

Ikkei Shikano
College of Tropical Agriculture and Human Resources
Plant and Environmental Protection Sciences
FTE Distribution: 60% I; 40% R; 0% E

Education

Degree

Bachelors
Masters
PhD

University

University of British Columbia
University of British Columbia
Simon Fraser University

Major

General Biology
Plant Science
Biological Sciences

Professional Appointments

Title

Assistant Professor
Postdoctoral Researcher

Employer

University of Hawai'i at Mānoa
Pennsylvania State University

Dates Employed

2019 – present
2014 – 2019

Courses Taught

Course Number and Title (credits)

PEPS 250 World of Insects (3 credits)
PEPS 363 General Entomology (3 credits)
PEPS 363L General Entomology Laboratory (1 credit)
PEPS 421 Foundations in Pest Management (1 credit)
PEPS 486 Insect-Plant Interactions (3 credit)
PEPS 499 Directed Research (1 credit)
PEPS 640 Insect Nutrient Regulation (3 credit)
PEPS 690 Seminar in Entomology (1 credit)
PEPS 691 Special Topics in Entomology (Insect Herbivory) (2 credit)
PEPS 699 Directed Research (1 credit)
PEPS 799 Proposal/Defense Seminar (1 credit)

Publications (reverse chronological order)

Patents

Shikano, I. and Streit, C. Thickening oil formulations of fungal entomopathogen.

US provisional patent application number 63/472,082 filed on 6/9/2023.

International patent PCT application number PCT/US2024/033150 filed on 6/7/2024

Refereed Journal Publications

Mason, C.J., Grummer, A., Bosch, M. & **Shikano, I.** (2025) Adult dietary experience influences mortality of the pest melon fly, *Zeugodacus cucurbitae* (Diptera: Tephritidae), to an ingested toxin. *Physiological Entomology* 50: 77-87.

Jones, A.G., **Shikano, I.**, Mason, C.J., Peiffer, M., Felton, G.W. & Hoover, K. (2025) Effects of baculovirus-killed cadavers on plant defenses and insect behavior. *Arthropod-Plant Interactions* 19: 1-18.

Mason, C.J., Nelson, R.C., Weaver, M., Simmonds, T., Geib, S. & **Shikano, I.** (2024) Utilizing full-length 16S

rRNA sequencing to assess the impact of diet formulation and age on targeted gut microbiome colonization in laboratory and mass-reared Mediterranean fruit flies. *BioRxiv*. DOI: 10.1101/2024.12.27.630527

Pan, Q., **Shikano, I.**, Liu, F. & Yao, Z. (2024) Effects of gut bacteria on fitness of rice leaf folder, *Cnaphalocrocis medinalis*. *Insects* 15: 947.

Pan, Q., Shen, J., Su, L., **Shikano, I.**, Liu, T-X. & Chen, L. (2024) Fitness of *Mythimna separata* (Lepidoptera: Noctuidae) on cultivated wheat and a weed, wild oat (*Avena fatua*). *Biology* 13: 1037.

Stockton, D.G., Kraft, L., Dombrowski, P., Doucette, L., Bosch, M., Gutierrez-Coarite, R., Manandhar, R., Uyeda, J., Silva, J., Hawkins, J. & **Shikano, I.** (2024) Persistence of widespread moderate Spinosad resistance among wild melon fly (*Zeugodacus cucurbitae*) and oriental fruit fly (*Bactrocera dorsalis*) populations on the major Hawaiian Islands. *Pest Management Science* 80: 5640-5647.

Pennington, S.K. & **Shikano, I.** (2024) Changes in tomato plant anti-herbivore defenses after soil application of a biofungicide containing *Bacillus subtilis* (Serenade ASO). *Biocontrol Science and Technology* 34: 718-735.

Pan, Q., Ang, Y. & **Shikano, I.** (2024) Effects of adult diet on the longevity, fecundity and ovarian development of the rice leaf folder, *Cnaphalocrocis medinalis*. *Physiological Entomology* 49: 422-429.

Armstrong, K.M., Uyeda, & **Shikano, I.** (2024) Influence of the parasitoid *Cotesia vestalis* on the distribution of Diamondback moth larvae on cabbage plants. *Arthropod-Plant Interactions* 18: 1253-1262.

Pugh de los Reyes, M., Wang, K-H. & **Shikano, I.** (2024) Age-dependent efficacy of putative dead-end trap crops *Barbarea verna* and *Lepidium sativum* on diamondback moth, *Plutella xylostella*. *Arthropod-Plant Interactions* 18:1227-1236.

Sakamoto, J.M., **Shikano, I.**, Rasgon, J.L. (2024) Microbiomes of two pest fly species of Pennsylvania mushroom houses. *Insects* 15:525.

