

Dr. Gary A. "Pete" Peterson
Curriculum Vitae

PERSONAL INFORMATION

Emeritus Professor and former Head Department of Soil and Crop Sciences Colorado State University Fort Collins, CO 80523 (970) 491-5555 gary.peterson@colostate.edu

AREAS OF SPECIALIZATION

Water Conservation and Tillage, Soil-Crop Management in Dryland Systems, Soil Organic Matter Management

ACADEMIC TRAINING

B.S. 1963 University of Nebraska - Technical Agronomy

M.S. 1965 University of Nebraska - Soil Science
(Advisor was Professor Robert .A. Olson)

Ph.D. 1967 Iowa State University - Soil Science
(Advisor was Dr. John Pesek)

PROFESSIONAL POSITIONS

Current Position:

Professor Emeritus, Soil and Crop Sciences, 2011-present

Previous Positions:

Head, Dept. of Soil and Crop Sciences, 2003-2011

Professor of Soil and Crop Sciences, 1984-2003

Professor of Agronomy, Univ. of Nebraska, 1974-84

Associate Professor of Agronomy, Univ. of Nebraska, 1971-74

Assistant Professor of Agronomy, Univ. of Nebraska, 1967-71

Research Associate, Iowa State Univ. 1964-1967

Graduate Research Assistant, Univ. of Nebraska, 1963-1964

PROFESSIONAL ACCOMPLISHMENTS

Career emphasis: Applications of soil science principles to the solution of field related soil management problems. Principle Investigator of the long-term Dryland Agroecosystem Project from 1985-2003, (cooperatively funded by CSU and the USDA-ARS). Project focus was developing dryland cropping systems that maximize water conservation, minimize soil erosion, and that are applicable to a wide range of climate-soil environments. System effects on long-term issues like system-level water budgets, soil organic matter accumulation, and nutrient cycling were emphasized. Served as Editor, Soils Technical Editor, and Soils-Associate Editor of Agronomy Journal, and Editor-in-Chief of ASA. Taught soil management courses from 1968 to 2003, and developed a set of team taught soil and crop management systems course for senior students at CSU. Major professor for 18 M.S. and 17 Ph.D. students. Authored or co-authored 110 refereed publications, 40+ non-refereed proceedings and papers, and numerous outreach publications. Delivered 200+ oral presentations to scientists, farmers, and industry clientele in the past 25 years in the U.S. and other countries of the world. Currently serves as Historian for the American Society of Agronomy.

SELECTED PUBLICATIONS

Complete publication record available at Google Scholar:

