

THE 19TH ARBOVIRUS SURVEILLANCE AND MOSQUITO CONTROL WORKSHOP

IN CONJUNCTION WITH EQUIPMENT / TECHNOLOGY
DEMONSTRATION

Organized by AMCD and Sponsored by
USDA/CMAVE, FMCA, & Gulf South V.E.C.T.O.R.

*AMCD's Complex at:
120 EOC Drive, St. Augustine, Florida, 32092*

MARCH 26th – 28th, 2024

www.amcdsjc.org

Celebration of grand opening of the Disease Vector Education Center and
SIT Mass Rearing Facility



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PROGRAM AGENDA

MONDAY, MARCH 25, 2024

2:00 P.M. ANNUAL AMCD'S ADJUNCT/CONSULTING/COLLABORATING MEETING

5:00 P.M. Group Dinner at Ruby Tuesday (sponsored by Clarke)

TUESDAY, MARCH 26, 2024 (MEETING WILL BE HELD IN THE HANGAR)

7:30 A.M. Registration at Administration build 100 ... AMCD Staff. Welcome to take a tour of the Disease Vector Education Center, SIT mass-rearing facility, and other facilities during the workshop.

Moderator: Dr. Rui-De Xue, Executive Director, AMCD, St. Augustine, FL

8:00 A.M. At Education Center: Celebration of Disease Vector Education Center and SIT mass rearing facility's grand opening ... Short Speeches by Legislators, WHO/TDR, CDC/DVBD, USDA, & UF/IFAS

PANEL SESSION: (IN HANGAR):

9:00 A.M. Welcome & Introduction ... Ms. Gayle Gardner, Chairperson, AMCD's Board of Commissioners; Dr. Ken Linthicum, Center Director, USDA/CMAVE, and Mr. Richard Weaver, President of the FMCA.

9:10 A.M. KEYNOTE SPEAKER: Insecticide Resistance and Resistance Management for WNV vector *Culex* mosquitoes, Global Challenge... Dr. Roxanne Connelly, Group Leader, Division of Vector-borne Diseases, CDC, Ft. Collins, CO.

9:50 A.M. KEYNOTE SPEAKER: The World Needs Mosquito Control: Industry plays an important role in the pipeline ... Dr. John Lyell Clarke, CEO, Clarke Mosquito Control, Chicago, Illinois.

10:20 A.M. Guest Speaker: WHO Special Program for Topical Diseases Research and Training (TDR) activities to support the testing of the Sterile Insect Technology against *Aedes*-borne diseases ... Dr. Florence Fouque, Scientist, Focal Person for Vectors, WHO, The Special Program/TDR, Geneva, Switzerland

10:50 A.M. Update on DoD Deployed Warfighter Protection (DWFP) programs ... Dr. Gabriela Zollner, Armed Forces Pest Management Board, Silver Spring, MD

11:20 A.M. USDA/CMAVE research programs update... Dr. Chris Geden, Research Entomologist, USDA/CMAVE, Gainesville, FL

11:40 A.M. Overview of the UF/Florida Medical Entomology Laboratory's programs ... Dr. Jorge Rey, Professor & Director, UF/FMEL, Vero Beach, FL

12:00 P.M. LUNCH BREAK (HELICOPTER HANGAR, PROVIDED BY VESERIS & CENTRAL LIFE SCIENCE)

PROGRAM SESSION:

MODERATOR: DR. CHRIS GEDEN, RESEARCH ENTOMOLOGIST, USDA/CMAVE, GAINESVILLE, FL

1:00 P.M. Arbovirus program at UF's Emerging Pathogen Institute... Dr. Glenn Morris, Professor & Director, UF/EPI, Gainesville, FL

1:20 P.M. The Florida DACS mosquito control program update ... Ms. Marah Clark, Environmental Administrator, Entomology and Pest