Mason, C. & **Shikano, I.** (2023) Hotter days, stronger immunity? Exploring the impact of rising temperatures on insect gut health and microbial relationships. *Current Opinion in Insect Science* 101096.

Pan, Q., **Shikano, I.**, Liu, T.X. & Felton, G.W. (2023) *Helicoverpa zea*-associated gut bacteria as drivers in shaping plant anti-herbivore defense in tomato. *Microbial Ecology* 86:2173-2182.

Budhathoki, S., Sipes, B.S., **Shikano, I.**, Myers, R.Y., Manandhar, R. & Wang, K-H. (2023) Integrating trap cropping and entomopathogenic nematode foliar sprays to manage Diamondback moth and imported cabbage worm. *Horticulturae* 8:1073.

Kihata, N. & **Shikano, I.** (2022) Enemy-risk effects in parasitoid-exposed diamondback moth larvae: potential mediation of the interaction by host plants. *Insects* 13:818.

Pugh, M., Kihata, N., Uyeda, J., Wang, K-H., & **Shikano, I.** (2022) The effects of a naturalized weed, *Lepidium virginicum*, on the development and behaviors of the diamondback moth and its natural enemies in Hawaii. *Biological Control* 173:104994.

Shikano, I., Gutierrez-Coarite, R., Streit, C., Perez, E., Fujitani, E., & Mau, R.F.L. (2022) Field tests of three alternative insecticides with protein bait for the development of an insecticide rotation program to control melon flies, *Zeugodacus cucurbitae* (Coquillett) (Diptera: Tephritidae). *Insects* 13:629

Honsberger, D., Matsunaga, J.N., Wang, K.H. & **Shikano, I.** (2022) *Oomyzus sokolowskii* (Hymenoptera: Eulophidae) joins the small complex of parasitoids known to attack the diamondback moth on Kauai. *Proceedings of the Hawaiian Entomological Society* 54:21-25.

Hsu, J-C., Chou, M.Y., Mau, R.F.L., Maeda, C., **Shikano, I.**, Manoukis, N.C. & Vargas, R.I. (2021) Spinosad

resistance in field populations of melon fly, *Zeugodacus cucurbitae* (Coquillett), in Hawaii. *Pest Management Science* 77:5439-5444.

Mogren, C.L. & **Shikano, I.** (2021) Microbiota, pathogens, and parasites as mediators of tritrophic interactions between insect herbivores, plants, and pollinators. *Journal of Invertebrate Pathology* 186:107589.

Shikano, I., Bellicanta, G.S., Principato, S. & Jenkins, N.E. (2021) Effects of chemical insecticide residues and household surface type on a *Beauveria bassiana*-based biopesticide (Aprehend®) for bed bug management. *Insects* 12:214.

Shikano, I., Woolcott, J., Cloonan, K., Andreadis, S. & Jenkins, N.E. (2021) Biology of mushroom phorid flies, *Megaselia halterata* (Diptera: Phoridae): effects of temperature, humidity, crowding and compost stage. *Environmental Entomology* 50:149-153.

Pan, Q., **Shikano, I.**, Felton, G.W., Liu, T-X. & Hoover, K. (2021) Host permissiveness to baculovirus influences time-dependent immune responses and fitness costs. *Insect Science* 28:103-114.

Shikano, I. (2020) Efficacy of a fungal biopesticide for bed bug management is influenced by the toxicity and associated behavioral avoidance of harborages on insecticide-impregnated box spring covers. *Journal of Economic Entomology* 113:2850-2857.

Extension Publications

Wang, K.-H., **Shikano, I.**, and Uyeda, J. 2024. IPM for edible crops in Hawaii. *Hānai‘Ai Newsletter* April-June 2024.

Wang, K.-H., Budhathoki, S., Pugh, M., **Shikano, I.**, Silva, J., Uyeda, J. and Manandhar, R. 2021. Insecticide resistance management for diamondback moth in organic farms: Integration of trap cropping, intermittent sprinkler irrigation and biological control. *Hānai‘Ai Newsletter* Jan-Mar 2021.

Leadership Roles (Committees, Boards, Advisory, etc.)

