

CURRICULUM VITAE

GOV. MSG. NO. 795

JONATHAN L. DEENIK, Ph.D.

CURRENT AFFILIATION

Specialist, Soil Fertility
Department of Tropical Plant and Soil Sciences
University of Hawaii at Manoa
Honolulu, Hawaii 96822, USA

Webpage: Soil Fertility and Soil Quality Specialist (<http://www.ctahr.hawaii.edu/deenik/>)

AFFILIATE FACULTY

9/2014 – present Graduate Faculty, Department of Natural Resources and Environmental Management, University of Hawaii at Mānoa
2013 – present Faculty, Global Environmental Science Program, School of Ocean, Earth Science and Technology, University of Hawaii at Mānoa
2011 – present Water Resources Research Center, University of Hawaii at Mānoa

PROFESSIONAL AFFILIATIONS

9/2014 – present Kealakekua MLRA Soil Survey Office Technical Team (NRCS)
2004 – present WERA-103 Multi-State nutrient management and water quality project.

OVERVIEW

As a Specialist in Soil Fertility, I have a three-way appointment consisting of 50% extension, 25% instruction and 25% research. Since my hire in August 2003, I have developed a strong extension and research program in soil nutrient management and soil quality. I conduct annual training workshops for extension agents and have been an invited speaker for numerous educational programs throughout the State and the Pacific Basin. I have developed an extensive statewide and international applied research program on soil fertility and soil amendments in wetland taro and intensive vegetable production systems, including a pure research program on the use of biochar to remediate infertile tropical soils. My work has expanded to include community health and nutrition and assumed an increasing systems approach through my leadership role in the Children's Healthy Living Program for Remote Underserved Minority Populations in the Pacific Region (CHL).

My extensive international experience (born in Colombia, raised in Panama, Belgium and Italy), fluency in five languages (French, Italian, Spanish, Nepalese, and Hawaiian), foundational degree in History and Art History, and six years working with the Peace Corps in Cameroon and Nepal inform, guide, and enhance my instruction and extension programs as a faculty member at the University of Hawaii. Growing up in Latin America and Europe taught me to appreciate cultural diversity and language from a very young age and gave me the opportunity to develop effective cross-cultural communication and living skills that form

the foundation of my current professional endeavors. Informed by my degree in History/Art History and five years as a Peace Corps volunteer, my research, instruction and extension activities are conceived and implemented with a deep appreciation for people's place in history and their cultural heritage. My professional activities address the challenges humans face in the 21st century such as food security and human and environmental health from biophysical and socio-cultural perspectives.

EDUCATION

PhD Soil Science, University of Hawaii at Manoa, Honolulu, HI.
 MS Soil Science, University of Hawaii at Manoa, Honolulu, HI.
 BA History and Art History, College of Wooster, Wooster OH.

EMPLOYMENT

08/2016 – present	Specialist	University of Hawaii at Manoa, Honolulu, HI
08/2008 – 07/2015	Associate Specialist	University of Hawaii at Manoa, Honolulu, HI
08/2003 – 7/2008	Assistant Specialist	University of Hawaii at Manoa, Honolulu, HI
08/1999 – 5/2003	Research Assistant	University of Hawaii at Manoa, Honolulu, HI
07/1997 – 06/2003	Project Coordinator	HoA Aina O Makaha, Waianae, HI
06/1997 – 12/1998	English Instructor	Hawaii Pacific University, Honolulu, HI
08/1994 – 05/1997	Research Assistant	University of Hawaii at Manoa, Honolulu, HI
08/1992 – 08/1994	English Instructor	Hawaii Pacific University, Honolulu, HI
06/1991 – 01/1992	Technical Trainer	Peace Corps, Cameroon/Nepal
07/1985 – 01/1991	Volunteer	Peace Corps, Cameroon/Nepal

AWARDS

2015	Chancellor's Citation for Meritorious Teaching , University of Hawaii at Manoa
2015	CTAHR Dean's Award for Excellence in Teaching , University of Hawaii at Manoa
2010	Chancellor's Citation for Meritorious Teaching , University of Hawaii at Manoa
2007	Outstanding Specialist Award , Hawaii Association of County Agricultural Agents, Cooperative Extension Service, College of Tropical Agriculture and Human Resources, University of Hawaii at Manoa

PROFESSIONAL SOCIETY MEMBERSHIP

8/2003 – Present	Soil Science Society of America
8/2009 – present	American Geophysical Union

INSTRUCTION

TPSS/NREM 304 Fundamentals of Soil Science

I am responsible for the introductory soils class, which is required for all TPSS undergraduates and NREM undergraduates in the environmental track. Accomplishments regarding this course include:

- Doubled enrollment since 2007.
- Incrementally expanded the laboratory portion of the course making it increasingly experiential and hands-on.
- Consistently received high student evaluations.

Semester	Enrollment	Overall Evaluation*
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		Instructor	Course
Fall 2007	19	4.56	4.53
Fall 2008	21	4.95	4.78
Fall 2009	26	4.78	4.67
Fall 2010	30	4.64	4.65
Fall 2011	39	4.51	4.14
Fall 2012	39	4.50	4.43
Fall 2013	37	4.93	4.70
Fall 2014	30	4.17	4.17
Fall 2016	38	4.33	4.17

*Score out 5 possible points.

Guest Lectures

Course	Semester(s)
University of Hawaii Manoa	
Botany 450	Spring 2008, 2009, 2010, 2011, 2012, 2013
NREM 680	Spring 2010, 2011, 2012, 2013
NREM 477	Spring 2008, 2009, 2010
PLAN 640	Fall 2013
CEE 431	Fall 2013
TPSS 475	Spring 2014
NREM 701	Fall 2014
Leeward Community College	
AG 112	Fall 2008, 2009, 2010
University of Hawaii West Oahu	
SSCI 496	Spring 2014
Palau Community College	
AG 111 & AG 122	Spring 2011, 2012
College of Micronesia	
AG 110 & AG 299	Spring 2012, 2013, 2014

Student Advising

Student	Role	Graduation
PhD		
Erin Fitch	committee member	current
Jon Wells (NREM)	committee member	current
Lauren Deem (NREM)	committee member	Fall 2016
Arnoldus Berek (TPSS)	committee member	Fall 2015
Somchai Butnan	Committee member	Spring 2015
Roshan Manandar (PEPS)	committee member	Summer 2013
Antonio Querido	committee member	Spring 2009
Aminata Sidibe	committee member	Fall 2008
Hamidou Konare	Committee member	Fall 2008
MSc		
Mitchell Loo (TPSS)	Chair	TBD
Daniel Richardson (NREM)	committee member	TBD
Michael Long (NREM)	committee member	TBD
Jacob Gross (NREM)	committee member	Summer 2014
Benjamin Czeck (GG)	committee member	Spring 2014
Jaqueline Meyer (NREM)	committee member	Summer 2013
James Harmon (TPSS)	Chair	Summer 2013
Meghan Pawlowski (NREM)	committee member	Summer 2013

