

CURRICULUM VITAE
University of Idaho

NAME: Coleman, Mark D.

DATE: 13 April 2015

RANK OR TITLE: Professor of Forest Resources

DEPARTMENT: Forest, Rangeland, and Fire Sciences

OFFICE LOCATION AND CAMPUS ZIP: CNR 102A, 1133

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DATE OF FIRST EMPLOYMENT AT UI: June 2008

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DATE OF TENURE: July 2014

DATE OF PRESENT RANK OR TITLE: July 2014

EDUCATION BEYOND HIGH SCHOOL:

Degrees:

Ph.D. Forest Resources, University of Washington, Seattle, Washington, 1988

M.S. Forestry, University of Nebraska, Lincoln, Nebraska, 1983

B.S. Forest Biology, Colorado State University, Ft. Collins, Colorado, 1979

EXPERIENCE:

Teaching, Extension and Research Appointments:

2014-Present Professor and Director of Intermountain Forest Tree Nutrition Cooperative, Forest, Rangeland and Fire Sciences Dept., University of Idaho

2008-2014 Associate Professor and Director of Intermountain Forest Tree Nutrition Cooperative, Forest, Rangeland and Fire Sciences Dept., University of Idaho

2008-Present Adjunct Professor, Environmental Science Program, Biological Sciences Division, University of Idaho

1998-2008 Research Biological Scientist, USDA Forest Service, Savannah River, New Ellenton, South Carolina

1996-1998 Research Scientist, School of Forestry, Michigan Technological University, Houghton, Michigan, stationed at US Forest Service, Forestry Sciences Lab, Rhinelander, Wisconsin

1992 - 1996 Research Plant Physiologist, USDA Forest Service, North Central Research Station, Forestry Sciences Laboratory, Rhinelander, Wisconsin

1990 - 1991 Postdoctoral Research Scientist, School of Forestry, Michigan Technological University, stationed at US Forest Service, Forestry Sciences Lab, Rhinelander, Wisconsin

1988 - 1989 Postdoctoral Research Associate, College of Forest Resources, University of Washington, Seattle, Washington

1984 - 1988 Graduate Research Associate, College of Forest Resources, University of Washington, Seattle, Washington

1981 - 1983 Research Forester, International Paper Co., Natchez Forest Research Center, Natchez, Mississippi

1979 - 1981 Graduate Research Assistant, Department of Forestry, Fisheries, and Wildlife, University of Nebraska, Lincoln, NE

TEACHING ACCOMPLISHMENTS:

Areas of Specialization:

Forest tree nutrition, bioenergy feedstock production, intensive silviculture, and belowground processes

Courses Taught:

<u>Term</u>	<u>Course</u>	<u>Credits</u>	<u>Title</u>
Fall 2008	For 501	1	Professional Presentation Seminar
Sp 2009	For 504	3	Forest Nutrient Cycling
Fall 2009	For 404	3	Forest Nutrient Cycling
Sp 2010	For 501	1	Forestry, Bioenergy and Carbon
Fall 2010	For 425	2	Forest Nutrient Cycling
Fall 2011	For 424	4	Forest Dynamics and Management
Sp 2012	For 397	4	Senior Thesis
Fall 2012	For 504	3	Advanced Forest Nutrient Cycling
Fall 2012	NR 101	1	Introduction to Natural Resources
Fall 2012	For 501	1	Department seminar
Sp 2013	For 501	1	Scientific Manuscript Preparation
Fall 2013	For 330	4	Soil and Canopy Processes
Sp 2014	For 501	1	Scientific Manuscript Preparation
Fall 2014	For 330	4	Soil and Canopy Processes
Fall 2014	For 504	3	Belowground Processes
Sp 2015	For 501	1	Scientific Manuscript Preparation

Students Advised:

Undergraduate:

5-10 students annually in Forest Resources, Forest Operations

Graduate Students, Major Professor, Completed Programs:

Dan Smith, M.S., University of Idaho, Natural Resources	May 2013
Derick Reeves, M.S., University of Idaho, Environmental Science	May 2011
Kristen McElligott, M.S., University of Idaho, Natural Resources	August 2011
Shan Shan, M.S., University of Idaho, Environmental Science	August 2013

Graduate Students, Major Professor, In Progress:

Jessica Sarauer, Ph.D., University of Idaho, Natural Resources	expected May 2017
Bhanu Bhattarai, M.S., University of Idaho, Natural Resources	expected May 2015
Chris Chase, M.S., University of Idaho, Natural Resources	expected May 2015

Graduate Committee Membership, completed:

Alex Gersheson, Ph.D., University of California–Santa Cruz	2007
Jeff Cook, M.S., College of Charleston, Charleston, SC	2003
Christel Beno, M.S., University of Wisconsin., Stevens Point	2000
Mary Ridout, Ph.D., University of Idaho, Natural Resources	2013
Carl Morrow, Ph.D., University of Idaho, Natural Resources	2013
Tadd Wheeler, Ph.D., University of Idaho, Natural Resources	2014
Layla Dunlap, M.S., University of Idaho, Natural Resources	2015

Graduate Committee Membership, in progress:

Kendra Schtzko, University of Idaho, Plant, Soil and Entomological Sciences	began September 2013
Monica Ott, University of Idaho, Plant, Soil and Entomological Sciences	began September 2012
David Johnson, Ph.D., University of Idaho, Natural Resources	began September 2013

Materials Developed:

Courses Developed:

For 425 Forest Nutrient Cycling
 For 501 Scientific Manuscript Preparation

Non-credit Classes, Workshops, Seminars, Invited Lectures, etc.:

- Influence of silviculture on soil/nutrient dynamics and control of disturbance agents through forest management. Guest lecturer in Dr. Kavanagh's Forest Ecology and Management For 424, Fall 2010.
- Climate Change and Silviculture. Guest lecturer in Dr. Kavanagh's Forest Ecology and Management For 424, Fall 2010.
- High Impact Science in Natural Resources. Guest lecturer in FOR 501, Fall 2009.
- Belowground forest carbon budgets in short rotation wood crop plantations. Seminar for Arnold School of Public Health, University of South Carolina, Feb 2006.
- Assembling belowground forest carbon budgets during stand development. Seminar for Biology Department, Virginia Tech, Nov 2005.
- Carbon sequestration through belowground carbon allocation: Forest stand development vs. soil resources availability. Seminar for Clemson Horticulture Department, Feb 2005.
- Silviculture: The art of producing and tending a forest. Guest lecturer in Dr. Imm's Natural Resource Management, South Carolina State Field Station, June 2003.
- Plant Stress Physiology. Guest lecturer for Dr. Karnosky's Plant Physiology, Michigan Tech, Spring 1992 and 1993.
- Biology of Mycorrhizas. Guest lecturer in Dr. Smit's Root Physiology, University of Washington, Winter 1989, and Clark's Tree Physiology, University of Washington, Spring 1986 and 1987.
- Root Pressure Chamber Techniques. Guest lecture in Dr. Hinckley and Dr. Smit's Tree Physiology, University of Washington, Spring 1989.
- Practical Applications of Mycorrhizae. Guest lecture in Dr. Edmond's Forest Soil Microbiology, University of Washington, Spring 1985.

SCHOLARSHIP ACCOMPLISHMENTS:

Publications in Review/Preparation:

- Kimsey, M., M. Coleman, R.T. Volfovicz-Leon, R. . (in preparation). Maximum density-size relationships for Douglas-fir, grand-fir, ponderosa pine and western larch in the Inland Northwest
- Page-Dumroese, D.S., M.D. Coleman, and S.C. Thomas.(in review). Opportunities and uses of biochar on forest sites in North America. in: V. Bruckman, J. Liu, B.B. Uzun, E. Varol, A. Buck, (eds) Biochar: A regional Supply Chain Approach in View of Climate Change Mitigation.
- Shan, S., and M.D. Coleman. (in preparation). Biochar alters nitrogen cycling in andisols from different elevations. Soil Science Society of America Journal
- Smith, D.L., and M.D. Coleman. (in preparation). Biochar affects extracellular enzyme activity rates in northern Idaho forest soils. Soil Biology and Biochemistry
- Coleman, M.D. (in preparation). Contrasting response of poplar and pine fine-root dynamics to nutrient and water availability. New Phytologist.

Peer Reviewed/Evaluated Publications:

- Daniel G. Strawn, D.G., A. Rigby, L. Baker, M. Coleman, I. Koch. (in press). Biochar soil amendment effects on arsenic availability to Mountain Brome grass (*Bromus marginatus*) doi:10.2134/jeq2014.11.0477.
- Coleman, M.D., T.M. Shaw, M.J. Kimsey and J.A. Moore. 2014. Nutrition of Douglas-fir in the Inland Northwest. Soil Sci. Soc. Am. J. 78: S11-S22.
- Shan, S., M. Coleman and M. Kimsey. 2014. Soil Soluble Nitrogen Availability across an Elevation Gradient in a Cold-Temperate Forest Ecosystem. Soil Sci. Soc. Am. J. 78: S217-S224.
- Reeves, D.A., M.D. Coleman, and D.S. Page-Dumroese. 2013. Evidence supporting the need for a common soil monitoring protocol. Journal of Ecosystems and Management.. 14:1-16.
- Coyle, D.R., D.P. Aubrey, J.P. Siry, R. Volfovicz-Leon, and M.D. Coleman. 2013. Optimal nitrogen application rates for three intensively-managed hardwood tree species in the southeastern USA. Forest Ecology and Management 303:131-142.
- Kaczmarek, D.J., D.R. Coyle, and M.D. Coleman. 2013. Survival and growth of a range of *Populus* clones in central South Carolina USA through age ten: Do early assessments reflect longer-term survival and growth trends? Biomass and Bioenergy 49:260-272.
- White, K.P., M. Coleman, D.S. Page-Dumroese, P.E. Gessler, M. Kimsey, and T. Shaw. 2012. Examining soil parent material influence over Douglas-fir stem growth response to fertilization: Taking advantage of information from spatiotemporally distributed experiments. Forest Ecology and Management 286:101-107.
- Aubrey, D. P., D. R. Coyle, and M. D. Coleman. 2012. Functional groups show distinct differences in

