

CURRICULUM VITA (October 2019)

Richard T. Koenig, PhD
Professor, Associate Dean, Interim Department Chair
Washington State University
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Certified Professional Soil Scientist (#21623)
Fellow (Soil Sci. Soc. of America and American Soc. of Agronomy)

Education

- PhD** **Soil Science/Soil fertility-plant nutrition emphasis** December 1993
Washington State University, Pullman
Dissertation title: Morphological development, productivity and nutrient use by spring wheat in response to an enhanced ammonium supply
- MS** **Natural Resources Management/Soil science emphasis** September 1990
University of Alaska, Fairbanks
Thesis title: Decomposition and N mineralization from crop residues and crop recovery of mineralized residue N in a subarctic soil
- BS** **Natural Resources Management/Forestry emphasis** May 1988
University of Alaska, Fairbanks

Professional appointments

- 2019-present Chair, Department of Crop and Soil Sciences
- 2016-2019: Associate Dean, Washington State University Extension
Interim Chair, Department of Crop and Soil Sciences
Interim Chair, Department of Horticulture
- 2015-2016: Associate Dean and Director, Washington State University Extension
Interim Chair, Department of Crop and Soil Sciences
- 2012-2015: Associate Dean and Director, Washington State University Extension.
- 2008 to 2012: Chair, Department of Crop and Soil Sciences, Washington State University and Professor (promotion to Professor effective 7/1/2012)
- As lead administrator of a large and diverse department (css.wsu.edu), I was responsible for organizing and supervising the courses of instruction offered by the department, distributing the teaching and research load, and allocating and supervising department resources, physical, human and fiscal.
 - I maintained a moderate level of research, teaching and extension

activity in my discipline area of soil science, soil fertility.

2003 to 2008: Associate Professor/Extension Soil Scientist, Washington State University

- Primary responsibility for funding, designing and executing applied research and extension programming in soil fertility management for dryland cropping systems:
 - Conventional, controlled release, and organic nitrogen management for dryland wheat
 - Ammonia volatilization and urea nitrogen management for dryland Kentucky bluegrass seed production systems
 - Soil acidity and pH management
 - Phosphorus chemistry and management in dryland cropping systems

1995 to 2003: Assistant (1995-2000) then Associate (2000-03) Professor/Extension Soil Specialist, Utah State University, Logan

- Primary responsibility for statewide extension programming and applied research in soil science:
 - Fertilizer management (alfalfa, grass hay, pasture, horticultural crops, including vegetables, turfgrass and ornamentals)
 - Soil salinity and pH management
 - Waste management (livestock manure, municipal biosolids, composting)
 - Landscape, greenhouse and garden soil management (salinity, compaction, fertilizer management, soil amendment use)
 - Irrigation water quality interpretation; secondary water reuse
- Teaching: Soils 3000, Fundamentals of Soil Science (six semesters)

1994 to 1995: Post-Doctoral Teaching Fellow, Colorado State University, Fort Collins

- Sophomore level lecture course AG 240, *Introductory Soil Science*, 2 semesters
- *Introductory Soil Science* laboratory, 3 sections over 2 semesters
- Senior/graduate level lecture course AG 467, *Soil Chemistry*, 1 semester

1993 to 1994: Post-Doctoral Research/Teaching Associate, Washington State University, Pullman

- Research interactions of chloride with wheat growth and mineral nutrition under enhanced ammonium nutrition.
- Primary teaching responsibility for a senior-level lecture and laboratory course Soils 442, *Soil and Plant Analysis* (one semester; 14 students)

Administration and leadership experience (*shaded entries are from Utah State University appointment*)

2016-present Associate Dean, Extension; Interim Chair, Departments of Horticulture and Crop

and Soil Sciences

- 2015-2016 Interim Chair, Department of Crop and Soil Sciences
- 2012-2017 Associate Dean and Director, WSU Extension.
- 2008-2012 Department Chair, Crop and Soil Sciences (CSS)
- Lead administrator for an integrated (research, teaching, extension) department composed of 24 tenured/tenure track faculty; 6 non-tenure track research and/or instructional faculty; 28 post-doctorate and research associates; 24 classified staff, 18 administrative professionals; 115 graduate students in CSS and other programs advised by CSS faculty; and 172 undergraduate students advised by faculty in CSS.
 - Responsible for direction and oversight of research, extension and teaching programs in basic plant science, crop genetics, turfgrass management, weed science, agronomy, sustainable agriculture, soil and water science, agricultural technology and mechanization and agricultural education.
 - Resources: (FY 2012) \$4.5M in State funding expenditures, \$10M in grant awards and \$75M in annual grant proposal submissions.
- 2012-present Administrative advisor for WERA 103, Nutrient Management and Water Quality, multi-state research project. Under the auspices of the Western Association of Agricultural Experiment Station Directors I am responsible for oversight of committee activities and annual reporting of outcomes/impacts.
- 2007-2010 Leading a team composed of extension representatives from WA-OR-ID to revise nutrient management guidelines for irrigated and dryland forages. Organized team meetings; coordinated assembly of information and review and publication process. Product: Koenig et al. (2009) PNW 0611 publication.
- 2007-08 Chair, WERA 103 regional coordinating committee for nutrient management research and extension (2006-07, assistant chair; 2005-06, secretary). Provided organizational framework for group in development of regional nutrient management publications, articles for certified crop advisor training modules, and organization of annual conference.
- 2005-2008 Member, Faculty Status Committee of the Faculty Senate. Chaired subcommittee investigations of three faculty tenure denial cases and one annual review dispute. Led interviews of faculty, department chairs and deans as necessary for the investigations. Prepared reports. Required knowledge of Faculty Manual, annual review process, and Provost's guidelines on annual review and promotion and tenure.
- 2005-07 Led industry-university-commission committee and effort to develop nitrogen management publications ("briefs") published by the Washington Wheat Commission (see "Other extension publications" in vitae).
- 2005-07 Chair, Search Committee for CSS Soil Microbiologist, rounds I and II.
- 2004-08 Tri-State Chair of the USDA STEEP Special Research Grant program. Provide leadership for strategic direction/visioning, RFP and proposal development, proposal review process, and organization of annual meetings.
- 2002-03 Chair, Utah State University (USU) Extension Water Issues Team. In the face of severe drought in 2001-2003, I organized and led an interdisciplinary team that

identified drought information and education needs, formulated a response plan for USU extension, secured funding from state and federal sources to implement the plan, developed information and training, assessed impacts of the program, and published on the experience in a Journal of Extension article (www.joe.org/joe/2004june/tt5.php).

- 2001-02 President, Utah State University Extension Specialists Association.
- 2002-03 Utah State University Extension representative to the USDA Farm Services Agency, Utah State Committee.
- 2001-03 Chair, Utah Department of Environmental Quality, Division of Water Quality, Concentrated Animal Feeding Operation, Information and Education Subcommittee. Led team effort to develop documents supporting livestock waste management programming and education (see “Other extension publications” in vitae).
- 2001-02 Prepared draft of the statewide Compact Plan for Utah State University Extension. This document provided the basis for future evolution of extension agriculture programs, including the framework for justifying and hiring specialists, publication planning and management, and improving agent-specialist relationships.
- 1999-03 Chair, Extension Agronomist Promotion and Tenure Committee.
- 1999-03 Chair, Extension Turfgrass/Water Conservation Promotion and Tenure Committee.
- 1999-00 Chair, Search committee for Extension Agronomist.
- 1997-00 Extension State Report writer for Goal 5 of the federal GPRA program. Responsible for five year plan of work and annual reports for Goal 5, *To achieve greater harmony (balance) between agriculture and the environment.*

Leadership development

- Completed LEAD 21 training: completed June, 2010.