Control Section, DACS, Tallahassee, FL

- 1:40 P.M.** DACS/DPI Bureau of Entomological program update ... **Dr. Paul Skelley, Assistant Chief, Bureau of Entomology, Nematology, and Plant Pathology, DACS/DPI, Gainesville, FL**
- 2:00 P.M.** Navy Entomology Center of Excellence (NECE)'s research and development capabilities... **CDR Theron Hamilton, NECE, Jacksonville, FL**
- 2:20 P.M.** Collaborative Research and Service Opportunities at the Biological Threat Research Laboratory, Texas Tech University ... **Dr. Steven M. Presley, Professor & Director. The Institute of Environmental and Human Health, Texas Tech University, Lubbock, TX**
- 2:40 P.M.** Gulf South V.E.C.T.O.R. program overview... **Dr. Claudia Riegel, Director, City of New Orleans Mosquito, Termite and Rodent Control Board, New Orleans, LA**
- 3:00 P.M. Break**

INTERNATIONAL SESSION:

Moderator: **Dr. Uli Bernier, Adjunct Senior Chemist, AMCD, Retired National Program Leader from USDA/ARS**

- 3:20 P.M.** Distribution and diversity of mosquito species and their population dynamics in Beijing Milu Park ... **Dr. Qing-Qing Zhang, Assistant Research Fellow, Milu Ecological Research Center, Beijing, China**
- 3:40 P.M.** Attraction distance to blood and sugar sources: improved methods and results ... **Dr. Gunter Muller, Professor, Malaria Research & Training Center, University of Bamako, Mali**
- 4:00 P.M.** Research on mosquito and vector program in Taiwan ... **Dr. Kok-Boon Neoh, Associate Professor, Department of Entomology, National Chung Hsing University, Taichung, Taiwan**
- 4:20 P.M.** Mosquito control in Europe: the role of the EMCA ... **Mrs. Sandra Gewehr, President of the Europe Mosquito Control Association, Ecodevelopment SA, Filyro, Greece**
- 4:40 P.M.** Anti-dengue activity of andrographolide compound against dengue vector, *Aedes aegypti* and dengue virus .. **Dr. K. Kovendan, Assistant Professor, Department of Zoology, Annamalai University, Tamil Nadu, Indian**
- 5:00 P.M.** Repellents for uniform and clothing treatment.. **Dr. Ulrich Bernier, Research Scientist (retired), USDA/CMAVE, Gainesville, FL**
- 5:20 P.M.** Update on the BEACONS working group and our work on Invasive mosquitoes in the southern United States ... **Mr. Mike Riles, Regional Sales Manager, Vector Central Life Sciences**
- 5:35 P.M.** Evaluating the Efficacy of In2Care Mosquito Stations in Suppressing Populations of *Aedes aegypti* and *Aedes albopictus* Around Tire Piles in St. Lucie County, Florida.... **Mr. Daniel Tuzzolino, Senior Entomologist, Mosquito Control, Fort Pierce, FL**
- 5:50 P.M.** Session End
- 6:00 P.M.** **DINNER, CELEBRATION OF DR. KEN LINTHICUM RETIREMENT, & LECTURE** (Overview of the University of Florida' honey bee laboratory and mosquito control ... **Dr. James Ellis, Professor, Department of Entomology & Nematology, Gainesville, FL. AT HANGAR (ALL PARTICIPANTS)**

WEDNESDAY, MARCH 27, 2024

SURVEILLANCE OF DISEASE & VECTORS (IN HANGAR):

Moderator: **Dr. Michael Turell, Adjunct Senior Arbovirologist at AMCD, US Army Medical Research Institute of Infectious Diseases (retired), Fort Detrick, MD**

- 8:00 A.M.** Florida mosquito-borne disease surveillance report, 2023 ... **Dr. Andrea Morrison, Vector-borne Disease Surveillance Coordinator, Bureau of Epidemiology, DOH, Tallahassee, FL**
- 8:20 A.M.** Leveraging mosquito sugar feeding for rapid arbovirus detection...**Dr. Nathan Burkett-Cadena, Dongmin Kim, Terry DeBriere, Barry Alto, Ozlem Yaren, Steven Benner. University of Florida/FMEL, Vero Beach, FL**