- nitrogen cycling during early stand development: Implications for forest management. *Plant and Soil* 351:219-236.
- Gong, B.L., J. Im, J.R. Jensen, M. Coleman, J. Rhee, and E. Nelson. 2012. Characterization of forest crops with a range of nutrient and water treatments using aisa hyperspectral imagery. *GIScience and Remote Sensing* 49:463-491.
- Kimsey, M., D. Page-Dumroese, and M. Coleman. 2011. Assessing bioenergy harvest risks: Geospatially explicit tools for maintaining soil productivity in western US forests. *Forests* 2:797-813.
- Schmalz, H., and M.D. Coleman. 2011. Foliar sulfate-sulfur as a nutrient diagnostic tool for interior Douglas-fir. *Western Journal of Applied Forestry* 26:147-150.
- Reeves, D.A., M.C. Reeves, A.M. Abbott, D.S. Page-Dumroese, and M.D. Coleman. 2011. A detrimental soil disturbance prediction model for ground-based timber harvesting. *Canadian Journal of Forest Research* 42:821-830.
- Kline, K.L., and M.D. Coleman. 2010. Woody energy crops in the southeastern United States: Two centuries of practitioner experience. *Biomass and Bioenergy* 34:1655-1666.
- Samuelson, L., R. Mathew; T. Stokes; Y. Feng; D. Aubrey; M. Coleman. 2009. Soil and microbial respiration in a loblolly pine plantation in response to seven years of irrigation and fertilization. *Forest Ecology and Management* 258:2431-2438.
- Im, J., J.R. Jensen, M. Coleman, and E. Nelson 2009. Hyperspectral remote sensing analysis of short rotation woody crops grown with controlled nutrient and irrigation treatments. *Geocarto* 24:293-312.
- Samuelson, L.J., M.G. Farris, T.A. Stokes, and M.D. Coleman. 2008. Fertilization but not irrigation influences hydraulic traits in plantation-grown loblolly pine. *Forest Ecology and Management* 255:3331-3339.
- Coyle, D.R., D. Aubrey, and M.D. Coleman. 2007. Contrasting productivity, development, and biomass distribution of sweetgum and loblolly pine grown with irrigation and fertilization. *Canadian Journal of Forest Research* 38:1335-1348
- Sanchez, F.G., M. Coleman, C.T. Garten, R.J. Luxmoore, J.A. Stanturf, C. Trettin, and S.D. Wullschleger. 2007. Soil carbon, after three years, under short rotation woody crops grown under varying nutrient and water availability. *Biomass and Bioenergy* 31:793-801.
- Coleman, M.D. 2007. Spatial and temporal patterns of root distribution in developing stands of four woody crop species grown with drip irrigation and fertilization. *Plant Soil* 299:195-213.
- Aubrey, D., D.R. Coyle, and M.D. Coleman. 2007. Fertilization increases the risk of loblolly pine to ice storm damage. *Forest Science* 53:580-589.
- Johnson, J.M.-F., M.D. Coleman, R. Gesch, A. Jaradat, R. Mitchell, D. Reicosky, and W.W. Wilhelm. 2007. Biomass-bioenergy crops in the United States: A changing paradigm. *The Americas Journal of Plant Sciences and Biotechnology* 1:1-28.
- Samuelson, L.J., T.A. Stokes, and M.D. Coleman. 2007. Influence of irrigation and fertilization on transpiration and hydraulic properties of *Populus deltoides*. *Tree Physiology* 27:765-774.
- Coleman, M.D., and J.A. Stanturf. 2006. Proceedings of the 5th biennial meeting of the Short Rotation Woody Crops Operations Working Group. *Biomass and Bioenergy* 30:693-814
- Coleman, M.D., and J.A. Stanturf. 2006. Biomass feedstock production systems: Economic and environmental benefits. *Biomass and Bioenergy* 30:693-695.
- Coleman, M.D., D. Tolsted, T. Nichols, W.D. Johnson, E.G. Ween, and T. Houghtaling. 2006. Post-establishment fertilization of Minnesota hybrid poplar plantations. *Biomass and Bioenergy* 30:740-749.
- Coyle, D.R., M.D. Coleman, J.A. Durant, and L.A. Newman. 2006. Survival and growth of 31 *Populus* clones in South Carolina. *Biomass and Bioenergy* 30:750-758.
- Coyle, D.R., M.D. Coleman, J.A. Durant, and L.A. Newman. 2006. Multiple factors affect pest and pathogen damage on 31 *Populus* clones in South Carolina. *Biomass and Bioenergy* 30:759-768.
- Coleman, M.D., and J.A. Stanturf. Proceedings of the 5th biennial meeting of the Short Rotation Woody Crops Operations Working Group in conjunction with International Energy Agency Bioenergy, Task 30, Short Rotation Crops for Bioenergy Systems and International Union of Forest Research Organization, Working Unit 1.09.01, Integrated Research in Temperate Short-Rotation Energy Plantations: 2006. In *Biomass and Bioenergy Volume 30, Issues 8–9, August–September 2006*.
- Coyle, D.R., and M.D. Coleman. 2005. Forest production responses to irrigation and fertilization are not explained by shifts in allocation. *Forest Ecology and Management* 208:137–152
- Allen, C.B., R.E. Will, R.C. McGarvey, D.R. Coyle, and M.D. Coleman. 2004. The effect of water and nutrient availability on radiation use efficiency and gas exchange in stands of sweetgum and sycamore receiving irrigation and fertilization. *Tree Physiology* 25:191-200.

- Coleman, M.D., A.L. Friend, and C.C. Kern 2004. Carbon allocation and nitrogen acquisition in a developing *Populus deltoides* plantation. *Tree Physiology* 24:1347-1357.
- Coleman, M.D., J.G. Isebrands, D.N. Tolsted, and V.R. Tolbert. 2004. Comparing soil carbon of short rotation poplar plantations with agricultural crops and woodlots in North Central United States. *Environmental Management* 33:S299 - S308.
- Kern, C.C., A.L. Friend, J.M. Johnson, and M.D. Coleman 2004. Fine-root dynamics in a developing *Populus deltoides* plantation. *Tree Physiology* 24:651-660.
- Coleman, M.D., S.X. Chang, and D.J. Robison. 2003. DRIS analysis identifies a common K imbalance in sweetgum (*Liquidambar styraciflua*) plantations. *Communications in Soil Science and Plant Analysis* 34:1919-1941.
- Dickson, R.E., M.D. Coleman, P. Pechter, and D. Karnosky. 2001. Growth and crown architecture of two aspen genotypes exposed to interacting ozone and carbon dioxide. *Environmental Pollution* 115:319-334.
- Coleman, M.D., R.E. Dickson, and J.G. Isebrands. 2000. Contrasting fine-root production, survival and soil CO₂ efflux in pine and poplar plantations. *Plant and Soil* 225:129-139.
- Karnosky, D.F., B. Mankovska, K. Percy, R.E. Dickson, G.K. Podila, J. Sober, A. Normets, G. Hendrey, M.D. Coleman, M. Kubiske, K.S. Pregitzer, and J.G. Isebrands. 1999. Effects of tropospheric O₃ on trembling aspen and interaction with CO₂: Results from an O₃-gradient and a FACE experiment. *Water Air and Soil Pollution* 116:311-322.
- Dickson, R.E., M.D. Coleman, D.E. Riemenschneider, J.G. Isebrands, G.D. Hogan, and D.F. Karnosky. 1998. Growth of five hybrid poplar genotypes exposed to interacting elevated CO₂ and O₃. *Canadian Journal of Forest Research* 28:1706-1716.
- Coleman, M.D., R.E. Dickson, and J.G. Isebrands. 1998. Growth and physiology of aspen supplied with different fertilizer addition rates. *Physiologia Plantarum* 103:513-526.
- Karnosky, D.F., G.K. Podila, Z. Gagnon, P. Pechter, A. Akkapeddi, Y. Sheng, D.E. Riemenschneider, M.D. Coleman, R.E. Dickson, and J.G. Isebrands. 1998. Genetic controls of responses to interacting tropospheric ozone and CO₂ in *Populus tremuloides*. *Chemosphere* 36: 807-812.
- Kull, O., A. Sober, M.D. Coleman, R.E. Dickson, J.G. Isebrands, Z. Gagnon, and D.F. Karnosky. 1996. Photosynthetic responses of aspen clones to simultaneous exposures of ozone and CO₂. *Canadian Journal of Forest Research* 26:639-648.
- Karnosky, D.F., Z.E. Gagnon, R.E. Dickson, M.D. Coleman, E.H. Lee, and J.G. Isebrands. 1996. Changes in growth, leaf abscission and biomass associated with seasonal tropospheric ozone exposures of *Populus tremuloides* clones and seedlings. *Canadian Journal of Forest Research* 26:23-37.
- Coleman, M.D., R.E. Dickson, J.G. Isebrands, and D.F. Karnosky. 1996. Root growth and physiology of potted and field-grown trembling aspen exposed to tropospheric ozone. *Tree Physiology* 16:145-152.
- Coleman, M.D., R.E. Dickson, J.G. Isebrands, and D.F. Karnosky. 1995. Photosynthetic productivity of aspen clones varying in sensitivity to tropospheric ozone. *Tree Physiology* 15:585-592.
- Coleman, M.D., R.E. Dickson, J.G. Isebrands, and D.F. Karnosky. 1995. Carbon allocation and partitioning in aspen clones varying in sensitivity to tropospheric ozone. *Tree Physiology* 15:593-604.
- Coleman, M.D., T.M. Hinckley, G. McNaughton, and B.A. Smit. 1992. Root cold hardiness and native distribution of subalpine conifers. *Canadian Journal of Forest Research* 22:932-938.
- Coleman, M.D., C.S. Bledsoe, and B. Smit. 1990. Ectomycorrhizas decrease root hydraulic conductivity and xylem sap levels of zeatin riboside in Douglas-fir seedlings. *New Phytologist* 115:275-284.
- Bledsoe, C.S., D. Brown, M. Coleman, W. Littke, P. Rygielwicz, U. Sangwanit, S. Rogers, J. Ammirati. 1989. Physiology and metabolism of ectomycorrhizae. *Annals of Science Forestal* 46 suppl. 697s-705s.
- Coleman, M.D., C.S. Bledsoe, and W. Lopushinsky. 1989. Pure culture response of ectomycorrhizal fungi to imposed water stress. *Canadian Journal of Botany* 67:29-39

Non-Refereed Publications:

- Shaw, T., M. Coleman, M. Kimsey, and P. Mika. 2014. Forest health and nutrition study ten-year growth, mortality and foliar nutrition. Intermountain Forest Tree Nutrition Cooperative. Technical Document. University of Idaho, Moscow. 65 p.
- McElligott, K., D. Page-Dumroese, and M. Coleman. 2011. Bioenergy production systems and biochar application in forests: Potential for renewable energy, soil enhancement, and carbon sequestration. RMRS-RN-46. U.S. Department of Agriculture, Forest Service, Fort Collins, CO.
- Reeves, D.A., D.S. Page-Dumroese, and M.D. Coleman. 2011. Detrimental soil disturbance associated with timber harvest systems on national forests in the northern region. RMRS-RP-89. U.S. Department of Agriculture, Forest Service Fort Collins, CO.