Awards and recognition (shaded entries are from Utah State University appointment)

- 2013: Fellow status in the Soil Science Society of America
- 2013: Fellow status in the American Society of Agronomy
- 2010: Educational Materials Award for extension publication *Pasture and Grazing Management in the Northwest*, American Society of Agronomy
- 2009: Soil Science Society of America Journal, Editor’s Citation for Excellence as an Associate Editor
- 2007: Educational Materials Award for extension publication *Management of Urea Fertilizer to Reduce Volatilization*, American Society of Agronomy
- 2004: Educational Materials Award for extension publication *Fertilizer Management for Grass and Grass-Legume Mixtures*, American Society of Agronomy
- 2003: Utah State University Extension Vice President’s Team Award, Water Issue Team (Koenig was Team Chair)
- 2003: Outstanding Specialist Award, Utah State University Extension Specialists Association

2003: Young Scientist Award, Fluid Fertilizer Foundation
2002: Educational Materials Award for extension publication *Comprehensive Nutrient Management Planning: A 12 Step Guide*, American Society of Agronomy
2002: Award of Merit for assistance in research and educational programs, USDA-NRCS
2002: Taggart-Ballard Award of Excellence, Utah State Univ. Extension
2001: Resource Professional of the Year, Utah Soil and Water Conservation Society
2001: Educational Materials Award for extension publication *Fertilizer Management for Alfalfa*, American Society of Agronomy
1998: Specialist of the Year, Utah State University County Agents Association
1997: Outstanding New Specialist, Utah State University Extension Specialists Association

Publications (shaded entries are from Utah State University appointment)

†denotes publications with graduate students where Koenig was the major advisor unless otherwise indicated.

‡denotes publications with undergraduate students directly involved in research and writing the manuscript.

§denotes publications with county extension faculty directly involved in research and writing the manuscript.

Published

1. Hammac, W.A., T.M. Maaz, R.T. **Koenig**, I.C. Burke, and W.L. Pan. 2017. Water, temperature, and nitrogen effects on canola (*Brassica napus* L.) yield, protein, and oil. *Journal of Agriculture and Food Chemistry* 65:10429–10438. DOI: 10.1021/acs.jafc.7b02778
2. Pan, W.L., T. McClellan Maaz, W.A. Hammac, V.A. McCracken and R.T. **Koenig**. 2016. Mitscherlich-modeled, semi-arid canola nitrogen requirements influenced by soil nitrogen and water. *Agron. J.* 108:1-11. DOI: 10.2134/agronj2015.0378
3. Evans, M.A., D.Z. Skinner, R.T. **Koenig**, S.H. Hulbert and W.L. Pan. 2015. Effects of phosphorus, potassium, and chloride nutrition on cold tolerance of winter canola (*Brassica napus* L.). *J. Plant Nutrition*. DOI: 10.1080/01904167.2014.990095.
4. Borelli, K, R. **Koenig**, I Burke, R. Gallagher, D. Pittman, A. Snyder and E.P. Fuerst. 2014. Wheat yield and quality following legume and cereal-based cropping systems during the transition to organic production in the dryland region of the inland Pacific Northwest. *Sustainable Agriculture and Food Systems*. DOI:10.1017/S1742170514000283[†]
5. Abi-Ghanem, R., Pannkuk, C. Carpenter-Boggs, L. and R. **Koenig**. 2013. Access to agricultural inputs, technology and information, communicating with farmers and the role of Women in agriculture: Perceptions of Iraqi Extension Agents. *J. International Agricultural Extension Education*. 20:6-18.
6. Borrelli, K. R. **Koenig**, C. Miles and B. Jaeckel. 2013. Yield of leafy greens in high tunnel winter production in the northwest United States. *HortSci*. 48:183-188. [†]
7. Ott-Borrelli, K., R.T. **Koenig**, R. Gallagher, D. Pittman, A. Snyder, E. P. Fuerst, I.C. Burke and L. Hoagland. 2012. Alternative strategies for transitioning to organic production in direct-

seeded grain systems in eastern Washington II: Nitrogen fertility. *J. Sustain. Agr.* 36:461-477.†

8. **Koenig** R.T., C. Cogger, A. Bary. 2011. Dryland winter wheat yield, grain protein and soil nitrogen responses to fertilizer and biosolids applications. *Applied and Environmental Soil Science*. Vol 2011, #925462, doi:10.1155/2011/925462.
9. Hammac, W.A., W. Pan, R. Bolton and R.T. **Koenig**. 2011. High resolution imaging to assess oilseed species' root hair responses to soil water stress. *Plant and Soil* 339:125-135.† (Pan is the major advisor; Koenig is a committee member)
10. Neely, H.L., R.T. **Koenig**, C.A Miles, T.C. Koenig and M. Karlsson. 2010. Diurnal fluctuation in tissue nitrate concentration of field-grown leafy greens at two latitudes. *HortScience* 45:1815-1818.† (Recognized by *HortScience* as one of 'Top 10 articles read in December 2010', and highlighted in *Horticulture Week*)†
11. Gallagher, R.S., D. Pittman, A. Snyder, R.T. **Koenig**, E.P. Fuerst, I.C. Burke, and L.A. Hoagland. 2010. Alternative strategies for transitioning to organic production in direct-seeded grain systems in eastern Washington I: Crop agronomy. *Journal of Sustainable Agriculture* 34:483-503.
12. Ingle, H., R.T. **Koenig** and M. Stowe. 2010. Effect of seed-row placement of conventional and polymer-coated urea on winter wheat emergence. *Communications in Soil Science and Plant Analysis* 41:887-896.‡
13. Proctor, C., R.T. **Koenig** and W. Johnston. 2010. Potential for ammonia volatilization from urea in dryland Kentucky bluegrass (*Poa pratensis*) seed production systems. *Communications in Soil Science and Plant Analysis* 41:320-331.‡
14. Abi-Ghanem, R., L. Carpenter-Boggs, R.T. **Koenig**, C. Pannkuk, W. Pan, and R. Parker. 2009. Extension education for dryland cropping systems in Iraq. *Journal of Natural Resources and Life Sciences Education* 38:133-139.† (This article was highlighted and adapted in *CSA news* 54(8):32-33)
15. Ott, K., R.T. **Koenig** and C. Miles. 2009. A comparison of rapid potentiometric and colorimetric methods for monitoring tissue nitrate concentrations in leafy green vegetables. *HortTechnology* 19:439-444.† (This article was highlighted in a *Science Daily* news release Sept. 8, 2009)
16. **Koenig**, R.T., D. Winward, C. Reid, J. Barnhill, M. Pace, and K. Heaton. 2009. Phosphorus source and surface fluid band spacing effects on irrigated alfalfa. *Soil Science Society of America Journal* 73:1-8.§
17. Ott, K.A., R.T. **Koenig** and C.A. Miles. 2008. Impacts of plant part on nitrate concentration in