Joshua Silva (TPSS)	Chair	Summer 2013
Yudai Sumiyoshi (NREM)	committee member	Fall 2012
Amanda Tai McClellan (TPSS)	Chair	Spring 2010
Gwen DeMent (NREM)	committee member	Fall 2008
Undergraduates		
<i>Honors Theses Advisor</i>		
William Thompson (TPSS)	Chair	Fall 2014 - Spring 2015
Josiah Marquez (TPSS)	Chair	Spring 2014 - Fall 2014
<i>GES Theses</i>		
Jeremy Bascunnana	Chair	Fall 2012 - Spring 2013
<i>Mentoring</i>		
Sean Reseigh	Mentor	Spring 2015 – Fall 2016
Kylie Wong (NREM)	Mentor	Fall 2013 – Summer 2014
Elysa Ermatinger (NREM)	Mentor	Spring 2011 – Spring 2013
Julie Cramer (CHEM)	Mentor	Spring 2011 – Fall 2013
Jocelyn Liu (Pre-Med)	Mentor	Spring 2011 – Summer 2013
Jessica Panzer (NREM)	Mentor	Spring 2011 – Summer 2012
Mackynze Snyder (NREM)	Mentor	Spring 2010
Yudai Sumiyoshi (NREM)	Mentor	Spring 2009
<i>Undergraduate Advising (TPSS)</i>		
William Thompson	Advisor	Fall 2013 - present
Jennifer Thomas	Advisor	Fall 2013 - present
Robert Nicholson	Advisor	Spring 2013 - present
Dematteo, Toni	Advisor	Fall 2013 – Spring 2013
Shane De Leeuw	Advisor	Spring 2011 – Spring 2013
Panzella, Mariko	Advisor	Fall 2010 – Spring 2012
<i>Science Fair Mentoring</i>		
David Beal	Mentor	Spring 2013
Summer Mundon	Mentor	Fall 2011 – Spring 2012

RESEARCH

Through the cultivation of fruitful and extensive collaborations across the Hawaiian Islands, the continental U.S. and the Pacific Basin, I have been involved in cutting-edge research addressing challenges communities face in maintaining environmental quality (water, soil, and air), agricultural productivity, and human health. I obtained funding and led a USDA-NRI funded research project that discovered the presence of anammox bacteria in flooded taro fields and quantified the occurrence of rhizosphere-mediated nitrogen transformations leading to fertilizer N loss in the subsoil. My biochar work began with the characterization of volatile matter and ash content and their effects on soil fertility, and has moved to the use of biochar to remediate Mn toxicity in acid soils. For the Children's Healthy Living Project, I have led the design, development, and implementation of a prevalence survey of 4-6 year old children (N=1,000) to determine obesity prevalence and characterize family diet across 7 Micronesian islands (Majuro, Ailinglaplap, Kosrae, Pohnpei, Yap, Ulithi, and Palau). I supervise 6 locally hired staff and two Junior Researchers. Currently, I am leading the implementation of an agricultural census in Pohnpei and developing methodology including use of remote sensing technologies to quantify the extent and productivity of the agroforest system. These data will be used in conjunction with dietary and socio-economic data to better understand the factors that contribute to child and family health.

Extramural Funded Research Projects

As PI

Deenik. Borlaug Scholar Program. USDA World Coca Foundation. \$15,000

- Deenik, J.L. and G.L. Bruland. (2010). Predicting and Interpreting Behavior and Performance of Soils Lacking Particle Size Distribution Data. *USDA-NRCS*. **\$40,000**
- Deenik, J.L., G.L. Bruland, B. Popp, and J. Tiedje. (2008). Anammox Activity and Nitrogen Dynamics in Flooded Taro Soils of Hawaii. *USDA-NRI Soil Processes*. **\$397,000**.
- Deenik, J.L., M. Wright, S. Nakamoto. (2007). Evaluating Cover Crop Effects on Soil Quality, Insect Population Dynamics, and Economic Return for Diversified Farms in Hawaii. *USDA-NRCS (CIG)*. **\$125,443**.

Sub-Total: \$577,443

As Co-PI

- Batemi, **Deenik**, Shimabuko, Uyeda. 2016. Smart Irrigation Scheduling for Farmlands of Hawaii, Guam, and American Samoa. *USDA-NRCS CIG* **\$999,900**
- Hawes, M., **Deenik, J.L.**, Friday, K., Lorennij, R., Fellenius, K., and Marra, J. 2014. Vegetative Guide & Dashboard" relating atoll agroforestry recommendations to predicted climate and sea level conditions in the Marshall Islands. NOAA, Climate Change Services. **\$250,000**.
- Coordinate the collection and assembly of existing agricultural (agronomy and soil) information germane to atoll environments
 - Supervise graduate students
- Crow, S.E., **J.L. Deenik**, J. Yanagida, and J. Tiedje. (2012). Practical benefits of biochar amendment to agricultural systems: linking soil microbial processes to economic feasibility and sustainability. *USDA-NIFA*. **\$465,000**.
- Coordinate field research activities
 - Lead investigations into biochar effects on phytohormone production and microbial/root interactions
- Miura, T., **J.L. Deenik**, R.S. Yost, and J. Deenik. (2012). CTAHR Agricultural data base. Hawaii State Department of Agriculture. **\$300,000**
- Coordinated and led the development of the Hawaii Soil Atlas
 - Provided soil and agronomic expertise in the development of the Hawaii Cropland and Optimization Planning (HI-CROP) Web Mapper
- Novotny, R., K. Jang, R.T. Leon-Guerrero, **J.L. Deenik**, B. Luick, A. Arieta, S. Murphy, and C. Nigg. (2011). Children's Healthy Living Program for Remote Underserved Minority Populations in the Pacific Region (CHL). *USDA-NIFA*. **\$24,600,000**.
- Developed and led research, education and outreach activities in the Freely Associated States of the Pacific (Republic of the Marshall Islands, Federated States of Micronesia, Republic of Palau)
- Webpage: www.chl-pacific.org/
- Bruland, G.L., **J.L. Deenik**, and S. Grunwald. (2009). Using Diffuse Reflectance Spectroscopy to Quantify and Predict Soil Carbon Content. *USDA-TSTAR*. **\$197,772**.
- Planned and coordinated soil sampling activities
 - Provided expertise in the interpretation of VNIR spectral data in relation to soil mineralogy

Sub-Total: \$26,812,762

Competitive Internal Funding

- Crow and **Deenik**. 2016. Developing a soil health test for Hawaii's diverse agricultural soils. **\$80,000**
- Deenik** and Shimabuko. 2015. Developing a Nitrogen and irrigation scheduling tool for Hawaii's intensive vegetable crop systems. HATCH Supplemental **\$77,000**

Deenik, J.L., H. Jahren, and S.E. Crow. (2011). Response of Root Crops and Soil Carbon Dynamics to the Atmospheric pCO₂ Estimates of the Next 300 Years. Catalyst fund from U.H. Mānoa Vice Chancellor's Office. \$160,000

Cooney, M., M.J. Antal, J.L. **Deenik**, and R. Ogoshi. (2011). Water, Energy, Soil Sustainability. Sustainability Initiative, Mānoa Vice Chancellor's Office. \$1,000,000