- Reeves, D.A., D.S. Page-Dumroese, and M.D. Coleman. 2011. Detrimental soil disturbance associated with timber harvest systems on national forests in the northern region. RMRS-RP-89. U.S. Department of Agriculture, Forest Service Fort Collins, CO.
- Coyle, D.R., D.P. Aubrey, C.R. Hickman, and M. Coleman. 2010. Not sure about a PhD? Work on a "pre-PhD". *Frontiers in Ecology and the Environment* 8:105-106.
- Coleman, M., D. Page-Dumroese, J. Archuleta, P. Badger, W. Chung, T. Venn, D. Loeffler, G. Jones, and K. McElligott. 2010. Can portable pyrolysis units make biomass utilization affordable while using bio-char to enhance soil productivity and sequester carbon? . In: T. Jain, R.T. Graham, and J. Sandquist, editors. *Integrated management of carbon sequestration and biomass utilization opportunities in a changing climate: Proceedings of the 2009 National Silviculture Workshop; 2009 June 15-18; Boise, ID RMRS-P-61, USDA Forest Service, Rocky Mountain Research Station, Ft. Collins, CO, pp. 159-168.*
- Page-Dumroese, D., M. Coleman, G. Jones, T. Venn, R.K. Dumroese, N. Anderson, W. Chung, D. Loeffler, J. Archuleta, M. Kimsey, P. Badger, T. Shaw, and K. McElligott. 2009. Portable in-woods pyrolysis: Using forest biomass to reduce forest fuels, increase soil productivity, and sequester carbon. In: *North American Biochar Meeting. University of Colorado Press, Boulder, CO.*
- Giardina, C.P., M.D. Coleman, D. Binkley, J.E. Hancock, J.S. King, E.A. Lilleskov, W.M. Loya, K.S. Pregitzer, M.G. Ryan, and C.C. Trettin. 2005. The response of belowground carbon allocation in forests to global change. In: D. Binkley, and O. Menyailo, editors. *Tree species effects on soils: implications for global change. Dordrecht: Kluwer Academic Publishers p. 119-154.*
- Coleman M.D., D.R. Coyle, J. Blake, K. Britton, M. Buford, R.G. Campbell, J. Cox, B. Cregg, D. Daniels, M. Jacobson, K. Johnsen, T. McDonald, K. McLeod, E. Nelson, D. Robison, R. Rummer, F. Sanchez, J. Stanturf, B. Stokes, C. Trettin, J. Tuskan, L. Wright, and S. Wullschleger 2003. Production of short rotation woody crops grown with a range of nutrient and water availability: Establishment report and first-year responses. General Technical Report, SRS- 72. U.S. Department of Agriculture, Forest Service, Asheville, NC.
- Callahan, T.J., J.D. Cook, M.D. Coleman, D.M. Amatya, and C.C. Trettin. Modeling storm water runoff and soil interflow in a managed forest, Upper Coastal Plain of the Southeast US. In: *ASAE Annual Meeting; 2004; Ottawa, Ontario, Canada. Paper 042254.*
- Coleman, M., D. Tolsted, and J. Isebrands. Mid-rotation fertilization of Minnesota hybrid poplar plantations and the evaluation of nutrient balance. Final report. WesMin Resource Conservation and Development; 2004.
- Coleman, M., D. Tolsted, and J. Isebrands. Mid-rotation fertilization of Minnesota hybrid poplar plantations and the evaluation of nutrient balance, 2001. Annual report. WesMin Resource Conservation and Development; 2002.
- Stanturf, J.A., C. van Oosten, D.A. Netzer, M.D. Coleman, and C.J. Portwood. Ecology and silviculture of poplar plantations. In: D.I. Dickmann, J.G. Isebrands, J.E. Eckenwalder, and J. Richardson, editors. *Poplar culture in North America. . National Research Council, Ottawa; 2001. p153-206.*
- Coleman, M.D. Short rotation woody crops cooperative research program. In: *Proceedings of the Short Rotation Woody Crops Operations Working Group Third Biennial Conference: 2000 October 10-13; Syracuse, NY; 2001.*
- Coleman, M., and D. Tolsted. Mid-rotation fertilization of Minnesota hybrid poplar plantations and the evaluation of nutrient balance. Annual report. WesMin R C and D; 2001.
- Luxmoore, R.J., Mehlhorn, T.L., Yang, B.W., Lu, B.W., Coleman, M.D., Trettin, C.C., Wullschleger, S.D., and Garten, C.T. Tillage effects on carbon and nitrogen in a coastal plain soil. *American Geophysical Union Annual Meetings: 2000 Dec 4; San Francisco, CA.*
- Dickson, R.E., K.F. Lewin, J.C. Isebrands, M.D. Coleman, W.E. Heilman, D.E. Riemenschneider, J. Sober, G.E. Host, D.R. Zak, G.R. Hendrey, K.S. Pregitzer, and D.F. Karnosky. Forest atmosphere carbon transfer and storage (FACTS-II) the aspen free-air CO₂ and O₃ enrichment (FACE) project: an overview; 2000 USDA-Forest Service, General Technical Report NC-214.
- Coleman, M. F. Lenning, and D. Tolsted. Field testing of poplar optimal nutrition regimes. Annual Report. USDA - Forest Service / Boise Cascade Cooperative Research and Development Agreement; 1999.
- Coleman, M. Fertilization of poplar in Minnesota. Annual report. Boise Cascade CRADA; 1998.
- Coleman, M. Intensive fertilization of a commercial poplar plantation, Birchdale, MN Fertilizer Trial. Annual report. Boise Cascade CRADA; 1997.
- Hermes, D.A., W.J. Mattson, D.N. Karowe, M.D. Coleman, T.M. Trier, B.A. Birr, and J.G. Isebrands. 1995. Variable performance of outbreak defoliators on aspen clones exposed to elevated CO₂ and O₃. In: *Proceedings of the Meeting of the Northern Global Change Program; 1995. USDA General Technical*

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- Report RM-214, p 43-55.
- Friend, A.L., M.D. Coleman, and J.G. Isebrands. Carbon allocation to root and shoot systems of woody plants. In: T.D. Davis, and B.E. Hassig, editors. *Biology of Adventitious Root Formation*. New York: Plenum Publishing; 1994.p 245-273.
- Coleman, M.D., C.S. Bledsoe, and B. Smit-Spinks. Douglas-fir root hydraulic conductivity. In: *Proceedings of the 7th North American Conference on Mycorrhizae*; 1987 May 3-8; Gainesville, Florida. Univ. of Florida; p 243
- Coleman, M.D., C.S. Bledsoe, J. Dunlap, and D. Dutton. Nursery and field evaluations of compost grown coniferous seedlings. In: *Proceedings of the Western Forest Nursery Conference*; 1986 Aug 12-15; Tumwater, WA, Aug. 12-15, 1986. USDA Forest Service General Technical Report RM-137.
- France, R.C., M.D. Coleman, and M.L. Cline. Cover crops to increase inoculum in the field. In: *Proceedings of the 6th North American Conference on Mycorrhizae*; 1984 Jun 25-29; Bend OR. Corvallis: Forest Science Laboratory, Corvallis, OR. p 92-94.
- Coleman, M.D., J.R. Brandle, and W.R. Lovett. Water relations of different mycorrhizal cottonwood clones. In: *Proceedings of the 7th North American Forest Biology Workshop*; 1983 Jul 26-28; Lexington, KY.

Professional Meeting Papers, Workshops:

Invited Presentations:

- Coleman, Mark, Bhanu Bhattarai & Brian Bell. Environmental impacts of producing biofuel from poplar *Advanced Hardwood Biofuels*, Annual Meeting, Davis, California, September 10-12, 2014
- Coleman, M., B. Bhattarai, and B. Bell. 2012 Sustainability of soil and water resources during establishment of poplar coppice culture. *Advanced Hardwood Biofuels Northwest Annual Meeting*, Corvallis, Oregon, September 11, 2012.
- Coleman, M. Short rotation woody crop biomass energy feedstock production systems. 16th Biennial Southern Silvicultural Research Conference. Charleston. SC, February 15-17, 2011.
- Coleman, M. Short rotation woody crop biomass energy feedstock production systems. ASA-CSSA-SSSA International Annual Meetings, Long Beach, CA, November 1-4, 2010.
- Coleman, M. Forestry applications of biochar: Biomass utilization and portable pyrolysis units. The promise of biochar workshop at *Harvesting Clean Energy*, Kennewick, WA, February 7-9, 2010.
- Coleman, M., D. Page-Dumroese, J. Archuleta, P. Badger, W. Chung, T. Venn, D. Loeffler, G. Jones and K. McElligott. Can portable pyrolysis units make biomass utilization affordable while using bio-char to enhance soil productivity and sequester carbon? *National Silviculture Workshop*, Boise, ID, June 15-18, 2009.
- Coleman, M. and Kline, K. L. *Hardwoods for Woody Energy Crops In the Southeast United States: Two Centuries of Practitioner Experience. Estimating Current and Future Biomass Feedstocks Symposium*, ASA-CSSA-SSSA Annual Meeting, Pittsburgh, PA, November 2, 2009
- Coleman, M. Can portable pyrolysis units make biomass utilization affordable? *Symposium presentation to OSU/ARS Columbia Basin Agricultural Research Center*, Pendleton, OR. July 28, 2009.
- Coleman, M. *University of Idaho Intermountain Forest Tree Nutrition Cooperative, 2009 Foresters' Forum*, Coeur d'Alene, Idaho, February 4-6, 2009
- Coleman, M. Production of woody biomass through intensive culture. *Alternative energy solutions from Alabama's natural resources*, Auburn, AL, October 23-24, 2006.
- Coleman M. Carbon sequestration through belowground carbon allocation: Forest stand development vs. soil resources availability. *Clemson Horticulture Department Spring Seminar Series*, February 11, 2005.
- Blake, J., M. Coleman and B. Parresol. *Forest Biomass for Bio-energy Production in the SE U.S. Presentation to the Francis Marion/Sumter National Forests and Forest Service Savannah River Leadership Teams*, Hickory Knob, SC, November, 2004.
- Coleman, M. and J. Blake *Fine-root Production and the Relative Importance of fertility. Forest seedling root development conference*, Eugene, OR, May 12-13, 2004
- Coleman, M., J. Blake and D. Marx. Compatibility of bioremediation technologies with bio-energy feedstock production. *Electric Power Research Institute, Biomass Interest Group Meeting*, Washington D.C., November 7-8, 2002.
- Coleman, M.D. Whole-tree and stand level root growth dynamics: Species differences and responses to nutrient additions. *Pacific Northwest Research Station, Olympia, WA* October 10, 2001.