leafy greens. *International Journal of Vegetable Science* 14:351-361.†

18. **Koenig** R.T., T. Koenig, J. Kotuby-Amacher, P. Grossl. 2008. A laboratory exercise relating soil energy budgets to soil temperature. *Journal of Natural Resources and Life Sciences Education* 37:59-62.
19. Brown, T.T., R.T. **Koenig**, D.R. Huggins, J.B. Harsh and R.E. Rossi. 2008. Lime effects on soil acidity, crop yield and aluminum chemistry in direct-seed cropping systems. *Soil Science Society of America Journal* 72:634-640.†
20. Cardoso, G., T. Cerny-Koenig, R.T. **Koenig**, and R. Kjelgren. 2007. Characterizing fertilizer and media pH requirements for greenhouse production of Intermountain West native herbaceous perennials. *Native Plants Journal* 8:115-121.† (Koenig was a committee member)
21. Zollinger, N., R.T. **Koenig**, T. Cerny-Koenig, and R. Kjelgren. 2007. Relative salinity tolerance of Intermountain Western United States native herbaceous perennials. *HortScience* 42:529-534.† (Koenig was a committee member)
22. Zollinger, N., R. Kjelgren, T. Cerny-Koenig, K. Kopp and R.T. **Koenig**. 2006. Drought tolerance of six ornamental herbaceous perennials. *Scientia Horticulturae* 109:267-274.† (Koenig was committee member)
23. Cardoso, G., R. Kjelgren, T. Cerny-Koenig and R.T. **Koenig**. 2006. Pot-in-pot production of six Intermountain West native herbaceous perennials species. *Journal of Environmental Horticulture* 24:77-83.† (Koenig was committee member)
24. Wiberg, A., R.T. **Koenig** and T. Cerny-Koenig. 2006. Variability in plant growth among retail potting media. *HortTechnology* 16(1):1-6.‡
25. Wiberg, A., R.T. **Koenig** and T. Cerny-Koenig. 2005. Variability in the physical and chemical properties of retail potting media. *HortTechnology* 15:752-757.‡
26. **Koenig**, R.T., D. Miner, B. Miller and J. Harrison. 2005. Spatial and temporal variability of atmospheric ammonia during in-house composting in high-rise, caged layer facilities. *Compost Science and Utilization* 13:162-167.§
27. **Koenig**, R.T., M. Palmer, D. Miner, B. Miller and J. Harrison. 2005. Chemical amendments and process controls to reduce ammonia volatilization during in-house composting in high-rise, caged layer facilities. *Compost Science and Utilization* 13:141-149.§
28. **Koenig**, R.T., T. Cerny-Koenig, R. Hefelbower, N. Mesner, K. Kopp, and R. Hill. 2004. A team approach to managing statewide water issues. *Journal of Extension* 42. Available at: <http://www.joe.org/joe/2004june/tt5.shtml>§

29. Reid, C.R., D.L. Winward and R.T. **Koenig**. 2004. A comparison of liquid phosphoric acid and dry phosphorus fertilizer sources for irrigated alfalfa production on calcareous soils. *Communications in Soil Science and Plant Analysis* 35:39-50.§
30. Johnson, P.G., R.T. **Koenig** and K.L. Kopp. 2003. Nitrogen, phosphorus and potassium responses and requirements in calcareous sand greens. *Agronomy Journal* 95:697-702.
31. Stukenholtz, P., R.T. **Koenig**, D. Hole and B. Miller. 2002. Partitioning the nutrient and non-nutrient contributions of compost to dryland-organic wheat. *Compost Science and Utilization* 10:238-243.† (Koenig was committee member)
32. Drost, D., R.T. **Koenig** and T. Tindall. 2002. Nitrogen use efficiency and onion yield increased with a polymer-coated nitrogen source. *HortScience* 37:338-342.
33. Miner, F.D., R.T. **Koenig** and B.E. Miller. 2001. The influence of bulking material type and volume on in-house composting in high-rise, caged layer facilities. *Compost Science and Utilization* 9:50-59.§
34. **Koenig**, R.T., M. Winger and B. Kitchen. 2000. Simple, low-cost data collection methods for agricultural field studies. *Journal of Extension* 38. (This article was featured by the Editor of the Journal of Extension)
35. Miner, F.D., R.T. **Koenig** and B.E. Miller. 2000. In-house composting in high-rise layer facilities. *Journal of Applied Poultry Research* 9: 162-171.§
36. **Koenig**, R.T., J.V. Barnhill and C.J. Hurst. 2000. Sampling depth effects on sodium bicarbonate-extractable phosphorus and potassium and fertilizer recommendations. *Communications in Soil Science and Plant Analysis* 31:375-376.§
37. Gao, S., W.L. Pan and R.T. **Koenig**. 1998. Wheat root growth and distribution in response to an enhanced ammonium supply. *Soil Science Society of America Journal* 62:1736-1740.
38. Gao, S., W.L. Pan and R.T. **Koenig**. 1998. Integrated root system age in relation to plant nutrient uptake activity. *Agronomy Journal* 90:505-510.
39. **Koenig**, R.T. and W.L. Pan. 1996. Chloride enhancement of wheat responses to ammonium nutrition. *Soil Science Society of America Journal* 60:492-497.
40. **Koenig**, R.T. and W.L. Pan. 1996. Calcium effects on quantity-intensity relationships and plant availability of ammonium. *Soil Science Society of America Journal* 60:498-505.
41. **Koenig**, R.T. and V.L. Cochran. 1994. Decomposition and N mineralization from legume and nonlegume crop residues in a subarctic agricultural soil. *Biology and Fertility of Soils* 17:269-

42. **Koenig**, R.T. and V.L. Cochran. 1992. A comparison of base media used for the incubation of plant residues in laboratory experiments. *Communications in Soil Science and Plant Analysis* 23:1591-1604.

Other peer-reviewed articles

1. Hammac, W.A., W. Pan, R. Bolton and R.T. **Koenig**. 2009. High resolution imaging on *in situ* root hair development to assess oilseed species responses to water stress. [Paper No. 1395](#), International Plant nutrition colloquium, University of California, Davis.
2. Pan W., W. Schillinger, D. Huggins, R.T. **Koenig**, J. Burns. 2007. Fifty years of predicting wheat nitrogen requirements based on soil water, yield, protein and nitrogen efficiency. In: T. Bruulsema (Ed). *Managing Crop Nitrogen for Weather*. Proceedings of the symposium "Integrating Weather Variability into Nitrogen Recommendations." International Plant Nutrition Institute, Norcross, GA.
3. Osmond, D.L., M.L. McFarland, R.T. **Koenig**, and D.B. Beegle. 2006. Phosphorus management within multi-state watersheds. SERA-Phosphorus Management and Policy Workgroup: [Position Papers](#) on Key Scientific Issues.
4. **Koenig**, R.T., F. Dean Miner, Jr., B.E. Miller and M.D. Palmer. 2005. In-house composting in high-rise, caged layer facilities. USDA Sustainable Agriculture Research and Education (SARE) Agricultural Innovations [fact sheet](#).
5. Muhlestein, D.J., T.H. Hooten, R.T. **Koenig**, P. Grossl and B. Bugbee. 1999. Is nitrate necessary to biological life support? Proceedings of the International Conference on Environmental Systems, July 12-15, 1999, Denver, CO. Paper 1999-01-2026.

Proceedings articles (not peer-reviewed)

1. Grossl, P. S. Trolove, R.T. **Koenig** and C. Jones. 2009. Phosphorus dynamics in organic matter-amended soils. In R. Flynn (Ed) *Proceedings of the Western Nutrient Management Conference*, March 4-5, Salt Lake City, UT.
2. **Koenig**, R.T., A. Esser, A., and S. VanVleet. 2008. Phosphorus source effects on dryland winter wheat in eastern Washington. In Larry Murphy (Ed), *Proceedings of the Fluid Fertilizer Forum*, Scottsdale, AZ.
3. **Koenig**, R.T., C. Proctor, W. Johnston and C. Golob. 2007. Urea and ammonia volatilization in dryland grass seed systems. Pp 65-70 in J. Hart (Ed) *Proceedings of the Western Nutrient Management Conference*, March 8-9, Salt Lake City, UT.
4. **Koenig**, R.T. 2007. Phosphorus dynamics and wheat response to applied P in a spatially variable environment. Pp 153-157 in J. Hart (Ed) *Proceedings of the Western Nutrient*

Management Conference, March 8-9, Salt Lake City, UT.

