**Jonathan L. Deenik**

**College of Tropical Agriculture and Human Resources**

**Tropical Plant and Soil Sciences**

FTE Distribution: 25% I; 25% R; 50% E

**Education**

|  |  |  |
| --- | --- | --- |
| **Degree** | **University** | **Major** |
| Bachelors | College of Wooster | Art History/History |
| Masters | University of Hawaii | Soil Science |
| PhD | University of Hawaii | Soil Science |

**Professional Appointments**

|  |  |  |
| --- | --- | --- |
| **Title** | **Employer** | **Dates Employed** |
| Department ChairSpecialistAssociate SpecialistAssistant Specialist | University of Hawaii at MānoaUniversity of Hawaii at MānoaUniversity of Hawaii at MānoaUniversity of Hawaii at Mānoa | 2019-present2014-present2008-20142003-2008 |

**Courses Taught**

Course Number and Title (credits)

TPSS 304 Fundamentals of Soil Science (4)

TPSS/NREM 450 Nutrient Mangement in agroecosystems (4)

**Publications (reverse chronological order)**

Book Chapters

|  |
| --- |
| Frazier, A.G., Deenik, J.L., Fugii, N.D., Funderbunk, G.R., Giambelluca, T.W., Giardina, C.P., Helweg, D.A., Keener, V.W., Mair, A., Marra, J.J., McDaniel, S., Ohye, L.N., Oki, D.S., Parsons, E.W., Strauch, A.M., and Trauernicht, C. 2019. Managing effects of drought in Hawaii and U.S. Affiliated Pacific Islands. *In* Vose, James M.; Peterson, David L.; Luce, Charles H.; Patel-Weynand, Toral, eds. Effects of drought on forests and rangelands in the United States: translating science into management responses. Gen. Tech. Rep. WO-98. Washington, DC: U.S. Department of Agriculture, Forest Service, Washington Office. 95-121.Giardina, C.P., Mackenzie, R.A., and Deenik J.L. 2019. Regional Summary: Hawaii and U.S. Affiliated Pacific Islands. In Forest and Rangeland Soils of the United States Under Changing Conditions: A Comprehensive Science Synthesis. USDA Forest Service Sustainable Forest Management General Technical Report  |

Conference Proceedings

Deenik, J.L. 2019. Soil diversity and agricultural adapation across Micronesia. Proceedings of the Western Region Nutrient Management Conference, Vol. 13, Reno, NV, March 7–8 , 2019.

Refereed Journal Publications

Cruz, Rica Dela; Wolfe, Eric; Yonemori, Kim M.; Fialkowski, Marie K.; Wilkens, Lynne R.; Coleman, Patricia; Lameko-Mua, Sunema; Johnson, Emihner; Gilmatam, Daisy; Sigrah, Cecilia; Shomour, Moria; Remengesau, Shelley; Alfred, Julia; Acosta, Mark; Ettienne, Reynolette; Deenik, Jonathan; Aflague, Tanisha; Salazar, Kristina Abello; Novotny, Rachel; Boushey, Carol J. 2022. Exploring Foods of the Pacific: Cultural Food Identity in the US Affiliated Pacific Region. Hawai'i Journal of Health & Social Welfare . Sep2022, Vol. 81 Issue 9, p247-252. 6p.

Ashley B. Yamanaka, Sabine Strasburger, Courtney Chow, Jean Butel, Lynne Wilkens, James D. Davis, Jonathan Deenik, Leslie Shallcross, Rachel Novotny. 2022. Food and Physical Activity Environment in the US-Affiliated Pacific Region: The Children's Healthy Living Program,

Journal of Nutrition Education and Behavior, 1499-4046, https://doi.org/10.1016/j.jneb.2022.08.009. https://doi.org/10.1016/j.jneb.2022.08.009.

Novotny, Rachel, A1 Yamanaka, Ashley B, A1 Dela Cruz, Rica, A1 Strasburger, Sabine, Boushey, Carol J, Butel, Jean, A1 Esquivel, Monica, Aflague, Tanisha F., Fleming, Travis, Coleman, Patricia, Deenik, Jonathan, A1 Shallcross, Leslie, A1 Wilkens, Lynne R. 2022. Food Group, Macronutrient Intake, and Metabolic Status in the US-Affiliated Pacific's Children's Healthy Living (CHL) Program. The Journal of Nutrition Community and International Nutrition, 1-15 https://doi.org/10.1093/jn/nxac173

