Joint Conference of the
INTERNATIONAL ORGANIZATION OF CITRUS VIROLOGISTS XXI
and
IRCHLB VI
INTERNATIONAL RESEARCH CONFERENCE ON HUANGLONGBING

MARCH 10-15, 2019
RIVERSIDE, CALIFORNIA, USA

PROGRAM

WWW.IOCVIRCHLB.COM

WELCOME

On behalf of the Executive Organizing Committee of the Joint 21st Conference of the International Organization of Citrus Virologists (IOCV) and the 6th International Research Conference on Huanglongbing (IRCHLB), it is our pleasure to welcome you to the Riverside Convention Center in Riverside, California. The joint 2019 IOCV-IRCHLB conference was organized by the Citrus Research Board (CRB), the University of California, Riverside (UC Riverside) and the USDA Agricultural Research Service in collaboration with numerous Citrus Industry, State and Federal Government and University partners.

IOCV returns to Riverside for the first time since the inaugural "Citrus Virus Diseases" conference in 1957, which was organized on the occasion of the 50th anniversary of the founding of the Citrus Experiment Station in 1907. We will celebrate this return to Riverside with a citrus tree planting event at the Spanish Patio of the Mission Inn Hotel. The XXI IOCV conference will open with a historical review of the organization. The technical sessions of the conference will feature presentations on citrus leprosis, tristeza, yellow vein clearing and the de novo discovery of citrus viruses, as well as citrus viroids and diagnostics. In addition, for the first time in the history of IOCV, the conference will include sessions on non-graft-transmissible diseases of citrus.

IRCHLB VI will feature interactive joint morning sessions with invited speakers and panel discussions on the global status of HLB, a summary of current HLB research efforts, and the vision for long-term sustainable HLB management practices. Concurrent oral technical sessions and joint poster sessions will include topics such as pathogen genome analysis, cultural control, chemical, molecular and biological vector management, host resistance and tolerance, epidemiology and economics, pathogen detection and culturing, antimicrobials, and regulatory updates. All oral sessions will end with panel discussions featuring interactive digital participation of the audience.

A unique array of keynote speakers with diverse backgrounds and expertise will present their ideas throughout the joint conference at breakfast, lunch and dinner. In addition, UC Riverside students will conduct 5 minute podcast/video interviews of selected conference attendees during breaks. Interviews will focus on the behind-the-scenes stories from our conference and the battles to protect the citrus industry from diseases. Finally, tours prior, during and after the conference will showcase the California citrus industry and research.

Conference center facilities will provide you with opportunities for side meetings and networking. If you need to have a quiet moment to gather your thoughts or catch up with your work, you can take advantage of the working zone spaces and the "Zen Room". And do not forget to visit the citrus heritage exhibits!

We hope that you will have an enjoyable and productive conference in the company of over 470 registered delegates from around the world.

Once more, on behalf of the Executive Organizing Committee, welcome!

Georgios Vidalakis

General Information

Venue:
Riverside Convention Center
3637 5th Street, Riverside, CA 92501
+1 (951) 335-7040

Language: The official language of the conference is English.

Badges: Name badges must be worn at all times. Your badge will grant you entry to sessions and meals. Please keep your name badge in clear view during the conference.

Conference Organizers: Organizers can be reached at the Registration Center, located on the upper concourse, from 7:00 AM – 5:30 PM, daily.

Internet Connection: Free WiFi will be available throughout the convention center.

Poster Presentations: We request that posters are set-up and in place no later than 1:30 PM on Sunday, March 10th for IOCV and 1:30 PM on Wednesday, March 13th for IRCHLB. Posters should stay up for the duration of the joint conference. Posters should be taken down at the conclusion of the conference, by 6:30 PM on Friday, March 15th. Posters left at the end of the conference will be thrown away.

Oral Presentations:
IOCV oral presentations will be 15-minutes long. Prepare your slides for a 10-minute talk and allow 5-minutes for questions from the audience. The talks will be presented in eight different sessions. Each session will begin with an introductory presentation on the subject by the moderators.

IRCHLB oral presentations will be 10-minutes long. There will be no questions from the audience at the end of talks. Time for questions will be made available during a 30-minute panel discussion at the end of the session. The panel discussion will include the six session speakers, and any of their co-authors that would like to participate.

Oral presenters should turn in PowerPoint presentations to the AV Check-in Center, located near the Bell Tower entrance of the Riverside Convention Center on the upper concourse. The AV Center will be open from Noon – 5:00 PM on Saturday, March 9th and will be open throughout the conference, daily from 7:00 AM – 5:00 PM.

RIVERSIDE CONVENTION CENTER

Map

Historic Mission Inn Hotel & Spa
3649 Mission Inn Avenue
Riverside, California 92501
+1 (951) 784-0300

Hyatt Place
3500 Market Street
Riverside, California 92501
+1 (951) 321-3500

Marriott at the Convention Center
3400 Market Street
Riverside, California 92501
+1 (951) 784-8000

CONVENTION CENTER
AND ADDITIONAL PARKING

IOCV - SATURDAY, MARCH 9, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
6:00PM	Mission Inn Hotel	Meal	**IOCV Welcome Reception and Dinner** - (Mission Inn Hotel - Orient Courtyard and Galleria)	

IOCV - SUNDAY, MARCH 10, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
7:00AM	Raincross Ballroom	Meal	**Breakfast**	
8:30AM	Raincross Ballroom		**IOCV Opening and Welcome**	
9:00AM	Raincross Ballroom	**IOCV-01: IOCV History and Citrus Programs**	**IOCV History and Citrus Programs** - Chester Roistacher and Luis Navarro	
10:00AM	Raincross Ballroom	IOCV-01-01	Advancements at the Citrus Clonal Protection Program (CCPP) and National Clean Plant Network (NCPN), U.S.A.	Vidalakis, Georgios
10:15AM	Raincross Ballroom	IOCV-01-02	Post Entry Quarantine (PEQ) of citrus in South Africa	Jooste, Anna
10:30AM	Raincross Ballroom	IOCV-01-03	Citrus germplasm collection, evaluation and utilization for the rehabilitation and development of the citrus industry in the Philippines	Ochasan, Juliet
10:45AM	Raincross Ballroom	Break	**Morning Break**	

IOCV - SUNDAY, MARCH 10, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
11:15AM	Raincross Ballroom	IOCV-01-04	Using Tissue Print Blotting Based qPCR for the Detection of Viroids in Citrus Germplasm	Rawstern, Amanda
11:30AM	Raincross Ballroom	IOCV-01-05	Using Next generation sequencing (NGS) to characterise Australia's living pathogen collection	Chambers, Grant
11:45AM	Raincross Ballroom	IOCV-01-06	Next generation sequencing of small RNAs from citrus plants with single and mixed infections of viruses and viroids	Licciardello, Grazia
12:00PM	Raincross Ballroom	IOCV-01-07	Next Generation Sequencing as a Routine Diagnostic Tool for Citrus Variety Introduction at the Citrus Clonal Protection Program	Dang, Tyler
12:15PM	Raincross Ballroom	Meal	**Lunch**	
12:45PM	Raincross Ballroom	Keynote	**Keynote Speaker** - Bryce Falk: Viruses are your friends	Falk, Bryce
1:30PM	Raincross Ballroom	**IOCV-02: De novo Discovery of Citrus Viruses**	**De novo Discovery of Citrus Viruses** - Mengji Cao and Francesco DiSerio	
2:00PM	Raincross Ballroom	IOCV-02-01	Two negative-stranded RNA viruses infecting citrus are representative members of the novel genus Coguvirus	Di Serio, Francesco

IOCV - SUNDAY, MARCH 10, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
2:15PM	Raincross Ballroom	IOCV-02-02	Complete sequence of three phlebo-like viruses associated to Cristacortis, Concave gum and Impietratura diseases	Vives, Mari Carmen
2:30PM	Raincross Ballroom	IOCV-02-03	Investigation into an oak leaf-inducing agent detected in citrus in Texas	Park, Jong-Won
2:45PM	Raincross Ballroom	IOCV-02-04	Detection of a South African variant of a bunya-like virus infecting citrus	Bester, Rachelle - *IOCV-IRCHLB Scholarship Recipient*
3:00PM	Raincross Ballroom	IOCV-02-05	A series of novel bipartite negative-strand RNA viruses surfaced in the order Bunyavirales highlighting a conspicuous evolutionary diversity	Cao, Mengji
3:15PM	Raincross Ballroom	Break	**Afternoon Break**	
3:45PM	Raincross Ballroom	**IOCV-03: Citrus Leprosis**	**Citrus Leprosis** - Juliana Freitas-Astúa and Glynnis Cook	
4:15PM	Raincross Ballroom	IOCV-03-01	The first case of Citrus Leprosis-N in South Africa	Cook, Glynnis
4:30PM	Raincross Ballroom	IOCV-03-02	A comparative cytopathology of leprotic lesions caused by Brevipalpus-transmitted viruses on Citrus spp. leaf tissues	Watanabe Kitajima, Elliot