Sub-Total: \$1,317,000

Overall Total: \$28,707,205

Peer Reviewed Publications

- Long, MS, CM Litton, CP Giardina, J Deenik, RJ Cole, and JP Sparks. 2017. Impact of nonnative feral pig removal on soil structure and nutrient availability in Hawaiian tropical montane wet forests. *Biological Invasions. In Press*
- Novotny, R., Li, F, Fialkowski, M K, Bersamin, A, Tufa, A, **Deenik, J**, Coleman, P, Guerrero, Rachael L, and Wilkens, L R. 2016. Prevalence of obesity and acanthosis nigricans among young children in the children's healthy living program in the United States Affiliated Pacific. *Medicine 95(37):4711*
- Sumiyoshi, Y, SE Crow, CM Litton, **JL Deenik**, AD Taylor, B Turano, R Ogoshi. 2016. Belowground impacts of perennial grass cultivation for sustainable biofuel feedstock production in the tropics. *GCB Bioenergy doi:10.1111/gcbb.12379*
- Butnan, S., **J.L. Deenik**, B. Toomsan, P. Vityakon, and M.J. Antal, Jr. 2016. Biochar properties influencing greenhouse gas emissions in tropical soils differing in texture and mineralogy. *J. Environ. Q. 45(5):1509-1519.*
- Li, F., Wilkens, LR., Novotny, R., Fialkowski, MK., Paulino, YC, Nelson, R., Bersamin, A., Martin, U., **Deenik, JL**, Boushey, CJ. 2016. Anthropometric Measurement Standardization in the US-Affiliated Pacific: Report from the Children's Healthy Living Program. *American Journal of Human Biology 28(3): 364-371*
- Novotny, R., Li, F, Fialkowski, MK, Bersamin, A, Tufa, A., **Deenik, JL**, Coleman, P., Guerrero, RL, Wilkens, LR.). 2016. Prevalence of obesity and acanthosis nigricans among young children in the children's healthy living program in the United States Affiliated Pacific. *Medicine 95(37):*
- Deenik, JL** and MJ Cooney. 2016. The potential benefits and limitations of corn cob and sewage sludge biochar in an infertile Oxisol. *Sustainability 8(2):131*
- Fialkowski MK, Delornier T, Hattori-Uchima M, Leslie JH, Greenberg J, Kim JH, **Deenik JL**, Dunn MA, Areta, AAR, and Novotny R. Children's Healthy Living Program (CHL) Indigenous Workforce Training to Prevent Childhood Obesity in the Underserved US Affiliated Pacific Region. 2015. *Journal of Health Care for the Poor and Underserved, Vol: 26(2): 83-95.*
- Novotny R, Li FF, Fialkowski M, Vargo D, Areta, AAR, **Deenik J**, Guerrero RL, and Kim J. 2015. Child Obesity and Acanthosis Nigricans in the Children's Healthy Living Program (CHL). *Federation Amer Soc Exp Biol Journal, Vol 29 Supplement 1, Meeting Abstract 902.9*
- Novotny, R, Fialkowski, MK, Li, FF, Paulino, Y, Vargo, D, Jim, R, Coleman, P, Bersamin, A, Nigg, CR, Guerrero, RTL, **Deenik, J**, Kim, JH, Wilkens, LR. 2015. Systematic Review of Prevalence of Young Child Overweight and Obesity in the United States-Affiliated Pacific Region Compared With the 48 Contiguous States: The Children's Healthy Living Program. *American Journal of Public Health 105(1):22-35*
- Silva, J.H., **J.L. Deenik**, R.S. Yost, G.L. Bruland, and S.E. Crow. 2014. Improving clay content measurement in oxidic and volcanic ash soils of Hawai'i by increasing dispersant concentration and ultrasonic energy levels. *Geoderma 237:211-223*
- Novotny R, Fialkowski MK, Li F, Paulino Y, Vargo D, Jim R, Coleman P, Bersamin A, Nigg CR, Leon Guerrero RT, **Deenik JL**, Kim JH, Wilkens LR. 2014. Prevalence of Young Child Overweight and

- Obesity in the United States Affiliated Pacific Region as Compared to the 48 Contiguous States: A Systematic Review and Meta-regression by the Children's Healthy Living Program. *Am J Public Health. In press.*
- Butnan, S., J.L. Deenik, B. Toomsan, M.J. Antal Jr., and P. Vityakon. 2015. Biochar characteristics and application rates affecting corn growth and properties of soils contrasting in texture and Mineralogy. *Geoderma* 237:105-116
- Penton, C.R., J.L. Deenik, B.N. Popp, G.L. Bruland, P. Engstrom, J. Mueller, A. Worden, and J. Tiedje. 2014. Assessing nitrogen transformations in a flooded agroecosystem using the isotope pairing technique and nitrogen functional gene abundances. *Soil Science* 179:2-10.
- Wilken, L.R., R. Novotny, M.K. Fialkowski, C. J. Boushey, C. Nigg, Y. Paulino, R. Leon Geurrero, A. Bersamin, D. Vargo, J. Kim, J.L. Deenik. 2013. Children's Healthy Living (CHL) Program for remote underserved minority populations in the Pacific region: rationale and design of a community randomized trial to prevent early childhood obesity . *BMC Public Health*, 13:944.
- Novotny, Rachel PhD, RD; Marie K. Fialkowski PhD, RD; Aufa'i Apulu Ropeti Areta MA; Andrea Bersamin PhD; Kathryn Braun DrPH; Barbara DeBaryshe PhD; Jonathan Deenik PhD; Michael Dunn PhD; James Hollyer MS; Jang Kim PhD; Rachael T. Leon Guerrero PhD; Claudio R. Nigg PhD; Ron Takahashi MA; and Lynne R. Wilkens DrPH. 2013. The Pacific Way to Child Wellness: The Children's Healthy Living Program for Remote Underserved Minority Populations of the Pacific Region (CHL). *Hawaii Journal of Medicine and Public Health* 72(11):406-409.
- Penton, C.R., J.L. Deenik, B.N. Popp, G.L. Bruland, P. Engstrom, D. St Louis, G.A. Brown, and J. Tiedje. 2013. Importance of sub-surface rhizosphere-mediated coupled nitrification-denitrification in a flooded agroecosystem in Hawaii. *Soil Biology and Biochemistry* 57:362-373. (*citations: 3*)
- McDowell, M.L., G. L. Bruland, J.L. Deenik, S. Grunwald. 2012. Effects of sub-setting by carbon content, soil order, and spectral classification on prediction of soil total carbon with diffuse reflectance spectroscopy. *Applied and Environmental Soil Science*, Volume 2012, Article ID 294121 (*citations: 2*)
- Mcdowell, M.L., G.L. Bruland, J.L. Deenik, S. Grunewald, N.M. Knox. 2012. Soil total carbon analysis in Hawaiian soils with visible to near-infrared and mid-infrared diffuse reflectance spectroscopy. *Geoderma* Vol 189–190: 312-320 (*citations: 2*)
- Deenik, J. L., A. Diarra, G. Uehara, S. Campbell, Y. Sumiyoshi and M. J. Antal. 2011. Charcoal Ash and Volatile Matter Effects on Soil Properties and Plant Growth in an Acid Ultisol. *Soil Science* 176(7): 336-345. (*citations: 11*)
- Deenik, J.L., T. McClellan, G. Uehara, M.J. Antal, and S. Campbell. 2010. Charcoal volatile matter content influences plant growth and soil nitrogen transformations. *Soil Sci. Soc. Am. J.* 74:1259-1270 (*citations: 59*)
- Ahmad, A., A. Fares, F. Abbas, and J.L. Deenik. 2009. Nutrient Concentrations Within and Below Root Zones from Applied Chicken Manure in Selected Hawaiian Soils. *J. Environ. Sci. Health, Part B, Vol.44, No.8* (*citations: 1*)
- Fares, A., F. Abbas, A. Ahmad, J.L. Deenik, and M Safeeq. 2008. Response of selected soil physical and hydrologic properties to manure amendment rates, levels and types. *Soil Science* 173(8)522-533. (*citations: 9*)
- Deenik, J.L., and R.S. Yost. 2008. Nitrogen mineralization potential and nutrient availability from five organic materials in an atoll soil from the Marshall Islands. *Soil Science* Vol 173(1):54-68 (*citations: 2*)