Dela Cruz, Rica, Wolfe, Eric, Yonemori, Kim M., Fialkowski, Marie K., Wilkens, Lynne R., Coleman, Patricia, Lameko-Mua, Sunema, Johnson, Emihner, Gilmatam, Daisy, Sigrah, Cecilia, Shomour, Moria, Remengesau, Shelley, Alfred, Julia, Acosta, Mark, Ettienne, Reynolette, Deenik, Jonathan, Aflague, Tanisha F., Nelson, Randall, Salazar, Kristina Abello, Novotny, Rachel, Boushey, Carol J. 2022. Consumption of Traditional Fruits and Vegetables among Children in the US-Affiliated Pacific Region. Current Developments in Nutrition, 6(7):1-7 https://doi-org.eres.library.manoa.hawaii.edu/10.1093/cdn/nzac101

Dela Cruz, R., Eric Wolfe, KM Yonemori, MK Fialkowski, LR Wilkens, P Coleman, S Lameko-Mua,
E Johnson, D Gilmatam, C Sigrah, M Shomour, S Remengesau, J Alfred, M Acosta,
R Ettienne, J Deenik, TF Aflague, R Nelson, K Abello Salazar, R Novotny,
and CJ Boushey. 2022. Consumption of Traditional Fruits and Vegetables among Children in the
US-Affiliated Pacific Region, *Current Developments in Nutrition*, Volume 6, Issue 7, July 2022, nzac101, <https://doi.org/10.1093/cdn/nzac101>.

Yamanaka, A.B., Davis, J.D., Wilkens, L.R., Hurwitz, E.L., Fialkowski, M.K., Deenik, J., Guerrero, R.T., Novotny, R. 2021. “Determination of Child Waist Circumference Cut Points for Metabolic Risk Based on Acanthosis Nigricans, the Children's Healthy Living Program” Preventing Chronic Disease 18 **DOI:**10.5888/pcd18.210021

Reppun, F., Deenik, J., Martin, J., Hoy, C. 2021. “Effects of fresh and anaerobically digested algae (G. salicornia) as soil amendments on yield and nutrient concentrations of Pak Choy” Agroecology and Sustainable Food Systems. 45(9):1270-1299 **DOI:**10.1080/21683565.2021.1917470

Jamison, J., Khanal, S.K., Nguyen, N. H. Deenik, J.L. 2021. "Assessing the Effects of Digestates and Combinations of Digestates and Fertilizer on Yield and Nutrient Use of *Brassica juncea* (Kai Choy)" *Agronomy* 11, no. 3:509. https://doi.org/10.3390/agronomy11030509

Maaz, T.M., W.C. Hockaday, J.L. Deenik. 2021. Biochar Volatile Matter and Feedstock Effects on Soil Nitrogen Mineralization and Soil Fungal Colonization. Sustainability *13*, 2018. https://doi.org/10.3390/su13042018

Yu, J., Pavia, M.J., Deem, L.M., Crow, S.E., Deenik, J.L., and Penton, C. 2020. DNA-Stable Isotope Probing Shotgun Metagenomics Reveals the Resilience of Active Microbial Communities to Biochar Amendment in Oxisol Soil. Frontiers in Microbiology, 11:587972, doi: 10.3389/fmicb.2020.587972

Reppun, F, Syvertsen, J., Martin, J., Deenik, J, and Hoy, C. 2020. Soil management practices of farmers in the Kaneohe Bay watershed and potential for implementing algae-based soil amendments. Agroecology and Sustainable Food Systems, **DOI:** 10.1080/21683565.2020.1813233

Winter, K. B., Y. M. Rii, F. A. W. L. Reppun, K. DeLaforgue Hintzen, R. A. Alegado, B. W. Bowen, L. L. Bremer, M. Coffman, J. L. Deenik, M. J. Donahue, K. A. Falinski, K. Frank, E. C. Franklin, N. Kurashima, N. Kekuewa Lincoln, E. M. P. Madin, M. A. McManus, C. E. Nelson, R. Okano, A. Olegario, P. Pascua, K. L. L. Oleson, M. R. Price, M. J. Rivera, K. S. Rodgers, T. Ticktin, C. L. Sabine, C. M. Smith, A. Hewett, R. Kaluhiwa, M. Cypher, B. Thomas, J.-A. Leong, K. Kekuewa, J. Tanimoto, K. Kukea-Shultz, A. Kawelo, K. Kotubetey, B. J. Neilson, T. S. Lee and R. J. Toonen. 2020. Collaborative research to inform adaptive comanagement: a framework for the Heʻeia National Estuarine Research Reserve. Ecology and Society 25 (4):15. [online] URL: <https://www.ecologyandsociety.org/vol25/iss4/art15/>