- 8:40 A.M.** Risk of the introduction of exotic mosquito-borne pathogens into the United States ... **Dr. Michael Turell, Senior Arbovirologist (retired), US Army Medical Research Institute of Infectious Diseases, Fort Detrick, MD**
- 9:00 A.M.** Arbovirus surveillance in St. Johns County, Florida in 2023.**Dr. Steve Peper, Molecular Entomologist, AMCD, St. Augustine, FL**
- 9:15 A.M.** Outbreak of dengue fever and response in Miami ... **Dr. Isik Unlu, Operation Manager, Mosquito Control Division, Miami-Dade County, Miami, FL**
- 9:30 A.M.** Passive and Active Surveillance of Vector-Borne Pathogens: Lessons Learned and Future Directions... **Dr. Mohammed Sallam, Assistant Professor, Uniformed Service University of the Health Sciences, Washington DC**
- 9:45 A.M.** Prediction of Avian Hosts of West Nile Virus and Keetch-Byram Drought Index in Lee County, FL ... **Dr. Alberto A. Condori, Professor & Honors Faculty Fellow, Department of Mathematics, College of Arts and Sciences FGC University, Fort Myers, FL**

10:00 A.M. BREAK

BIOLOGY & ECOLOGY SESSION:

Moderator: Dr. Jerry Hogsette, Lead Scientist & Research Entomologist, USDA/ARS/CMAVE, Gainesville, FL

- 10:20 A.M.** *Aedes aegypti* Vs. *albopictus*: 3 years of *Aedes* Surveillance in Crystal River, FL. – **Ms. Tarolyn Frisbie, Citrus County Mosquito Control District.**
- 10:35 A.M.** Advances in A.I. to support vector surveillance programs ... **Mr. Tristan Ford, CEO, VectTech, Inc., Baltimore, MD**
- 10:50 A.M.** Using trait-based community analyses for data driven predictions of West Nile virus transmission ... **Amely Bauer, Post Doctor & Dr. Lindsay Campbell, Assistant Professor, UF/IFAS/FMEL, Vero Beach, FL**
- 11:05 A.M.** Behavioral and biological effects of arbovirus infection on *Culicoides sonorensis* ... **Dr. Dana Nayduch, Research Leader, USDA-ARS, Arthropod-borne Animal Disease Research Unit, Manhattan, KS**
- 11:20 A.M.** Ecological considerations in the control of Culicid biting midges ... **Dr. Bethany L. McGregor, Research Entomologist, USDA-ARS, Arthropod-borne Animal Disease Research Unit, Manhattan, KS**
- 11:35 A.M.** Evaluating the efficacy of management tools for flies of Medical Importance... **Dr. Sonja Swiger, Professor, Texas A & M University and the CDC Centers of Training and Evaluation, College Station, TX**
- 11:50 A.M.** An update on fly management studies at USDA CMAVE. **Dr. Jerry Hogsette, Lead Scientist & Research Entomologist, USDA/ARS/CMAVE, Gainesville, FL**

12:05 P.M. LUNCH BREAK (PROVIDED BY Leading Edge, Envu, and Target)

INSECTICIDE & RESISTANCE:

Moderator: Dr. Roxanne Connelly, Group Leader, Division of Vector-borne Diseases, CDC, Ft. Collins, CO.

- 1:00 P.M.** Insecticide penetration and efficacy in mosquitoes: The role of cuticular lipids. **Dr. Jeff Bloomquist, Professor, EPI, UF, Shawn Culley, Werner Geldenhuys, and Edmund Norris, Gainesville, FL**
- 1:20 P.M.** Next steps to linking resistance data with control efficacy ... **Dr. Casey Crockett, Account Manager, S. Florida, Caribbean & International, Azelis Agricultural & Environmental Solutions, Áine Lehane, Dr. Edmund Norris, Dr. Sarah Wheeler, and Dr. Laura Harrington, Insecticide Resistance Work Group**
- 1:40 P.M.** The occurrence of *kdr* mutations in Texas mosquito populations .. **Dr. Bianca Rendon, The Institute of Environmental and Human Health, Texas Tech University, Lubbock, TX**
- 2:00 P.M.** Assessing methoprene resistance in *Aedes taeniorhynchus* mosquitoes from Indian River County, Florida...**Dr. Peter Jiang, Research Director, Mrs. Sherry Burroughs, Director, Indian River Mosquito Control District, Vero Beach, FL**
- 2:20 P.M.** Insecticide resistance of *Aedes aegypti* and *Aedes albopictus* in St. Johns County, Florida ... **Dr. Vindhya Aryaprema, Biologist, St. Augustine, FL**
- 2:40 P.M.** Effective Integrated Vector Management when the mosquitoes are resistant... **Mr. Alden S. Estep, Research Entomologist, USDA ARS Center for Medical, Agricultural, and Veterinary Entomology, Gainesville, FL**

