11-02, Colo State Univ, Fort Collins, CO.

*Fertilizing cool season grasses and grass/legume mixtures.* Colo State Univ Ext Fact Sheet No 0 522, Fort Collins, CO.

*Fertilizing mountain meadows.* Colorado State Univ Ext Fact Sheet No 0535 Fort Collins, Colo.

*Fine-scale observations of soil properties in hummocks and adjacent interspaces.* Abstr 369, Soc Range Manage 64th Annu Meeting, Billings, MT.

*Genetic structure of Miscanthus sinensis from Asia and the United States.* Abstr 5389, International Plant and Animal Genome Conf XXI, Jan 12-16, 2013, San Diego, CA.

*Grass and grass/legume mixes for irrigated pasture using organic production methods.* Abstr 157-5, ASA-CSSA-SSSA Annu Meeting, Pittsburg, PA.

*Growing switchgrass (Panicum virgatum L) as an energy crop in Colorado.* Abstr 164-16, ASA-CSSA-SSSA Annu Meeting, Pittsburg, PA.

*Intermountain grass and legume forage production manual, 2nd ed.* Colo Agri Exp Stat Tech Bull TB11-02, Colo State Univ, Fort Collins, CO 194 p.

*Interpretation of hummocks relative to the condition of wetlands in Colorado.* In: Abstr Book, Institute for Livestock and the Environment 2nd Ann Stakeholder Summit, Nov 19, 2009, Fort Collins, CO.

*Interpretation of hummocks relative to the condition of wetlands in Colorado.* Abstr Soc Range Manage 62nd Annu Meeting, Albuquerque, NM.

*Interseeding of pastures and hayfields* (pp. 17-26). Proc 2009 Idaho Alfalfa and Forage Conf, February 3-4, 2009, Burley, Ida Available online at: [http://www.idahohay.com/Brummer\\_Interseeding% 20Idaho%202009pdf](http://www.idahohay.com/Brummer_Interseeding%20Idaho%202009.pdf).

*Introduction: Irrigated pasture/mountain meadows* (pp. 2-Jan). CH Pearson, JE Brummer, B Hammon, and ML Franklin (eds), Intermountain Grass and Legume Forage Production Manual (2nd ed), Colo Agri Exp Stat Tech Bull TB11-02, Colo State Univ, Fort Collins, CO.

*Irrigated hay production* (pp. 81-85). CH Pearson, JE Brummer, B Hammon, and ML Franklin (eds), Intermountain Grass and Legume Forage Production Manual (2nd ed), Colo Agri Exp Stat Tech Bull TB11-02, Colo State Univ, Fort Collins, CO.

*Living mulches for irrigated corn and soybeans in the semi-arid West.* Abstr 122-3, ASA-CSSA-SSSA Annu Meeting, Long Beach, CA.

- Living mulches for irrigated corn and soybeans in the semi-arid West*. Abstr Book, Institute for Livestock and the Environment 4th Ann Stakeholder Summit, Nov 17, 2011, Fort Collins, CO.
- Native versus introduced species for grass pastures* (pp. 4-Feb). Boulder County Small Acreage Management Newsletter, <http://www.extension.colostate.edu/boulder/AG/SAM%20newsletter%20Fall%20>.
- Organic annual forages grown in rotation with winter vegetables*. Abstr Book, Institute for Livestock and the Environment 2nd Ann Stakeholder Summit, Nov 19, 2009, Fort Collins, CO.
- Organic production of alfalfa and grass* (pp. 177-184). CH Pearson, JE Brummer, B Hammon, and ML Franklin (eds), Intermountain Grass and Legume Forage Production Manual (2nd ed), Colo Agri Exp Stat Tech Bull TB11-02, Colo State Univ, Fort Collins, CO.
- Plant species selection: Irrigated pasture/mountain meadows* (pp. 13-Mar). CH Pearson, JE Brummer, B Hammon, and ML Franklin (eds), Intermountain Grass and Legume Forage Production Manual (2nd ed), Colo Agri Exp Stat Tech Bull TB11-02, Colo State Univ, Fort Collins, CO.
- Proceedings of the high altitude revegetation workshop no 18* (pp. 519). Colorado Water Resources Research Institute, Information Series No 107, Colorado State University, Fort Collins, Colo.
- Proceedings of the high altitude revegetation workshop no 19* (pp. 233). Colorado Water Resources Research Institute, Information Series No 111, Colorado State University, Fort Collins, Colo.
- Quantifying phenotypic and genetic diversity of Miscanthus sinensis as a resource for knowledge-based improvement of M x giganteus (M sinensis x M sacchariflorus)* (pp. 184-185). USDA-NIFA and DOE-BER Project Director Meeting, Jan 13, 2012, San Diego, CA.
- Renovation of range sites in the South Park Colorado area impacted by increases in fringed sage*. Abstr Soc Range Manage 61st Annu Meeting, Louisville, KY.
- Revegetation of fluvial mine tailing deposits: The use of five riparian shrub species* (pp. 135-154). Proc High Altitude Reveg Workshop No 18, JE Brummer (ed), Colorado Water Resources Research Institute, Information Series No 107, Colorado State University, Fort Collins, Colo.
- Soil carbon fractionation under perennial forage*. Abstr 228- 20, ASA-CSSA-SSSA Annu Meeting, Pittsburg, PA.
- Survival and growth of 8 shrubs transplanted into amended fluvial mine tailings*. Abstr 329, Soc Range Manage 64th Annu Meeting, Billings, MT.
- The effect of annual forages in rotation with winter vegetables on soil quality*. Western Society of Soil Science Ann Meeting, Fort Collins, CO.
- The effect of annual forages in rotation with winter vegetables on soil quality*. International Symposium on Soil Organic Matter Dynamics, Colorado Springs, CO.
- Utilization of C3 grasses for a dual forage and biomass production system with limited irrigation*. Abstr 56-2, ASA-CSSA-SSSA Annu Meeting, Long Beach, CA.
- Weed management in grass pastures and hayfields* (pp. 39-54). CH Pearson, JE Brummer, B Hammon, and ML Franklin (eds), Intermountain Grass and Legume Forage Production Manual (2nd ed), Colo Agri Exp Stat Tech Bull TB11-02, Colo State Univ, Fort Collins, CO.