Proceedings

- Deenik, JL, CR Penton, BL Popp, GL Bruland, P Engstrom, J Mueller, and J Tiedje.** 2013. Nitrogen transformations in flooded agroecosystems: a case study with taro (*Colocassia esculenta*). Proceedings of the Western Region Nutrient Management Conference, Vol. 10, Reno, NV, March 7-8, 2013.
- Deenik, JL and A.T. McClellan.** 2011. The use of biochar as a fertility amendment in tropical soils. Proceedings of the Western Region Nutrient Management Conference, Vol. 9, Reno, NV, March 3-4, 2011.
- Deenik, JL, AT McClellan, and G Uehara.** 2009. Biochar volatile matter content effects on plant growth and nitrogen transformations in a tropical soil. Proceedings of the Western Region Nutrient Management Conference, Vol. 8, Salt Lake City, UT, March 4-5, 2009.

Published Abstracts

- Deem, L, E Mizokouchi, SE Crow, JL Deenik.** 2014. Biochar application to agricultural soils can reduce labile carbon losses and decrease apparent temperature sensitivity. ASA, CSSA & SSSA International Annual Meeting Nov 2-5, 2014, Long Beach, CA
- Fialkowski, MK, M Hattori-Uchima, J Leslie, JL Deenik, J Greenberg, and JH Kim.** 2014. Indigenous Workforce Training by the Children's Healthy Living Program (CHL) to Prevent Childhood Obesity in the Pacific. Society for Nutrition Education and Behavior, Annual Meeting, Milwaukee, WI, June 28 – July 1, 2014.
- Li, F, L Wilkens, R Novotny, MK Fialkowski, Y Paulino, G Nelson, A Bersamin, R Martin, R Jim, JL Deenik, C Boushey.** 2014. Anthropometric Measurement Standardization in the Pacific: Report from the Children's Healthy Living Program (CHL). Annual Meeting Experimental Biology, San Diego, CA, April 26-30, 2014.
- Novotny, R., MK Fialkowski, F Li, D Vargo, Y Paulino, R. Jim, P Coleman, A Bersamin, C Nigg, J Leslie, R Leon Guerrero, JL Deenik, JH Kim, and L Wilkens.** 2014. Prevalence of young child overweight and obesity in the US Affiliated Pacific Region: A meta analysis from the Children's Healthy Living Program (CHL). Annual Meeting Experimental Biology, San Diego, CA, April 26-30, 2014.
- Deenik, JL, M. Cooney, and MJ Antal Jr.** 2013. Agronomic value of sewage sludge and corn cob biochar in an infertile Oxisol. Annual Meeting, American Geophysical Union, San Francisco, Dec 9-13, 2013.
- Deem, L., SE Crow, JL Deenik, CR Penton, and J. Yanagida.** 2013. Biochar amendment for waste stream diversion, nutrient holding capacity, and carbon sequestration in two contrasting soils. Annual Meeting, American Geophysical Union, San Francisco, Dec 9-13, 2013.
- Fialkowski, MK, Y Matanane, L Wong, J Leslie, M Stewart, M Dunn, JL Deenik, R Novotny.** 2013. Integrating Pacific Cultural Concepts into the Introductory Nutrition Curriculum: The Children's Healthy Living Program (CHL). Society for Nutrition Education and Behavior, Annual Meeting, Portland, OR Aug 9 – 12, 2013
- Deenik, JL, CR Penton, BL Popp, GL Bruland, P Engstrom, J Mueller, and J Tiedje.** 2013. Microbially Mediated Nitrogen Transformations in Flooded Agroecosystems: A Case Study with Hawaiian Taro (*Colocassia esculenta*). Royal Golden Jubilee – Ph.D. Congress XIV "Basic Research for Sustainable Development" Jomtien Palm Beach Hotel and Resort, Pattaya, Chonburi, Thailand., April 5-7, 2013
- Silva, J, JL Deenik, and RS Yost.** 2013. Ultrasonication Application Increases Clay Content Measurements for Tropical Soils that Resist Dispersion. CTAHR Student Symposium, University of Hawaii at Manoa, April 2013
- Harmon, JH, JL Deenik, G. Fukumoto, RS Yost, and L Cox.** 2013. Composting to Improve Water Quality

- and Sustainable Food Production in Pohnpei, Federated States of Micronesia. CTAHR Student Symposium, University of Hawaii at Manoa, April 2013
- Czeck, B.C., H. Jähren; **JL Deenik**; S. E. Crow; B. Schubert; M. Stewart. 2012. Growth, Yield, and Nutritional Responses of Chamber-Grown Sweet Potato to Elevated Carbon Dioxide Levels Expected Across the Next 200 Years. Poster presented at 2012 Fall Meeting, American Geophysical Union, San Francisco, CA Dec. 3-7, 2012
- Silva, J, **JL Deenik**, G Uehara, and GL Bruland. 2012. Developing a simple method to estimate clay content for tropical soils that resist dispersion. CTAHR Symposium April 2012
- Silva, J, **JL Deenik**, G Uehara, and GL Bruland. 2012. Developing a simple method to estimate clay content for tropical soils that resist dispersion. .Poster session presented at: Visions for our sustainable planet. Annual International Meetings of ASA, CSSA, and SSSA, Cincinnati, OH Oct 21-24, 2012
- Pawlowski, M.N., Crow, S.E., **Deenik, J.L.**, and Evensen, C.I. 2012. A static chamber based approach to monitoring greenhouse gas flux under irrigated sugarcane and napier grass on Maui. CTAHR Student Symposium, University of Hawaii at Manoa, April 2012
- Sumiyoshi Y, Crow SE, Litton CM, **Deenik JL**, Turano B, Taylor AD. 2012. Belowground Carbon Cycle of Napier and Guinea Grasses Grown for Biofuel Feedstock Production. CTAHR Student Symposium, University of Hawaii at Manoa, April 2012
- Pawlowski, M.N., Crow, S.E., **Deenik, J.L.**, and Evensen, C.I. 2012. Linking Soil and Water Conservation Practices to Greenhouse Gas Flux and Fine Root Dynamics: A Comparison of Sugarcane and Napier Grass Grown for Bioenergy Production. Poster session presented at: Visions for our sustainable planet. Annual International Meetings of ASA, CSSA, and SSSA, Cincinnati, OH Oct 21-24, 2012.
- Sumiyoshi Y, Crow SE, Litton CM, **Deenik JL**, Turano B, Taylor AD. 2012. Belowground Carbon Cycle of Napier and Guinea Grasses Grown for Biofuel Feedstock Production. Poster session presented at: Vision for a Sustainable Planet ASA, CSSA, and SSSA Annual Meetings, Cincinnati, OH, Oct. 21-24, 2012,.
- Novotny, R., J.L. **Deenik, JL**, Kim, R. Leon-Guerrero, B. Luick, and D. Vargo. 2012. Children's Healthy Living Program (CHL) for remote underserved minority populations of the Pacific Region. Pacific Global Public Health Conference, Honolulu, HI, Oct 10, 2012,
- Leslie, J., M. Dunn, K. Boyd, J.L. **Deenik, J.** Kim, R. Leon-Guerrero, B. Luick, C. Nigg, Y. Paulino, A. Stokes, R. Takahashi, D. Vargo, L. Wilkens, R. Novotny. 2012. Indigenous Workforce to Prevent Childhood Obesity: a component of the Children's Healthy Living Program for Remote Underserved Minority Populations in the Pacific Region (CHL). Pacific Global Public Health Conference, Honolulu, HI, Oct. 9, 2012,
- Novotny, R., **JL Deenik**, R. Leon Guerrero, B Luick. 2012. Children's Healthy Living Program (CHL) for remote underserved minority populations of the Pacific Region. Society for Nutrition Education and Behavior, Annual Meeting, Washington DC, July 14 -17, 2012.
- Butnan, S, P Vityakon, **JL Deenik**, B Toomsan, G Uehara, and MJ Antal, Jr. 2012. Biochar characteristics and rates affecting corn growth and properties of soils contrasting in texture and mineralogy. Royal Golden Jubilee – Ph.D. Congress XIV "Basic Research for Sustainable Development" Jomtien Palm Beach Hotel and Resort, Pattaya, Chonburi, Thailand., April 6-8, 2012
- Cramer, J, **JL Deenik**, SE Crow, and JA Harmon. 2012. Improved grass selections and their impact on soil carbon partitioning in pastoral systems in the Mariana Islands. CTAHR Student Symposium, University of Hawaii at Manoa, April 2012