3:00 P.M. BREAK

INTERNATIONAL SESSION:

Moderator: Dr. Dr. Florence Fouque, Scientist, WHO, The Special Program/TDR, Geneva, Switzerland

- 3:20 P.M.** Update malaria control project at Quelessebouougou, Mali .. **Mr. Richard Loomis, Quelessebouougou Malaria Project, Salt Lake City, UT**
- 3:35 P.M.** Vector Control Aspects of Global Malaria Eradication and Transmission Risks in Elimination Countries... **Dr. Graham White, Professor Emeritus, Department of Entomology & Nematology, University of Florida, Gainesville, FL**
- 3:50 P.M.** Overview of international branches of the Society of Vector Ecology ... **Dr. Major Dhillon, Executive Director (Retired), Society of Vector Ecology, California**
- 4:05 P.M.** Mosquitoes in Turkey, in contemplation of European and the Black Sea Regions... **Dr. Filiz Gunay, Assistant Professor, Hacettepe University, Ankara, Turkey. Post doctor, UF/IFAS/FMEL, Vero Beach, FL**
- 4:20 P.M.** Reproductive processes, new targets for vector control, **Dr. Catalina Alfonso-Parra, Researcher, Colombian Institute of Tropical Medicine, Medellin, Colombia**
- 4:40 P.M.** American Mosquito Control Association's update ... **Mr. Robert Cartner, Regional Director of the AMCA**
- 5:00 P.M.** The International Forum for Surveillance and Control of Mosquitoes and Vector-borne Diseases (9th IFSCMVD, XiAn, China, May 25-30, 2025) **Dr. Rui-De Xue, Executive Director, AMCD, St. Augustine, FL & Dr. Tong-Yan Zhao, Professor, Beijing Institute of Microbiology and Epidemiology, China**
- 5:10 P.M. END OF THE SESSION**

WEDNESDAY, MARCH 27, 2024

SUGAR FEEDING & ATSB symposium (Board Room, Bld 100)

Moderator: Gunter C. Muller, Professor, Malaria Research & Training Center, University of Bamako, Mali

- 8:00 A.M.** The chemical ecology and olfactory basis of *Aedes aegypti* attraction to fruits and flowers...**Dr. Jeff Riffell, Professor, Department of Biological Sciences, University of Washington, Seattle, WA**
- 8:20 A.M.** Leveraging nectar meal analysis in mosquito ecology ... **Dr. Edwin R. Burgess IV, Assistant Professor, Department of Entomology and Nematology, University of Florida, Gainesville, FL**
- 8:40 A.M.** The Snack that bites back: laying the groundwork for Attractive Toxic Sugar Baits (ATSB) in the intermountain west ... **Dr. Chris Bibbs, Lab Manager, Salt Lake City Mosquito Abatement, Salt Lake City, UT**
- 9:00 A.M.** New Attractive Toxic Sugar Baits with capillary alginate gel biomaterials ... **Dr. Brady Willenberg, Assistant Professor, University of Central Florida, Orlando, FL**
- 9:20 A.M.** ATSB potential use for control of adult mosquitoes in Taiwan ... **Dr. Kok-Boon Neoh, Associate Professor, Department of Entomology, National Chung Hsing University, Taichung, Taiwan**
- 9:40 A.M.** Urban malaria challenges and new possibilities for ATSB application ... **Dr. Gunter Muller, Professor, Malaria Research & Training Center, University of Bamako, Mali**
- 10:00 A.M. BREAK**

MOSQUITOCIDE, & TRAPING SYMPOSIUM (IN BOARD ROOM, BLD 100):

MODERATOR: Dr. Daniel L. Kline, Research Entomologist, USDA/CMAVE, Gainesville, FL