IOCV - SUNDAY, MARCH 10, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
4:45PM	Raincross Ballroom	IOCV-03-03	Detection of a new citrus strain of Orchid fleck virus associated with Citrus leprosis syndrome in Mexico	Roy, Avijit
5:00PM	Exhibit Hall C & D		**Poster Presentation Session**	See page 51
7:00PM	Raincross Ballroom	Meal	**Dinner**	
7:30PM	Raincross Ballroom	Keynote	**Keynote Speaker** - Anne Simon: Novel insights into RNA viruses revealed through examination of their genome's structure	Simon, Anne

IOCV - MONDAY, MARCH 11, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
7:00AM	Raincross Ballroom	Meal	**Breakfast**	
7:20AM	Raincross Ballroom	Keynote	**Keynote Speaker** - James Borneman: Advances in Human Microbiome Research and How They Link to Diet and Agricultural Research	Borneman, James
8:00AM	Raincross Ballroom	**IOCV-04: Citrus Viroids**	**Citrus Viroids** - Nuria Duran-Vila and Georgios Vidalakis	

IOCV - MONDAY, MARCH 11, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
8:30AM	Raincross Ballroom	IOCV-04-01	Probing the viroid RNA sequence for non-vital regions: Areas that can be altered without loss of viroid viability and pathogenicity	Rodriguez, Carlos
8:45AM	Raincross Ballroom	IOCV-04-02	Global transcriptomic analysis reveals insights into the response to Citrus exocortis viroid in citron (Citrus medica L.)	Cao, Mengji
9:00AM	Raincross Ballroom	IOCV-04-03	Citrus dwarfing viroid reduces citrus apical shoot growth and alters tree hormonal profile. Pathogen or answer to emerging citriculture challenges?	Lavagi, Irene
9:15AM	Raincross Ballroom	IOCV-04-04	First report of Citrus Bent Leaf Viroid and Citrus Dwarfing Viroid in Argentina	Palacios, Maria Florencia - IOCV-IRCHLB Scholarship Recipient
9:30AM	Raincross Ballroom	Break	**Morning Break**	
10:00AM	Raincross Ballroom	**IOCV-05: Citrus Tristeza**	**Citrus Tristeza** - Bill Dawson and Choaa El Mohtar	
10:30AM	Raincross Ballroom	IOCV-05-01	New transient expression vectors based on citrus tristeza virus (CTV) strain VT and T30 infectious clones	El Mohtar, Choaa

IOCV - MONDAY, MARCH 11, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
10:45AM	Raincross Ballroom	IOCV-05-02	New tools to study viral gene expression and subcellular localization in citrus plant cells	Levy, Amit
11:00AM	Raincross Ballroom	IOCV-05-03	Variants of the CTV T68 strain differ in stem pitting expression in grapefruit	Maree, Hans
11:15AM	Raincross Ballroom	IOCV-05-04	Preinfection of citrus by RB strains of Citrus tristeza virus (CTV) negatively affected expression of a modified T36 CTV vector	Hajeri, Subhas
11:30AM	Raincross Ballroom	IOCV-05-05	Current situation of citrus tristeza disease in the Cuban citriculture	Llanes-Alvarez, Yilian - IOCV-IRCHLB Scholarship Recipient
11:45AM	Raincross Ballroom	IOCV-05-06	Characterization of California Citrus tristeza virus (CTV) strains that react with CTV MCA13 monoclonal antibody	Yokomi, Ray
12:00 PM	Raincross Ballroom	IOCV-05-07	Genotyping CTV isolates by sequential RT-PCR and microarray hybridization in a miniaturized lab-on-chip (LoC) device	Catara, Antonino
12:15PM	Raincross Ballroom	Meal	**Lunch**	

IOCV - MONDAY, MARCH 11, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
12:45PM	Raincross Ballroom	Keynote	**Keynote Speakers** - Tracy Kahn and Mikeal Roose: Adventures with Citrus Germplasm	Kahn, Tracy and Roose, Mikeal
1:45PM	Raincross Ballroom	**IOCV-06: Citrus Yellow Vein Clearing**	**Citrus Yellow Vein Clearing** - Changyong Zhou and Yan Zhou	
2:15PM	Raincross Ballroom	IOCV-06-01	Evidence for non-transmission of Citrus yellow vein clearing virus by seed	Zhou, Yan
2:30PM	Raincross Ballroom	IOCV-06-02	Identification of Dialeurodes citri as a vector of Citrus yellow vein clearing virus in China	Wang, Qin
2:45PM	Raincross Ballroom	IOCV-06-03	Infectivity analysis of CYVCV infectious cDNA clones on different citrus cultivars	Bin, Yu - IOCV-IRCHLB Scholarship Recipient
3:00PM	Raincross Ballroom	IOCV-06-04	Rapid construction of infectious clones of citrus viruses based on transformation- associated recombination (TAR) in yeast	Song, Zhen
3:15PM	Raincross Ballroom	Break	**Afternoon Break**	
3:45PM	Raincross Ballroom	**IOCV-07: Other Citrus Viruses and Diagnostics**	**Other Citrus Viruses and Diagnostics** - MaryLou Polek and Fatima Osman	

IOCV - MONDAY, MARCH 11, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
4:00PM	Raincross Ballroom	IOCV-07-01	California Citrus Nursery Stock Pest Cleanliness Program: High throughput diagnostics, laboratory information and quality management systems	Bodaghi, Sohrab
4:15PM	Raincross Ballroom	IOCV-07-02	Examination of a widespread psorosis-like disease in Hawaiian citrus trees	Olmedo-Velarde, Alejandro
4:30PM	Raincross Ballroom	IOCV-07-03	Citrus vein enation virus encodes P0 and ORF3 to suppress post-transcriptional gene silencing	Tan, Shih-hua
4:45PM	Raincross Ballroom	IOCV-07-04	Rescue of Citrus sudden death-associated virus in Nicotiana benthamiana plants from cloned cDNA: insights into mechanisms for expression of the three capsid proteins	Matsumura, Emilyn
5:00PM	Raincross Ballroom	IOCV-07-05	Response of sweet orange to co-infection with 'Candidatus Liberibacter asiaticus' and citrus tristeza virus at the transcriptional and biological levels	Fu, Minnie - IOCV-IRCHLB Scholarship Recipient
5:00PM	Exhibit Hall C & D	Poster	**Poster Presentation Session**	See page 51
7:00PM	Raincross Ballroom	Meal	**Dinner**	

IOCV - TUESDAY, MARCH 12, 2019				
TIME	**LOCATION**	**SESSION**	**EVENT**	**SPEAKER**
7:00AM	Raincross Ballroom	Meal	**Breakfast**	
7:20AM	Raincross Ballroom	Keynote	**Keynote Speaker** - Norman Ellstrand: Sex on the Kitchen Table	Ellstrand, Norman
8:00AM	Raincross Ballroom	**IOCV-08: Topics in Citrus Pathology**	**Topics in Citrus Pathology** - Jim Graham and Joey Mayorquin	
8:15AM	Raincross Ballroom	IOCV-08-01	Gene expression of Guanggan (Citrus reticulata) infected by Phytophthora nicotianae	Yan, Huaxue
8:30AM	Raincross Ballroom	IOCV-08-02	Microsatellite characterization and marker development for the fungus Penicillium digitatum, causal agent of green mold of citrus	Varady, Erika
8:45AM	Raincross Ballroom	IOCV-08-03	Exogenous nicotinamide adenine dinucleotide induces resistance to citrus canker in citrus	Alferez, Fernando
9:00AM	Raincross Ballroom	IOCV-08-04	Metabolic engineering of monoterpene synthases to control important pests and diseases in citrus varieties	Peña, Leandro

IOCV - TUESDAY, MARCH 12, 2019				
TIME	**LOCATION**	**SESSION**	**EVENT**	**SPEAKER**
9:15AM	Raincross Ballroom		**IOCV Business Meeting**	
11:30AM	Mission Inn Hotel		IOCV 60th Anniversary Professor George Zentmyer Tree Planting Ceremony at the Mission Inn Hotel - Spanish Patio	
12:00PM	Mission Inn Hotel	Meal	**Lunch** (Mission Inn Hotel)	
1:00PM			**Mid-Conference Tour** (Pick-up at Riverside Convention Center)	
6:00PM	Outdoor Plaza	Meal	**IOCV Closing Banquet/IRCHLB Welcome Reception and Dinner**	