Search Committee Chair, PEPS Faculty Position Search Committee (2024 Assistant Specialist in Arthropod Identification and Monitoring – successfully hired Dr. P. Aigbedion-Atalor)

Senator and Chair of Personnel Committee, CTAHR Senate (2024-present)

Ad-Hoc Committee, PEPS Workload Credit Equivalency (2024)

Faculty Advisory Board Member, Undergraduate Research Opportunities Council (UROC) (2024-present)

Associate Editor, Editorial Board of Arthropod-Plant Interactions (2024-present)

Review Editor, Editorial Board of Frontiers in Insect Science (2020-present)

Lead-organizer and Moderator, Symposium: “Basic and Applied Parasitoid-Host Interactions in Classical Biological Control”, Entomological Society of America Pacific Branch (2024)

Manager, Edward M. Ehrhorn Entomology Scholarship in Entomology (2023-present)

Tropical Agriculture and Environment (TAE) Curriculum Committee (2019 – 2021; 2022-2024)

Manager, Gilmore Hall Rooftop Greenhouse (2019-present)

Contributor, SPLAT-MAT-CL Methods Development Meeting, USDA APHIS, Response to two fruit fly quarantine programs in California (2023)

Technical Working Group, USDA APHIS, Response to an outbreak of *Zeugodacus tau* (pumpkin fruit fly; Family:

Tephritidae) in Stevenson Ranch, Los Angeles County, California (2023)
 President, Hawaiian Entomological Society (2022-2023)
 President-Elect, Hawaiian Entomological Society (2021-2022)
 Lead-organizer, Hawaiian Entomological Society Student and Early Career Researcher Symposium (2022)
 Faculty Advisor, Ka Mea Kolo Entomology Club (2020-2021)
 CTAHR Strategic Planning Working Group (2021-2022)
 Co-manager, Wallace C. and Shizuko Mitchell Endowed Scholarship in Entomology (2020-2021)

Graduate Students

<u>Category</u>	<u>Current Number of Students</u>	<u>Number Graduated (Career)</u>
<i>Chair of Masters Committees</i>	3 (Sarah Pennington, Nami Moennich, April Grummer)	4 (Morgan Pugh, Christian Streit, Kevin Armstrong, Maya Montoya-Pimolwatana)
<i>Chair of PhD Committees</i>	1 (Tareq Ahmed)	0
<i>Member of Masters Committees</i>	0	2 (Sabina Budhathoki, Daniel Hausler)
<i>Member of PhD Committees</i>	2 (Michelle Au, Jordie Ocenar)	1 (Sayaka Aoki)

Grant Support

<u>Title of Grant:</u>	Sustainable management of the tropical nut borer (TNB), a key macadamia pest, using novel applications of entomopathogens
<u>Source of Grant:</u>	WSARE Research and Education Program
<u>Total Dollar Value:</u>	\$349,521 (\$349,521)
<u>Dates of Grant:</u>	2025 – 2028 (PENDING)
<u>Role (PI, CoPI):</u>	PI
<u>Title of Grant:</u>	Facilitate horizontal transfer of insecticides from male to female fruit flies
<u>Source of Grant:</u>	USDA PPA7721
<u>Total Dollar Value:</u>	\$117,216 (\$117,216)
<u>Dates of Grant:</u>	2025 – 2026 (FUNDED)
<u>Role (PI, CoPI):</u>	PI
<u>Title of Grant:</u>	Developing an insecticide rotation to combat spinosad-resistance in three species of invasive Tephritidae fruit flies – Year 4
<u>Source of Grant:</u>	USDA PPA7721
<u>Total Dollar Value:</u>	\$194,212 (\$194,212)
<u>Dates of Grant:</u>	2025 – 2026 (FUNDED)
<u>Role (PI, CoPI):</u>	PI
<u>Title of Grant:</u>	Establishment of microbial probiotics in SIT-reared Medfly – Year 2

