

Heather D. Karsten

Department of Plant Science, 116 ASI Building, The Pennsylvania State University,
University Park, PA 16802; hdk3@psu.edu; (814)-863-3179

Education

Cornell University, Ph.D. Agronomy, August, 1996.

Cornell University, M.S. Agronomy May, 1992

Massey University & AgResearch, New Zealand. Fulbright 1992- Feb.' 93.

Yale University B.S. Biology with Honors, May, 1989.

Professional Work Experience

Associate Professor, Crop & Soil Sciences. Pennsylvania State Univ. Jan. 1998-present.
70% Teaching and 30% Research appointment until 2010. In 2010, appointment revised
to 50% Teaching, 40% Research, 10% Extension, and. Developed six courses for new
Agroecology major & graduate students. Advise undergraduate students in the
Agroecology option, Agronomy minor, supervised 38 undergraduate internships, 3
Honors Student Theses, Primary advisor to 9 graduate students, Graduate committee
member for 21 other graduate students. Research focuses on agronomy, ecology, and
management of sustainable dairy cropping systems, grazing systems, pasture plants,
agroecosystems, and experiential learning.

Post-doctoral research, Utah State Univ., with Dr. Jennifer MacAdam. July 1996 –
Dec.1997.

Courses Taught at Pennsylvania State University

- Sustainable Agriculture Science and Policy (AGECO 134, 3 credits)
- Principles and Practices of Organic Agriculture (AGECO 144, 3 credits)
- Principles of Crop Management (AGRO 28, 3 credits)
- Emerging Issues in the Plant Sciences (PLANT 461, 3 credits)
- Integrated Crop Management (AGECO 461, 3 credits)
- Ecology of Agricultural Systems (AGRO 510, 3 credits)
- Agroecosystem Science Colloquium (AGESS 490, 1 credit)
- Strategies for Sustainability: Case Studies from Peru (AGECO 497H, 2 credits)
- Peru Field Study Tour (AGECO 497D/ANTHRO 497D, 1 credit)
- Supervised Experience in College Teaching (AGRO 602, 2 credits)
- Agroecology Summer Field Course, Invited co-instructor with Faculty from Iowa State
University, University of Minnesota, University of Nebraska, University of Wisconsin,
University of Washington, & Dordt College. Aug. 2-9, 2002

Publications

Amin, M.G. M. T. Veith, J. Shortle; H. D. Karsten, and P. J.A. Kleinman. 2019.
Addressing the spatial disconnect between national-scale total maximum daily loads and
localized land management decisions. J. Environ. Qual. doi: 10.2134/jeq2019.03.0120

Reed, H.K., H. D. Karsten, W. S. Curran, J.F. Tooker and S. W. Duiker. 2019. Planting
Green Effects on Corn and Soybean Production. Agron. J. 111:1-12.
doi:10.2134/agronj2018.11.0711

Milliron, R.A., H. D. Karsten, and D. B. Beegle. 2019. Influence of Dairy Slurry Manure Application Method, Fall Application-Timing, and Winter Rye Management on Nitrogen Conservation. *Agron. J.* 111:1–15. doi:10.2134/agronj2017.12.0743

Jahanzad, E., L. S. Saporito, H.D. Karsten and P. J.A. Kleinman. 2019. Varying Influence of Dairy Manure Injection on Phosphorus Loss in Runoff over Four Years *J. Environ. Qual.* doi:10.2134/jeq2018.05.0206

Miller, D. J., Chai, J., Guo, F., Dell, C. J., Karsten, H., & Hastings, M. G. 2018. Isotopic composition of in situ soil NO_x emissions in manure-fertilized cropland. *Geophysical Research Letters*, 45, 12,058–12,066. <https://doi.org/10.1029/2018GL079619>

Amin, M. G., H. D. Karsten, T. L. Veith, D. B. Beegle, P. J. Kleinman, 2018. Conservation dairy farming impact on water quality in a karst watershed in northeastern US. *Agricultural Systems*. 165: 187-196. <https://doi.org/10.1016/j.agry.2018.06.010>

Prasad, R. S. K. Gunn, C.A. Rotz, H.D.Karsten, G, Roth 2018. A. Buda, A. M. K. Stoner. Projected climate and agronomic implications for corn production in the Northeastern United States. *PLOSone* <https://doi.org/10.1371/journal.pone.0198623>

Amin , M.G. Mostofa, T. L. Veith, A. S. Collick, H. D. Karsten, A. R. Buda. 2016. Simulating hydrological and nonpoint source pollution processes in a karst watershed: A variable source area hydrology model evaluation. *Agricultural Water Management*. 180.B:212-223. <http://dx.doi.org/10.1016/j.agwat.2016.07.011>

Snyder, E. M. and H. D. Karsten, and W. S. Curran, G. M. Malcolm, and J. A. Hyde. 2016. Green Manure Comparison between Winter Wheat and Corn: Weeds, Yields and Economics. 2016. *Agronomy J.* 108:1-11. Doi: 10.2134/agronj2016.02.0084.

Snyder, E. M. and W. S. Curran, H. D. Karsten, G. M. Malcolm, S. W. Duiker, and J. A. Hyde. 2016. Assessment of an Integrated Weed Management System in No-Till Soybean and Corn. *Weed Science*. 64:712-726. Doi.org/10.1614/WS-D-00021.1

Amin M. G. and Tamie L. Veith, Amy S. Collick, Heather D. Karsten, Anthony R. Buda. 2016. Simulating hydrological and nonpoint source pollution processes in a karst watershed: A variable source area hydrology model evaluation. *Agricultural Water Management*. <http://dx.doi.org/10.1016/j.agwat.2016.07.011>.