IRCHLB - CONCURRENT SESSION OVERVIEW

WEDNESDAY, MARCH 13, 2019			
1a Exhbit Hall A	**1:25PM Concurrent Session -1a** **IRCHLB-01: Pathogen Genome Analysis**	**1b** Exhbit Hall B	**1:25PM Concurrent Session -1b** **IRCHLB-02: Cultural Control**
2a Exhbit Hall A	**3:25PM Concurrent Session -2a** **IRCHLB-03: Vector Function**	**2b** Exhbit Hall B	**3:25PM Concurrent Session -2b** **IRCHLB-04: Pathogen Detection and Culturing**
THURSDAY, MARCH 14, 2019			
3a Exhbit Hall A	**11:10AM Concurrent Session -3a** **IRCHLB-05: Epidemiology**	**3b** Exhbit Hall B	**11:10AM Concurrent Session -3b** **IRCHLB-06: Host Resistance and Tolerance**
4a Exhbit Hall A	**2:10PM Concurrent Session -4a** **IRCHLB-07: IRCHLB-07: Chemical and Biological Vector Management**	**4b** Exhbit Hall B	**2:10PM Concurrent Session -4a** **IRCHLB-08: Antimicrobials**
5a Exhbit Hall A	**4:10PM Concurrent Session -5a** **IRCHLB-09: Molecular and Cultural Vector Management**	**5b** Exhbit Hall B	**4:10PM Concurrent Session -5b** **IRCHLB-10: Regulatory and Programs Update**
FRIDAY, MARCH 15, 2019			
6a Exhbit Hall A	**12:55PM Concurrent Session -6a** **IRCHLB-11: Economics and Management**	**6b** Exhbit Hall B	**12:55PM Concurrent Session -6b** **IIRCHLB-12: Molecular Plant Manipulations for the Future**
7a Exhbit Hall A	**2:55PM Concurrent Session -7a** **IRCHLB-13: Bacteriocides and Plant Defenses**	**7b** Exhbit Hall B	**2:55PM Concurrent Session -7b** **IRCHLB-14 Host Response to Infection**

GENERAL SESSION DETAILS: WEDNESDAY, MARCH 13, 2019

9:25AM General Session - Exhibit Hall A & B
HLB Status in the World - What is the current situation?
Moderators: MaryLou Polek and Tom Delfino

9:30 AM	Juliano Ayres, South America
9:45 AM	Zhou Changyoung, China
10:00 AM	Norma Garcia, Central America
10:15 AM	Solomon Gebeyehu, South Africa
10:30 AM	Luis Navarro and Leandro Pena, Europe
10:45 AM	Nerida Donovan, Australia
11:00 AM	Don Seaver, United States
11:15 AM	Panel Discussion

GENERAL SESSION DETAILS: THURSDAY, MARCH 14, 2019

8:40AM General Session - Exhibit Hall A & B
HLB Research Current Status-What have we done so far?
Moderators: Melinda Klein and Mike Rogers

8:45AM	Tom Bewick, United States Department of Agriculture - National Institute of Food and Agriculture (USDA-NIFA)
9:00AM	Jacqueline Fletcher, National Academy of Sciences (NAS)
9:15AM	Angela McMellen-Brannigan, USDA – Animal and Plant Health Inspection Service (APHIS) - Huanglongbing Multi-Agency Coordination Group (HLB-MAC)
9:30AM	Kevin Hackett, United States Department of Agriculture – Agriculture Research Service (USDA-ARS)
9:45AM	Ed Civerolo, California Citrus Research Board (CRB)
10:00AM	Rick Dantzler, Citrus Research and Development Foundation (CRDF)
10:15AM	Panel Discussion

GENERAL SESSION DETAILS: FRIDAY, MARCH 15, 2019

8:40AM General Session - Exhibit Hall A & B
Long Term Solutions - What approaches will be available in the future?
Moderators: Timothy Rinehart and Georgios Vidalakis

8:45AM	Tim Widmer, United States Department of Agriculture – Agriculture Research Service (USDA-ARS)
9:00AM	Tim Paine, University of California, Riverside
9:15AM	Mike Rogers, University of Florida
9:30AM	Tim Eyrich, US Sugar
9:45AM	Mike Irey, Southern Gardens
10:00AM	Xiaoling Deng, South China Agricultural University
10:15AM	Silvio Lopes, Fundecitrus
10:30AM	Peggy Lemaux, University of California, Berkeley
10:45AM	Panel Discussion

IRCHLB - TUESDAY, MARCH 12, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
6:00PM	Outdoor Plaza	Meal	**IOCV Closing Banquet/IRCHLB Welcome Reception and Dinner**	

IRCHLB - WEDNESDAY, MARCH 13, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
6:30AM	Raincross Ballroom	Meal	**Breakfast**	
8:00AM	Exhibit Hall A & B	General Session	**General Session:** IRCHLB Welcome and Opening Session	
8:30AM	Exhibit Hall A & B	Keynote	**Keynote Speaker** - Steve Lindow: Detailed investigations of the interaction of the plant pathogen Xylella fastidiosa with host plants and insect vectors has revealed novel methods of disease control	Lindow, Steve
9:10AM	Upper Concourse	Break	**Morning Break**	
9:25AM	Exhibit Hall A & B	General Session	**General Session:** HLB Status in the World - What is the current situation? - Moderators: MaryLou Polek and Tom Delfino	See page 20 for more details
12:00PM	Raincross Ballroom	Meal	**Lunch**	

IRCHLB - WEDNESDAY, MARCH 13, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
12:45PM	Raincross Ballroom	Keynote	**Keynote Speaker** - Robert Turgeon: Home sweet home: CLas in the phloem	Turgeon, Robert
1:25PM Concurrent Session-1a	Exhbit Hall A	**IRCHLB-01: Pathogen Genome Analysis**	**Pathogen Genome Analysis** - Moderators: Wenbo Ma and Zheng Zheng	
1:30PM	Exhbit Hall A	IRCHLB-01a-01	Genomic and phylogenetic analyses of Candidatus Liberibacter asciaticus	Coaker, Gitta
1:40PM	Exhbit Hall A	IRCHLB-01a-02	SureSelect targeted enrichment: an effective enrichment method for whole genome sequencing of 'Candidatus Liberibacter asiaticus',	Cai, Weili
1:50PM	Exhbit Hall A	IRCHLB-01a-03	"Candidatus Liberibacter asiaticus" strains from multiple locations in southern California are different	Chen, Jianchi
2:00PM	Exhbit Hall A	IRCHLB-01a-04	Development of routine multi-locus genotyping methods to characterize Huanglongbing (HLB) findings in California	Yan, Zonghe
2:10PM	Exhbit Hall A	IRCHLB-01a-05	Genome sequencing of psyllid-associated Candidatus L. caribbeanus and Ca. L. asiaticus from Colombia, South America.	Lee, Richard

IRCHLB - WEDNESDAY, MARCH 13, 2019				
TIME	**LOCATION**	**SESSION**	**EVENT**	**SPEAKER**
2:20PM	Exhbit Hall A	IRCHLB-01a-06	Host-dependent chromosomal deletion mutations in the mosaic island of Candidatus Liberibacter asiaticus genome	Duan, Yongping
2:30PM	Exhbit Hall A	IRCHLB-1a-Panel Discussion	Pathogen Genome Analysis Panel Discussion	
3:00PM	Upper Concourse	Break	**Afternoon Break**	
1:25PM Concurrent Session-1b	Exhibit Hall B	**IRCHLB-02: Cultural Control**	**Cultural Control** - Moderators: Philippe Rolshausen and Silvio Lopes	
1:30PM	Exhibit Hall B	IRCHLB-01b-01	Citrus Under Protected Screen for grapefruit HLB management in Florida's East Coast	Ferrarezi, Rhuanito
1:40PM	Exhibit Hall B	IRCHLB-01b-02	Hydroponically-grown grapefruit maximize HLB-free fresh fruit production in CUPS	Schumann, Arnold
1:50PM	Exhibit Hall B	IRCHLB-01b-03	Individual Protective Covers (IPCs) prevent young citrus trees from psyllids and infection with CLas, and promote vegetative growth	Alferez, Fernando

IRCHLB - WEDNESDAY, MARCH 13, 2019				
TIME	**LOCATION**	**SESSION**	**EVENT**	**SPEAKER**
2:00PM	Exhibit Hall B	IRCHLB-01b-04	New approach for enhance the defense against diseases in citrus plants	Rodríguez, Meilyn - IOCV-IRCHLB Scholarship Recipient
2:10PM	Exhibit Hall B	IRCHLB-01b-05	Root damage on HLB-affected trees: Consequences and mitigation with soil acidification	Graham, Jim
2:20PM	Exhibit Hall B	IRCHLB-01b-06	Can additional supply of Ca and/or Mg reduce the progress of HLB incidence, severity and crop loss?	Bassanezi, Renato
2:30PM	Exhibit Hall B	IRCHLB-1b-Panel Discussion	Cultural Control Panel Discussion	
3:00PM	Upper Concourse	Break	**Afternoon Break**	
3:25PM Concurrent Session-2a	Exhbit Hall A	**IRCHLB-03: Vector Function**	**Vector Function** - Moderators: Susan Halbert and Marcelo Miranda	
3:30PM	Exhbit Hall A	IRCHLB-02a-01	The Quest for a Non-Vector Psyllid: Heritable Variation in Acquisition and Transmission Efficiency of 'Candidatus Liberibacter asiaticus' by Diaphorina citri	Heck, Michelle