<u>Source of Grant:</u>	USDA PPA7721
<u>Total Dollar Value:</u>	\$221,187 (non-assistance cooperative agreement; all funds routed to Shikano)
<u>Dates of Grant:</u>	2025 – 2026 (FUNDED)
<u>Role (PI, CoPI):</u>	Co-PI
 <u>Title of Grant:</u>	 CAREER: Factors influencing the pathogenicity of a fungal pathogen of houseflies
<u>Source of Grant:</u>	National Science Foundation Faculty Early Career Development Program (NSF CAREER)
<u>Total Dollar Value:</u>	\$998,508
<u>Dates of Grant:</u>	2025 – 2030 (NOT FUNDED)
<u>Role (PI, CoPI):</u>	PI
 <u>Title of Grant:</u>	 Modifying Jackson traps to increase catch efficiency of melon flies
<u>Source of Grant:</u>	Commodity Credit Corporation and USDA APHIS Plant Pest Quarantine Science & Technology
<u>Total Dollar Value:</u>	\$160,879 (\$160,879)
<u>Dates of Grant:</u>	2024 – 2026 (FUNDED)
<u>Role (PI, CoPI):</u>	PI
 <u>Title of Grant:</u>	 Developing a mass-producible bait station containing entomopathogenic fungi for the control of invasive Tephritidae fruit flies
<u>Source of Grant:</u>	USDA NIFA Crop Protection and Pest Management (CPPM) Program
<u>Total Dollar Value:</u>	\$324,956 (\$324,956)
<u>Dates of Grant:</u>	2024 – 2027 (FUNDED)
<u>Role (PI, CoPI):</u>	PI
 <u>Title of Grant:</u>	 Technology: Fungal spore insecticide
<u>Source of Grant:</u>	USDA NIFA Crop Protection and Pest Management (CPPM) Patents2Products Program. Office of Innovation and Commercialization (OIC), University of Hawaii
<u>Total Dollar Value:</u>	\$101,411 (\$101,411)
<u>Dates of Grant:</u>	2024 – 2025 (FUNDED)
<u>Role (PI, CoPI):</u>	PI
 <u>Title of Grant:</u>	 Leveraging insect behavior for sustainable pest management (HAW09051-H)
<u>Source of Grant:</u>	HATCH, United States Department of Agriculture
<u>Total Dollar Value:</u>	n/a
<u>Dates of Grant:</u>	2024 – 2029 (APPROVED)
<u>Role (PI, CoPI):</u>	PI
 <u>Title of Grant:</u>	 Utilizing phytochemical diversity and microbes for effective nematode control
<u>Source of Grant:</u>	USDA NIFA Postdoctoral Fellowship
<u>Total Dollar Value:</u>	\$224,280 (\$224,280)
<u>Dates of Grant:</u>	2024 – 2025 (FUNDED)
<u>Role (PI, CoPI):</u>	Primary Mentor
 <u>Title of Grant:</u>	 Field testing of bait stations containing a fungal pathogen to control invasive fruit flies – Year 3
<u>Source of Grant:</u>	USDA PPA7721

<u>Total Dollar Value:</u>	\$269,758 (\$196,570)
<u>Dates of Grant:</u>	2024 – 2025 (FUNDED)
<u>Role (PI, CoPI):</u>	PI
 <u>Title of Grant:</u>	 Developing an insecticide rotation to combat spinosad-resistance in three species of invasive Tephritidae fruit flies – Year 3
<u>Source of Grant:</u>	USDA PPA7721
<u>Total Dollar Value:</u>	\$170,660 (\$170,660)
<u>Dates of Grant:</u>	2024 – 2025 (FUNDED)
<u>Role (PI, CoPI):</u>	PI
 <u>Title of Grant:</u>	 Establishment of microbial probiotics in SIT-reared Medfly
<u>Source of Grant:</u>	USDA PPA7721
<u>Total Dollar Value:</u>	\$216,695 (non-assistance cooperative agreement; all funds routed to Shikano)
<u>Dates of Grant:</u>	2024 – 2025 (FUNDED)
<u>Role (PI, CoPI):</u>	Co-PI
 <u>Title of Grant:</u>	 Insect nutrient regulation when confronted with pesticides
<u>Source of Grant:</u>	Faculty Mentoring Grants for Summer Undergraduate Research and Creative Works, Undergraduate Research Opportunities Program (UROP), University of Hawaii at Manoa
 <u>Total Dollar Value:</u>	 \$4,528 (\$4,528)
<u>Dates of Grant:</u>	2024 (FUNDED)
<u>Role (PI, CoPI):</u>	PI
 <u>Title of Grant:</u>	 N/A
<u>Source of Grant:</u>	CTAHR Internal Funding Opportunity
<u>Total Dollar Value:</u>	\$24,912 (\$24,912)
<u>Dates of Grant:</u>	2023 – 2024 (FUNDED)
<u>Role (PI, CoPI):</u>	PI
 <u>Title of Grant:</u>	 Field testing of bait stations containing a fungal pathogen to control invasive fruit flies
<u>Source of Grant:</u>	USDA PPA7721
<u>Total Dollar Value:</u>	\$206,425 (\$166,980)
<u>Dates of Grant:</u>	2023 – 2024 (FUNDED)
<u>Role (PI, CoPI):</u>	PI
 <u>Title of Grant:</u>	 Developing an insecticide rotation to combat spinosad-resistance in three species of invasive Tephritidae fruit flies
<u>Source of Grant:</u>	USDA PPA7721
<u>Total Dollar Value:</u>	\$129,851 (\$129,851)
<u>Dates of Grant:</u>	2023 – 2024 (FUNDED)
<u>Role (PI, CoPI):</u>	PI
 <u>Title of Grant:</u>	 Optimizing bacterial probiotic establishment for medfly sterile insect technique
<u>Source of Grant:</u>	USDA PPA7721
<u>Total Dollar Value:</u>	\$162,176 (non-assistance cooperative agreement; all funds routed to Shikano)
<u>Dates of Grant:</u>	2023 – 2024 (FUNDED)