Malcolm, G.M., G.G.T. Camargo, V. A. Ishler, T.L. Richard, and H.D. Karsten. 2015. Energy and Greenhouse Gas Analysis of Northeast US Dairy Cropping Systems. *Agriculture, Ecosystems, and Environment*. 199: 407417.

Karsten, H.D., 2015. Planning Crop Rotations. *Organic Crop Rotation Design*. In Penn State Organic Crop Production Guide. The Pennsylvania State University.

- Sanchez, E.S. and H.D. Karsten. 2011. Development and Evaluation of a Training Program on Whole Farm Nutrient Planning for Organic Farms. HortTechnology
- Barbercheck, M., N. Kiernan, A. G. Hulting S. Duiker, J. Hyde, H.D. Karsten, and E. Sanchez. 2011. Meeting the ‘Multi’-Requirements in Organic Agriculture Research; Successes, Challenges, and Recommendations for Multifunctional, Multidisciplinary Participatory Projects. doi:10.1017/S1742170511000214
- Karsten, H.D., P. H. Patterson, R. Stout, and G. Crews. 2010. Vitamins A, E, and Fatty Acid Composition of the Eggs of Caged and Pastured Hens. *Renewable Agriculture and Food Systems* 25(1):45-54.
- Grover, K. K., H. D. Karsten, and G. W. Roth. 2009. Corn Grain Yields and Yield Stability in Four Long-Term Cropping Systems. *Agronomy Journal* 101: 940–946
- Karsten, H.D. and D. J. Baer. 2009. Grass and Human Nutrition. *In* *Grassland: Quietness and Strength for a New American Agriculture*. Ed. Walter F. Wedin and Steven L. Fales. ASA-CSSA-SSSA, Madison, WI.
- Rotz, C. A., H. D. Karsten, and R. D. Weaver. 2008. Grass-based Dairy Production Provides a Viable Option for Producing Organic Milk in Pennsylvania. *Forage and Grazinglands*. 19.1094/FG-2008-0212-01-RS.
- Rotz, C. A., G. H. Kamphuis, H. D. Karsten, and R. D. Weaver. 2007. Organic Dairy Production Systems in Pennsylvania: A Case Study Evaluation. *J. Dairy Sci.* 90:3961-3979.
- Clark, A., H. D. Karsten, W. M. Murphy, and B. F. Tracy. 2006. Ecology of Plant Communities in Forage-Livestock Systems. Chapter 2. p.10-31. *In* *Forage Production for Pasture-Based Livestock Production*. Ed. Edward B. Rayburn. NRAES- 172. Ithaca, NY.
- Zhai, T., R. Mohtar, H.D. Karsten, and M. Carlassare. 2004. Modeling Growth and Competition of Multi-Species Pasture System. *American Society of Agricultural Engineering*, 47(2):617-27.
- Myers, M, W. S. Curran, M. J. VanGessel, D. D. Calvin, D. A. Mortensen, B. A Majek, H. D. Karsten, and G. W. Roth. 2004. Predicting Weed Emergence for Eight Annual Species in the Northeastern United States. *Weed Science*. 52:913-19.
- Karsten, H.D. and M. Risius. 2003. Development of an Interdisciplinary Agroecology Major with Input from Surveys of Students, Graduates, and Employers. *NACTA*, March 2003: 58-64.
- Carnes, L. M. and H. D. Karsten. 2003. Building Diverse Community Networks for Sustainable Food Systems: Guiding Philosophies of The Pennsylvania Association For Sustainable Agriculture. *American Journal of Alternative Agriculture*. Vol. 4: 174-184.

Carlassare, M. C. and H. D. Karsten. 2003. Species Population Dynamics in a Mixed Pasture under Two Rotational Grazing Regimes. *Agronomy Journal*. 85: 844-854.

Karsten, H. D., G. W. Roth, and L.D. Muller. 2003. Evaluation of Corn Hybrids at Two Stages of Development for Cattle Grazing. *Agronomy Journal*. 95:870-877.

Carlassare, M. and H.D. Karsten. 2002. Species Contribution to Seasonal Productivity of a Mixed Pasture under Two Sward Grazing Height Regimes. *Agronomy Journal*.94:840-50.

Karsten, H.D., and M. Carlassare. 2002. Describing the Botanical Composition of a Mixed Species Northeastern U.S. Pasture Rotationally-grazed by Cattle. *Crop Science*. 42:882-889

Karsten, H. D. and R. E. O'Connor. 2002. Lessons Learned from Teaching an Interdisciplinary Undergraduate Course on Sustainable Agriculture Science and Policy J. *Natural Resources & Life Sciences Education*. 31:111-116.

Karsten, H.D. and J. W. MacAdam. 2001. Effect of Autumn Drought Conditions on Growth, Carbohydrate Use, and Soil Moisture Use of Irrigated Perennial Ryegrass, Tall Fescue, and White Clover in the Semiarid Intermountain West. *Crop Science*. 41:156-166

Karsten, H.D. and G.W. Fick. 1999. Seasonal Growth of White Clover in a Rotationally-Stocked Dairy Pasture in New York. *Grass and Forage Science* 54:174 – 183.

Publications Forthcoming:

Binder, J, H.D. Karsten, D.D. Beegle, and C. Dell. Accepted with revisions. Fall manure and rye management effects dairy forage production, applied nutrient recovery, and subsequent corn silage yield. *Agronomy Journal*.

A. K. Busch, M. R. Douglas, G.M. Malcolm, H. D. Karsten, and J. F. Tooker. Accepted with revisions. A high-diversity/IPM cropping system fosters beneficial arthropod populations, limits invertebrate pests, and produces competitive corn yields. *Agriculture, Ecosystems and Environment*.

