

**THE 18TH ARBOVIRUS SURVEILLANCE
AND MOSQUITO CONTROL WORKSHOP IN CONJUNCTION WITH
EQUIPMENT / TECHNOLOGY DEMONSTRATION
AND THE FMCA'S NE REGIONAL MEETING**

Sponsored by AMCD, USDA/CMAVE & FMCA

Being held at AMCD's New Complex at:
120 EOC Drive, St. Augustine, Florida, 32092

MARCH 28-MARCH 30, 2023

www.amcdsjc.org

TENTATIVE PROGRAM AGENDA

MONDAY, MARCH 27, 2023

2:00PM. AMCD'S ADJUNCT AND CONSULTING MEETING (DR. MICHAEL TURELL, DR. GUNTER MULLER, DR. STEVEN DOBSON, DR. DONALD BARNARD, DR. ULI BERNIER, AND DR. KARL MALAMUD-ROAM). Group Dinner at Ruby Tuesday at 5:00pm

TUESDAY, MARCH 28, 2023

7:30am Registration ... **AMCD Staff**

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

8:00AM *GRAND OPENIGN CELEBRATION, RECOGNIZATION AND APPRECIATION FOR THE DISEASE VECTOR EDUCATION CENTER (DVEC) & THE SIT MASS REARING FACILITY*

PANEL SESSION:

8:40am Welcome & Introduction ... **Mrs. Trish Becker, Vice Chair, AMCD's Board of Commissioners; Dr. Ken Linthicum, Center Director, USDA/CMAVE, and Mrs. Sandra Fisher-Grainger, President of the FMCA & Alden Estep, NE Director of the FMCA**

8:50am **KEYNOTE SPEAKER:** Impact of climate change on vector-borne diseases. ... **Dr. Ben Beard, Deputy Director, Division of Vector-borne Diseases, CDC, Ft. Collins, CO**

9:30am **KEYNOTE SPEAKER:** Ground & aerial ULV spraying for mosquito control ... **Mr. Mark Latham, Retired**
Director, Manatee County Mosquito Control District, Florida

10:05 A.M. - BREAK

GERNAL SESSION:

Moderator: Dr. Kenneth Linthicum, Center Director, USDA/CMAVE, Gainesville, FL

10:20am DoD pest management research and the Deployed Warfighter Protection (DWFP) programs
... **LTC Michelle Colacicco-Mayhugh and Dr. Gabriela Zollner, Armed Forces Pest Management Board, Silver Spring, MD**

10:45am Contribution and accomplishments of the USDA/CMAVE in the past 80 years ...
Dr. Kenneth Linthicum, Center Director, USDA/CMAVE, Gainesville, FL

11:10am UF's Emerging Pathogen Institute's program overview... **Dr. Glenn Morris, Professor & Director, UF/EPI, Gainesville, FL**

11:35AM Overview of the UF/Florida Medical Entomology Laboratory's programs ... **Dr. Jorge Rey, Professor & Director, UF/FMEL, Vero Beach, FL**

12:00 PM - LUNCH BREAK (in the Helicopter Hangar) (provided by Vesperis and visit their displays)

INTERNATIONAL SESSION:

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

1:00pm Biocontrol status for mosquito control in India ... **Dr. Kadarkarai Murugan, Emeritus Professor, Department of Zoology, Bharathiar University, Coimbatore, India**

1:20pm Attractive Toxic Sugar Baits (ATSB) for control of malaria vector mosquitoes in Mali ... **Dr. Gunter Muller, Professor, Malaria Research & Training Center, University of Bamako, Mali**

1:40pm Mosquito behavior studies and facilities at Kasetsart University ... **Dr. Theeraphap Chareonviriyaphap, Professor, Department of Entomology, Kasetsart University, Bangkok, Thailand**

2:00pm Mosquito and vector-borne diseases in India ... **Dr. B. Reddy Naik, Professor, Department Zoology, Osmania University, Hyderabad, India**

2:40pm **In-vitro approach on anti-dengue activity of biosynthesized copper nanoparticles (CuNPS) using *Aegle marmelos* against dengue vector, *Aedes aegypti* and dengue virus (DENV-2) ... Dr. K. Kovendan, Department of Zoology, Annamalai University, Tamil Nadu, India**

3:00pm Excitorepellency of local plant extracts against mosquitoes ... **Dr. Chutipong Sukkanon, Department of Medical Technology, Walailak University, Nakhon Si Thammarat, Thailand**

3:20pm Mosquito management in wet lands in Australia ... **Dr. Pat Dale, Professor**