- Sumiyoshi, Y., S.E. Crow, C.M. Litton, and J.L. Deenik. 2011. Belowground carbon cycling of napier and guines grasses. Presented at 2011 Fall Meeting, American Geophysical Union, San Francisco, CA Dec. 4-9, 2011.
- Bruland, G.L., M. McDowell, J. L. Deenik, R. Uchida, and S. Grunwald. 2010. Using diffuse reflectance spectroscopy to assess soil total carbon in agricultural soils of Hawaii and other Pacific Islands. Presented at ASA, CSA, SSSA International Annual Meeting, San Antonio, TX Oct. 16-19, 2011.
- Novotny, R. and J.L. Deenik. 2011. Children's Healthy Living Program. Chuuk Medical Association Annual Meeting. Honolulu, HI, 11/2/2011.
- Novotny, R., J.L. Deenik, R. Leon-Guerrero, B. Luick, J. Kim, and D. Vargo. 2011. Prevention of non-communicable disease through prevention of child obesity in the Pacific. 17th Pacific Islands Health Research Symposium Nadi, Fiji, 8/17/2011.
- Deenik, J.L., C.R. Penton, G.L. Bruland, B.N. Popp, P. Engstrom, J. Mueller, J. Tiedje. 2010. Quantifying nitrogen loss from Hawaiian taro fields. Presented at 2010 Fall Meeting, American Geophysical Union, San Francisco, CA Dec. 13-17, 2010 (p. 460)
- Penton, C.R., G L Bruland, B N Popp, P Engstrom, J Tiedje, G A Brown, J L Deenik. 2010. Use of Novel Whole Core Incubations to Measure the Fate of Fertilizer N in a Flooded Agricultural System. Presented at 2010 Fall Meeting, American Geophysical Union, San Francisco, CA Dec. 13-17, 2010 (p. 460).
- McDowell, M.L., G.L. Bruland, J.L. Deenik, S. Grunwald, and R. Uchida. 2010. Diffuse reflectance spectroscopy for total carbon analysis of Hawaiian soils. Presented at 2010 Fall Meeting, American Geophysical Union, San Francisco, CA Dec. 13-17, 2010.
- McClellan, A.T., J.L. Deenik, R. Yost, J.M. Antal, Jr., and G. Uehara. 2009. Effect of Volatile Matter Content in Charcoal on Soil Biological Properties. International Annual Meetings for ASA-CSA-SSSA Abstract 99-7, Pittsburgh PA, Nov 2-5, 2009
Award: Second place in the Graduate Student Poster Presentation for Soil Biology and Biochemistry at International Annual Meetings for ASA-CSA-SSSA
- McClellan, A.T., J.L. Deenik, R. Yost, J.M. Antal, Jr., and G. Uehara. 2009. Effect of Volatile Matter Content in Charcoal on Soil Biological Properties. North American Biochar Conference. Abstract 99-7, Boulder CO, Oct, 2009.
- McClellan, A.T., J.L. Deenik, R. Yost, J.M. Antal, Jr., and G. Uehara. 2009. Effect of Volatile Matter Content in Charcoal on Soil Biological Properties. CTAHR Student Symposium, University of Hawaii at Manoa, April 2009
- Sumiyoshi, Y, JL Deenik, and A Sidibe. 2009. Effects of different charcoal types on plant growth and soil properties over two consecutive plantings. CTAHR Student Symposium, University of Hawaii at Manoa, April 2009
- J. L. Deenik, G. Uehara, Y. Sumiyoshi, A. Sidibe, A.T. McClellan and M. J. Antal 2008. Charcoal Volatile Matter Content and its Effects on Plant Growth and Biological Properties of an Infertile Tropical Soil. 2008 International Annual Meetings for ASA-CSA-SSSA Abstract (SO2) 665-5, Houston TX, Nov 2008.

Web-based Tools

Hawaii Soil Atlas (<http://gis.ctahr.hawaii.edu/SoilAtlas#acks>)

HI-CROP Web Mapper (<http://gis.ctahr.hawaii.edu/CropSuitability>)

EXTENSION

My extension program spans the Hawaiian Islands and the Western Pacific (Micronesia) and consists of formal training (workshops and support to Master Gardener Program), informal training (presentations, field days) and applied research. These activities have been supported through a combination of extramural and internal funding sources.

Extramural Funds

- Thorne, M., **J.L. Deenik**, R. Godfrey, A. Stokes, and L. Cox. (2011). Outreach and assistance in tropical pasture and livestock management of Pacific Islanders. USDA-OAO-OASDFR 2501 Program. **\$337,841.**
- Thorne, M., **J.L. Deenik**, and R. Godfrey. (2008). Extension Outreach And Assistance In Improved Pasture And Livestock Management Practices For Pacific Islanders. USDA-CSREES. **\$297,224.**
- Deenik, JL** and R Shimabuko. Sustainable Nutrient Management Strategies for Intensive Vegetable Production Systems. 2008 – present. Maui County Block Grant. **\$80,000.**

Internal Funds

- Deenik, JL.** (2014 – 2019). Improving soil nutrient management through the integrated use of web-based and mobile technology and rapid infield soil testing. (HATCH Integrated Project). **\$25,000**
- Deenik, JL.** (2011-2016). Sustainable Soil Nutrient Management for Hawaii and the Pacific Basin (Smith-Lever Project). **\$25,000.**
- Deenik, J.L.** and G.L. Bruland. (2010-2012). Alternative Nitrogen Fertilizer Management Strategies to Improve Water Quality and Fertilizer Recovery in Wetland Taro Production Systems. Supplemental HATCH Funding. **\$40,000.**
- Deenik, JL.** (2006-2011). Extension Strategies for Improved Soil Nutrient Management in Hawaii (Smith-Lever project). **\$25,000**