<u>Role (PI, CoPI):</u>	Co-PI
<u>Title of Grant:</u>	Conservation of green lacewings in avocado groves to suppress avocado lace bug populations
<u>Source of Grant:</u>	Specialty Crop Block Grant Program, Hawaii Department of Agriculture
<u>Total Dollar Value:</u>	\$40,000 (\$40,000)
<u>Dates of Grant:</u>	2022 – 2023 (FUNDED)
<u>Role (PI, CoPI):</u>	PI
<u>Title of Grant:</u>	Transdisciplinary education for a contemporary land grant college: The case of Hawaii 2022-2025
<u>Source of Grant:</u>	NIFA, Higher Education - Institution Challenge Grants Program
<u>Total Dollar Value:</u>	\$150,000
<u>Dates of Grant:</u>	2022 – 2025 (NOT FUNDED)
<u>Role (PI, CoPI):</u>	PI
<u>Title of Grant:</u>	Leveraging a naturalized weed to enhance conservation biological control of Diamondback moths in Hawaii
<u>Source of Grant:</u>	Western SARE
<u>Total Dollar Value:</u>	\$349,936
<u>Dates of Grant:</u>	2022 – 2025 (NOT FUNDED)
<u>Role (PI, CoPI):</u>	PI
<u>Title of Grant:</u>	Integrating insect growth regulators (IGRs) into the framework of invasive fruit fly IPM
<u>Source of Grant:</u>	EPA Pesticide Environmental Stewardship Program
<u>Total Dollar Value:</u>	\$99,911
<u>Dates of Grant:</u>	2022 – 2024 (NOT FUNDED)
<u>Role (PI, CoPI):</u>	PI
<u>Title of Grant:</u>	Auto-dissemination of a microbial insecticide to control invasive fruit flies
<u>Source of Grant:</u>	USDA PPA7721
<u>Total Dollar Value:</u>	\$175,694 (\$138,694)
<u>Dates of Grant:</u>	2022 – 2023 (FUNDED)
<u>Role (PI, CoPI):</u>	PI
<u>Title of Grant:</u>	Determine the prevalence of spinosad resistance in invasive fruit flies in Hawaii and test alternative bait-insecticides
<u>Source of Grant:</u>	USDA PPA7721
<u>Total Dollar Value:</u>	\$165,041 (\$165,041)
<u>Dates of Grant:</u>	2022 – 2024 (FUNDED)
<u>Role (PI, CoPI):</u>	PI
<u>Title of Grant:</u>	Outreach education on insecticide resistance management for the control of melon fly in Hawaii and Nationwide
<u>Source of Grant:</u>	USDA PPA7721
<u>Total Dollar Value:</u>	\$86,189
<u>Dates of Grant:</u>	2022 – 2023 (NOT FUNDED)
<u>Role (PI, CoPI):</u>	Co-PI
<u>Title of Grant:</u>	Assessing the distribution of introduced parasitoid species of the diamondback moth, <i>Plutella xylostella</i>, in Hawaii

<u>Source of Grant:</u>	USDA-APHIS CAPS Biological Control
<u>Total Dollar Value:</u>	\$72,526
<u>Dates of Grant:</u>	2022 – 2024 (NOT FUNDED)
<u>Role (PI, CoPI):</u>	PI
<u>Title of Grant:</u>	Entomovectoring as a novel integrated pest management approach for controlling Macadamia felted coccid in Hawaiian Macadamia nut orchards
<u>Source of Grant:</u>	USDA-NIFA Crop Protection and Pest Management Program
<u>Total Dollar Value:</u>	\$324,654
<u>Dates of Grant:</u>	2021 – 2024 (NOT FUNDED)
<u>Role (PI, CoPI):</u>	Co-PI
<u>Title of Grant:</u>	Demonstration of chayote as a sustainable, melon fly resistant cucurbit crop for Hawai'i
<u>Source of Grant:</u>	Specialty Crop Block Grant Program, Hawaii Department of Agriculture
<u>Total Dollar Value:</u>	\$40,000
<u>Dates of Grant:</u>	2022 – 2023 (NOT FUNDED)
<u>Role (PI, CoPI):</u>	PI
<u>Title of Grant:</u>	Determining the prevalence of spinosad resistance in Hawai'i Tephritidae fruit fly populations
<u>Source of Grant:</u>	Plant Protection Act Section 7721 Funding, Plant Pest and Disease Management and Disaster Prevention Program (PPDMDPP) and the National Clean Plant Network (NCPN) Programs of the U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS)
<u>Total Dollar Value:</u>	\$139,801
<u>Dates of Grant:</u>	2020 – 2021 (NOT FUNDED)
<u>Role (PI, CoPI):</u>	PI
<u>Title of Grant:</u>	Dogs to sniff out invasive fruit flies and educate urban communities
<u>Source of Grant:</u>	Hawaii Invasive Species Council
<u>Total Dollar Value:</u>	\$7,315
<u>Dates of Grant:</u>	2020 – 2021 (NOT FUNDED)
<u>Role (PI, CoPI):</u>	PI
<u>Title of Grant:</u>	Assessing dead-end trap crops for the management of diamondback moths in Hawaii
<u>Source of Grant:</u>	Specialty Crop Block Grant Program, Hawaii Department of Agriculture
<u>Total Dollar Value:</u>	\$35,000 (\$35,000)
<u>Dates of Grant:</u>	2021 – 2022 (FUNDED)
<u>Role (PI, CoPI):</u>	PI
<u>Title of Grant:</u>	Fatal attraction: Diverting herbivorous pest insects onto plants that kill them
<u>Source of Grant:</u>	2020 Faculty Mentoring Grants for Summer Undergraduate Research and Creative Works, Undergraduate Research Opportunities Program (UROP), University of Hawaii at Manoa
<u>Total Dollar Value:</u>	\$3,655 (\$3,655)
<u>Dates of Grant:</u>	2020 – 2020 (FUNDED)
<u>Role (PI, CoPI):</u>	PI