Winter, K, N Lincoln, F Berkes, R Alegado, N Kurashima, K Frank, P Pascua, Y Rii, F Reppun, I Knapp, W McClatchey, T Ticktin, C Smith, EFranklin, K Oleson, M Price, M McManus, M Donahue, K Rodgers, B Bowen, C Nelson, B Thomas, J Leong, E Madin, MA Rivera, K Falinski, L Bremer,JL Deenik, S Gon III, B Neilson, R Okano, A Olegario, b Nyberg, AH Kawelo, K Kotubetey, JK Kukea-Shultz, R Toonen. 2020. Ecomimicry in Indigenous Resource Management: Optimizing ecosystem services to achieve resource abundance with examples from Hawaiʻi. Ecology and Society 25(2):26 https://doi.org/10.5751/ES-11539-250226

Yu, J., L.M. Deem, S.E. Crow, J.L. Deenik, and C.R Penton. 2019. Comparative metagenomics reveals enhanced nutrient cycling potential after 2 years of biochar amendment in a tropical Oxisol. Appl Environ Microbial 85:e02957-18. https://doi.org/10.1128/AEM.02957-18.

Butnan, S., J.L. Deenik, B. Toomsan, and P. Vityakon. 2018. Biochar properties affecting carbon stability in soils contrasting in texture and mineralogy. Agriculture and Natural Resources https://doi.org/10.1016/j.anres.2018.03.002

Yu, J., L.M. Deem, S.E. Crow, J.L. Deenik, and C.R Penton. 2017. Biochar application influences on microbial assemblage complexity and composition due to soil and bioenergy crop type interactions. Soil boil. Biochem Vol 117:97-107

Long, MS, CM Litton, CP Giardina, JL 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 19(3):749-763.

Extension Publications

Deenik, J.L. and Duponcheel, L. 2017. Soils and Agriculture on Tinian. Cooperative Extension Service Publication,CTAHR, SCM-34, pp. 8.

Reppun, F., J.H.S. Silva, K. Wong, and J.L. Deenik. 2017. A Soil Phosphorus Primer for Hawaiian Soils. Cooperative Extension Service Publication, CTAHR, SCM-33, pp. 5.

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.

Deenik, J., and A.T. McClellan. 2007. Soils of Hawaii. Cooperative Extension Service Publication, CTAHR, SCM–20 , pp. 12.

Deenik, J., R. Hamasaki, R. Shimabuku, and R. Uchida. 2007. Phosphorus fertilizer management for romaine lettuce grown in fertile volcanic ash soils of Hawaii. Cooperative Extension Service Publication, CTAHR, SCM–19 , pp. 3.

Deenik, J., R. Hamasaki, R. Shimabuko, S. Nakamoto, and R. Uchida. 2006. Phosphorus fertilizer management for head cabbage. Cooperative Extension Service Publication, CTAHR, SCM-16, pp. 6.

Deenik, J. 2006. Nitrogen mineralization potential in important agricultural soils of Hawaii. Cooperative Extension Service Publication, CTAHR, SCM-15, pp. 5.

Creative Works (i.e., Extension Videos, Websites, Blogs, Creative Designs and Exhibitions, etc.)

**Graduate Students**

|  |  |  |
| --- | --- | --- |
| Category | Current Number of Students | Number Graduated (Career) |
| *Chair* of Master’s Committees | 1 | 9 |
| *Chair* of PhD Committees | 1 |  |
| Member of Master’s Committees | 3 | 14 |
| Member of PhD CommitteesUndergraduate mentees | 22 | 826 |

**Grant Support**

Title of Grant: “Hawaiʻi climate smart commodities: A portfolio approach to equitably scaling the agriculture sector”

Source of Grant: USDA-NRCS

Dollar Value: $40,000,000

Dates of Grant: 1/2023 – 12/2028

Role: Co-PI

Title of Grant: “Developing a Web-Based Mapping Platform for Cropland Rating and Optimum Crop Selection”

Source of Grant: HDOA

Dollar Value: $199,218

Dates of Grant: 10/1/2022 – 9/30/2024

Role: Co-PI

Title of Grant: “Science of Soil Health”

Source of Grant: USDA-NRCS

Dollar Value: $140,973

Dates of Grant: 10/1/2020 – 9/30/2023

Role: Co-PI

Title of Grant: “Fungal-Bacterial Interactions: Bridging soil niches in regulating carbon and nitrogen processes”

Source of Grant: US Department of Energy

Dollar Value: $3,400,000

Dates of Grant: 10/1/2022 – 9/30/2025

Role: Co-PI

Title of Grant: An emergent soil health framework for agroecosystems in underrepresented tropical/subtropical islands or regions

Source of Grant: USDA-NIFA

Dollar Value: $499,000

Dates of Grant: 1/2020-12/2023

Role: Co-PI

Title of Grant: Forecasting daily reference evapotranspiration for water resources conservation and sustainable agriculture.