*Yield, forage quality, and soil carbon and nitrogen dynamics in grass and grass/legume mixes for irrigated pasture using organic production methods.* Abstr Book, Institute for Livestock and the Environment 2nd Ann Stakeholder Summit, Nov 19, 2009, Fort Collins, CO.

## **Abstract**

Brummer, J. E., Jones, L. P., Cabot, P. E., Pearson, C. H., Berrada, A. (2015). *Agronomic responses of grass and alfalfa hayfields to no and partial season irrigation as part of a potential Colorado Western Slope water bank* (vol. Abstr. Session 85). Denver, CO: AWRA Annual Water Resources Conference.

Shewmaker, G. E., Bohle, M., Fransen, S., Brummer, J. E., Hannaway, D. (2015). *Forage and pasture educational program for professionals in the Northwest* (pp. Abstr. #94242). Minneapolis, MN: ASA-CSSA-SSSA Annu. Meeting.

Clark, L. V., Brummer, J. E., Glowaca, K., Hall, M., Heo, K., Peng, J., Yamada, T., Yoo, J. H., Yu, C. Y., Zhao, H., Long, S., Sacks, E. J. (2014). *Genetic Diversity and Population Structure of Miscanthus sinensis* (Abstract #W090 ed.). San Diego, CA: International Plant and Animal Genome Conference XXII. [pag.confex.com/pag/xxii/webprogram/Paper9665.html](http://pag.confex.com/pag/xxii/webprogram/Paper9665.html)

Clark, L. V., Brummer, J. E., Hall, M., Long, S., Peng, J., Yamada, T., Yoo, J. H., Yu, C. Y., Zhao, H., Sacks, E. J. (2013). *Genetic Structure of Miscanthus sinensis from Asia and the United States* (Poster Abstract #P0013 ed.). San Diego, CA: International Plant and Animal Genome Conference XXI. [pag.confex.com/pag/xxi/webprogram/Paper5389.html](http://pag.confex.com/pag/xxi/webprogram/Paper5389.html)

## **CE Report/Bulletin/Factsheet**

MacAdam, J. W., Brummer, J. E., Islam, A., Shewmaker, G. (2013). *The Benefits of Tannin-Containing Forages* (2013-03pr ed., vol. AG/Forages, pp. 4 pages). Logan, UT: Utah Cooperative Extension Service. [extension.usu.edu/files/publications/publication/AG\\_Forages\\_2013-03pr.pdf](http://extension.usu.edu/files/publications/publication/AG_Forages_2013-03pr.pdf)

## **Newsletter**

Jones, L., Brummer, J. E., Pearson, C. H., Berrada, A. In Calvin H. Pearson (Ed.), *Agronomic responses to partial and full season fallowing of alfalfa and grass hayfields* (Winter 2013 ed., pp. 2). Colorado State University.

Brummer, J. E. (2015). *Establishing Dryland Pastures* (3rd ed., vol. 3, pp. 1-3). Southeast Area Extension Farm and Ranch Newsletter. [www.extension.colostate.edu/SEA/Farm\\_&\\_Ranch\\_Newsletter/2015/FarmRanchJuly2015.pdf](http://www.extension.colostate.edu/SEA/Farm_&_Ranch_Newsletter/2015/FarmRanchJuly2015.pdf)

Jones, L., Brummer, J. E., Pearson, C. H., Berrada, A. (2013). *Agronomic responses to partial and full season fallowing of alfalfa and grass hayfields* (vol. Winter, pp. 2). Fort Collins, CO: Western PhytoWorks (Calvin H. Pearson, ed.). Newsletter of the Western Colorado Research Center, Agricultural Experiment Station, Colorado State University.

## **Research Report**

Brummer, J. E. (2015). *CRIS Progress Report for Project No COLO 608*. CRIS database.

Brummer, J. E. (2014). *CRIS Progress Report for Project No COLO 608*. CRIS database.

## **PERFORMANCES, EXHIBITS, PRODUCTIONS (Visual/Performing Arts):**

2010, Working with Calvin Pearson and others to edit and revise the Intermountain Grass and Legume Forage

Production Manual . I am currently revising the following chapters on irrigated pastures and mountain meadows: Introduction, Plant Species Selection, Establishment and Renovation of Pastures and Hayfields, Fertility Management, Weed Management, and Harvest Management. Needs in-house review following final revision.