<u>Title of Grant:</u>	Leveraging the wing beating courtship rituals of Tephritidae fruit flies to develop novel attract-and-kill methods
<u>Source of Grant:</u>	Strategic Environmental Research and Development Program (SERDP), Resource Conservation and Resiliency (RC) Program Area, Department of Defense
<u>Total Dollar Value:</u>	\$249,983
<u>Dates of Grant:</u>	2021 – 2022 (NOT FUNDED)
<u>Role (PI, CoPI):</u>	PI
 <u>Title of Grant:</u>	 Insecticide resistance management for diamondback moth in organic farms: integrating push-pull cropping, insect behavior and microbial biocontrol
<u>Source of Grant:</u>	2019 CTAHR Team Science Concept Note, College of Tropical Agriculture and Human Resources, University of Hawaii at Manoa
<u>Total Dollar Value:</u>	\$78,154 (all funds to Wang; \$16,605 used to pay Shikano's GA)
<u>Dates of Grant:</u>	2020 – 2020 (FUNDED)
<u>Role (PI, CoPI):</u>	Co-PI
 <u>Title of Grant:</u>	 Leveraging fitness costs associated with insecticide-resistance and host plant heterogeneity for pest management (HAW09051-H)
<u>Source of Grant:</u>	HATCH, United States Department of Agriculture
<u>Total Dollar Value:</u>	n/a
<u>Dates of Grant:</u>	2019 – 2024 (APPROVED)
<u>Role (PI, CoPI):</u>	PI

Presentations at Conferences

<u>Title:</u>	Development of an attract-and-kill device containing a novel fungal biopesticide to control invasive fruit flies in Hawaii
<u>Authors (put an asterisk on the presenter):</u>	*Shikano, I. & Pennington
<u>Name of Conference:</u>	CTAHR Conference, University of Hawaii at Manoa
<u>Location:</u>	Honolulu, HI
<u>Date of Presentation:</u>	04/10/2025– 04/11/25
 <u>Title:</u>	 Development of an auto-dissemination device for spreading entomopathogenic fungi, <i>Beauveria bassiana</i>, to fruit flies (Diptera: Tephritidae)
<u>Authors (put an asterisk on the presenter):</u>	*Pennington, S. Stockton, D., Snyder, J., Fairbanks, K., Dickens, K. & Shikano, I.
<u>Name of Conference:</u>	Entomological Society of America Annual Meeting (Entomology 2024)
<u>Location:</u>	Phoenix, AZ
<u>Date of Presentation:</u>	11/10/2024– 11/13/24
 <u>Title:</u>	 Development of an auto-dissemination device for spreading entomopathogenic fungi, <i>Beauveria bassiana</i>, to melon fly (<i>Zeugodacus cucurbitae</i>)
<u>Authors (put an asterisk on the presenter):</u>	*Pennington, S. Stockton, D., Snyder, J., Fairbanks, K., Dickens, K., Dombrowski, P. & Shikano, I.
<u>Name of Conference:</u>	XXVII International Congress of Entomology (ICE 2024)

Location: Kyoto, Japan
Date of Presentation: 08/25/2024– 08/30/24

Title: **A novel formulation of entomopathogenic fungus, *Beauveria bassiana*, to manage invasive fruit flies (Diptera: Tephritidae)**
Authors (put an asterisk on the presenter): *Shikano, I., Streit, C., Pennington, S. & Stockton, D.
Name of Conference: XXVII International Congress of Entomology (ICE 2024)
Location: Kyoto, Japan
Date of Presentation: 08/25/2024– 08/30/24