- 10:20 A.M.** Evaluation of natural mosquitocides ... **Dr. Daniel R. Swale, Associate Professor, University of Florida/EPA/Dept. of Entomology and Nematology, Gainesville, FL**
- 10:35 A.M.** Terpenoid esters as potential toxic bait insecticides ... **Dr. Edmund Norris, Research Chemist, USDA/CMAVE, Gainesville, FL**

- 10:50 A.M.** Spatial insect repellent evaluation at Anastasia Mosquito Control District ... **Dr. Whitney Qualls, Assistant Director, Anastasia Mosquito Control District, St. Augustine, FL**
- 11:05 A.M.** The uniform test kit protocol for the deployed warfighter... **Dr. Joseph Diclaro, CDC/NCEZID/DPDM/EB, npv8@cdc.gov**
- 11:20 A.M.** Can the H-trap be used as a reliable mosquito surveillance tool?... **Dr. Daniel L. Kline, Research Entomologist, USDA/CMAVE, Gainesville, FL and Adam Bowman**
- 11:40 A.M.** Comparison of BG-Pro trap system with the CDC Light Trap and BG-Sentinel 2 for Mosquito Surveillance ... **Dr. Carrie DeJesus, NECE, Jacksonville, FL**

12:00 P.M. LUNCH BREAK (IN HANGAR)

SIT & ADULT CONTROL SYMPOSIUM (IN BOARD ROOM, BLD 100)

MODERATOR: Dr. David Hoel, Executive Director, Lee County Mosquito Control District, Lehigh Acres, FL

- 1:00 P.M.** Lee Couty Mosquito Control District's exploration of a drone release system for *Aedes aegypti* SIT ... **Mrs. Rachel Morreale, Manager of Applied Science and Technologies, Dr. David Hoel, Executive Director, Dr. Aaron Lloyd, Assistant Director, LCMCD, Lehigh Acres, FL**
- 1:20 P.M.** Overview of SIT for operational mosquito control... **Dr. Daniel Hahn, Professor & Vice Chair, Department of Entomology and Nematology, University of Florida, Gainesville, FL**
- 1:40 P.M.** SEPARATOR and next-generation SIT are novel tools for safe and efficacious mosquito control... **Dr. Nikolay Kandul, Visiting Scientist, University of California, CEO, Synvect Inc., San Diego, CA**
- 2:00 P.M.** Update about SIT project at USDA/CMAVE ... **Dr. Ken. Linthicum, Center Director, USDA/CMAVE, Gainesville, FL**
- 2:20 P.M.** Evaluation of the misting system against adult mosquitoes ... **Dr. M. Farooq, Mosquito Control Engineer, AMCD, St. Augustine, FL**
- 2:40 P.M.** Pesticide deposition sprayed by aerial crafts. **Mr. Mark Latham, Retired Director, Manatee County Mosquito Control Dist, FL**

3:00 P.M. BREAK

STUDENT SESSION: (IN BOARD ROOM, BLD 100):

MODERATOR: DR. WHITNEY QUALLS, ASSISTANT DIRECTOR, AMCD, ST. AUGUSTINE, FL

- 3:20 P.M.** Blood meal host association of *Aedes aegypti* and *Dirofilaria immitis* frequency in disparate ecosystems... **Brittani Ciomperlik, MS student (Burgess Lab), University of Florida, Gainesville, FL**
- 3:35 P.M.** Update on nanoparticles of insecticides against adult mosquitoes .. **Kai Blore, Ph.D. student, University of Florida & Lab Manager, AMCD, St. Augustine, FL**
- 3:50 P.M.** Population dynamic of salt march mosquitoes in St. Johns County, Florida ... **Kate Gualilo, MS student, University of North Florida, Jacksonville, FL & AMCD Interns Student, AMCD, St. Augustine, FL**
- 4:05 P.M.** Insecticide resistance in mosquitoes in St. Johns County, Florida ... **Connor Kuppe, MS student, University of Florida & Biotech, AMCD, St. Augustine, FL**
- 4:30 P.M.** Trapping collection for mosquito pools to detect arbovirus in St. Johns County, Florida ... **Edward Zeszutko, MS student, University of Florida & Biotech, AMCD, St. Augustine, FL**
- 4:45 P.M.** Beyond Emergence and Neglect: Chagas Disease in the United States–A Work in Progress ...**Mr. Bernardo Moreno Peniche, Ph.D. student, University of California, Berkely, CA**