#### **PAPERS PRESENTED/SYMPOSIA/INVITED LECTURES/PROFESSIONAL MEETINGS/WORKSHOPS**

- November 19, 2015, "Agronomic Responses of Grass and Alfalfa Hayfields to No and Partial Season Irrigation as Part of a Potential Colorado Western Slope Water Bank", AWRA Annual Water Resources Conference, American Water Resources Association, (Presenter) Brummer, J. E.
- August 20, 2015, "Agronomic Responses to Partial and Full Season Fallowing of Alfalfa and Grass Hayfields", Water Bank Workgroup Meeting, (Presenter) Cabot, P.
- July 8, 2015, "Hay Testing: What the Numbers Mean and Ways to Improve Them", Hay Days, NRCS/CSU Extension.
- June 2015, "Interseeding Cool-season Forages into Corn to Increase Yield and Quality of Residue Grazed in the Fall", Western Section Amer. Soc. Ani. Sci. Ann. Meeting, American Society of Animal Science, (Presenter) Villalobos, L.
- May 28, 2015, "Keys for Successful Establishment of Perennial Forages", Pasture Management Professional Development Workshop.
- May 27, 2015, "Growth, Development, and Defoliation Responses of Legumes", Pasture Management Professional Development Workshop, (Presenter) Brummer, J. E.
- May 16, 2015, "Small Acreage Pasture Management", Small Acreage Workshop, Colorado State University Extension.
- February 24, 2015, "Agronomic Responses to Partial and Full Season Fallowing of Alfalfa and Grass Hayfields", Webinar, CWCB, (Presenter) Brummer, J. E.
- February 17, 2015, "Use of Cover Crops as Forage to Extend the Grazing Season into the Fall & Early Winter", NRCS/Soil Conservation District Meeting, Natural Resources Conservation Service, (Presenter) Brummer, J. E.
- January 27, 2015, "Use of Cover Crops as Forage to Extend the Grazing Season into the Fall & Early Winter", Colorado Farm Show, (Presenter) Brummer, J. E.
- November 7, 2014, "Agronomic Responses to Partial and Full Season Fallowing of Alfalfa and Grass Hayfields", CWI Advisory Board Meeting, Colorado Water Institute, (Presenter) Brummer, J. E., Denver, Colorado.
- October 27, 2014, "Colorado Forage Update", WERA 1014 Annual Meeting, (Presenter) Brummer, J. E., Logan, Utah.
- October 3, 2014, "Water and Fertility Considerations for Mountain Hay Meadows", Colorado Water Officials Association Conference, Colorado Division of Water Resources, (Presenter) Brummer, J. E., Steamboat Springs, Colorado.
- July 10, 2014, "Forage Fertility: Improving Your Bottom Line", Wyoming Forage Field Day, University of Wyoming and Wyoming Business Council Agribusiness Division, (Presenter) Brummer, J. E., Farson, Wyoming.



- June 24, 2014, "Potential Forages for Dryland Pasture and Hay", Enhancing Dryland Farming with the Integration of Forages and Grazing, Colorado State University Extension, (Presenter) Brummer, J. E., Dove Creek, Colorado.
- June 24, 2014, "Principles of Grazing Management for Dryland Pastures", Enhancing Dryland Farming with the Integration of Forages and Grazing, Colorado State University Extension, (Presenter) Brummer, J. E., Dove Creek, Colorado.
- May 17, 2014, "Keys to Successful Establishment of Perennial Forages", Maximizing Irrigated Pasture Productivity Workshop, CSU Extension and Boulder Valley, Longmont, and West Greeley Conservation Districts, (Presenter) Brummer, J. E., Berthoud, Colorado.
- May 17, 2014, "Pasture Fertility Considerations", Maximizing Irrigated Pasture Productivity Workshop, CSU Extension and Boulder Valley, Longmont, and West Greeley Conservation Districts, (Presenter) Brummer, J. E., Berthoud, Colorado.
- February 4, 2014, "Mountain Meadow Pasture Management", 31st Annual San Juan Basin Extension Beef Cattle Symposium, CSU and NMSU Extension, (Presenter) Brummer, J. E., Pagosa Springs, Colorado.
- January 23, 2014, "Cover Crops for Forage", 2014 Western Slope Soil Health Conference, Delta County Economic Development, (Presenter) Brummer, J. E., Delta, Colorado.
- December 12, 2013, "Evaluation of Brassicas for Fall Forage", 2013 Western Alfalfa and Forage Symposium, University of California and the Cooperative Extension Services of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming, (Presenter) Villalobos, L., Reno, NV.
- December 12, 2013, "Nitrogen Fertility of Grass Forages versus Interseeded Legumes", 2013 Western Alfalfa and Forage Symposium, University of California and the Cooperative Extension Services of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming, (Presenter) Brummer, J. E., Reno, NV.
- December 3, 2013, "Agronomic Responses to Partial and Full Season Fallowing of Alfalfa and Grass Hayfields", Water Bank Working Group Meeting, Water Bank Working Group, (Presenter) Brummer, J. E., Golden, CO.
- November 15, 2013, "Agronomic Responses to Partial and Full Season Fallowing of Alfalfa and Grass Hayfields", CWI Advisory Board Meeting, Colorado Water Institute, (Presenter) Brummer, J. E., Denver, CO.
- November 12, 2013, "Range and Forage Grazing Practices in the United States", Brazil Tour Group, Colorado State University, Dept. of Animal Science, (Presenter) Brummer, J. E., ARDEC, Fort Collins, CO.
- October 24, 2013, "Principles of Grazing Management and Grazing Systems for Irrigated Pastures", 2013 Pasture Management Professional Development Workshop, Western SARE in conjunction with Extension Services of Oregon State University, University of Idaho, Washington State University, and Colorado State University, (Presenter) Brummer, J. E., Dallas, OR.
- October 23, 2013, "Keys to Successful Establishment of Perennial Forages", 2013 Pasture Management Professional Development Workshop, Western SARE in conjunction with Extension Services of Oregon State University, University of Idaho, Washington State University, and Colorado State University, (Presenter) Brummer, J. E., Dallas, OR.