Title: **A novel formulation of entomopathogenic fungi that facilitates horizontal transfer of spores and improves long-term viability in bait stations**
Authors (put an asterisk on the presenter): *Shikano, I.
Name of Conference: Third International Congress of Biological Control (ICBC3)
Location: San Jose, Costa Rica
Date of Presentation: 06/24/2024– 06/27/24

Title: **The development of a novel formulation of entomopathogenic fungi for use in bait stations to control three species of fruit flies in Hawaii**
Authors (put an asterisk on the presenter): *Shikano, I., Streit, C., Pennington, S. & Stockton, D.
Name of Conference: 11th Tephritid Workers of the Western Hemisphere (TWWH) Meeting
Location: Montego Bay, Jamaica
Date of Presentation: 06/03/2024– 06/07/24

Title: **Parasitoid-mediated changes in the distribution of diamondback moth (*Plutella xylostella*) larvae on their host plants**
Authors (put an asterisk on the presenter): *Shikano, I., Armstrong, K. and Kihata, N.
Name of Conference: Entomological Society of America Pacific Branch Meeting
Location: Waikoloa, HI
Date of Presentation: 04/14/2024– 04/17/24

Title: **A novel formulation containing the fungal pathogen, *Beauveria bassiana*, to manage invasive Tephritidae fruit flies (Diptera: Tephritidae)**
Authors (put an asterisk on the presenter): *Shikano, I., Streit, C. and Pennington, S.
Name of Conference: Entomological Society of America Pacific Branch Meeting
Location: Waikoloa, HI
Date of Presentation: 04/14/2024– 04/17/24

Title: **The influence of farm practice and insecticide application on the bacterial profile of *Plutella xylostella* populations across Oahu and Maui**
Authors (put an asterisk on the presenter): *Montoya-Pimolwatana, M.L., Shikano, I., Silva, J., Uyeda, J. and Jani, A.
Name of Conference: Entomological Society of America Pacific Branch Meeting
Location: Waikoloa, HI
Date of Presentation: 04/14/2024– 04/17/24

Title: **Susceptibility of Spinosad-resistant melon flies (*Zeugodacus cucurbitae*) to entomopathogenic fungi, *Beauveria bassiana***
Authors (put an asterisk on the presenter): *Pennington, S. and Shikano, I.
Name of Conference: Entomological Society of America Pacific Branch Meeting
Location: Waikoloa, HI
Date of Presentation: 04/14/2024– 04/17/24

Title: **Fruit fly management: New developments**
Authors (put an asterisk on the presenter): *Shikano, I.
Name of Conference: CTAHR Conference, University of Hawaii at Manoa
Location: Honolulu, HI
Date of Presentation: 04/12/2024

Title: **Determining the extent of Spinosad resistance in wild fruit fly populations across Hawaii'i**
Authors (put an asterisk on the presenter): *Dombrowski, P., Doucette, L., Stockton, D. and Shikano, I.
Name of Conference: Pacific Entomological and Botanical Meeting
Location: Honolulu, HI
Date of Presentation: 12/06/2023– 12/08/23

Title: **An investigation into the bacterial profile of insecticide-resistant populations of *Plutella xylostella* across O`ahu and Maui**
Authors (put an asterisk on the presenter): *Montoya-Pimolwatana, M.L., Jani, A. and Shikano, I.
Name of Conference: Pacific Entomological and Botanical Meeting
Location: Honolulu, HI
Date of Presentation: 12/06/2023– 12/08/23

Title: **Facilitating horizontal transfer of the fungal pathogen, *Beauveria bassiana*, to control fruit flies (Diptera: Tephritidae)**
Authors (put an asterisk on the presenter): *Shikano, I.
Name of Conference: Pacific Entomological and Botanical Meeting
Location: Honolulu, HI
Date of Presentation: 12/06/2023– 12/08/23

Title: **Assessing silica dust as a non-toxic pest control for Tephritidae fruit flies**
Authors (put an asterisk on the presenter): *Suzuki, C. and Shikano, I. & Streit, C.
Name of Conference: Undergraduate Research Opportunities Program (UROP), Summer Undergraduate Research Experience (SURE) Symposium
Location: UH Manoa
Date of Presentation: 08/04/2023

Title: **Insecticide resistance and pesticide rotation**
Authors (put an asterisk on the presenter): *Suzuki, C. and Shikano, I. & Streit, C.
Name of Conference: 2nd Annual USDA PPQ Fruit Fly Program Symposium
Location: Online
Date of Presentation: 03/28/2023