THURSDAY, MARCH 28, 2024

OTHER PROGRAM I (IN HANGAR):

Moderator: Mr. Chris Lesser, Director, Manatee County Mosquito Control District

- 8:00 A.M.** Research and Extension activities of Arthropod Population Ecology and Evolution Lab at FMEL... **Dr. Yoosook Lee, Assistant Professor, UF/IFAS/FMEL, Vero Beach, FL**
- 8:20 A.M.** An overview of the applied research program at Salt Lake City Mosquito Abatement District ... **Dr. Nate Byers, Molecular Biologist, Salt Lake City Mosquito Abatement, Salt Lake City, UT**
- 8:40 A.M.** Snap shot Iberia Parish Mosquito Control program review... **Mr. Herff Jones, Executive Director, Iberia Parish Mosquito Control District, LA.**
- 9:00 A.M.** Chatham County Mosquito Control Program and Arbovirus Update ... **Mr. Ture Carlson, Director, Chatham County Mosquito Control, Savannah, GA**
- 9:20 A.M.** A Pre-season Pilot Project at a Brevard County Mosquito Impoundment: Ecological Surveillance and Applications ... **Bridget Coffey-Picco, Environmental Specialist II, Max Reynolds, Jonathan Linder, Michael Buono, Steven Whitt, & Joseph Faella, Brevard County Mosquito Control Department, Titusville, FL**
- 9:40 A.M.** Control of malaria outbreak through control of vector *Anopheles* mosquitoes by aerial application in West Coast area ... **Mr. Chris Lesser, Director, Manatee Mosquito Control District, FL**

10:00 A.M. **BREAK**

OTHER PROGRAM II (IN HANGAR):

Moderator: Dr. Chris Bibbs, Lab Manager, Salt Lake City Mosquito and Vector Control Abatement

- 10:20 A.M.** Attack of the Zoospores! Discovery of a new Pythium species infecting mosquito larvae in Lee County ... **Constance Darrisaw, Field Validation Biologist III, Lee County Mosquito Control District, Lehigh Acres, FL**
- 10:35 A.M.** Using average daily temperature lows to help identify times to pause adult mosquito trapping and the potential cost savings in Citrus County... **Dr. Fred Stell, Entomologist, Citrus County Mosquito Control District, FL**
- 10:50 A.M.** The use of Spinosad on Florida Department of Environmental Protection and United States Fish and Wildlife lands in Lee County, Florida ... **Mr. Ed W. Foley, Manager, Mosquito Control, Lee County Mosquito Control District, Lehigh Acres, FL**
- 11:05 A.M.** Brevard Mosquito Control District's Road to in-house testing: grants, equipment, and patience... **Mr. Maxwell Reynolds, Jonathan Linder, Bridget Coffey-Pico, and Joseph Faella, Brevard Mosquito Control District, Titusville, FL**
- 11:20 A.M.** Auburn University Urban Entomological Extension program's overview... **Dr. Xingping Hu, Professor, Department of Entomology and Plant Pathology, Auburn University, Auburn, AL**
- 11:35 A.M.** Overview of Amelia Island Mosquito Control District... **Mr. Anthony Dunkelberger, Assistant Director/Entomologist, Amelia Island Mosquito Control District, FL**
- 11:50 A.M.** Updated Label Claims and Efficacy Trials Using Sumilarv 0.5G WSPs... **Dr. Caleb Corona, Entomologist, MGK, MN**
- 12:05 P.M.** **LUNCH BREAK (provided by MGK)**
- 1:00-3:00 P.M.** **DEMONSTRATION IN THE FIELD**
Industry equipment and new technological demonstration, sprayer, drone for granular larvicide application, & droplet calibration and analysis ... **Dr. M. Farooq, Mr. Bill Rynold (Leading Edge), Mr. Dana Smith, and Mr. James Wynn, AMCD, St. Augustine, FL**

Welcome to the 20th workshop, St. Augustine, FL, March 25th - 27th, 2025.

(Updated on March 18)