October 11, 2013, "Agronomic Responses to Partial and Full Season Fallowing of Alfalfa and Grass Hayfields", Compact Water Bank Meeting, Colorado River District, (Presenter) Brummer, J. E., Denver, CO.

October 7, 2013, "Colorado Forage Update", WERA 1014 Annual Meeting, (Presenter) Brummer, J. E., Laramie, WY.

August 22, 2013, "Principles of Grazing Management and Grazing Systems for Irrigated Pastures", 2013 Pasture Management Professional Development Workshop, Western SARE in conjunction with Extension Services of Oregon State University, University of Idaho, Washington State University, Colorado State University, and University of Wyoming, (Presenter) Brummer, J. E., Fort Collins, CO.

August 21, 2013, "Keys to Successful Establishment of Perennial Forages", 2013 Pasture Management Professional Development Workshop, Western SARE in conjunction with Extension Services of Oregon State University, University of Idaho, Washington State University, Colorado State University, and University of Wyoming, (Presenter) Brummer, J. E., Fort Collins, CO.

July 10, 2013, "Agronomic Responses to Partial and Full Season Fallowing of Alfalfa and Grass Hayfields", 2013 Hay Day, Routt County Extension, (Presenter) Brummer, J. E., Carpenter Ranch, Hayden, CO.

July 10, 2013, "Mountain Meadow Fertility Considerations", 2013 Hay Day, Routt County Extension, (Presenter) Brummer, J. E., Carpenter Ranch, Hayden, CO.

June 13, 2013, "Colorado Forages", University of Costa Rica, (Presenter) Brummer, J. E., University of Costa Rica, San Jose, Costa Rica.

February 28, 2013, "Mountain Meadow Fertility Considerations", Fertilizer Workshop, Jackson County Extension/NRCS, (Presenter) Brummer, J. E., Walden, CO.

February 19, 2013, "Mountain Meadow Management: An Overview", 7th Annual Winter Workshop, Saratoga-Encampment-Rawlins, Medicine Bow, and Laramie Rivers Conservation Districts, (Presenter) Brummer, J. E., Saratoga, WY.

February 12, 2013, "Forage Production and Drought", 30th Annual San Juan Basin Extension Beef Cattle Symposium, Colorado and New Mexico Extension, (Presenter) Brummer, J. E., Farmington, NM.

January 29, 2013, "Panel on Drought", Greeley Farm Show, Greeley, CO.

2012, "Brummer, J.E. Colorado Forage Update. WERA 1014 Annual Meeting, Oct. 1-3, 2012, Twin Falls, ID."

2012, "Brummer, J.E. Forage Fertility Considerations. Wyoming Forage Field Day, June 28, 2012, Riverton, WY."

2012, "Brummer, J.E. Keys for Successful Establishment of Perennial Forages. Pasture Management Professional Development Workshop, August 21-23, 2012, Salmon, ID."

2012, "Brummer, J.E. Management of Irrigated Pasture Grasses. Colorado Ag Water

Alliance Field Tour, June 26, 2012,  
ARDEC, Fort Collins, CO."

2012, "Brummer, J.E. Renovating and Reseeding  
Your Pasture. CSU Ext. Small Acreage  
Webinar, Oct. 30, 2012, Fort Collins,  
CO."

2012, "Brummer, J.E., G.E. Shewmaker, and C.L.  
Engel. 2012. Challenges and Benefits of  
Interseeding Legumes into Grass  
Dominated Stands. 5th National  
Conference on Grazing Lands, December 9-  
12, 2012, Orlando, FL."

2012, "Brummer, J.E., N. Lapitan, and J. Peng.  
Miscanthus: Its Potential as a Biofuel  
Feedstock. Fort Collins High School AP  
Environmental Science Class, Jan. 17,  
2012, Fort Collins, CO."

2011, "Barnes, M.K., J.E. Brummer, L.J.  
Santana, J.M. Scott, and M.W. Volt.  
2011. Clover seeding for sage-grouse  
habitat and forage production on  
mountain meadows. Soc. Range Manage.  
64th Annu. Meeting, Billings, MT."

2011, "Beahm, A.T., J.E. Brummer, C.H.  
Pearson, and N.C. Hansen. 2011. Living  
mulches for irrigated corn and soybeans  
in the semi-arid West. Institute for  
Livestock and the Environment 4th Ann.  
Stakeholder Summit, Nov. 17, 2011, Fort  
Collins, CO."

2011, "Brummer, J.E. 2011. Key characteristis  
of common grasses. Colo. State Univ.  
Ext. Webinar, March 10, 2011, Fort  
Collins, CO."

2011, "Brummer, J.E. 2011. Quality retention  
during alfalfa hay harvesting &  
storage. Future of Alfalfa in Dairy  
Nutrition Workshop, March 31, 2011,  
Fort Morgan, CO."