5. **Koenig**, R.T. and J.V. Barnhill. 2006. Potassium management in alfalfa: a summary of eight years of research in an arid environment. Pp 163-170 in Proceedings of the 2006 Western Alfalfa and Forage Conference, December 11-13, Reno, Nevada.
6. **Koenig**, R.T., M. Allen, W. Pan, K.G. Campbell, R. Bolton, K. Kidwell, J. Burns and B. Carter. 2005. Chloride response of Pacific Northwest spring and winter wheat cultivars. Pp 169-175 in B. Stevens (Ed) Proceedings of the Western Nutrient Management Conference, March 3-4, Salt Lake City, UT.
7. Brown, T.T., R.T. **Koenig**, D.R. Huggins, J.B. Harsh and R.E. Rossi. 2005. Assessing and managing stratified soil acidify in inland northwest direct seed cropping systems. Pp 213-218 in B. Stevens (Ed) Proceedings of the Western Nutrient Management Conference, March 3-4, Salt Lake City, UT.
8. **Koenig**, R.T., C.R. Reid, M. Pace and D. Winward. 2004. Fluid phosphorus management for irrigated alfalfa. Pp 80-87 in Proceedings of the Fluid Fertilizer Forum, February 22-24, Scottsdale, AZ.
9. **Koenig**, R.T., K. Heaton, J. Barnhill and C. Reid. 2003. Phosphorus and sulfur sources and placements for irrigated alfalfa. Pp 124-130 in J.W. Ellsworth (Ed) Proceedings of the Western Nutrient Management Conference, March 6-7, Salt Lake City, UT.
10. **Koenig**, R.T. 2003. Certification of soil testing labs. Pp 83-87 in J.W. Ellsworth (Ed) Proceedings of the Western Nutrient Management Conference, March 6-7, Salt Lake City, UT.
11. **Koenig**, R.T., C.R. Reid and J.V. Barnhill. 2003. Phosphorus sources and placement for irrigated alfalfa: year 2 results. Pp 114-121 in Proceedings of the Fluid Fertilizer Forum, February 16-18, Scottsdale, AZ.
12. **Koenig**, R.T. 2002. Nitrogen, sulfur, potassium and phosphorus fertilization of alfalfa – when are they necessary? Pp 79-86 in Proceedings of the Western Alfalfa Symposium, Dec. 11-13, Sparks, NV.
13. **Koenig**, R.T., K. Heaton and C. Israelsen. 2002. Phosphorus sources and placement for irrigated alfalfa. Pp 190-198 in Proceedings of the Fluid Fertilizer Forum, Fluid Fertilizer Foundation, vol. 19, Feb. 17-19, Scottsdale, AZ.
14. Miller, B.E., R.T. **Koenig** and F.D. Miner. 2001. Managing in-house composting within a high rise layer facility. Paper no. 01-2264 of the American Society of Agriculture Engineers, July 30-August 3, Sacramento, CA.

15. **Koenig**, R.T., J.V. Barnhill and J.A. Gale. 2001. Alfalfa yield and soil test response to potassium fertilization on low K-testing soils. Pp 144-150 in B. Brown (Ed) Proceedings of the Western Nutrient Management Conference, March 8-9, Salt Lake City, UT.
16. Beard, F.R., R.T. **Koenig** and B.E. Miller. 1999. An Alternative approach to site selection and frequency for GPS soil mapping in Utah. ASAE/CSAE-SCGR Annual International Meeting, July 18-21. Paper No. 997022. American Society of Agriculture Engineers.
17. **Koenig**, R.T. B. Kitchen, C. Hurst and J. Barnhill. 1999. Phosphorus and potassium fertilization of irrigated alfalfa in Utah. Pp 57-62 in T.L. Tindall (Ed) Proceedings of the Western Nutrient Management Conference, March 4 -5, Salt Lake City, UT.
18. **Koenig** R.T., J. Barnhill and C. Hurst. 1997. Phosphorus and potassium management for irrigated alfalfa production in Utah. Pp 160-165 in T.L. Tindall (Ed) Proceedings of the Western Nutrient Management Conference, March 6-7, Salt Lake City, UT.
19. Drost, D., P. Grossl and R.T. **Koenig**. 1997. Nutrient management of onions: A Utah perspective. Pp 54-59 in T.L. Tindall (Ed) Proceedings of the Western Nutrient Management Conference, March 6-7, Salt Lake City, UT.
20. **Koenig**, R.T. and W.L. Pan. 1992. Phosphorus uptake and partitioning by spring wheat in response to enhanced ammonium nutrition. Pp. 73-81 in Proc. Western Phosphate and Sulfur Workgroup, Aug. 6-7, Anchorage, AK.
21. Pan, W.L., R.T. **Koenig** and B.R. Bock. 1992. Enhanced ammonium nutrition of wheat. Pp. 170-176 in J.D. Havlin (Ed.) Proc. Great Plains Soil Fertility Conference, March 3-4, Denver, CO.
22. Bock, B.R., J.J. Camberato, F.E. Below, W.L. Pan and R.T. **Koenig**. 1991. Wheat responses to enhanced ammonium nutrition. Pp. 93-106 in Effect of enhanced ammonium diets on growth and yield of wheat and corn. Proc. SSSA Symposium, Div. S-8, Oct. 30, Denver, CO.

Extension bulletins (peer-reviewed) (n = 37)

§denotes publications with county extension faculty.

1. Kaiser, C., D. Horneck, R. Koenig, L. Porter and L. Brewer. 2016. Green Pea Nutrient Management. Inland Northwest – east of the Cascades. Oregon State University Extension EM9140.
2. Collins, D., C. Miles, Cogger, C. and R. **Koenig**. 2013. Soil fertility in organic systems: A guide for gardeners and small acreage farmers. PNW Extension publication 618, 19 p.
3. **Koenig**, R., K. Schroeder, A. Carter, M. Pumphrey, T. Paulitz, K. Campbell and Dave Huggins. 2011. Soil acidity and aluminum toxicity in the Palouse region of the Pacific Northwest. WSU

Extension Fact Sheet FS050E.