Recent Published Oral Presentations and Invited Talks (*)

Karsten, H. D., Beegle, D. B., Ishler, V., Malcolm, G., Curran, W., Richard, T. L., Tooker, J. F., Dell, C. , Kleinman, P., Jahanzad, E., Sutradhar, A. (November 6, 2018). "Conservation Strategies and Closing the Nutrient Cycle Enhance Dairy Farming System Performance," ASA, CSSA, SSA Annual Meeting, ASA, CSSA, SSA Annual Meeting, Baltimore, MD, published in proceedings, Accepted

Karsten*, H. D., Beegle, D. B., Curran, W., Tooker, J. F., Dell, C. Kleinman, P., Ishler, V., Bruns, M. V., Hoover, R., Jahanzad, E., Sutradhar, A., Malcolm, G. (March 14, 2018 - March 15, 2018). "Climate Change Adaptation Strategies for Dairy Cropping Systems," NE Climate Hub Partners Meeting, NE Climate Hub Partners, published in proceedings, Invited. Regional.

Myer, H., Karsten, H. D., Curran, W., Tooker, J. F., Duiker, S. W. (October 24, 2017). "Planting Green: Delayed Cover Crop Termination as a Tool for Soil Conservation, Water Management, and IPM," ASA, CSA, SSSA Annual Meeting. Oct. 22-25, Tampa, FL.

Binder, J., Karsten, H. D., Beegle, D. B., , Dell, C. J. (November 5, 2018). "Cereal rye management to reduce nutrient pollution from dairy cropping systems," Annual ASA and CSSA conference, ASA and CSSA, Baltimore, MD, published in proceedings, Accepted. National

Williamson, J., Karsten, H. D., Soder, K. (October 23, 2017). "Integrating Ruminant Livestock and Cropping Systems: Strategies to Balance Agricultural Productivity and Environmental Quality for Sustainable Intensification," ASA, CSA, SSSA Annual Meeting. Oct. 22-25, Tampa, FL, published in proceedings, Invited.

McTish, S., Elkin, K., Karsten, H. D., Tooker, J. F. (November 11, 2018). "Neonicotinoids in the environment: A step towards solving the mass-balance equation," 2018 ESA, ESC, and ESBC Joint Annual Meeting, ESA, ESC, and ESBC, Vancouver, BC Canada, published in proceedings, Accepted. National.

Karsten*, H. D. (March 31, 2017). "Closing the Nutrient Loop with Diverse Dairy Cropping Systems," Cropping Systems Symposium, PSU SAWG, University Park, PA,

Karsten*, H. D. (November 4, 2016). "Comparing Red clover, and Hairy Vetch/Triticale mixture as green manures between winter wheat and corn," Northeast Cover Crop Council, Big Flats, NY.

Karsten*, H. D., Beegle, D. B., (July 19, 2016). "Advancing sustainable cropping systems for dairy in the Northeast," US Soil Analytical Testing Laboratories Annual Meeting Field Tour. Agronomy Research Farm, Rock Springs.

Myer, H., Karsten, H. D., and J. Tooker. (January 22, 2016). "Research Update on Planting Green". PA Agronomic Education Society. Annual Conference. The Penn Stater, University Park, PA.

Karsten, H. D. G. Malcolm, D. Beegle, W. Curran, C. Dell, R. Hoover, V. Ishler, P. Kleinman, T. Richard, and J. Tooker. 2015. Evaluation of Integrated Diverse Dairy Cropping Systems Designed to Promote Ecosystem Services. 353-7. ASA, CSSA, SSA Annual Meeting. Minneapolis, MN, Nov. 15-18, 2015. published in proceedings,

Karsten*, H. D., Beegle, D. B., Curran, W., Richard, T. L. (August 10, 2015). "Advancing sustainable cropping systems for dairy in the Northeast," College of Agricultural Sciences Council Sparks Circle Tour, CAS PSU, Agronomy Research Farm, Rock Springs.

Amin, M. G., Veith, T., Karsten, H. D., Collick, A. S. (July 2015). "Best management practices for reducing nutrient loads in a sub-watershed of Chesapeake Bay area," ASABE International Meeting, ASABE, New Orleans, LA.

Karsten*, H. D. (March 27, 2015). "Planting Green: Getting the Most from Cover Crops," Triad Symposium, PSU SAWG, University Park, PA.

Karsten, H. D*. (February 10, 2015). "GMO's and Food Labeling legislation," Jefferson County Annual PSU Cooperative Extension Board, PSU Cooperative Extension.

Karsten*, H. D., Beegle, D. B., Curran, W., Tooker, J. F., Malcolm, G., Richard, T. L., Dell, C. (ARS USDA). (December 3, 2014). "Penn State's Diversified Dairy Farm Cropping Systems Research; Lessons Learned," Northeast Region Certified Crop Advisor Training Conference, Northeast Region Certified Crop Advisor Association and Cornell Cooperative Extension, Syracuse, NY.

Karsten*, H. D., Beegle, D. B., Curran, W., Malcolm, G. (November 3, 2014). "PSU Diversified Dairy Cropping Systems," Centre County Watershed Summit, ENRI CAS PSU, Nittany Lion Inn, PA.

Karsten*, H. D. (September 25, 2014). "GMOs and Food Labeling Legislation," CMEG In-service, PSU Cooperative Extension, University Park.

Karsten, H. D. (July 1, 2014). "Lessons Learned from the PSU Diversified Dairy Cropping Systems Project," Field Day, Our Grant from NESARE and PSU, Agronomy Research Farm.