2011, "Brummer, J.E., G. Shewmaker, and C.  
Engel. 2011. Challenges and benefits of  
interseeding legumes into grass  
dominated stands. 2011 Western Alfalfa  
& Forage Conference, Las Vegas, NV,  
December 11-13, 2011."

2011, "Brummer, J.E., P.J. Meiman, and N.R. Davis. 2011. Survival and growth of 8 shrubs transplanted into amended fluvial mine tailings. Soc. Range Manage. 64th Annu. Meeting, Billings, MT."

2011, "Meiman, P.J., M.L. Smith, J.E. Brummer, T. Booth, and L. Griffith. 2011. Fine-scale observations of soil properties in hummocks and adjacent interspaces. Soc. Range Manage. 64th Annu. Meeting, Billings, MT."

2011, "Smith, M.L., P.J. Meiman, and J.E. Brummer. 2011. Characteristics of hummocked and non-hummocked wetlands in Colorado, USA. IX International Rangeland Congress, Rosario, Santa Fe, Argentina."

2011, "Smith, M.L., P.J. Meiman, and J.E. Brummer. 2011. Evaluation of freeze-thaw dynamics in hummocked wetlands. Soc. Range Manage. 64th Annu. Meeting, Billings, MT."

2011, "Smith, M.L., P.J. Meiman, and J.E. Brummer. 2011. Evaluation of freeze-thaw dynamics in hummocked wetlands. Soc. Range Manage. 64th Annu. Meeting, Billings, MT."

2010, "Beahm, A.T., J.E. Brummer, C.H. Pearson, and N.C. Hansen. 2010. Living mulches for irrigated corn and soybeans in the semi-arid West. Abstr. 122-3, ASA-CSSA-SSSA Annu. Meeting, Long Beach, CA."

2010, "Brummer, J.E. 2010. Colorado Forage Research Update. Western Education/Extension and Research Activity Committee (WERA 1014), Sept. 28-30, 2010, Helena, Montana."

2010, "Brummer, J.E. 2010. Fertility management of mountain meadows. Beef Field Day, June 7, 2010, Gunnison, Colorado"

2010, "Brummer, J.E. 2010. Grazing Management

Considerations for Irrigated Pastures.  
USDA National  
Organic Program Access to Pasture  
Training, April 7, 2010, Denver, Colo."

2010, "Brummer, J.E. 2010. Revegetation  
Equipment Demonstration, Nineteenth  
High Altitude Revegetation Workshop,  
March 2, 2010, Fort Collins, Colorado."

2010, "Brummer, J.E., N.C. Hansen, D.B.  
Bosley, and M. Stephens. 2010. Cool-  
Season Grasses as Feedstocks in the  
Great Plains, Western Great Plains  
Sustainable Feedstock Development  
Conference, Sept. 15, 2010, Fort  
Collins, Colorado."

2010, "Brummer, J.E., P.J. Meiman, and N.R.  
Davis. 2011. Survival and growth of 8  
shrubs transplanted into amended  
fluvial mine tailings. Abstr. 329, Soc.  
Range Manage. 64th Annu. Meeting,  
Billings, MT."

2010, "Gillette, K., J.E. Brummer, and N.C.  
Hansen. 2010. Utilization of C3 grasses  
for a dual forage and biomass  
production system with limited  
irrigation. Abstr. 56-2, ASA-CSSA-SSSA  
Annu. Meeting, Long Beach, CA."

2010, "Hurisso, T.T., J.G. Davis, J.E.  
Brummer, and M.R. Booher. 2010.  
Determining nitrogen mineralization  
from composted manure and impact on  
irrigated perennial grass mixes. Abstr.  
177-5, ASA-CSSA-SSSA Annu. Meeting,  
Long Beach, CA."

2010, "Hurisso, T.T., J.G. Davis, J.E.  
Brummer, M.R. Booher, M.E. Stromberger,  
and M.M. Mikha. 2010. Estimating  
composted dairy manure nitrogen  
mineralization for irrigated organic  
perennial pasture production. In:  
Abstr. Book, Institute for Livestock  
and the Environment 3rd Ann.  
Stakeholder Summit, Dec. 2, 2010, Fort  
Collins, CO."

2010, "Smith, M.L., P.J. Meiman, and J.E.  
Brummer. 2010. Characteristics of

hummocked and non-hummocked riparian areas and wetlands in Colorado. Abstr. Soc. Range Manage. 63rd Annu. Meeting, Denver, CO."