Source of Grant: USDA-NRCS CIG

Dollar Value: $900,000

Dates of Grant: 1/2020-12/2023

Role: Co-PI

Title of Grant: A Hawaii Soil Health Index to Guide Farmer Adoption of Sustainable Management Practices

Source of Grant: WSARE

Dollar Value: $25,000

Dates of Grant: 12/2019 – 12/2021

Role: Co-PI

Title of Grant: Implementing Soil Management Strategies and Soil Testing Technologies to Reduce Nutrient Loading for Intensive Farms on Oahu

Source of Grant: Hawaii State Department of Health

Dollar Value: $349,518

Dates of Grant: 8/2019 – 7/2022

Role: PI

Title of Grant: Putting the farmer in the driver’s seat: integrated web tool for improved soil health and carbon assessment monitoring and planning

Source of Grant: USDA-NIFA

Dollar Value: $449,968

Dates of Grant: 1/2018 – 1/2022

Role: Co-PI

Title of Grant: Capacity Building for Cooperative Extension in Micronesia to Reduce Pacific Island Food System Vulnerability to Climate Variability

Source of Grant: WSARE

Dollar Value: $74,858

Dates of Grant: 6/2018 – 6/2020

Role: Co-PI

Title of Grant: Crop-Specific Fertilizer Schedules to Improve Nitrogen Fertilizer Management for High-Value, Short-Season Vegetables and Herbs on Oahu

Source of Grant: USDA-HATCH

Dollar Value: $78,112

Dates of Grant: 10/2018 – 10/2020

Role: Co-PI

Title of Grant: Anaerobically-digested slurry (digestate) and digestate-derived biochar applications as fertilizers for organic farming

Source of Grant: USDA-HATCH

Dollar Value: $79,723

Dates of Grant: 10/2017 – 10/2019

Role: PI

Title of Grant: Land Suitability Analysis for Crop Growth in Hawaii

Source of Grant: USDA-HATCH

Dollar Value: $70,000

Dates of Grant: 10/2017 – 10/2019

Role: Co-PI

Title of Grant: Building climate knowledge in the cooperative extension service to increase capacity for climate change adaptation and mitigation among Pacific Island agricultural systems

Source of Grant: OIA Technical Assistance Program

Dollar Value: $121,371

Dates of Grant: 4/2017 – 4/2019

Role: Co-PI

Title of Grant: Engaging community to restore wetland kalo and study water recharge

Source of Grant: Department of Land and Natural Resources

Dollar Value: $74,293

Dates of Grant: 7/2017 – 6/2018

Role: Co-PI

Title of Grant: Real-time Optimization of Irrigation Scheduling for Farmlands in Hawaii, Guam, and American Samoa

Source of Grant: USDA-NRCS CIG

Dollar Value: $979,927

Dates of Grant: 10/2016 – 9/2020

Role: Co-PI

Title of Grant: Hawaii crop suitability model expansion

Source of Grant: Ulupono Initiative

Dollar Value: $12,087

Dates of Grant: 12/2016 – 5/2017

Role: Co-PI

Title of Grant: Measureable Soil Quality

Source of Grant: USDA-HATCH

Dollar Value: $79,442

Dates of Grant: 10/2016 – 9/2018

Role: Co-PI

**Presentations at Conferences**

Title: Characterizing soil-water relations to improve irrigation practices in Hawaiʻi’s agricultural systems

Authors (put an asterisk on the presenter): Lam, K\*., J.L. Deenik, S. Bateni, and Y.P. Tsang

Name of Conference: Student Research Symposium, College of Tropical Agriculture and Human Resources and College of Engineering

Location: University of Hawaii at Manoa

Date of Presentation: April 15, 2019

Title: Turning waste into resources: Anaerobic digestate’s potential as a biofertilizer in Hawaii

Authors (put an asterisk on the presenter): Pitts, J.\*, J. L. Deenik, N. Nguyen, and S. Khanal