Karsten*, H. D. (June 26, 2014). "GMOs and Food Labeling Legislation," Farming for Success Field Day Landisville, PSU, Landisville.

Karsten. H. D*. 2011. Investigating Strategies for Sustainable Cropping Systems. Rutgers University Department of Plant Biology and Plant Pathology Spring Seminar Series & Graduate Course. March 4, 2011

Karsten. H. D*. 2011. Investigating Strategies for Sustainable Cropping Systems. Horticulture Dept. Penn State University Spring Seminar Series. March 30, 2011

Karsten, H. D. *, D. Hansen, S. Morse. 2009. What are we teaching our students? Are they adequately prepared? Plenary Session, Educator Panel. NEBCSA Meetings, Portland, ME. July 12-14, 2009. Pennsylvania Association of Sustainable Agriculture Annual Conference.

Karsten, H.D. * 2002. Pasture Plants, Grazing Systems, and Agroecology. Penn State University Horticulture Seminar Series, and Horticulture 590 Graduate Colloquium. Dec.9,

Karsten, H.D.* 2001. Grazing Systems Research: Because the Grass could be Greener on This Side of the Fence. Dairy and Animal Science Invited Seminar Speaker, March 30, 2001

Selected Scientific Poster Presentations

Summers, H. (PSU), Curran, W., Karsten, H. D. (November 6, 2018). "Long-Term Effects of Reduced Herbicide Management in a No-Till Dairy Cropping System," Annual ASA and CSSA conference, ASA and CSSA, Baltimore, MD, published in proceedings.

Castano-Sanchez, J. P. (PSU), Rotz, C. Alan (ARS USDA), Karsten, H. D. (November 5, 2018). "Elevated atmospheric CO₂ effects on dairy crops in the Northeast US: comparing IFSM, Cropsyst and DSSAT models to FACE data," Annual ASA and CSSA conference, ASA and CSSA, Baltimore, MD, published in proceedings.

Sutradhar, A., Karsten, H. D., Beegle, D. B., Jahanzad, E., Malcolm, G. (PSU). (January 10, 2018). "Dairy Manure Application Frequency and Crop Rotations Influence Off-Farm Fertilizer Needs and Soil Fertility Balance," Northeast Plant Pest and Soil Conference, NE Weed Science Society and NE ASHS, Philadelphia, PA, published in proceedings.

Bruns, M. V., Dell, C. J., Karsten, H. D., Bhowmik, A., Regan, J. M. (December 14, 2017). "Nitrogen Cycling Considerations for Low-Disturbance, High-Carbon Soil Management in Climate-Adaptive Agriculture," AGU (American Geophysical Union) Fall Meeting 11-15, Dec., New Orleans, LA.

McTish, S., Karsten, H. D., Tooker, J. F. (November 6, 2017). "Quantifying neonicotinoid runoff from agricultural fields into nearby aquatic systems," Entomology Society of America Nov. 5-8, Denver, CO.

Prasad, R., Stephankpoti, G., Rotz, C. A., Roth, G. W., Karsten, H. D., Stoner, A. (October 25, 2017). "Ensemble Climate and Crop Model Predictions of Maize Yield in the Northeast U.S. to the End of the 21st Century for Two Contrasting Greenhouse Gas Emission Pathways.," ASA, CSA, SSSA Annual Meeting. Oct. 22-25, Tampa, FL.

Ball, E., Cloutier, A., Karsten, H. D., Bruns, M. V. (October 24, 2017). "Soil redox potential and carbon fractions in manured and cover-cropped soils under reduced tillage," ASA, CSA, SSSA Annual Meeting. Oct. 22-25, Tampa, FL.

Ponce de Leon, M. A., Dell, C. J., Karsten, H. D. (November 9, 2016). "Factors Contributing to Nitrous Oxide Emissions from Soil Planted to Corn in No till Dairy Crop Rotations," Proceedings ASA, CSA, SSA, ASA, CSA, SSA, Phoenix, AZ, published in proceedings.

Jahanzad, E. (PSU), Saporito, L. S., Karsten, H. D., Kleinman, P. J., Beegle, D. B. (November 8, 2016). "Injecting Manure May Reduce Phosphorus Runoff Compared to Broadcast Application in No-till Corn Fields.," Proceedings ASA, CSA, SSA, ASA, CSA, SSA, Phoenix, AZ, published in proceedings.

Myer, H., Karsten, H. D., Tooker, J. F., Curran, W. (November 17, 2015). "Cover Crop Termination Timing Effect on Soil and Water Conservation, Slugs, and Yield in Pennsylvania No-till Corn and Soybean," ASA, CSSA, SSA Annual Meeting, ASA, CSSA, SSA Annual Meeting, Minneapolis, MN, published in proceedings.

Ponce de Leon, M. A., Karsten, H. D., Dell, C. (ARS USDA). (November 17, 2015). "Temporal Analysis of Nitrous Oxide Emissions from a Pennsylvania No-till Dairy Cropping System," ASA, CSSA, SSA Annual Meeting, ASA, CSSA, SSA Annual Meeting, Minneapolis, MN, published in proceedings.