Extension Publications

- Fukumoto, G.K., M.S. Thorne, J.H. Silva, **J. Deenik**, and M.H. Stevenson. 2016. Suitability Map for Forage-Finished Beef Production Using GIS Technology: Kauai County. Cooperative Extension Service Publication, CTAHR, PRM-10, pp. 6.
- Fukumoto, G.K., M.S. Thorne, J.H. Silva, **J. Deenik**, and M.H. Stevenson. 2016. Suitability Map for Forage-Finished Beef Production Using GIS Technology: Maui County. Cooperative Extension Service Publication, CTAHR, PRM-9, pp. 8.
- Fukumoto, G.K., **J. Deenik**, M. Hura, and M. Kostka. 2016. Piggery Impacts to Water Quality of Streams in Pohnpei, Federated States of Micronesia. Cooperative Extension Service Publication, CTAHR, WI-3, pp. 9.
- Fukumoto, G.K., M.S. Thorne, J.H. Silva, and **J. Deenik**. 2015. Suitability Map for Forage-Finished Beef Production Using GIS Technology: Hawai'i Island. Cooperative Extension Service Publication, CTAHR, PRM-7, pp. 6.
- Deenik, J.L.**, C. R. Penton, and G.L. Bruland. 2013. Nitrogen cycling in flooded taro agriculture. Cooperative Extension Service Publication, CTAHR, SCM-31, pp. 8.
- Kawabata, A.F., **J.L. Deenik**, R.T. Hamasaki, J. Lichty, and S.T. Nakamoto. 2011. Acidification of volcanic ash soils from Maui and Hawaii Island for blueberry and tea production. Cooperative Extension Service Publication, CTAHR, AS-5, pp. 7.

Hawaii Activities

Formal Training

Extension Strategies for Improved Soil Nutrient Management in Hawaii (Smith-Lever project), project goal is to provide extension agents training in soil fertility and nutrient management for Hawaii's diverse soil conditions.

Workshops Conducted

- April 1-2, 2008 (Kahului, Maui; 21 attendees)
Presentations: 1) Challenges and opportunities associated with on-farm trials, 2) Practical aspects of organic fruit production, 3) Master gardener program
Field Tour: Maui EKO Compost, Kula Ag Park compost trials
- March 11-12, 2009 (Kahului, Maui; 23 attendees)
Presentations: 1) Using NRCS online Web Soil Survey tool, 2) Soil fertility calculations using Excel spreadsheet
Field Tour: Kula Ag Park, green manure field trials, N rate X compost onion trial
- July 6 – 7, 2011 (Wailua, Kauai; 17 attendees)
Presentations: 1) Nitrogen cycling in agroecosystems, 2) NRCS Online Web Soil Survey Tool
Field Tour: Slow Release N Experiment, Hanalei Valley
- July 2-3, 2013 (Hilo, Hawaii; 26 attendees)
Presentations: 1) SoilWeb and Web Soil Survey tools to identify soil series, 2) Nutrient Management in Organic Systems/Local Soil Amendments 3) Fertilizer Advice Consulting System planned upgrade
Field Tour: Unique Volcanic Soils in the Hilo vicinity

Support to the Master Gardener Program

1. "Basic Concepts in Nutrient Management" Master Gardener Training, Pearl City, Oahu, 2/14/2008
2. "Basic Concepts in Nutrient Management" Master Gardener Training, Kainaliu, Kona, 2/10/2009
3. "Basic Concepts in Nutrient Management" Master Gardener Training, Pearl City, Oahu, 2/13/2009
4. "Soils of Oahu" Oahu Master Gardener Training Program, Pearl City, Oahu, 2/26/2009
5. "Concepts in Sustainable and Organic Soil Management" invited presentation at the Statewide Master Gardener Conference, Ala Moana Hotel, Honolulu, 10/15/2010
6. "Concepts in Soil Fertility and Soil Management for Soils of Maui" Master Gardener Training, Kahului, Maui 2/2/2011
7. "Concepts in Soil Fertility and Soil Management for Soils of Oahu" Master Gardener Training, Pearl City, Oahu 2/11/2011
8. "Concepts in Soil Fertility and Soil Management for Soils of Kona" Master Gardener Training, Kainaliu, Hawaii, 4/7/2011
9. "Concepts in Soil Fertility and Soil Management for Soils of Oahu" Master Gardener Training, Pearl City, Oahu 2/17/2012
10. "Concepts in Soil Fertility and Soil Management for Soils of Kona" Master Gardener Training, Kainaliu, Hawaii, 3/20/2012
11. "Concepts in Soil Fertility and Soil Management for Soils of Maui" Master Gardener Training, Kahului, Maui 1/16/2013
12. "Concepts in Soil Fertility and Soil Management for Soils of Oahu" Master Gardener Training, Pearl City, Oahu 3/1/2013
13. "Concepts in Soil Fertility and Soil Management for Soils of Kona" Master Gardener Training, Kainaliu, Hawaii, 3/12/2013.
14. "Concepts in Soil Fertility and Soil Management for Soils of Big Island" Master Gardener Training, Hilo, Hawaii, 3/19/2013.
15. "Concepts in Nutrient Management for Soils of Maui" Master Gardener Training, Kahului, Maui 5/29/2013
16. "Soils of Maui" Master Gardener Training, Kahului, Maui 1/29/2014

17. "Concepts in Soil Fertility and Soil Management for Soils of Kauai, Part 1" Master Gardener Training, Kapa`a, Kaua`i, 2/20/2014.
18. "Concepts in Soil Fertility and Soil Management for Soils of Big Island" Master Gardener Training, Hilo, Hawaii, 3/13/2014.
19. "Concepts in Soil Fertility and Soil Management for Soils of Kauai, Part 2" Master Gardener Training, Kapa`a, Kaua`i, 5/19/2014.
20. "Concepts in Soil Fertility and Soil Management for Soils of Maui" Master Gardener Training, Kapa`a, Kaua`i, 7/15/2014.

Community Outreach

Invited Presentations in Support of Statewide New Farmer/Immigrant Training (2008 – present)