4. **Koenig**, R.T., A.W. Hammac and W.L. Pan. 2011. Canola growth, development and fertility. WSU Extension Fact Sheet FS045E.
5. **Koenig**, R.T., D. Horneck, T.E. Platt, P.J. Petersen, R.G Stevens, S.C. Fransen, and B. Brown. 2009. Nutrient management guide for dryland and irrigated alfalfa in inland northwest. PNW Bulletin 0611, Washington State University, 16 p.§
6. Fuerst, E.P., R.T. **Koenig**, J. Kugler, K.M. Painter, M.E. Stannard, M.E., and J. Goldberger. 2009. Organic alfalfa management guide. EB2039E, 24 p.§
7. Jones, C., R. **Koenig**, J. Ellsworth, G. Jackson and B. Brown. 2007. Urea fertilizer management guide. EB 173, Tri-State Extension publication (MT-ID-WA), 12 p.
8. **Koenig**, R.T. 2005. Eastern Washington nutrient management guide: Dryland winter wheat. EB1987, Washington State University Extension, 5p.
9. **Koenig**, R.T., K.I. Goodrich and J. Harrison. 2004. Calibrating and operating manure spreaders. Utah State University Extension Electronic Publication AG/AWM/09-1, 4p.
10. Parent, V. and R.T. **Koenig**. 2003. Solutions to soil problems I. Salinity (soluble salts). Utah State University Extension Electronic Publication AG/Soils/2003-01, 2p.§
11. Cox, L. and R.T. **Koenig**. 2003. Solutions to soil problems II. High pH (alkaline soil). Utah State University Extension Electronic Publication AG/Soils/2003-02, 2p.§
12. Johnson, M. and R.T. **Koenig**. 2003. Solutions to soil problems III. Drainage. Utah State University Extension Electronic Publication AG/Soils/2003-03, 2p.§
13. **Koenig**, R. and T. Cerny. 2003. Solutions to soil problems IV. Soil structure (compaction). Utah State University Extension Electronic Publication AG/Soils/2003-04, 2p.
14. Heaton, K. and R.T. **Koenig**. 2003. Solutions to soil problems V. Low organic matter. Utah State University Extension Electronic Publication AG/Soils/2003-05, 2p.§
15. Miller, R., J. MacAdam and R.T. **Koenig**. 2003. Management intensive grazing and the environment – nitrogen and phosphorus leaching. Utah State University Extension Electronic Publication AG/2003-10, 2p.
16. **Koenig**, R.T. and V. Isaman. 2002. Topsoil quality guidelines for landscaping. Utah State University Extension Electronic Publication AG-SO-02, 4p.

17. **Koenig**, R.T. and M. Kuhns. 2002. Control of iron chlorosis in ornamental and crop plants. Utah State University Extension Electronic Publication AG-SO-01, 6p.
18. **Koenig**, R.T., M. Nelson, D. Miner and J. Barnhill. 2002. Fertilizer management for grass and grass-legume mixtures. Utah State University Extension electronic publication AG-FG-03, 5p.§
19. **Koenig**, R.T. and R. Heflebower. 2002. Water-wise Landscaping: Soil preparation and management. Utah State University Extension electronic publication HG-522, 2p.§
20. Johnson, M., M. Wolf and R.T. **Koenig**. 2002. Cover crops for Utah gardens. Utah State University Extension electronic publication HG-521, 3p.§
21. **Koenig**, R.T., K. Kopp and C. Reid. 2002. Water-wise landscaping: Monitoring irrigation with probes. Utah State University Extension electronic publication HG-520, 2p.§
22. **Koenig**, R.T. and T. Lindstrom. 2001. Soil, water and plant tissue testing in Utah Orchards. Utah State University Extension electronic publication AG-FG-02, 4p.§
23. **Koenig**, R., J. Barnhill, B. Kitchen, M. Winger, and M. Johnson. 2001. Fertilizer management for alfalfa. Utah State University Extension Bulletin AG-FG-01, 4p.§
24. Gale, J., R.T. **Koenig** and J. Barnhill. 2001. Managing soil pH in Utah. Utah State University Extension electronic publication AG-SO-07, 5p.§
25. Davis, J., R.T. **Koenig** and R. Flynn. 1999. Manure best management practices: A practical guide for southwestern dairies. Utah State University Extension Electronic Publication AG-WM-04, 16 p.
26. **Koenig**, R.T., K. Goodrich and M. Schmitz. 1999. Land application of biosolids: A guide for POTW operators. Utah State University Extension Electronic Publication AG-WM-03, 18 p.
27. Hill, R. and R.T. **Koenig**. 1999. Water salinity and crop yield. Utah State University Extension Electronic Publication AG-425.3, 6p.
28. Kotuby-Amacher, J. and R.T. **Koenig**. 1999. Understanding your soil test report. Utah State University Extension Electronic Publication HG-512, 4p.
29. Kotuby-Amacher, J. and R.T. **Koenig**. 1999. Frequently asked questions about soil testing. Utah State University Extension Electronic Publication HG-513, 3p.
30. **Koenig**, R.T. and L. Rupp. 1999. Deicing Compounds and Utah Landscapes. Utah State University Extension Electronic Publication HG-511, 4p.

31. **Koenig**, R.T. and L. Rupp. 1999. Selecting and using inorganic fertilizers. Utah State University Extension Electronic Publication HG-509, 6p.
32. **Koenig**, R.T. and M. Johnson. 1999. Selecting and using organic fertilizers. Utah State University Extension Electronic Publication HG-510, 6p.§
33. **Koenig**, R.T., D. Miner and K. Goodrich. 1998. Land application of biosolids - a guide for farmers. Utah State University Extension Electronic Publication AG-WM-02, 4p.
34. **Koenig**, R.T., K. Farrell-Poe and B. Miller. 1997. Using mulches in Utah landscapes and gardens. Utah State University Extension Electronic Publication HG-Compost-04, 3p.
35. Farrell-Poe, K., R.T. **Koenig**, B. Miller and J. Barnhill. 1997. Using compost in Utah turf applications. Utah State University Extension Electronic Publication HG-Compost-03, 3p.§
36. Farrell-Poe, K., J. Barnhill, R.T. **Koenig** and B. Miller. 1997. Using compost in Utah gardens. Utah State University Extension Electronic Publication HG-Compost-02, 3p.§
37. Farrell-Poe, K. and R.T. **Koenig**. 1997. Backyard composting in Utah. Utah State University Extension Electronic Publication HG-Compost-01, 6p.
38. Kotuby-Amacher, J., R.T. **Koenig** and B. Kitchen. 1997. Salinity and plant tolerance. Utah State University Extension Electronic Publication AG-SO-03, 8p.§

Electronic versions of these publications are available on the Internet at extension.usu.edu or extension.wsu.edu under “publications” (search by author name = ‘Koenig’ or by bulletin #)

Extension book chapters (note: chapter entries 2, 3 and 4 are published twice in separate manuals or books and are given an “a” and “b” designation)

1. Shewmaker, G.E., R.T. **Koenig**, D. Horneck, M. Bohle, G. Cardon, and S. Jensen. 2010. Soils, fertility, and nutrient management for pastures. Chapter 3 *in* Pasture and Grazing Management in the Northwest, PNW Bulletin 0614, University of Idaho Cooperative Extension, Moscow. (This publication received the 2010 American Society of Agronomy’s Certificate of Excellence Award for Extension publications)
- 2a. **Koenig** R.T. and P.R. Grossl. 2010. Urban Soil Management. Chapter 4 In: T. Fitzgerald (Ed) WSU Master Gardener Manual, p 4-1 to 4-24. WSU Extension EC0001, Pullman, WA.
- 2b. **Koenig**, R.T. and P.R. Grossl. Urban Soil Management. 2009. Chapter 6 In: L. Chalker-Scott (Ed) Sustainable Landscapes and Gardens, p 6-1 to 6-14. Good Fruit Grower Press, Yakima, WA.

- 3a. **Koenig** R.T. and T.C. Koenig. 2010. Plant Mineral Nutrition and Fertilizers. Chapter 5 In: T. Fitzgerald (Ed) WSU Master Gardener Manual, p 5-1 to 5-24. WSU Extension EC0001, Pullman, WA.
- 3b. **Koenig**, R.T. and T. Cerny-Koenig. 2009. Plant Nutrition: Mineral Function and Fertilizer Application. Chapter 13 In: L. Chalker-Scott (Ed) Sustainable Landscapes and Gardens, p 13-1 to 13-14. Good Fruit Grower Press, Yakima, WA.
- 4a. Koenig T. and R.T. **Koenig**. 2010. Waterwise Landscaping. Chapter 24 In: T Fitzgerald (Ed) WSU Master Gardener Manual, p 24-1 to 24-16. WSU Extension EC0001, Pullman, WA.
- 4b. Cerny-Koenig, T., R.T. **Koenig**, V. Lohr. 2009. Water-wise Landscaping: Protecting Resources and Your Wallet. Chapter 14 In: L. Chalker-Scott (Ed) Sustainable Landscapes and Gardens, p 14-1 to 14-8. Good Fruit Grower Press, Yakima, WA.