- Milliron, R. (PSU), Karsten, H. D., Beegle, D. B., Curran, W. (November 16, 2015). "Impacts of Fall Manure Application Method and Timing on Nitrogen Conservation for Winter Annual and Subsequent Corn Crops," ASA, CSSA, SSA Annual Meeting, ASA, CSSA, SSA Annual Meeting, Minneapolis, MN, published in proceedings.
- Haider, K., G. M. Malcolm, R. T. Koide, and H. D. Karsten. 2013. Effects of Cropping System Management on Arbuscular Mycorrhizal Fungi 153-14. ASA, CSSA, SSA, Nov. 4-7, 2012, Tampa, FL.
- Karsten, H.D., W. Verbeten, G. Malcolm, M. Douglas and J. Tooker. 2012. No-till Establishment of Alfalfa and Canola and Slug Herbivory. Proc. Amer. Soc. Agron. 337-25.
- Snyder, E., H. D. Karsten, W. Curran and G. Malcolm 2012. Reducing Herbicide Use in a No-till Dairy Cropping System. Proc. Amer. Soc. Agron. 200-9.
- Malcolm, G. M., G. Camargo, T.L. Richard and H. Karsten. 2012. Energetic Analysis of a Diverse Dairy Operation, Producing Fuel, Feed, and Forage as Compared to a Typical Dairy Operation of the Same Size. Proc. Amer. Soc. Agron. 187-11.
- Karsten, H.D., G. M. Malcolm, D. Beegle, W. Curran, C. Dell. P. Kleinman, T. Richard, V. Ishler, J Tooker and R. Hoover. 2011. Integrating Winter Canola Into Dairy Crop Rotations. Annual ASA, CSSA, SSSA Meetings. Oct. 16-19, 2011. San Antonio, TX. Abstract # 65533.
- Malcolm, G.M. Karsten, H.,D. Beegle, W. Curran, C. Dell. P. Kleinman, T. Richard, V. Ishler, J Tooker and R. Hoover. 2011. Evaluating Dairy Cropping Systems Designed to Produce All Forage, Feed, and Fuel. Annual ASA, CSSA, SSSA Meetings. Oct. 16-19, 2011. San Antonio, TX. Abstract # 65526.
- Karsten, H.D. K. Bullington, N.E. Kiernan. 2008. Survey of US Student Teaching Farms and their Educational Value. In Annual meetings abstracts [CD-ROM]. ASA, CSSA, and SSSA, Madison, WI. 5-9 Oct. 2008, Houston, TX. 530-4
- Grover, K. H. D. Karsten, G. Roth, and M. Risius. 2008. Long-term Effects of Cropping Systems on Corn Grain Yields. In Annual meetings abstracts [CD-ROM]. ASA, CSSA, and SSSA, Madison, WI. Nov. 4-8. New Orleans, LA. 65-10.
- Lassen, A., H. D. Karsten, and, D. D. Archibald. 2008. Comparison of Fatty Acids in Ground Beef from Cattle Fed on Pasture or Stored Feed. In Annual meetings abstracts. ASA, CSSA, and SSSA, Madison, WI. Nov. 4-8. New Orleans, LA. 270-8.
- Lassen, A., H.D. Karsten, and D. D. Archibald. 2007. Comparison of Fat-Soluble Vitamin Levels in Ground Beef from Cattle Finished on Pasture or Stored Feeds. Annual Meeting, American Society of Agronomy Northeastern Branch, June 24-26, 2007. University Park, PA. pg. 65

Karsten H. D. and C. Hinrichs. 2006. "Integrating the Natural & Social Sciences in a "Sustainable Agriculture Science & Policy" Course" Facilitating Sustainable Agriculture Participatory National Conference on Post- Secondary Education, January 24-25, 2006, Asilomar Conference Grounds, California.

Karsten, H.D. and M. Carlassare. 2005. Forage Quality of Cool Season Pasture Species Under Two Rotational Grazing Height Regimes. XX International Grassland Congress. Dublin, Ireland. June-July 2005.

Karsten, H. D., P.H. Patterson, G.W. Crews and R.C. Stout. 2003. Impact of Three Pasture Species and Commercial Mash Diets on Pastured and Commercial Caged Layer Hens' Eggs: Omega-3 Fat, Vitamin A and E content. *In* NEBASA Abstracts 2003. Burlington, VT.

Karsten, H.D., G.L. Crews, R.C. Stout and P.H. Patterson. 2003. The Impact of Outdoor Coop Housing and Forage Based Diets vs. Cage Housing and Mash Diets on Hen Performance, Egg Composition and Quality. International Poultry Science Forum, Jan. 20-21, 2003 Atlanta, GA

Karsten, H. D., P.H. Patterson, G.W. Crews and R.C. Stout. 2003. Impact of Three Pasture Species and Commercial Mash Diets on Pastured and Commercial Caged Layer Hens' Eggs: Omega-3 Fat, Vitamin A and E content. *In* Annual Proceedings of the Pennsylvania Forage and Grassland Council. March 5-6, 2001, Grantville, PA.

Butler, K. L. and H. D. Karsten. 2002. Peer Possibilities: Undergraduate Teaching Assistants for Introductory Agronomy and Soils courses. *In* Agronomy Abstracts. ASA, CSSA, SSA, Indianapolis, Nov. 10-14. A01-butler163815-P.

Seconi, E. M. and H. D. Karsten. 2002. Effect of Pasture Species Composition and Fatty Acid Content on Milk Fat Composition of Grazing Dairy Cattle. *In* Agronomy Abstracts. ASA, CSSA, SSA, Indianapolis, Nov. 10-14. C06-seconi164209-O.

Seconi, E. M. and H. D. Karsten. 2002. Possible Predictors of Linoleic and Linolenic Acid Content in Cool Season Pasture Plants. *In* 2001 NEBASA Abstracts. ASA, Morgantown, WV. p.3.

Seconi, E.M. & H. D. Karsten. 2001. Factors Influencing Linolenic and Linoleic Acid Concentrations in Cool Season Pasture Species. *In* Agronomy Abstracts. ASA, CSSA, SSA, October 21-25. Charlotte, NC. #C06-seconi62354-P.