IRCHLB - WEDNESDAY, MARCH 13, 2019				
TIME	**LOCATION**	**SESSION**	**EVENT**	**SPEAKER**
3:40PM	Exhbit Hall A	IRCHLB-02a-02	Asian citrus psyllid adults are more efficient than nymphs in inoculating the huanglongbing bacterium into citrus if both stages of the vector were reared on infected plants	Ammar, El-Desouky
3:50PM	Exhbit Hall A	IRCHLB-02a-03	Is the acquisition of HLB-associated bacteria by Psyllids reduced through Copper, Manganese and/or Zinc fertilizations in infected citrus trees?	Rangel da Silva, Jefferson IOCV-IRCHLB Scholarship Recipient
4:00PM	Exhbit Hall A	IRCHLB-02a-04	Psyllid-Ca.Liberibacter interactions involved in the circulative, propagative transmission pathway: molecular and cellular interfaces	Brown, Judith
4:10PM	Exhbit Hall A	IRCHLB-02a-05	Diaphorina citri employs the metabolism of citrus host to fulfill its nutritional needs	Killiny, Nabil
4:20PM	Exhbit Hall A	IRCHLB-02a-06	Sex-dependent effects of CLas exposure on Diaphorina citri	Coates, Laurynne
4:30PM	Exhbit Hall A	IRCHLB-2a-Panel Discussion	Vector Funtion Panel Discussion	
3:25PM Concurrent Session-2b	Exhibit Hall B	**IRCHLB-04: Pathogen Detection and Culturing**	**Pathogen Detection & Culturing** - Moderators: Greg McCollum and Dean Gabriel	

IRCHLB - WEDNESDAY, MARCH 13, 2019				
TIME	**LOCATION**	**SESSION**	**EVENT**	**SPEAKER**
3:30PM	Exhibit Hall B	IRCHLB-02b-01	Culturing "Candidatus Liberibacter asiaticus", the Causal Agent of Citrus Greening Disease (Huanglongbing, HLB)	Gang, David
3:40PM	Exhibit Hall B	IRCHLB-02b-02	Liberibacter crescens rapid death phase in rich medium is due to medium alkalinization via ammonia evolution	Jones, Kathryn
3:50PM	Exhibit Hall B	IRCHLB-02b-03	Galleria mellonella: A potential artificial host for Liberibacters	Munoz-Bodnar, Alejandra
4:00PM	Exhibit Hall B	IRCHLB-02b-04	HLB associated bacteria in Brazil: qPCR multiplex diagnosis, occurrence and distribution	Wulff, Nelson
4:10PM	Exhibit Hall B	IRCHLB-02b-05	Detection of 'Candidatus Liberibacter africanus subspecies' from commercial citrus orchards in South Africa.	Roberts, Ronel
4:20PM	Exhibit Hall B	IRCHLB-02b-06	Performance comparison of main real-time PCR detection methods for detection of the plant pathogen 'Candidatus Liberibacter' spp. causing the Huanglongbing disease on Citrus spp.	Cellier, Gilles
4:30PM	Exhibit Hall B	IRCHLB-2b-Panel Discussion	Pathogen Detection and Culturing Panel Discussion	

IRCHLB - WEDNESDAY, MARCH 13, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
5:00PM	Exhibit Hall C & D	Poster Session	**Poster Presentation Session**	See page 56 for poster titles
	IRCHLB-01: Pathogen Genome Analysis IRCHLB-02: Cultural Control IRCHLB-03: Vector Function IRCHLB-04: Pathogen Detection and Culturing			
7:00PM	Raincross Ballroom	Meal	**Dinner**	
8:00PM	Raincross Ballroom	Keynote	**Keynote Speaker** - Vivian Irish: Engineering citrus using recent advances in gene editing technologies	Irish, Vivian

IRCHLB - THURSDAY, MARCH 14, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
6:30AM	Raincross Ballroom	Meal	**Breakfast**	
8:00AM	Raincross Ballroom	Keynote	**Keynote Speaker** - Bruce Hay: Gene drive, psyllids, and HLB: Are we in the tunnel yet?	Hay, Bruce
8:40AM	Exhibit Hall A & B	General Session	**General Session:** HLB Research Current Status-What have we done so far? - Moderators: Melinda Klein and Mike Rogers	See page 20 for more details
10:45AM	Upper Concourse	Break	**Morning Break**	
11:10AM Concurrent Session-3a	Exhbit Hall A	**IRCHLB-05: Epidemiology**	**Epidemiology** - Moderators: Neil McRoberts and Renato Bassanezi	
11:15AM	Exhbit Hall A	IRCHLB-03a-01	A decade of 'Candidatus Liberibacter asiaticus' and its Asian citrus psyllid vector in Texas: an epidemiological insight	Alabi, Olufemi
11:25AM	Exhbit Hall A	IRCHLB-03a-02	Modelling of HLB invasion: prediction of southern California and Central Valley spread using epidemiological parameters estimated from Texas survey data	Nguyen, Viet Anh
11:35AM	Exhbit Hall A	IRCHLB-03a-03	CLas titer in ACP, not infected citrus, is the driving force for the spread of HLB	McCollum, Greg

IRCHLB - THURSDAY, MARCH 14, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
11:45AM	Exhbit Hall A	IRCHLB-03a-04	Predict likelihood of ACP/HLB dispersal into CA commercial citrus under different control protocols	Luo, Weiqi
11:55AM	Exhbit Hall A	IRCHLB-03a-05	Update on Canine assisted early detection of HLB	Gottwald, Tim
12:05PM	Exhbit Hall A	IRCHLB-03a-06	Comparative economic analyses of EDTs for sustainable HLB survey design via modeling and simulation	Posny, Drew
12:15PM	Exhbit Hall A	IRCHLB-3a-Panel Discussion	Epidemiology Panel Discussion	
11:10AM Concurrent Session-3b	Exhibit Hall B	**IRCHLB-06: Host Resistance and Tolerance**	**Host Resistance and Tolerance** - Moderators: Danelle Seymour and Ed Stover	
11:15AM	Exhibit Hall B	IRCHLB-03b-01	Identification of natural citrus genes and alleles associated with HLB tolerance in citrus breeding populations	Yu, Qibin
11:25AM	Exhibit Hall B	IRCHLB-03b-02	Resistance to huanglongbing developed in hybrids of citrus crossed with Australian limes.	Ramadugu, Chandrika
11:35AM	Exhibit Hall B	IRCHLB-03b-03	Application of KASP markers to improve studies of HLB tolerance	Roose, Mikeal

IRCHLB - THURSDAY, MARCH 14, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
11:45AM	Exhibit Hall B	IRCHLB-03b-04	Screening diverse citrus genotypes for plant immune perception	Franco, Jessica
11:55AM	Exhibit Hall B	IRCHLB-03b-05	Potential Mechanisms of AtNPR1 mediated resistance against Huanglongbing (HLB)	Dutt, Manjul
12:05PM	Exhibit Hall B	IRCHLB-03b-06	Molecular mechanism underlying a thornless bud sport derived from a HLB-tolerant seedling via transcriptome analysis	Wu, Bo
12:15PM	Exhibit Hall B	IRCHLB-3b-Panel Discussion	Host Resistance and Tolerance Panel Discussion	
12:45PM	Raincross Ballroom	Meal	**Lunch**	
1:15PM	Raincross Ballroom	Keynote	**Keynote Speaker** - Robert Jackson: Approaches for using biocontrol agents to control bacterial diseases and aphid pests	Jackson, Robert
2:10PM Concurrent Session-4a	Exhbit Hall A	**IRCHLB-07: Chemical and Biological Vector Management**	**Chemical & Biological Vector Management** - Moderators: Elizabeth Grafton-Cardwell and Kirsten Pelz-Stelinski	

IRCHLB - THURSDAY, MARCH 14, 2019				
TIME	**LOCATION**	**SESSION**	**EVENT**	**SPEAKER**
2:15PM	Exhbit Hall A	IRCHLB-04a-01	Addressing whether there is a need for continued vector management under HLB stress	Ibanez, Freddy
2:25AM	Exhbit Hall A	IRCHLB-04a-02	Monitoring susceptibility of Diaphorina citri to five insecticides in regional control areas of Mexican states growing citrus	Osorio-Acosta, Francisco
2:35PM	Exhbit Hall A	IRCHLB-04a-03	Evaluation of early uptake of systemic pesticides on containerized citrus nursery stock for the control of Asian citrus psyllid	Byrne, Frank
2:45AM	Exhbit Hall A	IRCHLB-04a-04	Evergreen Pressurized Spray for the Control of Asian Citrus Psyllid in Bulk Citrus	Gautam, Sandipa
2:55PM	Exhbit Hall A	IRCHLB-04a-05	Biological Control of Asian Citrus Psyllid in Urban California – Release Strategies and Monitoring Results	Morgan, David
3:05AM	Exhbit Hall A	IRCHLB-04a-06	Patterns of Diaphorina citri (Hemiptera: Liviidae) parasitism by the nymphal parasitoid Tamarixia radiata (Hymenoptera: Eulophidae) on residential citrus	Sétamou, Mamoudou
3:15PM	Exhbit Hall A	IRCHLB-4a-Panel Discussion	Chemical and Biological Vector Management Panel Discussion	
3:45PM	Upper Concourse	Break	**Afternoon Break**	