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- Coleman, M.D. S.X. Chang, D.J. Robison. Diagnosing nutrient requirements in sweetgum using DRIS. NC State University Hardwood Research Cooperative 2000 Advisory Board Meeting. Raleigh, NC, May 3-5, 2000.
- Coleman, M.D. Balancing resource requirements to maximize fiber farm production. Society of American Foresters National Convention. Portland, OR. September 9-15, 1999.
- Coleman, M.D. Ozone and carbon allocation. 26th Annual Air Pollution Workshop, Ithaca, NY, March 22-25, 1994.

Offered Presentations and Posters:

- Coleman, M., T. Shaw, M. Kimsey. Inland northwest geology, climate and forest productivity. Center for Advanced Forestry. Coeur d'Alene, ID. May 2014.
- Coleman, M., T. Shaw, M. Kimsey. Applied research to sustain forest health, resilience and productivity. Presentation to USFS Region 4. New Meadows, ID. October, 2014.
- Brian B., M. Coleman, B. Bhattarai. How Do Land Management Practices Affect Greenhouse Gas Budgets?. Short Rotation Woody Crop Operations Working Group – Woody Crops: Production Alternatives for Multiple Uses 10th Biennial Conference. Seattle, WA 17-19 July 2014
- Bhattarai, B., M. Coleman and R. Heinse. Study of nutrient flux in soil: poplar plantation versus agricultural land. Short Rotation Woody Crop Operations Working Group – Woody Crops: Production Alternatives for Multiple Uses 10th Biennial Conference. Seattle, WA 17-19 July 2014
- Coleman, M. Using biomass of microbial guilds and soil exoenzymes to assess sustainability of woody biofuel feedstock production, PS 28-133. 99th ESA Annual Meeting. Sacramento, CA, August 10 -- 15, 2014.
- Coleman, M., S. Cook, M. Jurgensen, D. Lindner, D.P.-Dumroese. Impacts of forest biomass removal on soil quality and biodiversity. USDA-NIFA AFRI Sustainable Bioenergy, Annual Project Director (PD) Meeting, Renaissance Capital View Arlington Hotel, Arlington, VA 22202
- Shaw, T., M. Coleman, M. Kimsey, and P. Mika. 2014. Forest health and nutrition study ten-year growth, mortality and foliar nutrition. Intermountain Forest Tree Nutrition Cooperative. Technical Document. University of Idaho, Moscow. 122 p.
- Bhattarai, B., M. Coleman, and B. Bell. 2012 Nutrients flux of poplar plantations. Advanced Hardwood Biofuels Northwest Annual Meeting, Corvallis, Oregon, September 11, 2012.
- Coleman, M., J. Moore, T. Shaw, and M. Kimsey. Management of Douglas-fir nutrition for the Inland Northwest. 12th North American Forest Soils Conference. Whitefish MT, June 16-20 2013.
- Shan, S., M.D. Coleman, M.J. Kimsey. Soil soluble nitrogen availability changes with elevation but not plant-mycorrhizal association. 12th North American Forest Soils Conference. Whitefish MT, June 16-20 2013.
- Coleman, M., T. Shaw, M. Kimsey, and C. Chase. Determining phases of growth and relative stand densities for optimal response to thinning across the Inland Northwest. Center for Advanced Forestry Systems Annual Meeting. St Simons Is, GA April 9, 2013.
- Coleman, M. Forest feeder root dynamics are controlled more by spatiotemporal position and inherent characteristics than by resource availability. American Geophysical Union. San Francisco, CA, December 4, 2012.
- Zerpa, J., and M. Coleman. Managing poplar nutrition on a 20,000 acre estate. IUFRO Conference on Nutrient Dynamics in Planted Forests, Vancouver, WA USA, November 28, 2012.
- Kaczmarek, D.J., B.C. Wachelka, J. Wright, V.C. Steel, D.P. Aubrey, D.R. Coyle, and M.D. Coleman. Development of High-Yielding Sweetgum Plantation Systems for Bioenergy Production in the Southeastern United States. 9th Biennial Short Rotation Woody Crops Operations Working Group Conference, Knoxville, TN, November 8, 2012.
- Coleman, M. 2012 Sustainability of Soil and water resources. Advanced Hardwood Biofuels Northwest Annual Meeting, Boardman, Oregon, September 11, 2012.
- Coleman, M., D. Smith, and S. Shan. Black carbon decreases soil activity of biomass degrading enzymes and increases protease activity. Ecological Society of America, Portland, OR, August 8, 2012.
- Coleman, M., D. Dumroese, K. McElligott, D. Smith, and S. Shan. Impacts of biochar use in western forests. Biochar conference. 2012 US Biochar Conference, Sonoma State Univ, Rohnert Park, CA, July 31, 2012.
- Smith, D., M. Coleman, , and D. Page-Dumroese. Biochar amendment alteration afforest soil microbial and enzymatic activity in relation to fertilization and forest succession. 2012 US

- Biochar Conference, Sonoma State Univ, Rohnert Park, CA, July 31, 2012
- Coleman, M., T. Shaw, M. Kimsey, and R. Volfovicz-Leon. . Determining phases of growth and relative stand densities for optimal response to thinning: A regional paired-plot trial. Center for Advanced Forestry Systems Annual Meeting, Bangor, Maine, June 26, 2012.
- Coleman, M., T. Shaw, M. Kimsey, and R. Volfovicz-Leon. Density management opportunities for stand enhancement, bioenergy production, and climate change adaptation. 32nd Annual Meeting of the Intermountain Forest Tree Nutrition Co-operative, Moscow, Idaho, April 3, 2012.
- Coleman, M. The influence of char on forest seedlings, soils and trees. 33rd Annual Meeting of the Intermountain Forest Tree Nutrition Cooperative, March 26, 2013.
- Coleman, M. Biochar and Forest Ecology. Restoring the West Conference Sustaining Forests. Woodlands. and Communities through Biomass Use, Logan, Utah, October 18-19, 2011.
- Kimsey, M., M. Coleman, and O. Page-Dumroese. Assessing bioenergy harvest risks: geospatially explicit tools for maintaining soil productivity in western US forests. ASA-CSSA-SSSA International Annual Meetings, San Antonio, TX October 16-19, 2011.
- Coleman, M. Biomass Research Opportunities and Nutrition Management. 31st Annual Meeting of the Intermountain Forest Tree Nutrition Cooperative, Moscow Idaho, April 5, 2011.
- Coleman, M. Converting biomass into biofuel and biochar through in-woods pyrolysis. 26th Forest Engineering Conference. Moscow, Idaho, March 1, 2011.
- McElligott, K., M. Coleman, and D. Page-Dumroese. Biochar Application Effects On Temperate Forest Soil Properties. ASA-CSSA-SSSA International Annual Meetings, Long Beach, California, November 1-4, 2010.
- Coleman, M., K. McElligott, D. Page-Dumroese, and D.L. Smith. Biochar Application to Forest Soils: A Side Benefit of Mobile Pyrolysis Bioenergy Production. ASA-CSSA-SSSA International Annual Meetings, Long Beach, California, November 1-4, 2010.
- White, K., M. Coleman, D. Page-Dumroese, P. Gessler, and J.M. Mandzak. Soil parent material influence on Douglas-fir growth response to multi-nutrient fertilizers in the Inland Northwest, USA. ASA-CSSA-SSSA International Annual Meetings, Long Beach, California, November 1-4, 2010. Poster 240-4.
- Coleman, M. 2010. Stress induced allocation to fine roots occurs in pine, but not poplar: revising the textbooks. Fifth International Symposium on Physiological Processes in Roots of Woody Plants, University of Victoria, Victoria, BC, Canada, August 8-12, 2010.
- Coleman, M. Synthesis of thinning by fertilization trial research 30th Annual Meeting of the Intermountain Forest Tree Nutrition Cooperative, Moscow Idaho, April 6, 2010.
- McElligott, K., M. Coleman, and D. Page-Dumroese. Biochar/Biomass Conversion: Soil Responses to Biochar. 30th Annual Meeting of the Intermountain Forest Tree Nutrition Cooperative, Moscow Idaho, April 6, 2010.
- Robertson, A., M. Kimsey, and M. Coleman. Nutrient Management: Allometric Relationships: Adam Robertson. 30th Annual Meeting of the Intermountain Forest Tree Nutrition Cooperative, Moscow Idaho, April 6, 2010.
- Shaw, T., M. Kimsey, and M. Coleman. Nutrient Management: Canus, Lovell Valley, Ruby Bugs and Slice Above: Establishment and Progress Report. 30th Annual Meeting of the Intermountain Forest Tree Nutrition Cooperative, Moscow Idaho, April 6, 2010.
- Reeves, D., M. Coleman, and D. Page-Dumroese. Harvest Impacts on Soil Disturbance Survey Results: 30th Annual Meeting of the Intermountain Forest Tree Nutrition Cooperative, Moscow Idaho, April 6, 2010.
- Page-Dumroese, D., M. Coleman, G. Jones, T. Venn, R.K. Dumroese, N. Anderson, W. Chung, D. Loeffler, J. Archuleta, M. Kimsey, P. Badger, T. Shaw, and K. McElligott. Portable in-woods pyrolysis: Using forest biomass to reduce forest fuels, increase soil productivity, and sequester carbon North American Biochar Meeting, Boulder, Colorado, August 9-12, 2009.
- Coleman, M. Bio-oil and bio-char from Pyrolytic biomass conversion: Renewable energy, soil enhancement and carbon sequestration PNW Biochar Conference, Pacific Northwest National Laboratories, Richland, WA, May 21-22, 2009.
- Coleman, M., M. Garrison-Johnston, M. Kimsey, T. Shaw, and J. Mandzak. Multi-nutrient Fertilizer Screening Trial Comparison and Review. 29th Annual Meeting of the Intermountain Forest Tree Nutrition Cooperative, Moscow Idaho, April 7, 2009.
- McElligott, K., M. Coleman, and D. Page-Dumroese. Forest biomass: a source for bioenergy, nutrition and carbon sequestration. 29th Annual Meeting of the Intermountain Forest Tree Nutrition Cooperative, Moscow Idaho, April 7, 2009.