Karsten, H. D., L. Kalwasinski, E. Seconi, and W.S. Smiles 2001. Comparing Pasture Plants for Fatty Acid Composition for Healthy Ruminant Fat Production. *In* Annual Proceedings of the Pennsylvania Forage and Grassland Council. February 28- March 1, 2001, Grantville,, PA.

Karsten, H.D.* 2001. "Low Cost, High Impact Strategies in the Classroom" Northeast Region Teaching Workshop. Northeast Regional Teaching Workshop. Beyond the Borders: Expanding Agricultural Curricula. Sept. 27-29, 2001. State College, PA.

Karsten, H. D. and L. A. Kalwasinski. 2000. Fatty Acid Composition of Cool Season Pasture Plant Species. *In* Agronomy Abstracts. ASA, CSSA, SSSA, November 5-9, 2000. Minneapolis, MN. p. 178.

Karsten, H.D. and S.L. Fales. 2000. Comparison of White Clover Cultivars with Cool Season Grasses in Pennsylvania. *In* American Forage and Grassland Conference. Madison, WI, 16-19, July 2000. University of Wisconsin.

Carlassare, M. and Karsten, H.D. 2000. Pasture Species Persistence and Productivity Under Two Grazing Intensities. *In* Abstracts of Northeast Branch of the American Society of Agronomy and Soil Science Society. Newark, 18-21, July 2000. University of Delaware, Newark, DE.

Karsten, H. D., G. W. Roth, and L. D. Muller. 2000. Evaluation of Four Corn Hybrids Under Grazing. *In* Annual Proceedings Pennsylvania Forage and Grassland Council. March 1-2, 2000, Grantville, PA.

Carlassare, M. and H. D. Karsten. 2000. Effect of Grazing Intensity and Pasture Species on Forage Production in a Mixed Pennsylvania Pasture. Poster and abstract presented: *In* Annual Proceedings Pennsylvania Forage and Grassland Council. March 1-2, 2000, Grantville, PA.

Karsten, H. D., G.W. Roth, and L. D. Muller. 1999. Evaluation of Maize Hybrids for Grazing. 1999. *In* Agronomy Abstracts, ASA, CSS, SSS, Oct. 31- Nov. 4, 1999, Salt Lake City, UT.

Karsten, H. D., G. W. Roth, and L. D. Muller. 1999. Maize Hybrids under Grazing. *In* Abstracts of Northeastern Branch of the American Society of Agronomy and Soil Science Society of America. Guelph, 11-14 July 1999. University of Guelph, ON, Canada.

Karsten, H. D., G. W. Roth, and L. D. Muller. 1999. "Grazing Maize, Passing Phase or New Craze?" Northeast Corn Improvement Conference, February 12, 1999. Penn State University.

Carlassare, M. and H. D. Karsten. 1999. Botanical Composition of a Mixed Pasture Under Two Grazing Intensities. *In* Abstracts of Northeastern Branch of the American Society of Agronomy and Soil Science Society of America. Guelph, 11-14 July 1999. University of Guelph, ON, Canada.

Karsten, H.D. and Carlassare, M. 1999. Effect of Two Grazing Intensities on a Pennsylvania Mixed Pasture. *In* Agronomy Abstracts, ASA, CSS, SSS, Oct. 31- Nov. 4, 1999, Salt Lake City, UT.

Carlassare, M. and H. D. Karsten. 1999. Species Contribution to Seasonal Forage Production in a Mixed Pennsylvania Pasture. *In* Agronomy Abstracts, ASA, CSS, SSS, Oct. 31- Nov. 4, 1999, Salt Lake City, UT.

Karsten, H. D., G. W. Roth, and L. D. Muller. 1999. Evaluation of Four Corn Hybrids Under Grazing to Supply Summer Forage. *In* Annual Proceedings of the Pennsylvania Grazing and Forage Council. March 3-4, 1999.

Carlassare, M. and H.D. Karsten. 1999. Effect of grazing intensity on botanical composition and forage production of a mixed pasture. *In* Annual Proceedings of the Pennsylvania Grazing and Forage Council. Grantville, PA. March 3-4, 1999.

Carlassare, M. and H. D. Karsten. 1999. Comparison of two grazing managements for a mixed pasture. Working Group on Pasture Ecology Newsletter. Issue 43, May 1999. p. 16-18. Institute of Grassland and Environmental Research.

Carlassare, M. and H.D. Karsten. 1998. Influence of management intensive grazing on orchardgrass growth and forage production in a Pennsylvania pasture. *In* Agronomy Abstracts, ASA, CSS, SSS, October 18-21, 1998. Baltimore, MD. p. 112.

Grants Received

“Nitrite Ammonification in Manures and Soils Under Adaptive Management for Climate Change”. MA. Bruns, J. Regan, H. D. Karsten, C. Dell. AFRI ANRCVC. \$564,208. 4/2016-3/2019.

"Nitrous Oxide Consumption in Soils under Adaptive Management to Climate Change," MA. Bruns, A Bhowmik, H. D. Karsten, USDA National Institute of Food and Agriculture, Federal Agencies. \$288,920.00. 04/2018 to 03/2020

"Carbon gaps, nitrogen bulges, and phosphorus imbalances: In search of sustainable soil organic matter management," C.M. White, A. Kemanian, H.D. Karsten, R. Milliron, Z. Larson, A Busch, L. Ressler, L Leonard, D. Wilson, J. Graybill. NESARE USDA, Federal Agencies. \$199,945.00, 07/2018 to 06/2021

“Advancing Sustainable Cropping Systems for Dairy Farms in the Northeastern US” USDA NESARE Agroecosystems. H. D. Karsten (P.I.) T. Beck, D. Beegle, M. Bruns, W. Curran, C. Dell, L. Holden, V. Ishler, E. Jahanzad, P. Kleinman, T. Richard, and J. Tooker. \$400,000. 9/2016-10/2019.