IRCHLB - THURSDAY, MARCH 14, 2019				
TIME	**LOCATION**	**SESSION**	**EVENT**	**SPEAKER**
2:10PM Concurrent Session-4b	Exhibit Hall B	**IRCHLB-08: Antimicrobials**	**Antimicrobials** - Moderators: Robert Shatters and Jim Graham	
2:15PM	Exhibit Hall B	IRCHLB-04b-01	Needle-Assisted Trunk Infusion (NATI): An alternative method for delivering therapeutic materials into the citrus vasculature	Batuman, Ozgur
2:25AM	Exhibit Hall B	IRCHLB-04b-02	Vacuum-Assisted Infiltration of Single Citrus Leaves Identifies Antibiotics Active against 'Candidatus Liberibacter asiaticus'	Hilf, Mark
2:35PM	Exhibit Hall B	IRCHLB-04b-03	Optimizing uptake and performance of bactericides in citrus	Shatters, Robert
2:45AM	Exhibit Hall B	IRCHLB-04b-04	ZinkicideTM: how effective are zinc oxide nanoparticles for HLB control?	Johnson, Evan G.
2:55PM	Exhibit Hall B	IRCHLB-04b-05	ACCEL ELISA to Monitor Oxytetracycline Hydrochloride and Streptomycin Sulfate Movement in Citrus Trees	Kim, Jeongsoon
3:05AM	Exhibit Hall B	IRCHLB-04b-06	High throughput sequencing to determine levels of spontaneous streptomycin resistance in agricultural soils	Petrone, Joseph
3:15PM	Exhibit Hall B	IRCHLB-4b-Panel Discussion	Antimicrobials Panel Discussion	

IRCHLB - THURSDAY, MARCH 14, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
3:45PM	Upper Concourse	Break	**Afternoon Break**	
4:10PM Concurrent Session-5a	Exhbit Hall A	**IRCHLB-09: Molecular and Cultural Vector Management**	**Molecular and Cultural Vector Management** - Moderators: Monique Rivera and Lauren Diepenbrock	
4:15PM	Exhbit Hall A	IRCHLB-05a-01	Effect of Huanglongbing Antimicrobial Therapies on Candidatus Liberibacter asiaticus, and Its Vector, the Asian Citrus Psyllid, Diaphorina citri Kuwayama (Hemiptera: Liviidae)	Pelz-Stelinski, Kirsten
4:25PM	Exhbit Hall A	IRCHLB-05a-02	Bt toxins for management of Asian citrus psyllid (Diaphorina citri, Hemiptera)	Kumar, Pavan
4:35PM	Exhbit Hall A	IRCHLB-05a-03	BAPC-assisted-CRISPR-Cas9 Delivery into Nymphs and Adults for Heritable Gene Editing (Hemiptera)	Hunter, Wayne
4:45PM	Exhbit Hall A	IRCHLB-05a-04	On the use of psyllids for directed delivery of therapeutics for HLB	Braswell, Evan
4:55PM	Exhbit Hall A	IRCHLB-05a-05	Trap crop as a potential strategy to control Diaphorina citri	Miranda, Marcelo
5:05PM	Exhbit Hall A	IRCHLB-05a-06	Field implementation of a multimodal attract-and-kill device for Asian citrus psyllids	George, Justin

IRCHLB - THURSDAY, MARCH 14, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
5:15PM	Exhbit Hall A	IRCHLB-5a-Panel Discussion	Molecular and Cultural Vector Management Panel Discussion	
4:10PM Concurrent Session-5b	Exhibit Hall B	**IRCHLB-10: Regulatory and Programs Updates**	**Regulatory and Programs Updates** - Moderators: Angela McMellen-Brannigan and Robert Krueger	
4:15PM	Exhibit Hall B	IRCHLB-05b-01	Introduction of Florida citrus varieties into California. Project status and regulatory developments in citrus germplasm movement.	Irene Lavagi
4:25PM	Exhibit Hall B	IRCHLB-05b-02	Methods for Legal Interstate Movement of Regulatory Articles from Quarantine Areas in the US for Citrus Greening and Citrus Canker Research	Liu, Zhaowei
4:35PM	Exhibit Hall B	IRCHLB-05b-03	A qualitative model to estimate the risk associated with the movement of bulk citrus between the regional quarantine zones in California	Garcia Figuera, Sara
4:45PM	Exhibit Hall B	IRCHLB-05b-04	HLB & ACP Online resource databases	Humann, Jodi and Saha, Surya
4:55PM	Exhibit Hall B	IRCHLB-05b-05	Progress in breeding rootstocks to prevent or mitigate HLB in commercial trees	Grosser, Jude

IRCHLB - THURSDAY, MARCH 14, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
5:05PM	Exhibit Hall B	IRCHLB-05b-06	USDA Efforts to Develop Resistance and Tolerance to Huanglongbing in Citrus Scions	Stover, Ed
5:15PM	Exhibit Hall B	IRCHLB-5b-Panel Discussion	Regulatory and Programs Updates Panel Discussion	
5:45PM	Exhibit Hall C & D	Poster Session	**Poster Presentation Session**	See page 56 for poster titles
	IRCHLB-05: Epidemiology IRCHLB-06: Host Resistance and Tolerance IRCHLB-07: Chemical and Biological Vector Management IRCHLB-08: Antimicrobials IRCHLB-09: Molecular and Cultural Vector Management IRCHLB-10: Regulatory and Programs Updates			
6:30PM	TBA	Workshop 1	**Workshop:** Discuss federally funded HLB research.	
6:30PM	TBA	Workshop 2	**Workshop:** Streamlining the regulatory process: From the lab to the field.	
6:30PM	TBA	Workshop 3	**Workshop:** Citrusgreening.org and Citrusgenomedb.org: What are they and how to use them.	
7:00PM	Boardroom		IRCHLB Steering Committee Meeting (By Invitation Only)	
Dinner on your own				

IRCHLB - FRIDAY, MARCH 15, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
6:30AM	Raincross Ballroom	Meal	**Breakfast**	
8:00AM	Raincross Ballroom	Keynote	**Keynote Speaker** - Bruce Babcock: What's an Orange Worth? The Value of Saving Citrus from HLB	Babcock, Bruce
8:40AM	Exhibit Hall A & B	General Session	**General Session:** Long Term Solutions-What approaches will be available in the future? - Moderators: Timothy Rinehart and Georgios Vidalakis	See page 21 for more details
11:35PM	Raincross Ballroom	Meal	**Lunch**	

IRCHLB - FRIDAY, MARCH 15, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
12:15PM	Raincross Ballroom	Keynote	**Keynote Speaker** - Ellen Jorgensen: Biohacking and Other Disruptive Trends	Jorgensen, Ellen
12:55PM Concurrent Session-6a	Exhbit Hall A	**IRCHLB-11: Economics and Management**	**Economics and Management** - Moderators: Bruce Babcock and John Krist	
1:00PM	Exhbit Hall A	IRCHLB-06a-01	Main research findings leading to improvements in HLB control in Brazil	Lopes, Silvio
1:10PM	Exhbit Hall A	IRCHLB-06a-02	Strategic Uncertainty Impacts Area-wide Pest Management Decisions of Florida Citrus Growers	Singerman, Ariel
1:20PM	Exhbit Hall A	IRCHLB-06a-03	Upstream Effect of Agricultural Diseases: The Case of US Orange Juice Market	Li, Sheng
1:30PM	Exhbit Hall A	IRCHLB-06a-04	Reducing the Human Spread of Huanglongbing via the Internet	Willey, Dan
1:40PM	Exhbit Hall A	IRCHLB-06a-05	Risk based HLB survey extension: optimizing manpower/resource availability	Liao, Wei
1:50PM	Exhbit Hall A	IRCHLB-06a-06	Structural impacts of HLB on Florida citrus production and implications for Texas, Arizona, and California.	Taylor, Earl

IRCHLB - FRIDAY, MARCH 15, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
2:00PM	Exhbit Hall A	IRCHLB-6a-Panel Discussion	Economics and Management Panel Discussion	
2:30PM	Upper Concourse	Break	**Afternoon Break**	
12:55PM Concurrent Session-6b	Exhibit Hall B	**IRCHLB-12: Molecular Plant Manipulations for the Future**	**Molecular Plant Manipulations for the Future** - Moderators: Manjul Dutt and Fred Gmitter	
1:00PM	Exhibit Hall B	IRCHLB-06b-01	Engineered oranges ectopically emitting b-caryophyllene to combat HLB	Peña, Leandro
1:10PM	Exhibit Hall B	IRCHLB-06b-02	Transgenic Carrizo citrange mitigated HLB development based on the bacterial "quorum sensing" system.	Carlos, Eduardo
1:20PM	Exhibit Hall B	IRCHLB-06b-03	Transgenic Single-chain Variable Fragment Antibodies Directed at CLas Significantly Reduce CLas Titer in ACP-Inoculated Carrizo	Krystel, Joseph
1:30PM	Exhibit Hall B	IRCHLB-06b-04	Construction of transgenic citrus rootstocks and scions for effective CLas clearance and robust HLB protection	Supratim, Basu
1:40PM	Exhibit Hall B	IRCHLB-06b-05	Editing citrus DMR6 via a CRISPR/Cas9 system to improve Huanglongbing tolerance	Zhang, Shujian