## TEACHING:

<u>Year</u>	<u>Semester</u>	<u>Course No./Title</u>	<u>Cr. Hrs.</u>	<u>Enrollment</u>
2016	Spring	SOCR320 - Forage and Pasture Management	3	83
2015	Fall	AGRI635 - Integrated Forage Management	3	19
2015	Spring	SOCR320 - Forage and Pasture Management	3	76
2015	Spring	AGRI635 - Integrated Forage Management	3	18
2015	Spring	SOCR792 - Seminar	1	10
2014	Fall	AGRI635 - Integrated Forage Management	3	25
2014	Fall	AGRI632 - Managing for Ecosystem Sustainability	3	15
2014	Fall	AGRI632 - Managing for Ecosystem Sustainability - Lab	0	15
2014	Fall	SOCR792 - Seminar	1	5
2014	Spring	SOCR799 - Dissertation	18	15
2014	Spring	SOCR320 - Forage and Pasture Management	3	77
2014	Spring	SOCR495 - Independent Study	18	7
2014	Spring	AGRI635 - Integrated Forage Management	3	7
2014	Spring	SOCR784 - Supervised College Teaching	18	7
2014	Spring	SOCR699 - Thesis	18	10
2013	Fall	SOCR799 - Dissertation	18	19
2013	Fall	AGRI635 - Integrated Forage Management	3	25
2013	Fall	AGRI632 - Managing for Ecosystem Sustainability	3	8
2013	Fall	AGRI632 - Managing for Ecosystem Sustainability - Lab	0	8
2013	Spring	SOCR320 - Forage and Pasture Management	3	66
2013	Spring	AGRI635 - Integrated Forage Management	3	16
2012	Fall	SOCR799 - Dissertation	18	17
2012	Fall	AGRI635 - Integrated Forage Management	3	14
2012	Fall	AGRI632 - Managing for Ecosystem Sustainability	3	16
2012	Fall	AGRI632 - Managing for Ecosystem Sustainability - Lab	0	16
2012	Spring	SOCR320 - Forage and Pasture Management	3	66
2012	Spring	AGRI635 - Integrated Forage Management	3	18
2012	Spring	SOCR486 - Practicum	4	5
2011	Fall	AGRI635 - Integrated Forage Management	3	9
2011	Fall	AGRI632 - Managing for Ecosystem Sustainability	3	16
2011	Fall	AGRI632 - Managing for Ecosystem Sustainability - Lab	0	16
2011	Spring	SOCR320 - Forage and Pasture Management	3	62
2011	Spring	SOCR495 - Independent Study	18	4
2011	Spring	AGRI635 - Integrated Grazing Managements	3	13
2011	Spring	BSPM530 - Scientific Writing	1	6
2011	Spring	SOCR530 - Scientific Writing	1	5
2011	Spring	SOCR699 - Thesis	18	13
2010	Fall	AGRI635 - Integrated Forage Management	3	14
2010	Fall	SOCR792 - Seminar	1	8
2010	Fall	SOCR699 - Thesis	18	9
2010	Spring	SOCR320 - Forage and Pasture Management	3	51
2010	Spring	BSPM596 - Group Study - Scientific Writing	3	7
2010	Spring	AGRI635 - Integrated Grazing Managements	3	11
2010	Spring	AGRI635 - Integrated Grazing Managements - Lab	0	11
2010	Spring	SOCR699 - Thesis	18	10

2009	Fall	SOCR792 - Seminar	1	6
2009	Fall	SOCR699 - Thesis	18	9
2009	Spring	SOCR320 - Forage and Pasture Management	3	53
2009	Spring	SOCR699 - Thesis	18	7
2008	Fall	SOCR795 - Independent Study	18	1
2008	Spring	SOCR320 - Forage and Range Management	3	38

### Guest Lectures:

<u>Year</u>	<u>Semester</u>	<u>Course No./Title</u>	<u># of Guest Lectures</u>	<u>Delivery Mode</u>
2015	Fall	ANeq478 - Beef Systems	2	Face to Face
2015	Fall	ANeq478 - Beef Systems-Lab	1	Face to Face
2015	Fall	SOCR100 - General Crops	1	Face to Face
2015	Spring	ANeq204 - Equine Facilities Management	2	Face to Face
2015	Spring	AGRI633 - Understanding and Managing Animal Resources	1	Face to Face
2014	Fall	ANeq478 - Beef Systems	2	Face to Face
2014	Fall	ANeq478 - Beef Systems-Lab	1	Face to Face
2014	Fall	SOCR100 - General Crops	1	Face to Face
2014	Spring	ANeq204 - Equine Facilities Management	2	Face to Face
2013	Fall	ANeq478 - Beef Systems	2	Face to Face
2013	Fall	ANeq478 - Beef Systems-Lab	1	Face to Face
2013	Spring	AGRI633 - Understanding and Managing Animal Resources	1	Face to Face

### EXTENSION/ENGAGEMENT ACTIVITIES/ACCOMPLISHMENTS

#### Email

General forage questions. Adult. Number of times program was made: 40. Total number of participants: 40. Percent Responsible: 100%. Full Year 2015.

General forage questions. Adult. Number of times program was made: 30. Total number of participants: 30. Percent Responsible: 100%. Full Year 2014.

#### Field Day

Ecology of Grazing Land Systems Field Course Tour. Number of times program was made: 1. Total number of participants: 20. Percent Responsible: 80%. 3rd Quarter 2015.

Pasture Walk Field Tour. Adult, CO. Number of times program was made: 1. Total number of participants: 16. Percent Responsible: 20%. 3rd Quarter 2015.

#### Phone Call

General forage questions. Adult. Number of times program was made: 65. Total number of participants: 65. Percent Responsible: 100%. Full Year 2015.

General forage questions. Adult. Number of times program was made: 50. Total number of participants: 50. Percent Responsible: 100%. Full Year 2014.

#### Presentation

Use of Cover Crops as Forage to Extend the Grazing Season into the Fall & Early Winter. Adult, Fort Morgan, CO. Number of times program was made: 1. Total number of participants: 8. Percent Responsible: 75%. 1st Quarter 2015.

Use of Cover Crops as Forage to Extend the Grazing Season into the Fall & Early Winter. Adult, Greeley, CO. Number of times program was made: 1. Total number of participants: 40. Percent Responsible: 75%. 1st Quarter 2015.