“Getting the most out of cover crops: how timing of termination influences soil health, pest control and improved crop production.” NESARE Research & Education. Heather D. Karsten (*Principal Investigator*), William Curran, Sjoerd Duiker, Ron Hoover, and Chris Houser, and John Tooker. \$222,044, 9/14 - 8/18.

“Sustainable Cropping Systems for Dairy Farms in the Northeastern US” Northeast SARE. USDA Agroecosystems. H. D. Karsten (P.I.) T. Beck, D. Beegle, W. Curran, C.

Dell, V. Ishler, P. Kleinman, G. Malcolm, T. Richard, and J. Tooker. \$400,000. 5/13-6/15.

“Sustainable Cropping Systems for Dairy Farms in the Northeastern US” Northeast SARE. USDA Agroecosystems. Heather D. Karsten (*Principal Investigator*), Craig Altomose, Doug Beegle, William Curran, Curtis Dell, Jeffery Hyde, Peter Kleinman, Roger Koide, Steven Mirsky, Thomas Richard, Rita Seidel, and John Tooker. \$400,000, 5/10-5/13

“Climate Change Mitigation and Adaptation in Dairy Production Systems of the Great Lakes Region” AFRI-CAP, Matthew Ruark (*Principal Investigator*), University of Wisconsin and 37 Co-PI’s from Univ. Wisconsin, Cornell, Univ. of Washington, Univ. of Michigan, Univ. of Arkansas, USDA-ARS North Atlantic and National Ag. Library, DOE Pacific Northwest Lab, Dairy Research Institute, and North Carolina A&T Univ., \$9,856,576 (PSU:\$833,074). 10/2012- 09/2017

“Center for Integrated Multi-Scale Nutrient Pollution Solutions” EPA. James Shortle, J. (PI), Douglas Beegle, Brian Bills, Joseph Bishop, Elizabeth Boyer, Robert Brooks, Christopher Duffy, Lara Fowler, Hannah Ingram, Armen Kemanian, Douglas Miller, Richard Ready, Thomas Richard, Matthew Royer, Susan Yetter; \$2,498, 267, 8/01/13 – 7/31/16

“Understanding and Designing Long-Term Resilience in the US Food System: the Role of Entrepreneurship and Innovation in Supporting Regional Food Networks (RFNs) Kathleen Liang (*Principal Investigator*), Tom Lyons, Heather Karsten, Daniel Hudson, Jurgen Schwarz, Sally Duncan, Sue Lurie, and Rob Fiegenger. \$499,787. 1/2013 – 1/2014. (awarded)

“Innovative Conservation Cropping Systems on Livestock Farms” Principal Investigator: Heather D. Karsten (*Principal Investigator*), Peter Kleinman, Douglas Beegle, Curtis Dell, Thomas Richard, William Curran, Ronald Hoover. USDA-NRCS CIG. \$223,927. 10/2009-9/2012.

“Without carrot or stick: Promoting BMPs on small dairy farms” Sjoerd Duiker (*Principal Investigator*), Heather D. Karsten, Charlie M. White, Ronald Hoover, Mena Hautau, Jeffery Graybill, Mark Madden, Paul Craig, David Hartman, John Rowehl, and Jonathan Rotz USDA-NRCS CIG, \$256,950. 9/2010 – 08/2013.

“Whole Farm Nutrient Planning for Organic Farms“. Northeast SARE. USDA. Elsa Sanchez (*Principal Investigator*), Heather D. Karsten, Thomas Richard, and Richard Stehower. \$160,000, 5/07-4/10.

“Compost Evaluation for Organic Nutrient Management.” Pennsylvania Vegetable Growers Association. Elsa Sanchez and Heather Karsten. \$8,500, 5/06-11/07.

"Organic Weed Management: Balancing Pest Management and Soil Quality in a Transitional System." USDA-CSREES. Integrated Pest Management-Organic Transitions. Mary E. Barbercheck (*Principal Investigator*), David Mortensen, Heather

Karsten, & Sjoerd W. Duiker, MaryEllen Kiernan, Jeffery Hyde, and Elsa Sanchez. \$516,23, 9/03-8/07.

"Experiential Agroecology Team Learning and Teaching in Living Classrooms." USDA Higher Education Challenge Grants Program. Heather Karsten (*Principal Investigator*), David Mortensen, MaryAnn Bruns, Barbara Pennypacker, Tracy Hoover, Shelby Fleischer, and William Lamont. \$94,328, 6/02-12/04.

"Soil Quality and Indicators of Sustainable Cropping Systems." Heather Karsten and Mary Barbercheck. College of Agricultural Sciences, Penn State Seed Grant 2002 Seed Grant, \$15,000, 5/03-6/03.

"Improving profitability of pasture-based dairy systems through improved grazing management and forage quality, supplementation, and value added milk." U.S.D.A. Dairy Profitability, Special Grant. Heather D. Karsten (*Principal Investigator*), Larry D. Muller, Dennis R. Buckmaster, Steven A. Ford, and Robert Roberts, \$124,566, 9/99 – 9/02.

"From field to food: enhancement of milk fatty acids for human health ". Three projects were combined into one with three *Co-Principal Investigators*: Douglas D. Archibald, Larry D. Muller, and Zhu Wu. Co-investigators: Heather D. Karsten, Robert F. Roberts, and A. Jud Heinrichs. College of Agricultural Sciences, Penn State Seed Grant 2000. \$30,000, 12/00-9/01, Our portion of the project received \$6,666.