- Brown, R., M. Coleman, P. Gessler, D. Page-Dumroese, and J. Mandzak. Developing geospatial site type classification systems for forest nutrition management. 29th Annual Meeting of the Intermountain Forest Tree Nutrition Cooperative, Moscow Idaho, April 7, 2009.
- Schmalz, H., and M. Coleman. Foliar sulfate: a diagnostic tool for forest fertilization response. 29th Annual Meeting of the Intermountain Forest Tree Nutrition Cooperative, Moscow Idaho, April 7, 2009.
- Coleman, M., and D. Aubrey. Fine root production and turnover in developing cottonwood and pine grown with irrigation and fertilization. 11th North American Forest Soils Conference, Blacksburg, Virginia, June 21-25, 2008.
- Coleman, M. Plantation nutrient limitations in Lake States and southeastern US. 28th Annual Meeting of the Intermountain Forest Tree Nutrition Cooperative, Moscow Idaho, April 8, 2008.
- Aubrey, D.P., M.D. Coleman, and D.R. Coyle. Changes in nitrogen content, use efficiency, and allocation for developing woody crop plantations subjected to nutrient amendments, 14th Biennial Southern Silvicultural Research Conference, Athens, GA, February 26–28, 2007.
- Coleman, M. Distinct soil respiration of cottonwood and loblolly pine during stand development when grown with a range of resource availability treatments. Ecological Society of America, San Jose, California, August 5-10, 2007.
- Aubrey, D., and M. Coleman. Daily patterns of pine canopy activity observed in continuous soil respiration trace. Ecological Society of America, San Jose, California, August 5-10, 2007.
- Coleman, M., and D. Tolsted. Diagnosing nutrient requirements and predicting fertilizer response in short rotation wood crops: Lessons learned from Minnesota hybrid poplar fertilizer trials. 7th Biennial meeting of the Short Rotation Woody Crops Operational Working Group, Pasco, WA, September 25-28, 2006.
- Coleman, M.D. Root biomass expansion in establishing forest stands; comparison among species and resource availability. Ecological Society of America, Memphis, Tennessee, August 7-10, 2006. Poster # 123.
- Aubrey, D., and M. Coleman. Does seasonality control the Q_{10} of soil respiration. Ecological Society of America, Memphis, Tennessee, August 7-10, 2006. Poster # 105.
- Coleman, M. D. Aubrey, D. Coyle, and R.F. Daniels. Fertilizer response curves for commercial southern forest species defined with an un-replicated experimental design. ASA-CSSA-SSSA International Annual Meetings, Salt Lake City, UT, November 6-10, 2005. Presentation 289-1.
- Callahan, T.J., J.D. Cook, M.D. Coleman, D.M. Amatya, and C.C. Trettin. Modeling storm water runoff and soil interflow in a managed forest, upper coastal plain of the southeast US. The American Society of Agricultural Engineers Annual International Meeting, Ottawa, Ontario, Canada, August 1-4, 2004.
- Coyle, D.R., and M. D. Coleman. Irrigation and fertilization have contrasting effects on growth and biomass partitioning of sweetgum and loblolly pine. Biomass and Bioenergy Production for Economic and Environmental Benefits. 5th Biennial Meeting of the Short Rotation Woody Crops Operations Working Group, Charleston, South Carolina, November 7-10. 2004.
- Coyle, D.R., M.D. Coleman, J.A. Durant, and L.A. Newman. Productivity and pest susceptibility of 31 Populus clones in South Carolina, USA. Biomass and Bioenergy Production for Economic and Environmental Benefits. 5th Biennial Meeting of the Short Rotation Woody Crops Operations Working Group, Charleston, South Carolina, 7 to 10 November 7-10, 2004
- Coleman, M., D. Tolsted, and J. Isebrands. Mid-rotation fertilization of Minnesota hybrid poplar plantations and the evaluation of nutrient balance. Biomass and Bioenergy Production for Economic and Environmental Benefits. 5th Biennial Meeting of the Short Rotation Woody Crops Operations Working Group, Charleston, South Carolina, 7 to 10 November 2004.
- Giardina, C.P., M.D. Coleman, K.S. Pregitzer, W.M. Loya, J.E. Hancock, and J.S. King. Belowground carbon allocation in response to global change. NATO Workshop on global climate change and tree-soil interactions. Krasnoyarsk, Siberia, Russia, August 26-29, 2004. .
- Coleman, M.D. Edaphic effects on fine-root turnover differ between pine and poplar. Ecological Society of America, Portland, Oregon, August 1-6, 2004. ESA Abstracts, p 100.
- Stokes, T., L. Samuelson, M. Coleman, T. Leininger, and J. Stanturf. Production Efficiency and Canopy Physiology of 3-yr-old Populus deltoides in Response to Intensive Management. 12th Biennial Southern Silvicultural Research Conference, Biloxi, MS, February 24–28, 2003.
- Coleman, M.D. Soil carbon budget during establishment of short rotation woody crop. American Geophysical Union annual meeting, San Francisco, CA, 2003. Coleman, M.D. Temporal patterns of fine-root production and mortality during forest plantation development. Soil

- Science Society of America Annual Meeting, Denver, CO, 2003.
- Coleman, M.D., A.L. Friend, and C.C. Kern. Temporal patterns of fine-root production and mortality during forest plantation development. Third international symposium on dynamics of physiological processes in woody roots, Perth, Australia. September 28– October 2, 2003.
- Coleman, M.D., A.L. Friend, and C.C. Kern. Acquisition and allocation of carbon and nitrogen in a two-year-old cottonwood plantation. Third international symposium on dynamics of physiological processes in woody roots, Perth, Australia, September 28– October 2, 2003. Manuscript published in special issue of *Tree Physiology*.
- Coleman, M.D. Total belowground carbon allocation measured with both CO₂ efflux and fine-root production. Ecological Society of America, Savannah, Georgia, August 3-8, 2003. *ESA Abstracts*, p 69.
- Allen, C.B., R.E. Will, D.R. Coyle, and M.D. Coleman. The effect of resource availability on canopy dynamics and biomass accumulation in fertigated hardwood stands. Ecological Society of America, Savannah, Georgia, August 3-8, 2003. *ESA Abstracts*, p 8-9.
- Coyle, D.R., M. D. Coleman, J.T. Nowak, C.J. Fettig, and D.C. Booth. Testing the plant vigor hypothesis in an intensively managed forest. Ecological Society of America, Savannah, Georgia, August 3-8, 2003. *ESA Abstracts*, p 75.
- Farris, M., T. Stokes, L. Samuelson, M. Coleman, and J. Blake. *ESA Seasonal sap flux density in young versus old loblolly pine stands.* Ecological Society of America, Savannah, Georgia, August 3-8, 2003. *ESA Abstracts*, p 105.
- Stokes, T., L. Samuelson, M. Coleman, J. Stanturf, and T. Leininger. Water relations of *Populus deltoides* in response to varying nutrient and water availability. Ecological Society of America, Savannah, Georgia, August 3-8, 2003. *ESA Abstracts*, p 324. .
- Stokes, T., L. Samuelson, M. Coleman, T. Leininger, and J. Stanturf. Production efficiency and canopy physiology of *Populus deltoides* in response to intensive management. Twelfth Biennial Southern Silvicultural Research Conference. Biloxi, Mississippi, February 24-28, 2003.
- Coleman, M.D. Soil carbon stocks in poplar plantations and plant processes controlling accumulation. USDA Symposium on Natural Resource Management to Offset Greenhouse Gas Emissions, Raleigh, North Carolina, November 19-21, 2002.
- Coleman, M., and D. Tolsted. Diagnosing nutrient requirements and predicting fertilizer response in short rotation woody crops: lessons learned from Minnesota hybrid poplar fertilizer trials. The Fourth Biennial Meeting of the Short Rotation Woody Crops Operations Working Group, Alexandria, Minnesota, September 14-17, 2002.
- Coyle, D.R., and Coleman, M.D.. Irrigation and fertilization effects on above and belowground growth and productivity of four tree species in an intensively managed plantation. The Fourth Biennial Meeting of the Short Rotation Woody Crops Operations Working Group, Alexandria, Minnesota, September 14-17, 2002.
- Coleman, M.D. Mid-Rotation Fertilization of Minnesota Hybrid Poplar Plantations. Bioenergy Feedstock Development Program's Subcontractors and Collaborators Meeting, Memphis, Tennessee, November 7-9, 2001.
- Coleman, M.D. The Short Rotation Woody Crops Cooperative Research Program. Bioenergy Feedstock Development Program's Subcontractors and Collaborators Meeting, Memphis, Tennessee, November 7-9, 2001.
- Coleman, M.D. The Short Rotation Woody Crops Cooperative Research Program. Third Biennial Conference of the Short-Rotation Woody Crops Operations Working Group. Syracuse, New York, October 10-13, 2000. Coyle, D.R., and M.D. Coleman. Short Rotation Woody Crops Cooperative Research Program Experiment A: Fundamental controls of growth and productivity. Third Biennial Conference of the Short-Rotation Woody Crops Operations Working Group. Syracuse, NY, October 10-13, 2000.
- Beno, C.C., M.D. Coleman, and A.L. Friend. Root proliferation response to nitrogen-enriched microsites in cottonwood plantations: Influence of whole-plant nutritional status. 21st Session of the International Poplar Commission (IPC-2000): Poplar and Willow Culture: Meeting the Needs of Society and the Environment, Vancouver, Washington, September 24-28, 2000. USDA Forest Service Gen. Tech. Rep. NC-215, p. 15.
- Coleman, M., D. Tolsted, and T. Nichols. Western Minnesota poplar plantations show consistent positive response to fertilization. 21st Session of the International Poplar Commission (IPC-2000): Poplar and Willow Culture: Meeting the Needs of Society and the Environment, Vancouver, Washington, September 24-28, 2000. USDA Forest Service Gen. Tech. Rep. NC-

215, p. 38.