Emeritus, Griffith University, Brisbane, Australia

3:40pm. BREAK

PROGRAM:

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

3:55m Knowledge, perceptions, and practices of mosquito larval source management in discarded vehicle tires among New Orleans residents... **Dr. Imelda K. Moise, Assistant Professor, University of Miami, Miami, FL and Dr. Claudia Riegel, Director, New Orleans Mosquito and Vector Control District, New Orleans, LA (Cancelled)**

4:15pm DACS/DPI Bureau of Entomological program ... **Dr. Leroy Whilby, Chief, Bureau of Entomology, Nematology, and Plant Pathology, DACS/DPI, Gainesville, FL**

4:30pm Update about Lee County Mosquito Control District's programs ... **Dr. David Hoel, Executive Director, LMCD, Ft. Myers, FL**

4:45pm Update on the American Mosquito Control Association ... **Mr. Robert Cartner, Regional Director of the AMCA**

5:00pm Update on the Florida Mosquito Control Association ... **Mrs. Sandra Fisher-Grainger, President of the FMCA**

5:10pm The Florida DACS mosquito control program ... **Ms. Marah Clark, Environmental Administrator, Entomology and Pest Control Section, DACS, Tallahassee, FL**

5:30pm **DINNER & LECTURE (HELICOPTER HANGAR) (ALL PARTICIPANTS): MOSQUITOES AND ITS IMPACT ON HUMAN BEINGS PRESENTED BY DR. GORDAN PATTERSON, HISTROY PROFESSOR, FLORIDA INSTITUTE OF TECHNOLOGY**

WEDESDAY, MARCH 29, 2023

DISEASE SURVEILLANCE:

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

8:00am 2022 Arbovirus surveillance report in Florida ... **Dr. Andrea Morrison, Vector-borne Disease Surveillance Coordinator, Bureau of Epidemiology, DOH, Tallahassee, FL**

8:15am 2022 Georgia Arboviral State Report... **Dr. "Tiffany" Thuy-Vi Thi Nguyen, Public Health Deputy State Entomologist, Georgia Department of Public Health, Atlanta, GA**

- 8:25am 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**
- 8:45am West Nile virus surveillance in sentinel chickens and mosquitoes in Panama City Beach, Florida, from 2014-to 2022...**Mr. Michael Riles, Dale Martin, Cindy Mulla, Eddie Summers, Lee Duke, James Clauson, Lindsay P. Campbell, and Bryan V. Giordano**
- 9:00am West Nile virus risk estimation and viral transmission dynamics within a two-vector system. **Dr. Mark Clifton, Executive Director, North Shore Mosquito Abatement District, Northfield, IL**
- 9:20am West Nile surveillance in St. Johns County, Florida in 2022 ... **Dr. Steve Peper, Molecular Entomologist, AMCD, St. Augustine, FL**
- 9:40am La Crosse encephalitis in NC – emerging and persistent risk factors ... **Dr. Brian Byrd, Professor, Western Carolina University, NC**

10:00am BREAK

BIOLOGY & ECOLOGY SESSION:

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

- 10:20am Clash of the Titans: Increasing suitability risk for mosquito borne disease with future climate and population changes... **Dr. Sadie J. Ryan, Associate Professor, Medical Geography, Co-Director, Florida Climate Institute, University of Florida, Gainesville, FL**
- 10:40am Impact of landscape on mosquito population ... **Dr. Lindsay O. Campbell, Assistant Professor, UF/IFAS/FMEL, Vero Beach, FL**
- 11:00am Ceratopogonidae and Tabanidae: the other biting Diptera causing nuisance problems in Florida. **Dr. Daniel L. Kline, Research Entomologist, USDA/CMAVE, Gainesville, FL and Karen McKenzie**
- 11:20am Targeted mosquito control in cryptic habitats. **Dr. James E. Cilek, Medical Entomologist, Navy Entomology Center of Excellence, Jacksonville, FL**
- 11:35am Will history repeat itself? Could *Aedes aegypti* be re-displaced by *Ae. albopictus* from the re-established area in the City of Gainesville, Florida? ... **Dr. Peter Jiang, Director, Gainesville Mosquito Control, Dr. Estelle Martin, Assistant Professor, UF/Dept. of Entomology & Nematology, Gainesville, FL**
- 11:50am Analysis of trap data from Brevard County...**Mr. Maxwell Reynolds, Environmental Specialist, Bridget Coffey, Jonathan Linder and Joseph Faella, Brevard Mosquito Control District, Titusville, FL**

12:00 P.M. - LUNCH BREAK (provided by **ADAPCO & AMVAC**)

ATTRACTANT / TRAP / REPELLENT SESSION:

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

- 1:20pm Attractants and trapping techniques for biting flies ... **Dr. Jerry Hogsette, Lead Scientist & Research Entomologist, USDA/ARS/CMAVE, Gainesville, FL**
- 1:40pm Repellents for uniform and clothing treatment ... **Dr. Ulrich Bernier, Research Scientist (retired), USDA/ARS/CMAVE, Gainesville, FL**
- 2:00pm Lauric and capric acid efficacy in biting fly vs mosquito spatial repellency methods ... **Mrs. Kim Benz, Onederings Lavender Farm, Clarksville, OH**
- 2:20pm Tick repellent update ... **Dr. Muhammed Farooq, Mosquito Control Engineer, AMCD, St. Augustine, FL**
- 2:30pm Exploring the potential of natural product repellents in a modified small tube assay... **Dr. Ed. Norris, Research Chemist, USDA/CMAVE, Gainesville, FL**
- 2:50pm New formulation of repellents against mosquitoes. **Mrs. Amy Hickox, President, Scents Fur You, LLC.**
- 3:00pm The Inzecto Mosquito Trap, a durable dual action lethal trap ... **Dr. Phil Koehler, Professor Emeritus, University of Florida/Urban Entomology Laboratory, Gainesville, FL**
- 3:10pm **BREAK**

LARVAL & ADULT CONTROL:

Moderator: Dr. Whitney A. Qualls, Entomologist/Scientific Manager, AMCD, St. Augustine, FL

- 3:20pm Overview of Department of Entomology and Nematology, UF/IFAS... **Dr. Daniel Hahn, Professor & Acting Chair, Department of Entomology and Nematology, University of Florida, Gainesville, FL**
- 3:40pm Efficacy of sterile male releases against *Aedes aegypti* in St. Augustine ... **Dr. Dr. Chao Chen, Scientist, UF/Dept of Entomology and Nematology, Gainesville, FL**
- 3:55pm Many tools in the toolbox: Autocidal strategies based on mosquito mass reared in Anastasia FL... **Dr. Stephen Dobson, Professor, University of Kentucky & MosquitoMate**
- 4:15pm Controlling *Aedes aegypti* in the Californian desert... **Ms. Jennifer Henke, Laboratory Manager, Coachella Valley Mosquito & Vector Control District, CA**
- 4:35pm Automated sex sorter and mass release technology for SIT mosquitoes ... **Mr. Patrick Keough**

Senecio Robotics

- 4:45pm KDR mutations in vector mosquitoes ... **Dr. Ke Dong, Professor, Department of Biology, Duke University, NC**
- 5:05pm Getting a handle on managing insecticide resistance: effective integrated vector management in a landscape of resistant mosquitoes ... **Mr. Alden Estep, Research Entomologist, USDA/CMAVE, Gainesville, FL**
- 5:25pm Evaluation of malathion applied by aerial against adult mosquitoes ... **Mr. Chris Lesser, Director, Manatee Mosquito Control District, FL**
- 5:45pm MGK's new larvicide products for mosquito control ... **Dr. Caleb Corona, Entomologist, MGK, MN**

6:00pm **END OF THE SESSION**

THURSDAY, MARCH 30, 2023

OTHER PROGRAM I:

Moderator: Dr. Dave Hoel, Executive Director, Lee County MCD, Ft. Myers, FL

- 8:00am Executing population-dependent threshold SIT for control of *Aedes aegypti* in Southern California in 2023... **Dr. Michelle Brown, General Manager, West Valley Mosquito and Vector Control District, CA.**
- 8:20am Research program overview from Anastasia Mosquito Control District ... **Dr. Whitney Qualls, Scientific Manager, Anastasia Mosquito Control District, St. Augustine, FL**
- 8:35am Research program overview at the Salt Lake City Mosquito Control Abatement ... **Dr. Chris Bibbs, Lab Manager, Slat Lake City Mosquito Abatement, Salt Lake City, UT**
- 8:50am Help and assistant to local mosquito control programs from the AMCA's Technical Advisor **Dr. Daniel Markowski, AMCA, Technical Advisor**
- 9:05am Update about drone for mosquito control in Lee County MCD ... **Mr. Aaron Lloyd, Assistant Director, LMCD, Ft. Myers, FL**
- 9:20am Global perspective on immature adaptation through natural selection of the immatures in the culicomorpha infraorder... **Mr. Herb Nyberg, New Mountain Innovation, Florida Keys, FL**
- 9:35am Update about sensory smart cages development for mosquito adulticide evaluation... **Dr. William Eisenstadt, Professor, Department of Electronic Engineer, University of Florida, Gainesville, FL**
- 9:50am Expression, activity, and biochemical inhibition of a- and b-glucosidases in different life stages

of *Culex quinquefasciatus* ... Dr. Edwin R. Burgess IV, Assistant Professor, Entomology and Nematology Department, University of Florida, Gainesville, FL