https://scholar.google.com/citations?user=DTSn_AQAAAAJ&hl=e

- Peterson, G.A., D.G. Westfall, M.E. Schipanski, and S.J. Fonte. 2020. Soil and crop management systems that ameliorate damage caused by decades of dryland agroecosystem of mismanagement. *Agron. J.* 112: 3227-3238.
- Stewart, B.A. and G.A. Peterson. 2015. Managing green water in dryland agriculture. *Agron. J.* 107:1544-1553.
- Miner, G.L., N.C. Hansen, D. Inman, L.A. Sherrod, G.A. Peterson. 2013. Constraints of no-till agroecosystems as bioenergy production systems. *Agron. J.* 105:34-376.
- Shaver, T.M., G.A. Peterson, L.R. Ahuja, and D.G. Westfall. 2013. Soil sorptivity enhancement with crop residue accumulation in semiarid Dryland no-till agroecosystems. *Geoderma* 192: 254-258.
- Peterson, G.A., D. J. Lyon and C. R. Fenster. 2012. Valuing Long-Term Field Experiments: Quantifying the Scientific Contribution of a Long-Term Tillage Experiment. *Soil Sci. Soc. Am. J.* 76:757-765.
- Peterson, G.A., P.W. Unger, and W.A. Payne. 2006. *Dryland Agriculture*. 2 nd Edition Agronomy Monograph No. 23. ASA-CSSA-SSSA, Madison, WI.
- Unger, P.W., W.A. Payne, and G.A. Peterson. 2006. Water conservation and efficient use. p.39-85. In G.A. Peterson, P.W. Unger, and W.A. Payne (eds.) *Dryland Agriculture*. 2nd Edition Agronomy Monograph No. 23. ASA-CSSA-SSSA, Madison, WI.
- Peterson, G.A., P.W. Unger, W.A. Payne, R.L. Anderson, and R.L. Baumhardt. 2006. Dryland agriculture research issues. p. 901-907. In G.A. Peterson, P.W. Unger, and W.A. Payne (eds.) *Dryland Agriculture*. 2 nd Edition Agronomy Monograph No. 23. ASA-CSSA-SSSA, Madison, WI.
- Andales, A.A., T.R. Green, L.R. Ahuja, R.H. Erskine, and G.A. Peterson. 2007. Temporally stable patterns in grain yield and soil water on a dryland catena. *Agricultural Systems* 94:119-127.
- Cantero- Martinez, C., D. G. Westfall, L. A. Sherrod, and G. A. Peterson. 2006. Long-term crop residue dynamics in no-till cropping systems under semi-arid conditions. *J. of Soil and Water Cons.* 61:84-95.
- Sherrod, L.A., Peterson, G.A., Westfall, D.G., and Ahuja, L.R. 2005. Soil organic carbon pools after 12 years in no-till dryland agroecosystems. *Soil Sci. Soc. Am. J.* 69:1600-1608.
- Mosier, A.R., Halvorson, A.D., Peterson, G.A., Robertson, G.P., and Sherrod, L. 2005. Measurement of net global warming potential in three agroecosystems. *Nutrient Cycling in Agroecosystems*. 72:67-76.
- Peterson, G.A. and Westfall, D.G. 2004. Managing precipitation use in sustainable agroecosystems. *Ann. App. Biol.* 144:127-138.
- Peterson, G.A. 2004. Dryland farming. In: Hillel, D. (Editor-In-Chief) *Encyclopedia of Soils in the Environment*. Elsevier Academic Press.
- Shaver, T.M., Peterson, G.A., and Sherrod, L.A. 2003. Cropping intensification in dryland systems improves soil physical properties: regression relationships. *Geoderma* 116:149- 164.
- Sherrod, L.A., Peterson, G.A., Westfall, D.G., and Ahuja, L.R. 2003. Cropping intensity enhances soil organic carbon and nitrogen in a no-till agroecosystem. *Soil Sci. Soc. Am. J.* 67:1533-1543.
- Johnson, C.K., Eskridge K.M., Wienhold, B.J., Doran, J.W., Peterson, G.A., and Buchleiter, G.W. 2003. Using electrical conductivity classification and within-field variability to design field-scale research. *Agron. J.* 95:602-613.
- Andales, A.A., Ahuja, L.R., and Peterson, G.A. 2003. Evaluation of GPFARM for dryland cropping systems in eastern Colorado. *Agron. J.* 95:1510-1524.