- Coleman, M.D., R.E. Dickson, and J.G. Isebrands., J.G. Fine root production, turnover and soil CO₂ efflux in pine and poplar plantations. Ecological Society of America, Snowbird, Utah, August 5-10, 2000. ESA Abstracts p. 77.
- Coleman, M.D., R.E. Dickson, and J.G. Isebrands. Fine root dynamics of a developing forest in response to nitrogen. Ecological Society of America, Snowbird, Utah, August 5-10, 2000. ESA Abstracts p. 53.
- Coleman, M.D., and A.L. Friend. First year cottonwood responds to fertilization above and belowground. Soil Science Society of America, Salt Lake City, Utah, October 31 –November 4, 1999. Agronomy Abstracts, p. 301.
- Luxmoore, R.J., T.L. Mehlhorn, B.W. Yang, B.W. Lu, M.D. Coleman, C.C. Trettin, S.D. Wullschleger, and C.T. Garten. Tillage effects on carbon and nitrogen in a coastal plain soil. American Geophysical Union Annual Meetings, San Francisco, California, Dec 4 2000.
- Beno, C.C., and M.D. Coleman. Nitrogen effects on cottonwood fine root turnover. Soil Science Society of America, Salt Lake City, Utah, October 31 – November 4, 1999. Agronomy Abstracts, p. 252.
- Friend, A.L., and M.D. Coleman. Nitrogen controls over tree root production. Soil Science Society of America, Salt Lake City, Utah, October 31 – November 4, 1999. Agronomy Abstracts, p. 365.
- Theseira, G.W., M.D. Coleman, and G.E. Host. A parallel experimentation and modeling approach to simulating growth of structural and ephemeral roots in hybrid poplar. IUFRO Conference, The Supporting Roots: Structure and Function, Bordeaux, France July 20-24, 1998. Coleman, M., E. Kruger, J. Vogel, G. Hendrey, J. Nagy, K. Lewin, R.e. Dickson, J.G. Isebrands, J. Sober, M. Kubiske, G. Host, W. Heilman, K. Pregitzer, and D.F. Karnosky. Daily CO₂ exposure regimes, daytime-only versus 24-hour: Results from FACTS II (ASPEN FACE) experiment. Third International IGBP-GCTE Workshop on Critical Assessment of the Response of Forest Ecosystems to Elevated Atmospheric Carbon Dioxide, Durham, North Carolina, October 10-13, 1997.
- Coleman, M.D. Contrasting seasonal root growth and soil respiration in red pine and hybrid poplar. IUFRO Dynamics of Physiological Processes in Woody Roots, Ithaca, New York, October 8-11, 1995.
- Nitao, J., M. Nair, W. Mattson, D. Herms, B. Birr, M. Coleman, and J. Isebrands. The effects of elevated CO₂ and ozone on trembling aspen: changes in leaf secondary chemistry. The Meeting of the Northern Global Change Program, Pittsburgh, Pennsylvania, March 14-16, 1995.
- Coleman, M.D., R.E. Dickson, J.G. Isebrands, and D.F. Karnosky. Response of trembling aspen root growth and physiology to tropospheric ozone. IUFRO Workshop on Interactive Environmental Effects on Forest Stands. New Zealand, January 29–February7, 1995. Coleman, M.D., R.E. Dickson, and J.G. Isebrands. Growth and respiration of aspen roots exposed to ozone and elevated carbon dioxide. Ecological Society of America, Knoxville, TN, August 7-11, 1994. Bull. Ecol. Soc. Am. 75(suppl.):40. Also presented at The Meeting of the N. Global Change Program, Pittsburgh, Pennsylvania, March 14-16, 1995.
- Coleman, M.D., R.E. Dickson, and J.G. Isebrands. Steady-state nutrition of soil grown trembling aspen clones and the potential for gaseous pollutant experiments. Ecological Society of America, Madison, Wisconsin, July 31–August 4, 1993. Bull. Ecol. Soc. Am. 74(suppl.):197.
- Coleman, M.D., R.E. Dickson, J.G. Isebrands, and D.F. Karnosky. Photosynthetic productivity of aspen clones varying in ozone sensitivity. IUFRO Workshop on Ecophysiology and Genetics of Trees and Forests in a Changing Environment, Viterbo, Italy, May 23-30, 1993.
- Coleman, M.D., R.E. Dickson, J.G. Isebrands, and D.F. Karnosky. Carbon allocation in aspen clones varying in ozone sensitivity. IUFRO Workshop on Ecophysiology and Genetics of Trees and Forests in a Changing Environment, Viterbo, Italy, May 23-30, 1993.
- Karnosky, D.F., R.E. Dickson, Z.E. Gagnon, M.D. Coleman, P. Pechter, and J.G. Isebrands. Photosynthetic productivity of aspen clones varying in ozone sensitivity. IUFRO Workshop on Ecophysiology and Genetics of Trees and Forests in a Changing Environment, Viterbo, Italy, May 23-30, 1993.
- Kull, O., M.D. Coleman, J.G. Isebrands, and D.F. Karnosky. Synergistic photosynthetic responses of aspen clones to simultaneous exposures of ozone and carbon dioxide. IUFRO Workshop on Ecophysiology and Genetics of Trees and Forests in a Changing Environment, Viterbo, Italy, May 23-30, 1993.
- Friend, A.L., M.D. Coleman, and J.G. Isebrands. Carbon allocation to root and shoot systems of

- woody plants. The 1st International Symposium on the Biology of Adventitious Root Formation, Dallas, Texas, April 18-22, 1993. Coleman, M.D., R.E. Dickson, J.G. Isebrands, and D.F. Karnosky. Allocation and partitioning of C-14 in aspen clones with different ozone sensitivities. The Third International Symposium on Gaseous Pollutants and Plant Metabolism, Blacksburg, Virginia, June 13-16, 1992.
- Coleman, M.D., R.E. Dickson, J.G. Isebrands, and D.F. Karnosky. Photosynthetic characteristics in aspen clones of varying ozone sensitivities: Response to episodic exposures. Ecological Society of America, San Antonio, Texas, August 4-8, 1991. *Bull. Ecol. Soc. Am.* 72:92.
- Coleman, M.D., W. Schaap, and D. Wang. Frost hardiness of Douglas-fir foliage exposed to ambient and elevated ozone levels. 11th North American Forest Biology Workshop, Athens Georgia, June 13-15, 1990.
- Coleman, M.D., G. McNaughton, T.M. Hinckley, and B. Smit. Root frost hardiness in four subalpine conifers. Ecological Society of America, Toronto, Ontario, August 6-10, 1989. *Bull. Ecol. Soc. Am.* 70(suppl.):84.
- Friend, A.L., and M.D. Coleman. Root morphology of nitrogen-stressed Douglas-fir seedlings. Ecological Society of America, Toronto, Ontario, August 6-10, 1989. *Bull. Ecol. Soc. Am.* 70(suppl.):116.
- McNaughton, G., M.D. Coleman, T.M. Hinckley, and B. Smit. Root chilling effects on shoot water relations and root hydraulic conductivity in maritime and continental subalpine conifers. Ecological Society of America, Toronto, Ontario, August 6-10, 1989. *Bull. Ecol. Soc. Am.* 70(suppl.):200.
- Coleman, M.D., and C.S. Bledsoe. Mycorrhizal Douglas-fir under extended drought. Soil Science Society of America, Anaheim, California, November 27-December 2, 1988.
- Coleman, M.D., C.S. Bledsoe, and B. Smit-Spinks. Douglas-fir root hydraulic conductivity. 7th North American Conference on Mycorrhizae, Gainesville, Florida, May 3-8, 1987.
- Coleman, M.D., C.S. Bledsoe, J. Dunlap, and D. Dutton. Nursery and field evaluations of compost grown coniferous seedlings. Western Forest Nursery Conference, Tumwater, Washington, August 12-15, 1986. Coleman, M.D., C.S. Bledsoe, and B. Smit-Spinks. Root hydraulic conductivity of mycorrhizal Douglas-fir influenced by phosphorus fertility. IUFRO symposium, *Roots in Forest Soils: Biology and Symbioses*, Victoria, B.C., August 4-8, 1986.
- Coleman, M.D., C.S. Bledsoe, and W. Lopushinsky. Drought tolerance of ectomycorrhizal fungi. Northwest Scientific Association, Vancouver, B.C., May 22-25, 1986.
- France, R.C., M.D. Coleman, and M.L. Cline. Cover crops to increase inoculum in the field. In: *Proc. 6th No. Am. Conf. Mycorrhizae*, Bend, Oregon, June 25-29, 1984.
- Coleman, M.D., J.R. Brandle, and W.R. Lovett. Water relations of different mycorrhizal cottonwood clones. 7th North American Forest Biology Workshop, Lexington, Kentucky, July 26-28, 1982.
- Coleman, M.D., M.L. Cline, S. Grossnickle, and C.P.P. Reid. Fertilization effects on mycorrhizae formation in four western pine species. Fifth North American Conference on Mycorrhizae, Ft. Collins, Colorado, June 24-28, 1979.