Other extension publications (not peer reviewed)

Koenig, R., S. Reinertsen, H. Nelson and C. Walters. 2007. Hard Red Spring Wheat Nitrogen and Protein Management Guide. Brochure prepared for the Washington Wheat Commission.

Koenig, R., S. Reinertsen, H. Nelson and C. Walters. 2006. Hard Red Winter Wheat Nitrogen and Protein Management Guide. Brochure prepared for the Washington Wheat Commission.

Koenig, R., S. Reinertsen, H. Nelson and C. Walters. 2005. Hard White Wheat Nitrogen and Protein Management Guide. Brochure prepared for the Washington Wheat Commission.

Koenig, R. and K. Goodrich. 2001. Comprehensive Nutrient Management Planning: A 12 Step Guide. Publication prepared for the Utah Department of Environmental Quality, Division of Water Quality for the Utah State Confined Animal Feeding Operation Committee, 20 p.

Animal Feeding Operations: A Utah Strategy - How will it affect you? 2000. Publication prepared for the Utah Department of Environmental Quality, Division of Water Quality by the Utah State Confined Animal Feeding Operation Information and Education subcommittee (**Koenig** - committee chair), 4p.

Extension program and presentation summary (1995 - 2014)

Washington State University (2003-2014)

- Master Gardener classes taught (general soils, soil improvement, urban soil management, water quality, water conservation, soil biology, soil amendments, fertilizer use) – 18 sessions
- Crop Schools conducted (various topics related to fertilizer use, nutrient management, soil pH, green manures, etc.) – 149 sessions
- Certified Crop Advisor/in-service training for NRCS and fertilizer industry personnel – 12 sessions
- Invited workshops presented (fertilizer/nutrient management, horticulture and urban soil

management) – 43 sessions

Utah State University (1995-2003)

- Master Gardener classes taught (general soils, soil improvement, soil problems, and fertilizer use) – 101 sessions
- Crop Schools conducted (various topics related to crops, soils, fertilizer, and waste management) – 147 sessions
- Certified Crop Advisor/Inservice training for county Extension agents and fertilizer industry personnel – 29 sessions
- Invited workshops presented (fertilizer, horticulture, water quality and manure management) – 114 sessions

Grants and funding (shaded entries are from Utah State University appointment)

Received

Totals:	as PI = \$560,500	as PI = \$706,000
	as co-PI = \$987,000	as co-PI = \$295,000

- 2007-2010. Biofuels cropping systems: fertility management in oilseeds. Koenig (PI), Stevens, Pan. Source: Washington State Legislature. Amount: \$90,000.
- 2009-2013. Sustainable dryland organic farming systems in the Pacific Northwest. Fuerst (PI), Koenig, Burke, Painter, Roberts, Huggins, Fortuna, Baik. Source: USDA Integrated Organic Program. Amount: \$1,040,210 (\$55,000 credit to Koenig).
- 2007-09. Alternative nitrogen sources for grass seed production in the post-ammonium nitrate era. Koenig (PI), Johnston. Source: Washington Turfgrass Seed Commission. Amount: \$34,344.
- 2007-2009. Fall nitrogen timing to optimize hard red spring wheat yield and protein in the low rainfall zone. Koenig (PI), Esser. Source: Amen Dryland Research Endowment. Amount: \$11,500.
- 2007-2008. Production and quality of organic winter lettuce. Koenig (PI), Miles. Source: Glen D. Franklin Endowed Graduate Student Fellowship. Amount: \$40,000.
- 2006-08. Strategies to achieve ecological and economic goals in the transition phase of Eastern Washington organic dryland grain production. Koenig (PI), Burke, Hinman, Roberts, Baik and Gallagher. Source: WSU CSANR through the BioAg initiative. Amount: \$42,000.
- 2006-08. Production and quality of winter grown organic vegetables in Washington. Koenig (PI) and Miles. Source: WSU CSANR through the BioAg initiative. Amount: \$36,000.
- 2006-2007. Alternative nitrogen sources for grass seed production in the post-ammonium nitrate era. Koenig (PI), Johnston and Shumway. USDA-CSREES Grass Seed Cropping Systems for Sustainable Agriculture Special Research Grant. Amount: \$27,435.
- 2005-2008. Nitrogen management strategies to achieve hard wheat performance goals. Koenig (PI) and Young. Source: Washington Wheat Commission. Amount: \$90,000.
- 2004-2007. Seeding rate and phosphorus fertility for late-planted winter wheat. Koenig (PI). Source: Amen Dryland Research Endowment. Amount: \$11,500.
- 2004-2007. Optimizing seeding rate and phosphorus fertility to enhance the yield of recrop, late-seeded winter wheat. Koenig (PI). Source: USDA-CSREES PM-10 Special Research

Grant. Amount: \$45,000.

2004-2007. The strategic use of broadcast and controlled release fertilizer to facilitate N applications and improve N use efficiency in direct seed systems. Koenig (PI) and Huggins. Source: USDA-CSREES STEEP Special Research Grant. Amount: \$77,855.

2003-2004. Horticulture web site development. Cerny (PI), Koenig, Kopp, Sagers and Hefelbower. Source: University State University Extension. Amount: \$10,000.

2003-2004. Water and nutrient use of turfgrass and mixed ornamental landscapes. Kopp (PI), Koenig, Cerny, Hill, Mesner and Beard. Source: University State University Extension. Amount: \$10,000.

2003-2004. Implementation of the Utah AFO Strategy. Koenig (PI), Harrison and Mesner. Source: Utah Department of Agriculture and Food. Amount: \$72,500.

2003-2004. Utah State University Extension Watershed I/E Modules. Koenig (PI), Harrison and Mesner. Source: U.S. EPA. Amount: \$42,500.

2002-2003. A manure spreader calibration video for CAFOs. Koenig (PI) and Harrison. Source: U.S. EPA. Amount: \$42,000.

2002-2003. Utah State University Extension Water Issue Team development. Koenig (PI), Cerny, Kopp, Hill and Mesner. Source: Utah State CURI Grant program. Amount: \$10,000.

2001-2003. Development and delivery of AFO/CAFO training materials. Koenig (PI). Source: Utah Association of Conservation Districts. Amount: \$16,200.

2000-2003. Phosphorus source and band width spacing for alfalfa. Koenig (PI). Source: Fluid Fertilizer Foundation. Amount: \$17,500.

1996-2003. Utah State University Pasture and Forage Initiative: Irrigated Pasture Research. Source: USDA, CSREES special research grant. Amount: \$186,200 received by Koenig as PI for soil fertility component of project.

2000-2002. Sulfur source and rate effects on irrigated alfalfa yield and quality. Koenig (PI). Source: IMC Kalium and IMC International. Amount: \$12,000.

1999-2002. In-house composting in high-rise, caged-layer facilities. Koenig (PI), Miller, Miner. Source: USDA, Western Region Sustainable Agriculture Research and Education (SARE) program. Amount: \$59,975.