IRCHLB - FRIDAY, MARCH 15, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
1:50PM	Exhibit Hall B	IRCHLB-06b-06	Insight into the mechanism of the citrus Huanglongbing pathosystem and its implications in disease control	Wang, Nian
2:00PM	Exhibit Hall B	IRCHLB-6b-Panel Discussion	Molecular Plant Manipulations for the Future Panel Discussion	
2:30PM	Upper Concourse	Break	**Afternoon Break**	
2:55PM Concurrent Session-7a	Exhbit Hall A	**IRCHLB-13: Bacteriocides and Plant Defenses**	**Bacteriocides and Plant Defenses** - Moderators: John Hartung and Mike Irey	
3:00PM	Exhbit Hall A	IRCHLB-07a-01	Characterization of a novel virus-like RNA that accumulates to near rRNA levels in phloem and systemically infects all commercial varieties of citrus with limited or no symptoms for use as expression vector in anti-Huanglongbing management programs	Simon, Anne
3:10PM	Exhbit Hall A	IRCHLB-07a-02	Antisense Oligonucleotides Targeting HLB in its Vector and Host	Sandoval-Mojica, Andres
3:20PM	Exhbit Hall A	IRCHLB-07a-03	Use of dsRNA spray treatments to activate native citrus defenses and suppress Las metabolic activity	Strauss, Tina

IRCHLB - FRIDAY, MARCH 15, 2019

TIME	LOCATION	SESSION	EVENT	SPEAKER
3:30PM	Exhbit Hall A	IRCHLB-07a-04	Ca. Liberibacter asiaticus peroxiredoxin (LasBCP) suppresses oxylipin-mediated defense responses in citrus host, providing a potential target for chemical control of HLB	Jain, Mukesh
3:40PM	Exhbit Hall A	IRCHLB-07a-05	Molecular modeling and high throughput antimicrobial screening approaches to identify novel CLas inhibitors	Mandadi, Kranthi
3:50PM	Exhbit Hall A	IRCHLB-07a-06	HLB treatment: engineering of novel citrus innate immunity	Gupta, Goutam
4:00PM	Exhbit Hall A	IRCHLB-7a-Panel Discussion	Bacteriocides and Plant Defenses Panel Discussion	
2:55PM Concurrent Session-7b	Exhibit Hall B	**IRCHLB-14: Host Responses to Infection**	**Host Responses to Infection** - Moderators: Xuefeng Wang and Mike Roose	
3:00PM	Exhibit Hall B	IRCHLB-07b-01	Microbial Community Shifts Associated with Citrus Huanglongbing Severity	Ginnan, Nichole
3:10PM	Exhibit Hall B	IRCHLB-07b-02	Spatial Chemistry of Huanglongbing in Citrus	Roper, Caroline
3:20PM	Exhibit Hall B	IRCHLB-07b-03	Rootstock influences on tree health and growth in response to Candidatus Liberibacter asiaticus in grafted sweet orange trees	Bowman, Kim

IRCHLB - FRIDAY, MARCH 15, 2019				
TIME	**LOCATION**	**SESSION**	**EVENT**	**SPEAKER**
3:30PM	Exhibit Hall B	IRCHLB-07b-04	Rootstock influences leaf and root metabolic response to Candidatus Liberibacter asiaticus in grafted sweet orange trees	Albrecht, Ute
3:40PM	Exhibit Hall B	IRCHLB-07b-05	Responses of citrus scion and rootstock combinations to artificial inoculation with Candidatus Liberibacter asiaticus	Carvalho, Everton - IOCV-IRCHLB Scholarship Recipient
3:50PM	Exhibit Hall B	IRCHLB-07b-06	Off-flavor compounds in huanglongbing-affected orange juice and their mitigation using natural citrus non-volatile compounds	Baldwin, Elizabeth
4:00PM	Exhibit Hall B	IRCHLB-7b-Panel Discussion	Host Responses to Infection Panel Discussion	
4:30PM	Exhibit Hall C & D	Poster Session	**Poster Presentation Session**	See page 56 for poster titles
IRCHLB-11: Economics and Management IRCHLB-12: Molecular Plant Manipulations for the Future IRCHLB-13: Bacteriocides & Plant Defenses IRCHLB-14: Host Responses to Infection				
7:00PM	Raincross Ballroom	Meal	**IRCHLB Banquet** Entertainment by The Johnny Cash Tribute Show	

IRCHLB - SATURDAY, MARCH 16, 2019				
TIME	**LOCATION**	**SESSION**	**EVENT**	**SPEAKER**
8:00AM		Tour	**IOCV-IRCHLB Post-Conference Tour** Begins (Pick-up at Riverside Convention Center)	

KEYNOTE SPEAKER BIOGRAPHY'S

KEYNOTE SPEAKERS - SUNDAY, MARCH 10, 2019		
12:45PM	Raincross Ballroom	**Bryce Falk**: Viruses are your friends

Bryce Falk was born long ago in southern California. He attended Cal Poly SLO for his BS in Biological Sciences, and UC Berkeley for graduate school in Plant Pathology, receiving his PhD in 1978. He was a postdoc at UC Riverside with Professor Lewis G. Weathers from 1978 – 1980, where he first also had the privilege to work with Professor W. O. Dawson. He was an Assistant Professor at the University of Florida Everglades Research and Education Center from 1980 – 1985, and moved to the Department of Plant Pathology at UC Davis in 1985. His lab works mostly with plant viruses and more recently with insect-specific viruses.

KEYNOTE SPEAKERS - SUNDAY, MARCH 10, 2019

7:30PM	Raincross Ballroom	**Anne Simon**: Novel insights into RNA viruses revealed through examination of their genome's structure

Anne Simon received her BA in Biology from the University of California San Diego and her Ph.D. in Genetics from Indiana University. After two postdoctoral research positions at Indiana University and UCSD, she began her career as a faculty member at the University of Massachusetts Amherst working on RNA recombination and plant virus satellite RNAs. Thirteen years later, Dr. Simon moved to the Department of Cell Biology and Molecular Genetics at the University of Maryland College Park where she continues her research on virus replication, translation, and RNA structure/function of carmoviruses and umbraviruses currently funded by the NSF and USDA. She has published over 100 peer reviewed papers and is a frequent presenter at National and International meetings. Dr. Simon is the founder and director of the University of Maryland Virology Program and principal investigator on the program's NIAID T32 Training Grant. She has been a senior editor of the Journal of Virology for the past 12 years and served previously for 10 years as a senior editor for Virology and as Editor-in-Chief of Frontiers in Virology. Dr. Simon was the Plant Virus Councilor for the American Society of Virology and twice hosted the ASV Annual Meeting. In 2002, Dr. Simon received the Francki Prize for Distinguished research in Plant Virology. In 2014, she was elected a fellow of the American Academy of Microbiology and in 2018 was awarded the University of Maryland Distinguished Scholar Teaching Award.

7:20AM	Raincross Ballroom	**James Borneman**: Advances in Human Microbiome Research and How They Link to Diet and Agricultural Research

James Borneman is a Professor in the Department of Microbiology and Plant Pathology at UC Riverside. He has 24 years of experience developing and performing microbiome analyses in both agricultural and medical systems. One research area has involved the identification of a fungus (Dactylella oviparasitica) that dramatically reduces cyst nematode populations in soils cropped to members of the Brassicaceae, sugar beets, and soybeans. Current research is to develop cropping decision models that enable the creation and maintenance of soils that suppress cyst nematodes by managing indigenous populations of D. oviparasitica. Another research area has involved the identification of a bacterium (Lactobacillus johnsonii) that reduces systemic DNA damage in mice when it is orally administered. Current research is to determine if this bacterium will also reduce rates of cancers such as lymphoma.

KEYNOTE SPEAKERS - MONDAY, MARCH 11, 2019

12:45PM	Raincross Ballroom	**Tracy Kahn** and **Mikeal Roose**: Adventures with Citrus Germplasm

Tracy Kahn is the curator and Givaudan Citrus Variety Collection Endowed Chair for the University of California, Riverside (UCR) Citrus Variety Collection (http://www.citrusvariety.ucr). Tracy received her Bachelor's degree in Botany from the University of Michigan and her Ph.D. in Botany from the University of California – Riverside in 1987. In 2012, Tracy Kahn received the Award of Excellence from the California Citrus Industry for exceptional service to the California Citrus Industry. Tracy Kahn graduated from the California Agricultural Leadership Program in 2005. This intensive two-year leadership development course focuses on critical issues facing California agriculture, and leadership skills. Tracy Kahn and Mikeal Roose are co-principal investigators on a Citrus Research Board funded grant to conduct integrated citrus breeding and evaluation research for the California citrus industry. As part of her position in Botany and Plant Sciences at UCR, Tracy authors publications and provides presentations on commercial citrus varieties and citrus diversity for the industry and for the public. Tracy is also a member of the Department of Evolution, Ecology and Organismal Biology where she teaches the infamous ""Dirty 30"" (Biology 30), UCR's ""Human Reproduction and Sexual Behavior"" course two quarters a year for classes with an enrollment of up to 300 students per quarter."