Grants and Contracts Awarded:

Submitted:

- Anderson, P. J. Bailey, M. Kimsey, M. Coleman. Thinning and fuels reduction effectiveness monitoring. Oregon Department of Forestry 2016 S&PF Western Competitive Grant
- Coleman, M., M. Kimsey, T. Shaw, P. Anderson. Forest Density Management Monitoring Network, Landscape Scale Restoration, Montana Dept. Nat. Res & Conservation \$270,000.
- Soule, E., D. Edwards, R. Keefe, M. Coleman. et al. NRI: Intelligent Multi-Robot Voice Communication and Control. NSF \$4,000,000
- Coleman, M. D. Saul, A. McDonald, R. Keefe, R. Brooks, T. Laninga, S. Devados, M Puettmann, R. Coates, E. Eddings, K. Humes, F.H. Liao, C. Tague. Increasing small-scale woody bioenergy adoption in Idaho's Clearwater River Basin. US DOE. Landscape Design for Sustainable Bioenergy Systems, \$7,438,025
- Gustafson, R. Stanton, M. Coleman, et al. Sustainable landscapes from poplar bioenergy systems Landscape Design for Sustainable Bioenergy Systems, \$760,000 (part of larger project)
- Coleman, M., M. Kimsey, T. Shaw, P. Anderson. Forest Density Management Monitoring Network, Landscape Scale Restoration, Idaho Dept. Lands. \$240,000. Full proposal invited.

Current:

- Paustian, K., et al. Sustainable biofuel feedstocks from beetle-killed wood: Bioenergy Alliance

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Network of the Rockies (BANR). \$10 million. USDA NIFA AFRI Sustainable Bioenergy Regional Bioenergy CAP.

Coleman, M.D., S. Cook, D.S. Page-Dumroese, D.Linder, and M. Jurgensen. Impacts of forest biomass removal on soil quality and biodiversity. \$499,009. USDA NIFA- AFRJ Regional Approaches to Sustainable Bioenergy.

Newcombe, G., and M. Coleman. System for advanced biofuels production from woody biomass in the Pacific Northwest. \$1,208,965. USDA-NIFA-AFRI Regional Approaches to Sustainable Bioenergy.

Coleman, M., M. Rust, G.Newcombe, and S. Cook. Center for Advanced Forestry Systems, University of Idaho Site. \$400,000, NSF, Industrial/University Cooperative Research Center.

Coleman, M. Boardman tree farm nutrient management and assessment. \$3,500 annually 2008-2012. Sponsored by Boardman Tree Farm.

Coleman, M., T. Shaw, and M. Kimsey. "Intensive Silviculture Research." Sponsored by Potlatch Forest Holdings, \$68,070 annually Potlatch Forest Holdings.

Coleman, M., T. Shaw, and M. Kimsey. "Intermountain Forest Tree Nutrition Cooperative." Sponsored by various land management agencies,\$218,000 annually.

Completed:

McDonald, A., Coleman, M., Brooks, R. Mobile pyrolysis demonstration, Washington Department of Natural Resources. \$18,000

Coleman, M. Leaf nutrient dynamics of western larch and western red cedar Research Experience for Teachers (RET) \$10,000, NSF, Industrial/University Cooperative Research Center. Status: award.

Page-Dumroese, D., M. Coleman, P. Gessler, J. Mandzak, K. McClintock, R. Lewis, and D. Hoover. Developing Geospatial Site Type Classification Systems for Forest Nutrition Management \$150,000, 2008-2011. USDA Forest Service Agenda 2020 Sustainable Forestry Research.

Page-Dumroese, D., M. Coleman, J. Archuleta, P. Badger, W. Chung, and T. Venn. Sustainable forest bioenergy production using in-woods fast-pyrolysis conversion including bio-oil production and bio-char incorporation \$150,000, 1/1/08-12/31/10. USDA Forest Service Biomass Research.

M. Coleman, and D. Page-Dumroese. Bio-char incorporation into forest soils: Belowground responses \$74,992, 8/2009-2/2011. American Recovery and Reinvestment Act.

Neuenschwander, R., M. Coleman, and M. Kimsey. Borlaug international agricultural science and technology fellowship program: Host institution applicant: University of Idaho. \$27,108, 2009-2010. The Norman E. Borlaug International Agricultural Science and Technology Fellowship Program Foreign Agricultural Service, US Department of Agriculture.

Trettin, C., M. Coleman, D. Amatya, T. Callahan, and M. Kane. Soil Productivity and Nutrient Management of Mid-Rotation Sweetgum and Sycamore SRWC Plantations. 2005-2008. USDA Forest Service Funds Agenda 2020 Sustainable Forestry Research .

Trettin, C, M. Coleman, D. Amatya, and M. Burke. Comprehensive fire effects of biomass reduction and fire for fuels and ecosystem enhancement on a first-order watershed in the southeastern wildland-urban interface. 2005-2007. USDA Forest Service, Joint Fire Sciences Program.

Coleman, M.D. Short Rotation Woody Crops Cooperative Research Program. Annual research support from DOE Savannah River and member contributions (±\$400,000 annually 1998-2008)

Coleman, M.D. Mid-Rotation Fertilization of Minnesota Hybrid Poplar Plantations and the Evaluation of Nutrient Balance. (\$25,000), SRS 01-CO-11330135-141 (\$33,310), SRS 02-CO-11330135-120 (\$26,353), May 2000 – December 2003. WesMin RCandD. SRS 00-CO-11330135-142.

Coleman, M.D., and J.G. Isebrands. Intensive fertilization of a commercial poplar plantation. \$11,238, 1997; \$12,000, 1998; \$36,079, 1999; \$59,317 cumulative total. June, 1997 - December, 2000. Cooperative Research and Development Agreement with Boise Cascade Corporation.

Friend, A.L., and M.D. Coleman. Nitrogen Controls over Tree Root Production. (\$200,000), July, 1997 - December, 1999. USDA, National Research Initiative, #9700732

Coleman, M.D., J.G. Isebrands, and D.F. Karnosky. Evaluating the effects of chronic ozone exposure on root growth and morphology in field-grown aspen trees. \$25,000, October, 1992 - September, 1993. US Forest Service, Northern Global Change Research Program.

Dickson, R.E., M.D. Coleman, and J.G. Isebrands. Physiological mechanisms and processes underlying the response of northern red oak and trembling aspen to elevated CO₂, ozone stress, and nitrogen deficiency: a carbon budget approach. \$377,953, August, 1991 - September, 1996. US Forest Service, Northern Global Change Research Program.

Hinckley, T.M., and B. Smit. Root water uptake and cold hardiness: Impact on maritime and

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continental subalpine species. \$108,726, January, 1988 - December, 1989. National Science Foundation, BSR-8717450.

Bledsoe, C.S., and J. Ammirati. Ecophysiological diversity of ectomycorrhizae in a coniferous ecosystem. \$356,132, October, 1985 - June, 1989. National Science Foundation, BSR-8510858.

Bledsoe, C.S. Screening of ectomycorrhizal fungal isolates to optimize Douglas-fir seedling drought tolerance and survival. \$10,923, September, 1983 - April, 1985. USDA-Forest Service, Wenatchee, WA, Cooperative aid grant #PNW-83-222.

SERVICE:

Major Committee Assignments:

National:

2006 – 2008. South Carolina Biomass Council Member. Charged with stimulating bioenergy use by providing recommended legislative incentives.

May 10-12, 2006. 1st Workshop of the Southeast Regional Biomass Energy Feedstock Partnership, Sustainable Woody Crop Development working group. Knoxville, Tennessee.

1-2 August 2006. 30x30 Workshop. US DOE Office of the Biomass Program. A scenario for replacing 30% of motor gasoline with biofuels by 2030. Washington, DC.

University:

2014. Served on Forest Biologist faculty search committee

2014- 2015. Served on University General Education Committee

2014-2015 Stillinger Administrative Committee

2010-2013. University of Idaho Curriculum Committee

2012 Forest Operations search committee for Assistant Professor faculty position

2012 Forest, Rangeland, and Fire Sciences Department Head search committee

2012 College of Natural Resources Curriculum Task Force

2008-present Intermountain Forest Tree Nutrition Cooperative Steering Committee

Professional and Scholarly Organizations:

American Association for the Advancement of Science, member 1989-2013

Ecological Society of America member since 1989, Annual Meeting session moderator, 2004, 2006, 2014, Poster and presentation judge, 2006, 2007, 2014

North American Truffling Society, 1995-2012

Short Rotation Operations Working Group, member since 1996, Steering Committee member since 2000; Meeting Chair 2004, Session moderator 2000, 2006, 2014.

Soil Science Society of America, member since 1988, Annual Meeting session moderator, 2003, 2010, S-7 presentation and poster judge 2005, 2009. Organizing committee member for 12th North American Forest Soils Conference.

Journal Reviews:

Agroforestry Systems

Biomass and Bioenergy

Canadian Journal of Botany

Canadian Journal of Forest Resources

Ecology, Ecosystems

Forest Ecology and Management

Ecosystems

Environmental Management

European Journal of Forest Research

Forest Science

Global Change Biology

Forestry

International Journal of Phytoremediation

Journal of the American Society for Horticultural Science

Journal of Arid Environments

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Journal of Environmental Quality
Journal of Integrative Plant Biology
Journal of Natural Resources Policy Research
Land Degradation and Development
New Forests
New Phytologist
Northern Journal of Applied Forestry
Photosynthesis Research
Plant and Soil
Plant, Cell and Environment
PLOS One
Soil Science
Soil Science Society of America Journal
Symbiosis
Tree Physiology
Trees
USDA Forest Service Proceedings of the Central Hardwood Forest Conference
Proceedings of the National Silviculture Workshop
Wetlands

Grant Proposal Reviews:

DOE: Sustainable Bioenergy Feedstock Production Systems at a Watershed Scale, USDA Small Business Innovation Research (SBIR) , Early Career Research Program, panel on Terrestrial Ecosystem Science 2012.
EPA: STAR Fellowship panel on Terrestrial Ecology and Ecosystems. 2000, 2001 and 2002
NSF: International Programs, Pop. Bio. and Physiol. Ecol
USDA: Plant Responses to the Environ., Soils and Soil Bio., Managed Ecosystems
US Civilian Research and Development Foundation 2009 Climate Change and Energy
USDA Forest Service: Global Change Program
University of California: Kearney Foundation of Soil Science
University of Idaho: Stillinger Funds for Forestry and Botanical Research
Switzerland's COST Action

Outreach Service:

Workshops:

Payette NF talk on: Applied research to sustain forest health, resilience and productivity to forest personnel in collaboration with Terry Shaw and Mark Kimsey. 16 October 2014
Facilitate staff presentations at Logger Education to Advance Professionalism (LEAP).
Moscow, ID March 2013
Tree Nutrition. 12th Annual Foresters Forum. Coeur d'Alene, ID. February 5 - 7, 2013.
Intermountain Forest Tree Nutrition Cooperative. Idaho Department of Lands Timber Management Meeting, University Inn, Moscow, Idaho, 13 December 2012.
Site type initiative stand density analysis. IFTNC Technical Advisory Committee Meeting. Spokane, Washington, December 1, 2011 (with Volfovicz-Leon. R., Kimsey, M., and Shaw, T.).
Mobile biomass energy - creating energy and biochar in the woods. Small Scale Energy from Forest Biomass. Smeltonville. Idaho, April 29, 2011
Climate change mitigation: Bioenergy and biomaterials. Regional Approaches to Climate Change in Western Conifers Agenda, Moscow, Idaho, December 3, 2010 (with Gorman, T., and McDonald, A.).
Borlaug international agricultural science and technology reciprocal visit to Fellow Yayan Hadiyan's home country of Indonesia. Two week visit including information meetings, presentations on silviculture and host institution, and field visits. July 11-15, 2010.
Carbon Opportunities for Management. US Forest Service Region 4 Soil, water and Aquatics Workshop. Ogden, Utah, April 12-16, 2010.
Intermountain Forest Tree Nutrition Cooperative annual meetings 2008-2013. Including staff, student and invited speaker presentations.
Media Site presentations of IFTNC 2009, 2010 Annual Meetings posted to web for public

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- viewing (http://www.cnr.uidaho.edu/IFTNC/2010_annual_meeting.htm).
- Portable pyrolysis for bioenergy production, soil quality enhancement and carbon sequestration. Annual Meeting of the Montana Society of American Foresters. Missoula, Montana, April 22-23, 2010.
- Presented opportunities for Biochar as a soil amendment at the Renewable Oil International mobile fast pyrolysis unit equipment demonstrations on the Upmqua NF August 2008 and in Hepner, Oregon, September, 2009.
- Pyrolysis unit for bioenergy. 2009 EPA Regional Smoke Management Meeting on Alternatives to Agricultural and Forestry Burning, Spokane Masonic Center, Spokane, Washington, April 29-30, 2009.
- University of Idaho Intermountain Forest Tree Nutrition Cooperative: Important findings, current activities, and new initiatives. Foresters Forum, Coeur d' Alene, Idaho, Feb 4-6, 2009.
- Seedling nutrition review: micronutrients. 29th Intermountain Container Seedling Growers' Association Meeting, Coeur d Alene, October 8, 2009.
- Poplar Nutrition Workshop, by request of Greenwood Resources Inc. at Port of Morrow, Oregon, November 15-16, 2007.
- Mitigating Global Warming: Energy crops, afforestation are part of the solution. Global Warming Symposium Voorhees College, January 30, 2008.
- Producing woody biomass for energy. The Future of Renewable Energy in South Carolina. Symposium sponsored by the South Carolina Soil and Water Conservation Society. Myrtle Beach, South Carolina, January 3, 2007.
- Locally grown power. Mississippi Association of Conservation District Advisers Southern Region Summer Meeting. Collins, Mississippi, June 15, 2005.
- Organized and conducted Short Rotation Woody Crops Cooperative Research Program Annual Meetings, 1999; 2000; 2001; 2002.
- Bio-energy production from forest thinning operations in the southeast biomass / Bioenergy workshop with Francis-Marion NF and South Carolina Energy office regarding utilization of hazard fuels for energy production. Columbia, South Carolina, February 12, 2004.

Other:

- Hosting CAFS annual meeting field tour 21 May 2014
- Poplar sustainability webinar titled: Will poplar bioenergy plantations maintain soil and water quality?. Reached a dozen people online ranging from academics to interested citizens. 8 January 2014
- Bingen mobile pyrolysis demo involved poster presentation and short speech on context and opportunity. Audience of 5 dozen ranged from land owners, small business startups, politicians, media, academics, land managers and operators. 8 May 2014
- Cle Elm mobile pyrolysis demo, again showed poster and talked to diverse audience. 22 October 2014
- Pilchuck poplar bioenergy field tour described our work on soil and water sustainability to two dozen attendees consisting of poenergy proponents, academics, local citizens, and state representatives. 17 July 2014.
- Co-organized the 12th North American Forest Soils Conference in Whitefish, MT, June 16-20, 2013.
- IFTNC/INGY joint conference. 2013 Annual Meeting, Tuesday, March 26, 2013, Coeur d' Alene, Idaho.
- Presented information on IFTNC activities to attract and maintain IFTNC membership. These events include lectures, discussions and frequently field tours associated with current or potential research questions:
- Members and potential members attending the North American Forest Soils Conference in Whitefish, Montana, June 17, 2013.
 - Bennett Lumber personnel, June 13, 2013.
 - USDA Forest Service Region 1 personnel at the Idaho Panhandle NF headquarters, March 6, 2013.
 - Hancock Forest Management, May 26, 2011.
- Answered over 50 phone or email inquiries about the concept of mobile fast pyrolysis including availability of units, potential for utilizing forest biomass and usefulness of biooil and

- biochar products from 2009 to present.
- Prepared and presented annual review of nutrition management for Greenwood Resources' Boardman Poplar Farm -2008-2012.
- Developed a web page to highlight Short Rotation Woody Crop Co-op activities and provide information, literature and tools related to intensive forest management.
- Spreadsheets for calculating sweetgum DRIS indices based on our published norms and for calculating cottonwood DRIS indices based on norms of Leech & Kim, 1981. Bioenergy cost, environment, community development and potential partnerships with utilities. Savannah River Site "Creativity Committee" meeting on replacing steam generator. [Initiated a 2 year consultation on biomass feedstock production potential at Savannah River Site, which resulted in replacing coal fired generators with a biomass stem unit]
- Bioenergy feedstock production systems including: Dee Richardson, D-R INFO, March, 2007; Gordon Moss, Plum Creek Timber Company, November, 2006; Chris V. Isaacson, Alabama Forestry Association, Montgomery Alabama, October, 2006.
- Responded to inquires about belowground biomass and carbon cycling: Ethan.B.Davis, Dartmouth College, February 2008; Andy Malmquist, Global Forest Partners, Charlotte, North Carolina, October 2006; Paul R. Adler, USDA-ARS, University Park, Pennsylvania, March, 2005.
- Consulted with several individuals on poplar growing techniques and applications of poplar plantations including: Lars-Göran Stener, Skogforsk, Svalöv, Sweden, November, 2006; Richard.Hale.University of Maine, May, 2006; Matthew Mireles, January, 2006; Tola Moffett, March 2005; Robert Wright, Virginia Tech, Blacksburg, Virginia, January, 2005; John Langston, December, 2003; Ed Bauer and Chris Rog, Sand Creek Consulting, Rhinelander, Wisconsin, September, 2002; Ray Ethel, Broadacres Nursery, Hubbard, Oregon, May, 2001 and Jan 2003; Lee Newman, University of South Carolina, Columbia, May, 2001; Jim Robinson, NRCS, Lincoln, Nebraska, and Gary Khun, Washington State University, January, 2001
- Consulted with individuals interested in using intensive forest management techniques for hardwood establishment including: Allen Miles, Summerville, South Carolina, May, 2003; Sammie Baughman, Springfield, South Carolina, February, 2003; Cathy Black, Georgia Forestry Commission, Hephzibah, Georgia, November, 2002; Nathan McClure, Georgia Forestry Commission, Dawsonville, Georgia, November 2002; Dennis Gibson, Montevideo, Minnesota September, 2002; Lyn Lyons, May, 2002; Josh Wheat, NRCS, Athens, Georgia, September, 2000; Brian Sept, Boise Cascade, Louisiana, March, 1999; Jason Smith, Beaver Falls, Pennsylvania, August, 1997; Pete McAllam, April 1997.
- Consulted with several individuals on forest nutrition questions including: Jorge Martin, Universidad de Valladolid, Palencia, Spain, February 2006; Jake Eaton, Potlatch Corporation, Boardman Oregon, November, 2004; Nihad Ibrahim, September, 2003; Chris Rog, Sand Creek Consultants, Inc., December, 2002; Peter R. Engelhardt, Summit, New Jersey, February 2002; Jud Isebrands, Environmental Forestry Consultants, LLC, New London, Wisconsin, ongoing since February, 2002; Georgie Hawk, Mottram and Associates, South Africa, April, 2000; Frank C. Thornton, Charlottesville, Virginia, December, 1999.
- Provided advice on using intensively cultured trees for phytoremediation, i.e. mitigating contaminated ground water or lands including: Neal Kittelson, Idaho Dept Lands, December, 2010; Sherry R. Byers-Eddy Washington Beef LLC, Toppenish, Washington, December, 2003; Collin Covington, Tri-County Landfill, Jackson, South Carolina, December, 2002; Steven J. Lutz, ICF Consulting, Washington, D.C, June, 2002; Neal Wilson, Minnesota Pollution Control Agency, St. Paul, September, 2001; Steven Menden, Sebesta Blomberg and Associates, Roseville, Minnesota, October, 2001; Thomas Spriggs, CH2M-HILL, Tampa, Florida, July, 2001; Quinton Epps, South Carolina Dept. of Health and Environmental Control, April, 1999
- Discussed recognition of ozone damage in poplar plantations and provided further resources with Nick Humphreys, Forest Health Technician, Canadian Forest Service, Victoria, B.C., February, 1997.
- Provided information on matrix potential adjustments of culture media including selection of osmotic agent and predicting matrix potential levels from solution concentration. Deirdre Magarelli Research Department, Environmental Concern, St. Michaels, Maryland,

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January, 2004; Babak Behnam PhD Student, cc\ Professor K.N. Watanabe, Gene research Center(GRC), University of Tsukuba, 1-1-1 Tennodai, Tsukuba, Ibaraki Ken,305-8572, Japan, October, 2003; Dr. Ahmed Abdel-Mawgood, Dept of Plant Production, King Saud University, Riyadh, Saudi Arabia, June, 2003.

Honors and Awards:

Prepared successful Southern Research Stations Director's Award for Maintaining and Enhancing the Nation's Natural Resources and Environment, for combined USDA Forest Service research program at Savannah River Site. February, 2003.

Certificate of Merit, RWU-4152, Rhinelander, Wisconsin. December, 1994: For sustained superior performance of all assigned duties.

First prize, Pat Flanigan Annual Graduate Seminar Competition, Ecosystems Northwest, College of Forest Resources, University of Washington, 1987.