2001. Comprehensive nutrient management planning guide. Koenig (PI). Source: Utah Department of Environmental Quality. Amount: \$2,000.

1999-2002. The fate of PLANTPRO and other iodine amendments added to plant-soil systems. Grossl (PI), Koenig. Source: Ajay North America. Amount: \$70,000.

1998-2000. Fertilizer guide publication and printing. Koenig (PI). Source: Utah Department of Agriculture and Food. Amount: \$22,000.

1998-2000. Fertility requirements and nutrient interactions in calcareous sand greens of the Intermountain West region. Johnson (PI), Koenig. Source: Golf Course Superintendents Association of America. Amount: \$6,000.

1998-1999. Heavy metal contaminants in Utah fertilizers, soils, and plant tissues. Koenig (PI). Source: Utah Department of Agriculture and Food. Amount: \$34,000.

1997-1998. Elemental sulfur and sulfuric acid generation effects on alfalfa yield and quality. Koenig (PI), Gale. Source: Utah State University Mineral Lease Program. Amount: \$5,380.

1996-1999. Fertilizer requirements for long-term sustainability of high yielding crops - The Utah

Centennial Plots. Koenig (PI). Source: Potash and Phosphate Institute. Amount: \$10,000.
1996-1999. The Edaphology of Iodine Enrichment of the Environment via Irrigation Water at Hotan, Xinjiang Autonomous Region, The Peoples Republic of China. Thrasher Research Foundation. Grossl (PI), Norton, Koenig and James. Amount: \$139,000.
1996-1998. Improving manure management to protect water quality in the southwestern U.S. (CO, UT, NM Tri-State grant). Davis (PI), Koenig, Flynn. Source: USDA, Western Region Sustainable Agriculture Research and Education (SARE) program. Amount: \$60,000.
1996-1997. Use of organic wastes to improve phosphorus bioavailability in recently exposed calcareous soils. Koenig (PI). Source: Utah State University New Faculty Research Grant. Amount: \$30,000.
1996-1997. Pasture improvement and renovation to increase production in central and southern Utah. Koenig (PI), Newhall. Source: Utah State Mineral Lease Program. Amount: \$22,900.
1995-2000. Phosphorus and potassium soil test relationships and nutrition for irrigated alfalfa production in Utah. Koenig (PI). Source: Potash and Phosphate Institute. Amount: \$22,500.
1995-2003. Other miscellaneous grants and gifts in support of research totaling \$98,750.

Grants as Administrator and Pacific Northwest/Tri-State Program Coordinator

2008-2011. STEEP: Solutions to Environmental and Economic Problems. USDA-CSREES Special Research Grant. Koenig (PI). Amount: \$440,771.
2006-2009. STEEP: Solutions to Environmental and Economic Problems. USDA-CSREES Special Research Grant. Koenig (PI). Amount: \$591,501.
2005-2008. STEEP: Solutions to Environmental and Economic Problems. USDA-CSREES Special Research Grant. Koenig (PI). Amount: \$597,262.
2004-2007. STEEP: Solutions to Environmental and Economic Problems. USDA-CSREES Special Research Grant. Koenig (PI). Amount: \$556,250.

Teaching (shaded entries are from Utah State University appointment)

Washington State University

Fall 2011: Soils 201, Soil: A Living System; 3 credit hour lecture course (104 undergraduate students)

Spring 2010: Soils 201, Soil: A Living System; 3 credit hour lecture course (110 undergraduate students; >60% completed evaluations)

- Majority ($\geq 80\%$) of students responded 'Agree' and 'Strongly Agree' to the following dimensions of the instructor evaluation:
 - Provided timely and frequent feedback
 - Explained material clearly and concisely
 - Was available outside of class to discuss my problems and progress
 - Clearly and consistently communicated expectations for students in the course
 - Was responsive to students' concerns
 - Graded assignments and exams fairly
 - Valued my contributions to the course

- Treated students with respect
 - 52% rated instructor as 'Outstanding'; 36% as 'Above Average'
- Spring 2006: Soils 504, Research Presentation Techniques; 1 credit hour lecture course (9 graduate students)

Utah State University

Fall 2002: SOILS 3000, *Fundamentals of Soil Science*; 4 credit hour lecture-lab course (semester system) - 55 students (Dean's recognition for high student evaluations).
 Fall 2001: SOILS 3000, *Fundamentals of Soil Science*; 4 credit hour lecture-lab course (semester system) - 83 students (Dean's recognition for high student evaluations).
 Fall 2000: SOILS 3000, *Fundamentals of Soil Science*; 4 credit hour lecture-lab course (semester system) - 42 students (Dean's recognition for high student evaluations).
 Fall 1999: SOILS 3000, *Fundamentals of Soil Science*; 4 credit hour lecture-lab course (semester system) - 54 students (Dean's recognition for high student evaluations).
 Fall 1998: SOILS 3000, *Fundamentals of Soil Science*; 4 credit hour lecture-lab course (semester system) - 92 students (Dean's recognition for high student evaluations).
 Fall 1997: SOILS 358, *General Soils*; 4 credit hour lecture course (quarter system) - 42 students

Colorado State University

Spring 1996: AG 240, *Introductory Soil Science*; 4 credit hour lecture-lab course – 225 students
 Spring 1996: AG 467, *Soil Chemistry*; 3 credit hour lecture course – 16 students
 Fall 1995: AG 240, *Introductory Soil Science*; 4 credit hour lecture-lab course – 205 students

Student mentoring (shaded entries are from Utah State University appointment)

PhD students advised

Kristy Ott-Borelli, 2009-2012, Ph.D. awarded (co-advised with Ian Burke)

- Dr. Borelli recently received an offer for a tenure-track faculty position at the University of Wisconsin.

Total number of PhD student committees served on as committee member: 10

MS students advised

Haly Ingle-Neely, 2008-2010, MS awarded.

- Haly received the first place award for research in Division S-4 (fertility) of the Soil Science Society of America research poster competition at the 2009 national meetings. She is currently pursuing a PhD at Texas A&M University.

Kristy Ott, 2006-2008, MS awarded.

- Kristy is currently pursuing a PhD at WSU.

Tabitha Brown, 2004-2006, MS awarded.

- Tabitha was a Science Policy Intern for the American Society of Agronomy (2005) and recipient of the 2005-2006 WSU Association for Faculty Women, Founders Award. She is currently pursuing a PhD at WSU with Dr. David Huggins.

Matthew Stowe, 2005-2007, MS awarded.

- Matt was recently accepted to a PhD program at U.C. Davis.

Eric Harwood, 2004-2009, MS awarded.

Bryce Palmer, 2000-2004, MS awarded, Utah State University.

Lynn Larsen, 2000-2002, MS awarded, Utah State University.

David Mabey, 2000-2002, MS awarded, Utah State University.