Professor **Mikeal Roose** received his B.A. degree in Biology from Reed College (1973) and a Ph.D. in Genetics from UC Davis in 1979. He has been a UCR faculty member since 1982. He has authored more than 120 publications and served as Chair of the Department of Botany and Plant Sciences from 2010 to 2016. His research is focused on the genetics, genomics, breeding and evolution of crop plants, particularly citrus and asparagus. The citrus breeding program works to improve both rootstocks and scions. The program has released three rootstock varieties and eight scions, of which the most widely grown are Tango mandarin and Gold Nugget mandarin. His lab recently sequenced 30 citrus cultivars and developed SNP arrays that have been used to genetically characterize more than 1000 citrus varieties and several mapping populations for approximately 50,000 SNP loci. He is collaborating with other UCR faculty (Sue Wessler and Jason Stajich) to develop an improved reference genome of Fairchild mandarin using long-read sequencing, sequence from single pollen grains for haplotyping, and other new technologies. Research on HLB includes: 1) breeding for HLB tolerant rootstocks

and scions using conventional hybridization (with Kahn), 2) a study of citrus and CLas gene expression in infected trees (with Gupta and Stover), 3) application of SNP arrays to map resistance and tolerance in populations being exposed in the field in Florida (collaboration with Stover and Gmitter), 4) genetics of resistance from Eremocitrus and Microcitrus (with Ramadugu and others), and 5) application of CRISPR-CAS9 to develop tolerant or resistant citrus (with Wang and others).

KEYNOTE SPEAKERS - TUESDAY, MARCH 12, 2019		
7:20AM	Raincross Ballroom	**Norman Ellstrand**: Sex on the Kitchen Table

At age 4 **Norman Ellstrand's** parents helped him match a picture of a Scarlet Tanager to a living bird in the yard, starting his lifelong passion in biology. He earned a B.S. from the University of Illinois and a Ph.D. in evolutionary biology from the University of Texas at Austin (Ph.D. 1978). He now focuses on applied plant population genetics, specifically on the evolution of invasiveness in plants as well as the role of gene flow in the escape of engineered genes. He secretly wants to write a novel but has had fun doing science. Ellstrand's publication list is approaching 200, including two books. Ellstrand has presented his research to various audiences ranging from U. S. Congressional staff to Cuban biotechnologists. In recent decades, his primary undergraduate teaching effort has been non-majors courses because he believes that non-scientists should learn that science is important, interesting, and intuitive (and fun!). The 21 students who received a graduate degree under his guidance all have science-based careers in industry, the public sector, or academia. Norm's honors include a Fulbright Fellowship to Sweden and a Guggenheim Fellowship.

KEYNOTE SPEAKERS - WEDNESDAY, MARCH 13, 2019		
8:30AM	Exhibit Hall A & B	**Steve Lindow**: Detailed investigations of the interaction of the plant pathogen Xylella fastidiosa with host plants and insect vectors has revealed novel methods of disease control

A major focus of **Steve Lindow's** lab is the study of the ecology of epiphytic bacteria that colonize the surfaces of leaves and flowers. We study the release of bacteria from leaves into the air as well as factors determining the immigration of airborne bacteria to plants to better understand the metacommunity of bacteria surrounding plants, and thus the drivers of the composition of microbial communities on plant surfaces. Studies also focus on those features of epiphytic bacteria that make them uniquely capable of surviving in the stressful leaf surface habitat. Molecular genetic studies are being used to determine the contribution of particular traits such as the production of 3-indole acetic acid, biosurfactant production, N-acyl homoserine lactone quorum sensing signal molecules, and other factors to the epiphytic fitness of the plant pathogen Pseudomonas syringae, which also is an excellent leaf surface colonist. Global transcriptional analysis of this species under various conditions as well as while on leaves is being coupled with on-going high throughput transposon mutant sequencing-based methods to determine the contributions to epiphytic fitness and virulence by each of the genes in this pathogen. Another focus of the lab is the study of the interaction of the xylem-limited plant pathogenic bacterium Xylella fastidiosa with both grape as well as sharpshooter vectors. A focus of these studies has been to describe the fatty acid-based, cell density-dependent, gene regulatory system used by this pathogen to differentially control those traits required for plant virulence and insect transmission. Greenhouse and field studies have addressed the feasibility of controlling diseases caused by this bacterium by modulating such quorum sensing signals in plants. The induction of host resistance to X. fastidiosa in the presence of the beneficial bacterium Paraburkholderia phytofirmans is also actively being investigated.

KEYNOTE SPEAKERS - WEDNESDAY, MARCH 13, 2019

12:45PM	Raincross Ballroom	**Robert Turgeon**: Home sweet home: CLas in the phloem

Robert Turgeon was born in Toronto, Ontario and attended the University of New Brunswick (BSc, 1969) and Carleton University (PhD; 1973) in Ottawa, Ontario. Following a post-doctoral position at The Rockefeller University in New York City, he joined the faculty of the University of Dayton in 1977 and Cornell University in 1981. He is currently Professor of Plant Biology and a Faculty Fellow of Cornell's Atkinson Center for Sustainable Development. His expertise is in plant physiology, plant molecular biology and light- and electron-microscopy. During his career, he has focused primarily on different aspects of phloem transport, especially phloem loading in leaves, and also on leaf development, synthesis of the flowering regulator, C4 photosynthesis, virus transport, plasmodesmatal biology, crop yield and, lately, the citrus greening disease. In 2013, he was awarded the Charles Reid Barnes Award, the lifetime achievement award from the American Society of Plant Biologists.

8:00PM	Raincross Ballroom	**Vivian Irish**: Engineering citrus using recent advances in gene editing technologies

Vivian Irish is Professor and Chair of Molecular, Cellular and Developmental Biology, and Professor of Ecology and Evolutionary Biology, at Yale University. As a graduate student at Harvard University she focused on characterizing the developmental genetic mechanisms specifying dorsal-ventral polarity in Drosophila. She continued to pursue these interests in developmental patterning processes as a Jane Coffin Childs postdoctoral fellow at the University of Cambridge with Michael Akam. As a National Science Foundation postdoctoral fellow at Yale University with Ian Sussex, she turned her attention to exploring patterning processes in plants. Now a faculty member at Yale, her research centers on a dissection of plant organogenesis and plant development. Using a variety of molecular, biochemical, genetic and quantitative approaches, her group is investigating Arabidopsis flower development. The Irish group is also developing biotechnological approaches to manipulating Citrus, one of the economically most important fruit crops in the U.S. In addition to being Chair, Irish has held a several other administrative roles at Yale, including Director of Undergraduate Studies in Biology (2001-2006), overseeing the progress of approximately 300 majors each year. She is also a past-president of the Society for Developmental Biology (2012-13) and was a visiting professor at the École Normale Supérieure, Lyon, France (2011).

KEYNOTE SPEAKERS - THURSDAY, MARCH 14, 2019

8:00AM	Raincross Ballroom	**Bruce Hay**: Gene drive, psyllids, and HLB: Are we in the tunnel yet?

Bruce A. Hay has been a professor of Biology and Biological Engineering at Caltech since 1996. His lab works on a number of topics, including cell death and neurodegeneration, mitochondrial DNA quality control, vectored approaches to population control of wild and feral mammals, and transgene-based methods of manipulating the fate and composition of wild insect populations. With respect to this last topic lab goals are to engineer the genetics of invasive or pest insect populations so that they drive themselves to local extinction, and/or to drive genes into populations (population replacement/alteration) such that all individuals express a beneficial trait of interest. His lab developed the first synthetic selfish genetic element/gene drive method (Medea elements in Drosophila) in any organism able to spread itself and linked cargo genes into a population, in 2007. They have continued over subsequent years to develop gene drive approaches for both local and reversible, and more global approaches to manipulating populations. Despite having fallen into the gene drive rabbit hole more than a decade ago, the lab perseveres in its efforts to build something useful.