1. "Basic Concepts in Nutrient Management for Papaya Production" Immigrant Farmer Training, Keaau, Big Island, 2/21/2008
2. "Basic concepts in soil fertility and soils of Hamakua" New Farmer Training, West Hawaii 09/08/2008
3. "Basic concepts in soil fertility and nutrient management" West Hawaii New Farmer Training, 09/15/2008
4. "Basic concepts in soil fertility and soils of Hamakua" Hamakua New Farmer Training, West Hawaii 09/14/2009
5. "Basic concepts in soil fertility and nutrient management" Hamakua New Farmer Training, 09/21/2009
6. "Basic Concepts in Soil Fertility" invited lecture for Maui Agriculture Training Program, Kahului Extension Office, Kahului Maui, 01/06/2010
7. "Basic Concepts in Soil Fertility" invited lecture for Worldwide Farmers Agriculture Training Program, Kahului Maui, 03/03/2010
8. "Basic concepts in soil fertility and nutrient management" Hamakua New Farmer Training, 09/15/2010
9. "Soils of Kauai" Kauai Community College Agricultural Outreach Education Program, 10/14/2010
10. "Sustainable Nutrient Management for Soils of Kauai" Kauai Community College Agricultural Outreach Education Program, 10/21/2010
11. "Soils of Kauai" Kauai Community College Agricultural Outreach Education Program, 6/9/2011
12. "Sustainable Nutrient Management for Soils of Kauai" Kauai Community College Agricultural Outreach Education Program, 06/16/2011
13. "Basic concepts in soil fertility and nutrient management" Hamakua New Farmer Training, NHERC, Honokaa, 09/28/2011
14. "Understanding and Managing Soils of Kauai for Sustainable Food Systems" Kauai Community College Agricultural Outreach Education Program, 11/12/2011
15. "Basic concepts in soil fertility and nutrient management" Hamakua New Farmer Training, NHERC Honokaa, 10/01/2012.
16. "Nutrient Management in Organic Farming Systems" LEAF Organic Farming Training Program, Waimanalo, 12/13/2012
17. "Basic Concepts in Nutrient Management" Kunia New Farmer Training Program, Kunia Oahu, 1/14/2013
18. "Understanding and Managing Soils of Hawaii for Sustainable Agriculture" GoFarm Training Program, Windward Community College, 1/30/2013
19. "Concepts in Soil Fertility and Soil Management for Soils of Oahu" Success for Beginning Farmers Program, Pacific Gateway Center, Honolulu, 4/10/2013
20. "Soils of the Big Island" NHERC New Farmer Training Program, Laupahoehoe, Hawai'i, 11/6/2013

21. "Concepts in Soil Fertility and Soil Management for Soils of Oahu" Success for Beginning Farmers Program, Pacific Gateway Center, Honolulu, 8/24/2013
22. "Basic Concepts in Soil Fertility for the Soils of Hamakua" Ku I Ka Mana Beginning Farmer Training Program (Kohala Center), Honoka`a, Big Island, 1/31 – 2/1/2014
23. "Basic Concepts in Nutrient Management for the Soils of Hamakua" Ku I Ka Mana Beginning Farmer Training Program (Kohala Center), Honoka`a, Big Island, 2/14-2/15, 2014
24. "Understanding and Managing Soils of Hawaii for Sustainable Agriculture" GoFarm Training Program, Waimanalo Research Station, 9/17/2014
25. "Basic Concepts in Soil Fertility" invited lecture for Worldwide Farmer Agriculture Training Program, Kahului Maui, 09/24/2014

Invited Presentations to Industry Groups (2008 – present)

1. "Understanding and Managing Soils for a Healthy Landscape" invited presentation for Maui Association of Landscape Practitioners Kahului, Maui 5/27/2008
2. "Understanding and Managing the Soils of Kona for Coffee Production" invited presentation for Kona Coffee Growers Association, Kona, Big Island 5/28/2009
3. "Nitrogen Dynamics in Taro Flooded Soils" invited presentation for Kauai Taro Grower's Association, 7/20/2009
4. "Understanding and Managing Soils for a Healthy Landscape" invited presentation for the Landscape Industry Council of Hawaii Annual Conference, Blaisdale Convention Center, Honolulu, 10/22/2009
5. "Soil Management for Sustainable Coffee Production" invited lecture for Kona Coffee Growers' Association, 02/24/2010
6. "Nitrogen Management in Flooded Taro Systems; Slow Release N Fertilizers" presentation to Kauai Taro Growers Association, 05/17/2010
7. "Concepts in Soil Fertility and Soil Management for Soils of Hawaii" invited presentation for the Landscape Industry Council of Hawaii Annual Conference, Koolau Golf Course, 09/30/2010
8. "Compost use in intensive vegetable production systems" Maui Farmer Cooperative meeting, Kahului Maui, 11/08/2010
9. "Understanding and managing the soils of Hawaii for healthy landscapes" workshop organized by the Aloha Arborist Association, Waimanalo Research Station, Waimanalo, Oahu, 3/30/2012.
10. "Understanding and managing Hawaii soils for a healthy landscape" 2nd Annual Landscape Industry Council of Hawaii Conference, Blaisdell Exhibition Hall, Honolulu, HI 10/25/2012.
11. "Understanding and managing the soils of the Big Island for a healthy landscape" Hawaii Island Landscape Association Annual Conference, Kawaihae, HI 11/17/2012.
12. "Soil and Nutrient Management in Organic Farming Systems" Soil Health Workshop for Nutrient Management, Mauna Kea Soil and Water Conservation District, Waimea Civic Center, Waimea, 11/20/2013

Invited Presentations in Support Public School Agriculture Programs

1. "Soils of Hawaii" presentation to Waianae High School Agriculture program, 9/4/2008
2. "Soils of Hawaii" invited presentation for Waianae High School Agriculture class, 08/20/2009
3. "Organic Soil Management" invited presentation for MA`O Farm interns, Waianae, 09/03/2009
4. "Sustainable Soil Management" invited presentation for Waianae High School Agricultural Science class, 08/31/2010
5. "Organic Soil Nutrient Management" invited lecture/field demonstration at MA`O Farm, 09/01/2010
6. "Using organic soil amendments in small scale vegetable production systems" Waianae High School Agriculture class, Waianae, Oahu, 5/23/2011
7. "Organic Soil Management" invited presentation for MA`O Farm interns, Waianae, 09/07/2011

8. "Nutrient Management in Organic Systems" Waianae High School Agriculture class, Waianae, Oahu, 8/28/2012
9. "Organic Soil Management" invited presentation for MA`O Farm interns, Waianae, 09/12/2012
10. "Nutrient Management in Organic Systems" Waianae High School Agriculture class, Waianae, Oahu, 9/3/2013
11. "Organic Soil Management" invited presentation for MA`O Farm interns, Waianae, 09/22/2013
12. "Techniques in Measuring Soil Fertility Status" MA`O Organic Farms Intern Program, Waianae, Oahu 3/13/2013
13. "Living Soils – a cultural and science perspective on soils" Statewide School Garden Teacher Training, Waimea, Big Island, 6/11/2013
14. "An Introduction Soils of Hawaii" Waianae Malama Aina Field School Program at Nanakuli High School, 6/26/2013
15. "Practical Approaches to Soil Management" Waianae Malama Aina Field School Program at Nanakuli High School, 6/28/2013
16. Introduction to Soils" School presentation to 3rd grade classes, Alawai Elementary, 11/15/2013
17. "An Introduction Soils of Hawaii" Waianae Malama Aina Field School Program at Nanakuli High School, 6/12/2014

Other Invited Presentations

1. "Sustainable Nutrient management Strategies for the Soils of Puna" Puna Hawaii, 7/19/2008
2. " Soils of the Big Island" Kona Outdoor Circle Gardening Club, 2/9/2009
3. "Concepts in Soil Fertility" training session for staff at Hoa Aina o Makaha, 1/27/2012
4. "Soils of Hawaii" Townscape, Inc. Honolulu, HI 11/14/2013
5. "Soil Formation and Diversity in Hawaii" Oahu Army Natural Resource Program, Annual Staff Meeting, Schofield Barracks, 09/24/2014

Applied Research

1. Compost applications to reduce dependence on imprinted fertilizers.
 - Maui EKO compost reduces N inputs by 50% in corn and onion crops
 - **Impact:** Vegetable farmers in the Kula Ag Park on Maui have adopted compost applications into their nutrient management plans
2. Alternative Nitrogen Fertilizer Management Strategies to Improve Water Quality and Fertilizer Recovery in Wetland Taro Production Systems.
 - Polymer coated urea (slow release fertilizer) and organic fish/bone meal fertilizers provided a long term reservoir of plant available N in the root zone, and reduced N export to the river system in effluent water.
 - A partial cost benefit analysis showed that the slow release fertilizer treatment produced the highest mean return with the lowest variability across the three farm sites.
 - **Impact:** Taro farmers increased their understanding of nitrogen in taro production and recognize there are economically viable alternatives to conventional urea.
3. Upgrade of the Agricultural Diagnostic Service Center's Fertilizer Advice and Consulting System (FACS). Partnering with PI Dr. Yost to provide soil and nutrient management expertise to upgrade parameters in existing system and assist in the conversion to a web-based tool.
 - **Outputs:** revised soil categories and adjusted soil nutrient critical levels, improved fertilizer calculator, added organic fertilizer capability, and improved the graphic appearance.