"Developing and teaching Agroecosystem Science and Policy" AGESS 197 / PL SC 197. Heather D. Karsten, Robert O'Connor, and Laurie Drinkwater. Keystone 21 Mini-grant, Pennsylvania Food Systems, \$6,500, 5/98-8/98.

"Development of a new course Agroecosystem Science and Policy" AGESS 197 / PL SC 197. Heather D. Karsten and Robert O'Connor in Political Science. PSU Fund for Excellence in Learning and Teaching. \$3,600, 6/00-9/00.

"Developing case studies to teach Integrated Crop Management (AGESS 461)" H. D. Karsten (*Principal Investigator*) and Dr. Michael Saunders, Entomology. PSU Fund for Excellence in Learning and Teaching. \$3,000, 6/00-9/00.

Service

- 2019. Weed Ecology Faculty Position Search Committee
- 2017. Soil Fertility and Nutrient Management Faculty Position Search Committee
- 2017- present. Plant Science Dept. Seminar Committee,
- 2018- present Plant Science Dept Strategic Planning Committee
- 2016-present. Plant Science Dept. Teaching Assistant Appointment Committee
- 2015. Search Committee, Forage Extension Faculty Position
- 2015 Plant Science Dept Head Search Committee.
- 2013 Plant Science Tenure and Promotion Committee.
- 2014-2015. Student Farm and Minor in Sustainable Food Systems Steering Committee.
- 2011-present. Plant Sciences Curriculum Committee
- 2001-2015. Plant Science (2013-2015) and Crop & Soil Sciences Dept. (2001-2012), Undergraduate & Technical Programs Committee, Chair 2008-2010

- 2009-2011. College of Agricultural Sciences Student Activities Committee.
- 2008-2009. Crop & Soil Sciences Dept., Bioenergy Production Systems Faculty Position, Search Committee
- 2009-2015. Undergraduate Scholarships Awards Committee. Dept. of Plant Science (2013-2015), Crop and Soil Science Dept. (2008-2012).
- 2000-2011. Crop & Soil Sciences Dept., Greenhouse Users Committee
- 2011 Pittsburgh Public Middle School “Summer Dreamers” Penn State College of Agricultural Sciences Curriculum Coordinator
- 1998-2015 Agroecology Faculty, Agroecology Curriculum Revision Committee 2006
- 2004-2015. Schreyer Honors College Faculty Advisor
- 2005-2007. Student Teaching Farm Planning Committee, Chair
- 2003-2005. Crop and Soil Science Advisory Committee
- 2003-2007. Nominations and Elections Committee, College of Agriculture
- 2006. Sustainable Agriculture Education Association Implementation Sub-Committee
- 2006. Sustainable Agriculture Education Association 2007 Conference Steering Committee
- 2004. Dean of Undergraduate Education Search Committee
- 2004. Cropping Systems Search Committee, Chair
- 2002-2015. College of Agriculture, Sustainable Agriculture Working Group
- 2000-2004. School of Forestry, Goddard Chair, Advisory Committee
- 2004 Goddard Forum. Developing Sustainable Communities Conference, Sustainable Agriculture Committee
- 1998-2002. Crop & Soil Sciences Dept., Faculty, Staff & Student Affairs Committee Chair 2000-2002
- 2001. Crop & Soil Sciences Dept., Weed Ecologist Faculty Position Search Committee
- 1999-2003. Advisory Committee Interdepartmental Ecology Graduate Program
- 2002-2003. Computer Task Force, College of Agricultural Sciences
- 2002-2003. International Agricultural Undergraduate Minor Think Tank Committee
- 2002. Committee for Ag Progress Days 2002. Undergraduate Recruitment Exhibits
- 2000. Crop & Soil Sciences Dept., Greenhouse Manager Search Committee
- 1999-2000. Crop & Soil Sciences Dept., Maize Genetics Faculty Position Search Committee
- 1998-2001. Crop & Soil Sciences Dept., Seminar Committee
- 1999-2002. New Faculty & Staff Integration Committee Co-chair.

Honors

- AHS Extension Publication Award 2011 with co-author Elsa Sanchez. American Society for Horticultural Science.
- Northeast Branch American Society of Agronomy, Crop Science Society of America, Soil Science Society of America 2010 Teaching Award
- Community of Teaching Excellence Award 2003. College of Agricultural Sciences.
- Fulbright scholar at Massey University & AgResearch Grasslands, New Zealand, 1992/1993.
- Honor Society of Phi Kappa Phi, 1994
- Honor Society of Agriculture, Gamma Sigma Delta, 1991;
- Soil, Crop, & Atmospheric Sciences Grad Student Research Speaker Award 1991, 1993
- Affiliated Honors: Supervised and assisted graduate students with presentations that won Northeast Regional Graduate Student Speaker Award on four occasions. (Kulbhushan Grover won 1st place in 2007; Ellen Seconi, 1st place 2003, Maria Carlassare, 1st place in 2000, and 2nd place in 1999)

Other Relevant Skills/Experience

- Fluency in Spanish: Good
- Teaching Assistant for Tropical Agroecosystem Management, University of California Study Abroad Trimester in Costa Rica, 1996
- Teaching Assistant for Forage Crop Production, Cornell University

Record of Membership in Professional Societies

- American Society of Agronomy,
- Crop Science Society of America
- Soil Science Society of America
- Pennsylvania Forage and Grassland Council
- Pennsylvania Association of Sustainable Agriculture