Title: **Field evaluations of insecticide rotations to control melon flies and diamondback moths in Hawaii**
Authors (put an asterisk on the presenter): *Shikano, I. & Gutierrez-Coarite, R.
Name of Conference: Entomological Society of America Pacific Branch Meeting
Location: Seattle, WA
Date of Presentation: 04/04/2023

Title: **Interactive effects of nutrient dilutions and spinosad concentration on melon fly, *Zeugodacus cucurbitae*, consumption and mortality**
Authors (put an asterisk on the presenter): *Grummer, A. and Shikano, I.
Name of Conference: Entomological Society of America Pacific Branch Meeting
Location: Seattle, WA, Canada
Date of Presentation: 04/02/2022 – 04/05/22

Title: **Analyses of gut microbiota in insecticide-resistant populations of *Plutella xylostella* across Oahu and Maui**

Authors (put an asterisk on the presenter): *Montoya-Pimolwatana, M.L., Shikano, I., Silva, J., Uyeda, J. and Jani, A.

Name of Conference: Entomological Society of America Pacific Branch Meeting

Location: Seattle, WA, Canada

Date of Presentation: 04/02/2022 – 04/05/22

Title: **Male bait stations containing the fungal pathogen, *Beauveria bassiana*, kills both male and female fruit flies (Diptera: Tephritidae) through horizontal transfer of spores**

Authors (put an asterisk on the presenter): *Shikano, I. & Streit, C.

Name of Conference: Entomology 2022; Annual Meeting of the Entomological Society of America

Location: Vancouver, BC, Canada

Date of Presentation: 11/13/2022 – 11/16/22

Title: **Use of attract-and-kill stations on mushroom farms to kill mushroom flies**

Authors (put an asterisk on the presenter): *Wolfen, M.S., Shikano, I., Baker, T.C.C. & Jenkins, N.E.

Name of Conference: Entomology 2022; Annual Meeting of the Entomological Society of America

Location: Vancouver, BC, Canada

Date of Presentation: 11/13/2022 – 11/16/22

Title: **Impact of the naturalized weed Virginia pepperweed (*Lepidium virginicum*) on the behavior of the diamondback moth (*Plutella xylostella*) and its parasitoid (*Cotesia plutellae*) in Hawaii**

Authors (put an asterisk on the presenter): *Shikano, I. & Pugh, M.

Name of Conference: Entomology 2021; Annual Meeting of the Entomological Society of America

Location: Online

Date of Presentation: 10/31/2021 – 11/03/21

Title: **Parasitoids and weeds for diamondback moth management**

Authors (put an asterisk on the presenter): *Shikano, I.

Name of Conference: Integrated Pest Management Mini Conference. University of Hawaii, College of Tropical Agriculture and Human Resources, Cooperative Extension.

Location: Online

Date of Presentation: 09/28/2021

Title: **Behavioral ecology in integrated pest management**

Authors (put an asterisk on the presenter): *Shikano, I.

Name of Conference: Hawaiian Entomological Society Meeting

Location: Online

Date of Presentation: 05/28/2021

Title: **Effects of soil application of the biofungicide Serenade ASO (*Bacillus subtilis*) on anti-herbivore defenses in tomato plants**

Authors (put an asterisk on the presenter): *Pennington, S.K. & Shikano, I.

Name of Conference: Entomology 2020; Annual Meeting of the Entomological Society of America

Location: Online

Date of Presentation: 11/11/2020 – 11/25/20

Title: **Efficacy of spot-spray applications of protein bait-insecticide combinations to roosting hosts of melon fly (*Zeugodacus cucurbitae*) in Hawai'i**

Authors (put an asterisk on the presenter): *Streit, C.A., Gutierrez-Coarite, R., Mau, R.F.L. & Shikano, I.

Name of Conference: Entomology 2020; Annual Meeting of the Entomological Society of America

Location: Online

Date of Presentation: 11/11/2020 – 11/25/20

Title: **Assessing dead-end trap crops to control diamondback moths (*Plutella xylostella*) in Hawai'i**

Authors (put an asterisk on the presenter): *Pugh, M.E. & Shikano, I.

Name of Conference: Entomology 2020; Annual Meeting of the Entomological Society of America

Location: Online

Date of Presentation: 11/11/2020 – 11/25/20

Title: **Assessing induced anti-herbivore defenses in tomato plants after soil treatment with *Bacillus subtilis* (Serenade ASO)**

Authors (put an asterisk on the presenter): *Pennington, S. & Shikano, I.

Name of Conference: UHM SURE Symposium

Location: Honolulu, HI, USA (Online Zoom Conference)

Date of Presentation: 07/31/2020