Growth, Development, and Defoliation Responses of Legumes. Adult, Logan, UT. Number of times program was made: 1. Total number of participants: 38. Percent Responsible: 80%. 2nd Quarter 2015.

Keys for Successful Establishment of Perennial Forages. Adult, Logan, UT. Number of times program was made: 1. Total number of participants: 38. Percent Responsible: 100%. 2nd Quarter 2015.

Small Acreage Pasture Management. Adult, Loveland, CO. Number of times program was made: 1. Total number of participants: 35. Percent Responsible: 100%. 2nd Quarter 2015.

Agronomic Responses to Partial and Full Season Fallowing of Alfalfa and Grass Hayfields. Adult, Vail, CO. Number of times program was made: 1. Total number of participants: 25. Percent Responsible: 50%. 3rd Quarter 2015.

Hay Testing: What the Numbers Mean and Ways to Improve Them. Adult, Walden, CO. Number of times program was made: 1. Total number of participants: 50. Percent Responsible: 100%. 3rd Quarter 2015.

Interseeding Cool-season Forages into Corn to Increase Yield and Quality of Residue Grazed in the Fall. Adult, Ruidoso, NM. Number of times program was made: 1. Percent Responsible: 50%. 3rd Quarter 2015.

Agronomic Responses of Grass and Alfalfa Hayfields to No and Partial Season Irrigation as Part of a Potential Colorado Western Slope Water Bank. Adult, Denver, CO. Number of times program was made: 1. Total number of participants: 32. Percent Responsible: 75%. 4th Quarter 2015.

Cover Crops for Forage. Adult, Delta, Colorado. Number of times program was made: 1. Total number of participants: 165. Percent Responsible: 100%. 1st Quarter 2014.

Mountain Meadow Pasture Management. Adult, Pagosa Springs, Colorado. Number of times program was made: 1. Total number of participants: 32. Percent Responsible: 100%. 1st Quarter 2014.

Keys to Successful Establishment of Perennial Forages. Adult, Berthoud, Colorado. Number of times program was made: 1. Total number of participants: 24. Percent Responsible: 100%. 2nd Quarter 2014.

Pasture Fertility Considerations. Berthoud, Colorado. Number of times program was made: 1. Total number of participants: 24. Percent Responsible: 100%. 2nd Quarter 2014.

Potential Forages for Dryland Pasture and Hay. Adult, Dove Creek, Colorado. Number of times program was made: 1. Total number of participants: 22. Percent Responsible: 100%. 2nd Quarter 2014.

Principles of Grazing Management for Dryland Pastures. Adult, Dove Creek, Colorado. Number of times program was made: 1. Total number of participants: 22. Percent Responsible: 100%. 2nd Quarter 2014.

Forage Fertility: Improving Your Bottom Line. Adult, Farson, Wyoming. Number of times program was made: 1. Total number of participants: 40. Percent Responsible: 100%. 3rd Quarter 2014.

Agronomic Responses to Partial and Full Season Fallowing of Alfalfa and Grass Hayfields. Adult, Denver, Colorado. Number of times program was made: 1. Total number of participants: 20. Percent Responsible: 100%. 4th Quarter 2014.

Colorado Forage Update. Adult, Logan, Utah. Number of times program was made: 1. Total number of participants: 24. Percent Responsible: 100%. 4th Quarter 2014.

Water and Fertility Considerations for Mountain Hay Meadows. Adult, Steamboat Springs, Colorado. Number of times program was made: 1. Total number of participants: 70. Percent Responsible: 100%. 4th Quarter 2014.

### **Workshop**

Maximizing Irrigated Pasture Productivity Workshop. Adult, Berthoud, Colorado. Number of times program was made: 1. Total number of participants: 24. Percent Responsible: 5%. 2nd Quarter 2014.

2013 Pasture Management Professional Development Workshop. Fort Collins, CO. Number of times program



was made: 1. Total number of participants: 30. Percent Responsible: 50%. 2013.

2013 Pasture Management Professional Development Workshop. Dallas, OR. Number of times program was made: 1. Total number of participants: 30. Percent Responsible: 15%. 2013.

2013 Western Alfalfa and Forage Symposium. Reno, NV. Number of times program was made: 1. Total number of participants: 600. Percent Responsible: 5%. 2013.

## **COMMITTEES**

Search Committee Beef/Dairy Systems Management, (2014 - 2015).

Scholarship Committee, (2010 - Present).

Graduate Student Committee, (2011 - 2015).

## **PROFESSIONAL AFFILIATIONS AND ACTIVITIES**

Western Education/Extension and Research Activity Committee (WERA 1014). (October 1, 2008 - Present).

Colorado Section Society for Range Management. (March 1994 - Present).

Society for Range Management. (1984 - Present).

Western Education/Extension and Research Activity Committee (WERA 1016). (October 1, 2010 - September 30, 2015).

High Altitude Revegetation Committee. (2006 - 2013).

Multistate Committee (W-503) for Grass-fed Beef. (2007 - 2008).

Angus Journal. (November 2013).

Committee Chair, Colorado Section Society for Range Management. (2010 - Present).

Member, WERA 1014 - Intensive Pasture Management. (2008 - Present).

Member, Society for Range Management. (1984 - Present).

Reviewer, Grant Proposal, Boulder Valley and Longmont Conservation Districts. (December 2015).