Pacific Basin Activities

Formal Training

Workshops Conducted

- Grazing Academy I (Guam) Jan 27 – 29, 2010. *Presentations: Soils of Guam, Soil Management strategies for sustainable pasture systems*
 - Grazing Academy I (Saipan) Feb 3 -5, 2010. *Presentations: Soils of Saipan, Soil Management strategies for sustainable pasture systems*
 - Grazing Academy I (Rota) Jun 9 – 11, 2010. *Presentations: Soils of Rota, Soil Management strategies for sustainable pasture systems*
 - Grazing Academy I (Tinian) Jun 16 – 19, 2010. *Presentations: Soils of Tinian, Soil Management strategies for sustainable pasture systems*
 - Grazing Academy I (Palau) Jan 19 – 21, 2011. *Presentations: Soils of Palau, Soil Management strategies for sustainable pasture systems*
 - Dry Litter Technology Summit and Educational Workshop (Pago Pago, American Samoa) Feb. 22 – 25, 2011. *Presentations: Strategies in Soil Sampling and Soil Testing, Soil Properties, Diversity, and Management*
 - Grazing Academy I (Pohnpei) Apr 20 – 22, 2011. *Presentations: Soils of Pohnpei, Nutrient Management strategies for the soils of Pohnpei*
 - Technical Training for College of Micronesia Extension Agents Aug. 9 & Aug. 12, 2011, Kolonia, Pohnpei. *Presentations: Soil Diversity on Pohnpei; Basic Concepts in Nutrient Management.*
 - Grazing Academy II (Tinian) May 9 – 11, 2012. *Presentations: Land use effects on soil fertility in Tinian, Carbon cycling in improved pastures*
 - Grazing Academy II (Palau) Jul 11 - 13, 2012. *Presentations: Efficient composting of piggery waste*
 - Grazing Academy II (Pohnpei) Jul 16 - 18, 2012. *Presentations: Food Security and the Environment, Soils of Pohnpei, Techniques in Compost Production, Using Compost in Pohnpei*
 - Farmer Field Schools (Pohnpei) Jul 16 - 18, 2013. *On-Farm demonstrations and educational meetings in all four municipalities.*
 - Food and Environment Summit (Pohnpei) July 22 – 23, 2013. *Presentations: Overview and Purpose, Composting Techniques, Beneficial Use of Compost in Cropping Systems*
 - Farmer Field Schools (Pohnpei) Feb 24 – 28, 2014. *Field schools focused on integrated pest management and vegetable variety trials in all four municipalities.*
- Capacity Building Activities with the Children's Healthy Living Program (CHL)*
- Nutrition Curriculum Development Workshop (Palau) Jan 2013. Palau Community College
 - Standardization Training (Pohnpei) May 2013. *Trained CHL staff in BMI measurement, food log implementation.*
 - Prevalence Survey Planning Workshop (Marshall Islands) Aug 2013
 - Standardization Training (Pohnpei) October 2013. *Trained local Pohnpei Public Health staff in BMI measurement, food log implementation.*
 - Standardization Training (Marshall Islands) Jan 2014. *Trained local Marshallese Public Health staff in BMI measurement, food log implementation.*
 - Standardization Training (Palau) April 2014. *Trained local Palauan Public Health staff in BMI measurement, food log implementation.*
 - Standardization Training (Yap) Sept 2014. *Trained local Yapese Public Health staff in BMI measurement, food log implementation.*

Applied Research

1. Evaluation of Carbon Feedstock on Compost Quality and Production in Pohnpei.
 - a. Hibiscus and Albizzia wood chips produce higher quality compost than coconut husk chips.
 - b. **Impact:** The College of Micronesia has expanded compost production for sale using Albizzia wood chips. Increasing numbers of farmers in all four municipalities of Pohnpei have begun to chip albizzia and hibiscus wood for compost production.

2. Benefits of Pig Manure Compost in the Improvement of Infertile Oxisols in Pohnpei.
 - a. Pig manure compost increases cabbage production on par with chemical fertilizers, with the added benefit of ameliorating soil acidity and increasing plant available water.
 - b. **Impact:** Farmer use of pig manure compost has increased progressively since experiment implemented in 2012
3. Farmer Field Schools to Promote Sustainable Vegetable Production in Pohnpei
 - a. Five farmer leaders identified and trained in Pohnpei. Their farms serve as on-farm demonstrations sites for compost field trials, integrated pest management alternatives, and introduction of improved vegetable varieties

SERVICE TO PROFESSION

- | | |
|----------------------|---|
| 2008 – present | Manuscript Reviews: 34 reviews submitted for high quality journals (soil Science Society of America, Journal of Environmental Quality, Geoderma, Bioresource Technology, Soil Tillage, Soil Science, Agronomy Journal, Pedosphere, Pacific Science) |
| 2008 – present | Curriculum committee member, Department of Tropical Plant and Soil Sciences |
| Aug 2014 – present | Chair, curriculum committee, Department of Tropical Plant and Soil Sciences |
| Jan 2014 – present | CTAHR Action Team member |
| Oct 2013 – June 2014 | Chair, search committee, Assistant Researcher in Indigenous Cropping Systems, Department of Tropical Plant and Soil Sciences |
| 2008 – 2013 | Judge, CTAHR Research Symposium |
| 2010 – 2013 | Magoon Greenhouse Users Committee, Department of Tropical Plant and Soil Sciences |
| 2008 – 2011 | Senator, Manoa Faculty Senate |
| 2008 – 2009 | Departmental Personnel Committee member, Department of Tropical Plant and Soil Sciences |

Community/Public Service

- | | |
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| 7/2011 – present | Commissioner, Clean Water and Natural lands Commission, City and County of Honolulu |
| 9/2003 – present | Technical advisor to Hoa `Aina O Makaha, non-profit community educational farm in Makaha, West Oahu |
| 2000 – present | Technical advisor to MA`O Organic Farm, community-based farm in Lualualei, West Oahu |
| 9/2003 – 9/2013 | Board Member, Hoa `Aina O Makaha, non-profit community educational farm in Makaha, West Oahu |
| 6/2000– 9/2012 | Co-founding member, <i>Mohala I ka Wai</i> a community organization formed in partnership with the Honolulu Board of Water Supply to increase community participation in water resource management |