- Del Grosso, S., Parton, W.J. Mosier, A.R., Hartman, M.D., Keough, C.A., Peterson, G.A., Ojima, D.S., and Schimel, D.S. 2001. Simulated effects of land use, soil texture, and precipitation on N gas emissions using DAYCENT. p. 413-431. In: Follett, R.F. and Hatfield, J.L. (eds.) Nitrogen in the Environment: Sources, Problems, and Management. Elsevier, Amsterdam.
- Del Grosso, S., Ojima, D.S., Parton, W.J. Mosier, and Peterson, G.A. 2002. Regional assessment of net greenhouse gas fluxes from agricultural soils in the USA Great Plains under current and improved management. p. 469-474. In: Van Ham and Williams-Jacobse (eds.) Non-CO2 Greenhouse Gases. Millpress, Rotterdam.
- Del Grosso, S., Ojima, D.S. Parton, W.J. Mosier, A.R., Peterson, G.A., and Schimel, D.S. 2002. Simulated effects of dryland cropping intensification on soil organic matter and greenhouse gas exchanges using the DAYCENT ecosystem model. *Environmental Pollution* 116:S75-S83.
- Grant, C.A., Peterson, G.A., and Campbell, C.A. 2002. Nutrient considerations for diversified cropping systems in the Northern Great Plains. *Agron. J.* 94:186-198.
- Sherrod, L.A., Dunn, G., Peterson, G.A., and Kolberg, R.L. 2002. Inorganic carbon analysis by modified pressure-calimeter method. *Soil Sci. Soc. Am. J.* 66:299-305.
- Shaver, T.M., Peterson, G.A., Ahuja, L.R., Westfall, D.G., Sherrod, L.A., and Dunn, G. 2002. Surface soil physical properties after twelve years of dryland no-till management. *Soil Sci. Soc. Am. J.* 66:1296-1303.
- Ortega, R.A., Peterson, G.A., and Westfall, D.G. 2002. Residue accumulation and changes in soil organic matter as affected by cropping intensity in no-till dryland agroecosystems. *Agron. J.* 94:944-954.
- Halvorson, A.D., Peterson, G.A., and Reule, C.A. 2002. Tillage system and crop rotation effects on dryland crop yields and soil carbon in the Central Great Plains. *Agron. J.* 94:1429-1436.
- Frey, S.D., Elliott, E.T., Paustian, K. and Peterson, G.A. 2000. Fungal translocation as a mechanism for soil nitrogen inputs to surface residue decomposition in a no-tillage agroecosystem. *Soil Biol. and Biochem.* 32:689-698.
- Farahani, H.J., Buchleiter, G.W., Ahuja, L.R., Peterson, G.A., and Sherrod, LA. 1999. Seasonal evaluation of the root zone water quality model in Colorado. *Agron. J.* 91:212-219.
- Ma, L., Peterson, G.A., Ahuja, L.R., Sherrod, L., Shafer, M.J., and Rojas, K.W. 1999. Decomposition of surface crop residues in long-term studies of dryland agroecosystems. *Agron. J.* 91:401-409.
- Rodriguez, J.B., Self, J.R., Peterson, G.A. and Westfall, D.G. 1999. Sodium bicarbonate-DTPA test for macro- and micro-nutrient elements in soils. *Comm. Soil Sci. Plant Anal.* 30:957- 970.
- Bradford, J.M. and Peterson, G.A. 1999. Conservation Tillage. p. G247-G270 In: M.E. Sumner (ed.) *Handbook of Soil Science*. CRC Press, Boca Raton, FL.
- Power, J.F. and Peterson, G.A. 1998. Nitrogen transformations, utilization, and conservation as affected by fallow tillage method. *Soil and Tillage Res.* 49:37-47.
- Peterson, G.A., Halvorson, A.D., Havlin, J.L., Jones, O.R., D.J. Lyon, and Tanaka, D.L. 1998. Reduced tillage and increasing cropping intensity in the Great Plains conserves soil carbon. *Soil and Tillage Res.* 47:207-218.
- Farahani, H.J., Peterson, G.A., and Westfall, D.G. 1998. Dryland cropping intensification: A fundamental solution to efficient use of precipitation. *Advances in Agron.* 64:197-223.
- Farahani, H.J., Peterson, G.A., Westfall, D.G., and Ahuja, L.R. 1998. Soil water storage in dryland cropping systems: The significance of cropping intensification. *Soil Sci. Soc. Am. J.* 62:984-991.
- Kolberg, R.L., Roupett, B., Westfall, D.G., and Peterson G.A. 1997. Evaluation of an in situ net nitrogen mineralization method in dryland agroecosystems. *Soil Sci. Soc. Am. J.* 61:504-508.
- McGee, E. A., Peterson, G.A., and Westfall, D.G. 1997. Water storage efficiency in no-till dryland cropping systems. *J. Soil and Water Cons.* 52:131-136.
- Peterson, G.A., A.J. Schlegel, D.L. Tanaka, and O.R. Jones. 1996. Precipitation use efficiency as affected by cropping and tillage systems. *J. of Prod. Agric.* 9:180-186.

- Kolberg, R.L., Kitchen, N.R., Westfall, D.G., and Peterson, G.A. 1996. Cropping intensity and nitrogen management impact on dryland no-till rotations in the semiarid western Great Plains. *J. of Prod. Agric.* 9:517-522.
- Peterson, G.A., Westfall, D.G., and Cole, C.V. 1993. Agroecosystem approach to soil and crop management research. *Soil Sci. Soc. Am. J.* 57:1354-1360.
- Lamb, J.A., Peterson, G.A., and Fenster, C.R. 1985. Wheat fallow tillage system's effect on a newly cultivated grassland soils' nitrogen budget. *Soil Sci. Soc. Am. J.* 49:352-3560.