Reviewer, Grant Proposal, Colorado State University Extension. (December 2015).

Editor, Associate Editor, Forage and Grazinglands. (2011 - 2015).

Member, WERA 1016 - Adaptation, Quality, and Management. (2011 - 2015).

Reviewer, Journal Article, Agronomy Journal. (December 8, 2015).

Reviewer, Ad Hoc Reviewer, Virginia Cooperative Extension. (December 7, 2015).

Reviewer, P & T Dossier, Utah State University. (October 2015).

Reviewer, Journal Article, Agronomy Journal. (September 25, 2015).

Reviewer, Ad Hoc Reviewer, University of Idaho. (June 1, 2015).

Reviewer, Journal Article, Crop Science. (May 19, 2015).

Reviewer, Ad Hoc Reviewer, Colorado State University AES. (February 11, 2015).

Reviewer, Journal Article, Agronomy Journal. (January 15, 2015).

Reviewer, Grant Proposal, Boulder Valley and Longmont Conservation Districts. (December 1, 2014).

Reviewer, Grant Proposal, Colorado State University Extension. (December 1, 2014).

Reviewer, Journal Article, Grassland Science. (November 24, 2014).

Reviewer, Ad Hoc Reviewer, University of Wyoming-AES. (October 17, 2014).

Reviewer, Journal Article, Grassland Science. (August 13, 2014).

Reviewer, P & T Dossier, University of Idaho. (July 1, 2014).

Reviewer, Ad Hoc Reviewer, Washington State University. (May 23, 2014).

Reviewer, Ad Hoc Reviewer, Virginia Cooperative Extension. (May 16, 2014).

Reviewer, Ad Hoc Reviewer, USDA-ARS High Plains Grasslands Research Station. (February 14, 2014).

Reviewer, Ad Hoc Reviewer, New Mexico State University. (December 2013).

Member, Extension Small Acreage Management Work Team. (2006 - 2013).

Member, High Altitude Revegetation Committee. (2006 - 2013).

Reviewer, Ad Hoc Reviewer, University of Wyoming. (November 2013).

Reviewer, Ad Hoc Reviewer, Montana State University. (October 2013).

Reviewer, Ad Hoc Reviewer, Montana State University. (October 2013).

Reviewer, Ad Hoc Reviewer, Colorado State University - Troy Bauder (SCS). (May 2013).

Reviewer, Ad Hoc Reviewer, Gunnison Conservation District. (January 2013).

Reviewer, Ad Hoc Reviewer, Colorado Agricultural Experiment Station. (2012).

Reviewer, Journal Article, Crop Management. (2012).

Workshop Organizer, High Altitude Revegetation Committee, Fort Collins, CO. (2012).

Workshop Organizer, High Altitude Revegetation Committee, Fort Collins, CO. (2012).

Reviewer, Ad Hoc Reviewer, New Mexico State University. (2012).

Reviewer, Ad Hoc Reviewer, University of Wyoming. (2012).

Committee Chair, Western Education/Extension and Research Activity Committee (WERA 1014). (2012).

Reviewer, Journal Article, Computers and Electronics in Agriculture. (2011).

Reviewer, Journal Article, Forage and Grazinglands. (2011).

Workshop Organizer, High Altitude Revegetation Committee, Leadville, CO. (2011).

Workshop Organizer, University of California, Las Vegas, NV. (2011).

Reviewer, P & T Dossier, University of Idaho. (2011).

Reviewer, Ad Hoc Reviewer, University of Wyoming. (2011).

Reviewer, Ad Hoc Reviewer, USDA-ARS. (2011).

Reviewer, Ad Hoc Reviewer, USGS. (2011).

Workshop Organizer, Colorado State University/NREL, Fort Collins, CO. (2010).

Reviewer, Journal Article, Forage and Grazinglands. (2010).

Workshop Organizer, High Altitude Revegetation Committee, Fort Collins, CO. (2010).

Reviewer, Journal Article, The Philippine Agricultural Scientist. (2010).

Reviewer, Ad Hoc Reviewer, University of Wyoming. (2010).

Member, Institute for Livestock and the Environment. (2008 - 2010).

Member, Multistate Committee (W-503) for Grass-fed Beef. (2008 - 2010).

Committee Chair, Western Education/Extension and Research Activity Committee (WERA 1014). (2008 - 2010).

#### **OTHER ACTIVITIES/ACCOMPLISHMENTS – SERVICE/OUTREACH**

Litigation, Raymond v. Hostetler (Budd-Falen Law Offices), Cheyenne, WY, United States. (August 26, 2015 - Present).

Private Ranch, Nottingham Ranch, Burns, Colorado, United States. (June 13, 2014 - August 15, 2014).

Private Ranch, Michigan River Ranch, Gould, Colorado, United States. (July 2, 2014).

Private Dairy Farm, Aurora Organic Dairy, Platteville, Colorado, United States. (May 19, 2014 - May 22, 2014).

Litigation, Taylor River Ranch, Gunnison, CO. (October 25, 2012 - August 14, 2013).

Litigation, Michael and Michelle Smith, Fort Collins, CO. (January 16, 2013 - June 25, 2013).

Academic, Resource Land Holdings, LLC, Toponas, CO. (March 23, 2012 - May 30, 2012).

Litigation, Liberty Mutual Group. (June 10, 2011 - November 14, 2011).

Aurora Organic Dairy. (August 17, 2010).

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