Total number of MS student committees served on as member: 19

Undergraduate students advised in research (publications listed above in vita)

Haly Ingle, 2007-2008, 1 peer-reviewed publication (Ingle et al., 2010)

Chris Proctor, 2006-2007, 1 peer-reviewed publication (Proctor et al., 2010)

Amanda Wiberg, 2001-2003, 2 peer-reviewed publications (Wiberg et al., 2005, 2006)

Total number of undergraduate students directly involved in research: 14

International activities and experience (shaded entries are from Utah State University appointment)

- 2008. Inservice training for the USDA-sponsored *Iraq Agricultural Extension Revitalization Program*.
 - Developed and delivered six training sessions (10 contact hours) on subjects including soil testing, fertilizer recommendations, nutrient sources, cropping system design, Soil and irrigation water salinity, and soil pH. See Abi-Ghanem et al. (2009, J Nat Res Life Sci Educ, listed in peer-reviewed publications) for summary of this effort.
 - As a result of this program and contacts made at ICARDA in Syria, I organized and was lead PI and co-author of a \$994K NSF-BREAD proposal in 2011 involving scientists from WSU and ICARDA:
 - BREAD: improving nitrogen fixation of lentils using molecular approaches. Koenig (PI), Vandemark, + 3 scientists from ICARDA in Syria. Source: NSF. Amount: \$994,098 (\$397,639 credit to Koenig). The proposal received good reviews but was not funded.
- 2004. Inservice training for the USDA *Marketing Assistance Program* in Armenia.
 - During a May 5 – June 4, 2004 DY in Armenia I:
 - Developed and delivered five days of inservice training to 25-30 Armenian scientific and extension personnel in Yerevan.
 - Developed two fact sheets translated into Armenian: i) crop salinity tolerance; ii) salinity management.
 - Conducted an in-depth assessment of surface drainage systems (flow, blockages, water levels, salinity levels in water and adjacent fields, etc.) for a 10 square km area of the Ararat plain. The purpose was to highlight issues and propose solutions to interrupted drainage and subirrigation/salinity problems.
 - Worked with Dr. Yeritsyan and was a collaborator and U.S. sponsor for

two grant proposals (2006 and 2007) prepared under the International Science and Technology Center, Office of Proliferation Threat Reduction program. Neither proposal was funded.

- 2004. Hosted a visiting Armenian Scientist (Dr. Sergey Yeritsyan of the Armenian Agriculture Academy) for a 3-week visit to WSU to participate in lab and field research and for training on analytical instruments procured by the USDA for his lab in Armenia. Collaboration resulted in an article in the Armenian National Agriculture Journal:
 - Yeritsyan, S., R. Koenig, V. Ddavtyan and K Yeritsyan. 2009. Influence of new fertilization technology on growth and crop productivity of winter wheat in the Republic of Armenia. *Agroscience* 2009(1): 22-27. (in Russian with English abstract)
- 2003. Inservice training and needs assessment for the USDA *Marketing Assistance Program* in Armenia
 - I developed and delivered a one-day inservice training session on soil fertility and salinity management practices to 20 Armenian extension personnel visiting the U.S. and Utah State University.
 - During a May 19 – June 11, 2003 TDY in Armenia I:
 - Developed and delivered three days of inservice training sessions to 20 Armenian extension personnel. These included a 1-day salinity management workshop and a 2-day session on soil fertility principles, management and testing methodologies.
 - Developed three fact sheets translated into Armenian: i) soil salinity management; ii) potato fertility; iii) using quick-test nitrate strips to monitor soil nitrogen.
 - Conducted a needs assessment of irrigated agriculture systems, soil fertility and salinity management research and extension programming.
 - Conducted an assessment of analytical instrument, supplies and training needs for the lab operated by Dr. Sergey Yeritsyan of the Armenian Agricultural Academy.

Other professional activities (shaded entries are from Utah State University appointment)

Department Committees and Service

- Member, Search Committee for Extension Agronomist (2007-2008)
- Chair, Search Committee for Soil Microbiologist, rounds I and II (2005-2007)
- Reviewer, Verle Kaiser Conservation grant proposals (2005-2007)
- Member, Plants, Soils and Biometeorology Department Advisory Committee (2001-03)
- Chair, Soil Science Curriculum Committee (2002-2003)
- Member, Extension Compact Planning Committee, Agriculture sub-committee (2001)
- Chair, Extension Agronomist Promotion and Tenure Committee (1999-03)
- Chair, Extension Turfgrass/Water Conservation Promotion and Tenure Committee (1999-03)
- Served as a committee member on five promotion and tenure committees (Utah) (1999-03)
- Chair, Search committee for Extension Agronomist (1999-00)
- Member, Selection Committee for Extension Turf Specialist (1998)
- Member, Plants, Soils and Biometeorology Department Advisory Committee (1996-98)

College and University Committees and Service

- Chairman, Bohrensen Farm Advisory Committee (2010-present)
- Washington State University administrative liaison, W-6/Plant Introduction Unit (2010)
- Chairman, Cereal Variety Release Committee (2008-present)
- Member, Wheat Advisory Committee (2008-present)
- Tri-State Chair and Administrator for the USDA-CSREES STEEP Special Research Grant (2004-2008)
- Reviewer, CAHNRS scholarship proposals (2005-2007)
- Washington State University Extension Drought Information Coordinator (2005-2008)
- Member of Faculty Status Committee of the Faculty Senate (2005-2007)
- Member, ad hoc Committee on Utah State University Restructuring (2003)
- Member, Utah State University Task Force on the Environment (2002-03)
- Member, Utah State University Task Force on Water Programs (2002-03)
- Chair, Utah State University Extension Water Issues Team (2002-03)
- President, Utah State University Extension Specialists Association (2001-2002)
- Secretary/treasurer, Utah State University Extension Specialists Association (1998-99)
- Member, Utah State University Pasture Committee (1995-03)

State/Regional Committees and Service

- Administrative advisor to WERA 103 Nutrient Management and Water Quality regional working group (2011-present)
- Washington State Executive Water Emergence Committee member (2005-2008)
- Proposal reviewer, Cool Season Food Legume Program (2006 - 2008)
- Washington State Drought Response Action Team member (2005-2008)
- Ex officio* Board Member, Pacific Northwest Direct Seed Association (2004-2008)
- Extension representative, USDA Farm Services Agency (FSA) Utah State Committee (2002-03)
- Chair, Utah Department of Environmental Quality, Division of Water Quality, Concentrated Animal Feeding Operation, Information and Education Subcommittee (1999-03)
- Member, Utah Department of Environmental Quality, Division of Water Quality, Concentrated Animal Feeding Operation Committee (1998-03)
- Member, Utah Department of Agriculture and Food, Utah Fertilizer Act Revision Committee (1998)
- Member, Utah Department of Environmental Quality, Division of Water Quality, Biosolids Agronomic Rate Advisory Committee (1995-99)

Professional Society Committees and Activities

- Associate Editor, Soil Science Society of America Journal (2008-12; renewed for second term)
- WERA 103 Nutrient Management and Water Quality regional working group member (2003-present); Secretary (2005-06); Chair-elect (2006-07); Chair (2008-09); administrative advisor (2011-present)
- American Society of Agronomy, Werner L. Nelson Award for Diagnosis of Yield-Limiting Factors Selection Committee member (2008-12)
- Associate Editor, Agronomy Journal (2006-2008)

- Executive Council Member, Pacific Division of the American Association for the Advancement of Science (2003-2004)
- American Society of Agronomy, Harry J. Larsen/Yara Memorial Scholarship Committee member (2004-2010)
- Board Member, Pacific Division of the American Association for the Advancement of Science (2003-2005)
- Panel reviewer, USDA Western SARE program (1999-2000)
- Organized tour for the 1999 American Society of Agronomy Annual Meetings, Salt Lake City: *Salt: the good, the bad and the ugly*
- Soil Science Society of America Committee S577, Continuing Education of Soil Scientists (1997-1998)
- Soil Science Society of America ad hoc committee on maintaining/increasing society membership (1997-1998)
- Member, Western Coordinating Committee (WCC-103) for the Western Nutrient Management Conference (1995-2003)
- Reviewed 87 manuscripts for Soil Sci. Society of America J., J. of Environ. Qual., Agronomy J., Waste Management, Soil Science, HortScience, and Climate Research (1995-2012).