COURSES TAUGHT IN PAST

- SOCR 421 Crop and Soil Management = 4 cr. (Fall semester)
SOC321 Soils, Environment and Society = 3 cr. (Team taught with Ken Barbarick in Fall semester)

HONORS AND AWARDS

- ✓ Distinguished Teaching Award, University of Nebraska, 1973
- ✓ Ciba-Geigy Award, American Society of Agronomy, 1974
- ✓ Fellow American Society of Agronomy, 1982
- ✓ Fellow Soil Science Society of America, 1982
- ✓ Colorado State Agronomy Club "Outstanding Educator of the Year", 1985
- ✓ Soil Science Applied Research Award, Soil Science Society of America, 1987
- ✓ Research Team Award by Great Plains Agriculture Council, 1990
- ✓ Agronomic Achievement Award - Soils, American Society of Agronomy, 1990
- ✓ Colorado State Agronomy Club "Outstanding Educator of the Year", 1990
- ✓ Outstanding Educator Award - Rocky Mountain Plant Food Assn., 1992
- ✓ NACTA/Shepardson Outstanding Teaching Award, 1993
- ✓ Researcher of the Year Award - Fluid Fertilizer Foundation, 1996
- ✓ Gamma Sigma Delta Research Merit Award, 1999
- ✓ Colorado State Agronomy Club "Outstanding Educator of the Year" 2000
- ✓ Colorado State Agronomy Club "Outstanding Educator of the Year" 2003
- ✓ President Soil Science Society of America 2008
- ✓ Fellow Soil and Water Conservation Society 2008
- ✓ Past President Soil Science Society of America 2009
- ✓ Fellow American Association for the Advancement of Science (AAAS) 2010
- ✓ College of Agricultural Sciences Distinguished Career Award 2011
- ✓ Soil and Crop Sciences Legend Award 2011
- ✓ Soil Science Distinguished Service Award, Soil Science Society of America 2012
- ✓ Distinguished Service Award, American Society of Agronomy 2014

PERSONAL & FAMILY INFORMATION

"Pete" was born at Holdrege, Nebraska in 1940, and he grew up on a small, irrigated corn farm. His formative education was in a one room, one teacher school in Phelps County. Pete graduated from Holdrege High School, "The Dusters", in 1958. He earned his B.S. in Technical Agronomy and M.S. in Soil Fertility at the University of Nebraska and his Ph.D. in Soil Fertility at Iowa State University.

The first 17 years of Dr. Peterson's career were spent at the University of Nebraska teaching Introductory Soil Science, Soil Management, and Soil Chemistry Methods. His research in Nebraska was on soil fertility problems of wheat and sugar beet in cooperative efforts with Don Sander, Frank Anderson, and Louis Daigger. Pete's interest in no-till, water conservation, and soil organic matter was sparked by interactions with Prof. C.A. Fenster of the Panhandle Research Center at Scottsbluff Nebraska.

Pete moved to CSU in the summer of 1984, where he team-taught Crop and Soil Management with Jack Fenwick for over 12 years before becoming Dept. Head in 2003. He retired in August 2011. His research effort at CSU was in close partnership with Dr. Dwayne Westfall for 18 years. They initiated their Dryland Agroecosystem Project in fall 1985; its research goals were to: 1) increase overall precipitation use efficiency in dryland systems; 2) decrease soil erosion; and 3) reverse the long-term organic matter loss pattern that has accompanied conventional cropping practices in dryland areas.

Pete served as major professor for 20 M.S. and 18 Ph.D. students. Pete married Jackie Flick in 1965, and they have two daughters, Kerstin and Ingrid. Kerstin and her husband, Russ Bruxvoort, live in Fort Collins, and they have three children (Kyla, Jakob, and Seth). Ingrid and her husband David Bradley also live in Fort Collins, and they have two children (Annika and Andrew). Pete's most enjoyable life activities are teaching adult Sunday School and leading a small group at Faith Church in Fort Collins. Pete enjoyed his work so much that Jackie said his profession was his hobby! He enjoys weight lifting in an effort to keep fit. Pete also loves discussing his Swedish-Norwegian-Danish heritage and is a Past President of the Northern Colorado Swedish Heritage Society.