Name of Conference: Student Research Symposium, College of Tropical Agriculture and Human Resources and College of Engineering

Location: University of Hawaii at Manoa

Date of Presentation: April 15, 2019

Title: Towards a Hawaiʻi Soil Health Index: Identifying Sensitive and Practical Indicators of Change Across Land Use and Soil Diversity

Authors (put an asterisk on the presenter): Hubanks, H.\* S Crow, J Deenik

Name of Conference: Student Research Symposium, College of Tropical Agriculture and Human Resources and College of Engineering

Location: University of Hawaii at Manoa

Date of Presentation: April 15, 2019

Title: Soil diversity and agricultural adapation across Micronesia,

Authors (put an asterisk on the presenter): Deenik, J.L.\*

Name of Conference: Western Region Nutrient Management Conference

Location: Reno, NV

Date of Presentation: March 7–8, 2019

Title: Optimizing soil health and climate mitigation potential across various Hawaiian landscapes and management

Authors (put an asterisk on the presenter): Hubanks, H.\*, S Crow, J Deenik

Name of Conference: Student Research Symposium, College of Tropical Agriculture and Human Resources and College of Engineering

Location: University of Hawaii at Manoa

Date of Presentation: April 6, 2018

Title: Optimizing soil health and climate mitigation potential across various Hawaiian landscapes and management

Authors (put an asterisk on the presenter): Hubanks, H.\* S Crow, J Deenik

Name of Conference: Student Research Symposium, College of Tropical Agriculture and Human Resources and College of Engineering

Location: University of Hawaii at Manoa

Date of Presentation: April 6, 2018

Title: Atolls to high volcanoes: soil diversity and agricultural adaptation across Micronesia.

Authors (put an asterisk on the presenter): Deenik, JL\*

Name of Conference: William A. “Tex” Frazier Lecture Annual Conference American Society of Horticultural Science

Location: Waikaloa Hilton, Waikaloa, Hawaii

Date of Presentation: Sept 19, 2017

Title: A Framework to Improve Nitrogen Fertilizer Use Efficiency in Intensive Vegetable Systems of Hawaii

Authors (put an asterisk on the presenter): Loo, Mitchell\*, Jensen Uyeda, Michael D. Cahn, and Jonathan L. Deenik

Name of Conference: Annual Conference American Society of Horticultural Science

Location: Waikaloa Hilton, Waikaloa, Hawaii

Date of Presentation: Sept 19, 2017

Title: Towards a Hawai`i soil health index: water stable aggregates and carbon pools following change from conventional to conservation management

Authors (put an asterisk on the presenter): Hubanks, H.\*, J Deenik, S Crow

Name of Conference: Hawaii Agriculture Conference

Location: Honolulu, Hawaii

Date of Presentation: Aug. 29, 2017

Title: Soil Nitrate Quick Test Offers Accurate, Practical, Rapid, and Cost-effective Method for Soil Nitrate Determination in Hawaii Commercial Vegetable Production

Authors (put an asterisk on the presenter): M.K. Loo\*, Crow,S, Ryals R, Yost R, Deenik J

Name of Conference: : Student Research Symposium, College of Tropical Agriculture and Human Resources and College of Engineering

Location: University of Hawaii at Manoa

Date of Presentation: April 7, 2017

Title: Linking Research and Extension; On-Farm Impacts of a Nitrogen Fertilizer Management Framework

Authors (put an asterisk on the presenter): M.K. Loo\*, Uyeda, J, Cahn, M, Ryals, R, Yost R, Deenik J

Name of Conference: : Student Research Symposium, College of Tropical Agriculture and Human Resources and College of Engineering

Location: University of Hawaii at Manoa

Date of Presentation: April 7, 2017

Title: Towards a Hawai`i soil health index: water stable aggregates and carbon pools following change from conventional to conservation management

Authors (put an asterisk on the presenter): Hubanks, H.\*, J Deenik, S Crow

Name of Conference: : Student Research Symposium, College of Tropical Agriculture and Human Resources and College of Engineering

Location: University of Hawaii at Manoa

Date of Presentation: April 7, 2017

Title: Preliminary assessment of the Solvita –CO2 test in characterizing management effects on soil biological activity in some soils of Hawaii

Authors (put an asterisk on the presenter): Deenik, J.L.\* and M.K. Loo

Name of Conference: Western Region Nutrient Management Conference

Location: Reno, NV

Date of Presentation: Mar 3, 2017