10:05 A.M. - BREAK

OTHER PROGRAM II:

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

- 10:20am Brevard County community outreach and education program ... Ms. **Bridget Coffey, Environmental Specialist, Maxwell Reynolds, Jonathan Linder and Joseph Faella, Brevard Mosquito Control District, Titusville, FL**
- 10:35am Characterization of potassium-chloride cotransporter in insect neural systems... **Dr. Rui Chen, Postdoctoral Associate, Dr. Daniel Swale, Associate Professor, University of Florida/EPI, Gainesville, FL**
- 10:50am Reassessing the host associations of the *Culex flavivirus* vectors ... **Dr. Lawrence E. Reeves, Assistant Professor, University of Florida/FMEL, Vero Beach, FL**
- 11:05am Overview of 2022 operations on the Space Coast through Hurricanes Ian and Nicole Mr. **Joseph Faella, Director, Jonathan Linder, Maxwell Reynolds, Bridget Coffey, Michael Buono, Jonathan Koagel and Steven Whitt, Brevard Mosquito Control District, Titusville, FL**
- 11:20am Distribution of blood-sucking flies in cattle farm of Bangkok, Thailand ... Dr. **Ratchadawan Ngoenklan, Assistant Professor, Department of Entomology, Kasetsart University, Bangkok, Thailand**
- 11:35am Interrupting Dengue-mosquito interactions to reduce pathogen transmission... **Dr. Zhilin Li, Postdoctoral Associate, Dr. Daniel Swale, Associate Professor, University of Florida/EPI, Gainesville, FL**
- 11:50am Calibration, Characterization of UAS for adulticiding and larviciding ... **Mr. Bill Reynolds, CEO, Leading Edge Associates, Daytona Beach, FL**

12:05 P.M. - LUNCH BREAK (provided by CENTRAL LIFE SCIENCES)

STUDENT SESSION:

Moderator: Dr. Steve Peper, Molecular Entomologist, AMCD, St. Augustine, FL

- 1:00pm **Special Lecture:** Update about good laboratory practice (GLP) in mosquito control product evaluations ... **Dr. Karl Malamud-Roam, Vector Control Consultants, CA**
- 1:20pm Semi-field evaluation of mosquito repellent from *Andrographis paniculate* against *Aedes aegypti* and *Anopheles minimus* in Thailand... **Miss Patcharawan Sirisopa, Ph.D. student, Department of**

Kasetsart University, Bangkok, Thailand

1:40pm Effect of transfluthrin-treated jute cloth on life history traits of resistant and susceptible *Aedes aegypti* under semi-field conditions ... **Mr. Alex Ahebwa, Ph.D. student, Department of Kasetsart University, Bangkok, Thailand**

1:50pm Protective efficacy of topical repellents against malaria vector *Anopheles dirus* in a semi-field system... **Mr. Manop Saeung, Ph. D. student. Department of Kasetsart University, Bangkok, Thailand**

2:00pm Irritant and repellent behavioral responses of sterile *Aedes aegypti* males developed for SIT disease control strategies ... **Mr. Jirod Nararak, Ph.D. student, Department of Kasetsart University, Bangkok, Thailand**

2:10pm Toxicity of commercialized herbicides to mosquitoes and ticks... **Ms. Sarah McComic, Graduate Student, Dr. Daniel Swale, Associate Professor, University of Florida/EPI, Gainesville, FL**

2:30pm Update on evaluation of nanoparticle formulation of mosquito adulticides ... **Mr. Kai Blore, UF/Ph.D. Student / Laboratory Manager, AMCD, St. Augustine, FL**

2:40pm-4:00pm BREAK & DEMONSITRATION IN THE FIELD SITE

Industry equipment and drone demonstrations **Mr. Bill Reynolds, CEO, Leading Edge Associates & Dr. Whitney Qualls, AMCD, St. Augustine, FL**

New technological demonstration, new backpacking sprayer, smart cage, & droplet analysis **Dr. M. Farooq, AMCD, St. Augustine, FL, Dr. James Cilek, NECE, Jacksonville, FL, Dr. William Eisenstadt, Professor of University of Florida**

5:00pm END OF THE 17th WORKSHOP.

Welcome to join the 19th workshop, St. Augustine, FL, March 26-28, 2024.