1:15PM	Raincross Ballroom	**Robert Jackson**: Approaches for using biocontrol agents to control bacterial diseases and aphid pests

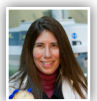
Robert Jackson is a Professor in the School of Biological Sciences at the University of Reading and is currently the Head of School of Biological Sciences. He has more than 25 years' experience working on plant pathology problems. He studied plasmids and type III secretion for his PhD research, discovering a major bacterial pathogenicity gene that can epistatically suppress the effects of avirulence effectors. Since then, his research topics include the study of bacterial pathogenesis, most recently in tree pathology studying Horse Chestnut, Oak and Cherry; gene regulation and regulatory networks in plant growth-promoting bacteria; the role of surfactants in bacterial motility and biocontrol; the identification and characterisation of bacteriophage for biocontrol; microbiome analyses of invasive alien plant species; and analysis of how bacteria can kill aphids. He collaborates widely in both the UK and globally, and has delivered teaching and research seminars in diverse locations abroad. He has previously served as an elected board member for the British Society for Plant Pathology in 2010-2013 and was involved in developing the Outreach Officer role for the society. He has joined the board again in 2019 as Publicity Champion. He is also a member of the American Phytopathology Society and served as Senior Editor for Phytopathology between 2012-2014. He has served as a Senior Editor for Molecular Plant Pathology since 2015. He currently sits on the Action Oak Research & Monitoring sub-committee and he is an Adjunct Professor at the University of Akureyri, Iceland.

KEYNOTE SPEAKERS - FRIDAY, MARCH 15, 2019

8:00AM	Raincross Ballroom	**Bruce Babcock**: What's an Orange Worth? The Value of Saving Citrus from HLB

Bruce Babcock is an agricultural economist and professor in the School of Public Policy at the University of California where he teaches courses in economics and public policy and conducts research on the economics of citrus in California. His research expertise includes understanding how price and production risk impacts grower decisions and the impacts of food and agricultural policies on growers, consumers, and taxpayers. He has developed innovative decision models to better understand how information, risk, and grower objectives impact adoption of technologies and farm input decisions. Professor Babcock is a Fellow of the Agricultural and Applied Economics Association. His research and outreach efforts led to several invitations from Congressional committees to provide testimony regarding the impacts of policy on the agricultural and biofuels sectors. Before joining UC Riverside, he was a Professor of Economics at Iowa State University where he directed the Center for Agricultural and Rural Development from 1998 to 2011 and the Biobased Industry Center from 2012 to 2017. Professor Babcock received his PhD in Agricultural and Resource Economics from UC Berkeley and MS and BS degrees from UC Davis.

12:15PM	Raincross Ballroom	**Ellen Jorgensen**: Biohacking and Other Disruptive Trends



Ellen Jorgensen is Chief Science Officer at Carverr Inc., a biotech start up in Brooklyn, New York that has a platform for encoding information into DNA. In 2017, Fast Company magazine named her one of their Most Creative Leaders in Business. She holds a Ph.D. in Cell & Molecular Biology from New York University, spent over 30 years in the biotechnology industry, and is currently adjunct faculty at The Cooper Union. Dr. Jorgensen is passionate about increasing science literacy in both student and adult populations, particularly in the areas of molecular and synthetic biology. In 2009 she co-founded Genspace, a community biolab in Brooklyn that was named one of the World's Top 10 Innovative Companies in Education. She is a SynbioLEAP fellow, an alumni of the Amsterdam School of Creative Leadership THNK, and a member of the GP-write consortium to construct a human genome. She recently founded the nonprofit Biotech Without Borders to help provide access to biotech education to all. Her TED talks, "Biohacking: You Can Do It Too" and "What You Need to Know About CRISPR" have each had over a million views.

IOCV - POSTER PRESENTATIONS

POSTER NUMBER	TITLE	PRESENTER
IOCV-01: IOCV History and Citrus Programs		
IOCV-P1-01	Finding an alternative to CF-11 cellulose for dsRNA and viroid extraction in citrus	Rodriguez, Esteban
IOCV-P1-02	Import of Citrus into the European Union: a French quarantine to control the health risks	Calado, Grégory
IOCV-P1-03	Propagation System of Virus-free Citrus Nursery Tree in Guangxi, P. R. China	Deng, Chongling
IOCV-P1-04	Streamlining Citrus Clonal Protection Program (CCPP) citrus diagnostics using multiplex qPCR	Osman, Fatima
IOCV-P1-05	The Texas certified virus-free budwood program – 20 years on	Da Graça, John
IOCV-02: De novo Discovery of Citrus Viruses		
IOCV-P2-06	Molecular characterization of a novel citrivirus infecting citrus using next-generation sequencing	Cao, Mengji
IOCV-P2-07	Studies on a novel virus-like disease affecting pummelo in Hawaii	Olmedo-Velarde, Alejandro

IOCV - POSTER PRESENTATIONS

POSTER NUMBER	TITLE	PRESENTER
IOCV-03: Citrus Leprosis		
IOCV-P3-08	Citrus leprosis virus C in the Americas: an insight into the genetic diversity of its population	Chabi-Jesus, Camila - IOCV-IRCHLB Scholarship Recipient
IOCV-P3-9	Development and validation of molecular assays for detection of Citrus leprosis viruses	Wei, Gang
IOCV-P3-10	Prospecting of genes related to the RNAi pathway in Brevipalpus yothersi, a vector of citrus leprosis virus C	Novelli, Valdenice
IOCV-04: Citrus Viroids		
IOCV-P4-11	Detection and Mechanical Transmission of Citrus Bent Leaf Viroid From Citrus Varieties in Malaysia	Iftikhar, Yasir
IOCV-P4-12	Transcriptome sequencing reveals novel Citrus bark cracking viroid (CBCVd) variants from citrus and their molecular characterization	Cao, Mengji
IOCV-05: Citrus Tristeza		
IOCV-P5-13	A survey of Citrus tristeza virus RB strainin Gannan district of Jiangxi province, China	Huang, Aijun and Yi, Long
IOCV-P5-14	Aggressiveness and genetic diversity of the Citrus tristeza virus population in single Uruguayan isolates segregated after single aphid transmission	Hernández-Rodríguez, Lester - IOCV-IRCHLB Scholarship Recipient

IOCV - POSTER PRESENTATIONS

POSTER NUMBER	TITLE	PRESENTER
IOCV-05: Citrus Tristeza (Continued)		
IOCV-P5-15	Applying Citrus tristeza virus clones to understand stem pitting development in citrus	Aldrich, Dirk - IOCV-IRCHLB Scholarship Recipient
IOCV-P5-16	Biological characterization of the first RB (resistance breaking) isolate of citrus tristeza virus identified in Uruguay	Rubio, Leticia
IOCV-P5-17	Molecular characterisation of aphid vectors associated with Citrus tristeza virus–infected sweet oranges in Nigeria	Essien, Idara - IOCV-IRCHLB Scholarship Recipient
IOCV-P5-18	Overexpression of miR171b and pre-ctr-miR171b-based artificial microRNA targeting the CTV p23 gene confers stable CTV resistance in Citrus maxima	Zhong, Yun
IOCV-P5-19	Variation of Citrus tristeza virus genotype after sweet orange chip-budding on Mexican lime, and possible role of genotype T30 in virus transmission by Aphis gossypii	Besoain, Ximena
IOCV-P5-20	Wide segregation of Stem Pitting and other CTV symptoms in a hybrid population derived from West Indian lime	Smith, Malcolm

IOCV - POSTER PRESENTATIONS		
POSTER NUMBER	TITLE	PRESENTER
IOCV-06: Citrus Yellow Vein Clearing		
IOCV-P6-21	Development of a sensitive and reliable reverse transcription-droplet digital PCR assay for the detection of Citrus yellow vein clearing virus	Wang, Qin
IOCV-07: Other Citrus Viruses and Diagnostics		
IOCV-P7-22	Coat protein and movement protein of Citrus tatter leaf virus possess RNA silencing suppression activity to suppress host antiviral RNA silencing	Tan, Shih-hua
IOCV-P7-23	Complete genome sequences and recombination analysis of two citrus mosaic virus isolates	Cao, Mengji
IOCV-P7-24	Development of new tools for on-site detection of Spiroplasma citri, causal agent of citrus stubborn disease	Drais, Mounira Inas - IOCV-IRCHLB Scholarship Recipient
IOCV-P7-25	Diagnosis of citrus psorosis by real time RT-PCR in Argentina	Simeone, Melina
IOCV-P7-26	Incidence of the "Psorosis complex" diseases in seed source mother trees in Northwestern Argentina	Figueroa, Julia
IOCV-P7-27	Molecular identification and characterization of Citrus psorosis virus in China	Cao, Mengji
IOCV-P7-28	Use of young plants (mini-plants) for biological indexing for citrus graft transmissible pathogens	Lee, Richard

IOCV - POSTER PRESENTATIONS		
POSTER NUMBER	TITLE	PRESENTER
IOCV-08: Topics in Citrus Pathology		
IOCV-P8-29	Leaf and fruit reactions of sweet orange and hybrids varieties under endemic conditions of citrus canker	de Carvalho, Sérgio Alves
IOCV-P8-30	Prevalence of citrus viruses and viroids: a snapshot of the Uruguayan citrus industry	Benítez-Galeano, María José - IOCV-IRCHLB Scholarship Recipient
IOCV-P8-31	Serological-and-molecular-based detection of graft-transmissible pathogens associated with citrus from non-core areas of Pakistan	Naqvi, Syed

IRCHLB - POSTER PRESENTATIONS

POSTER NUMBER	TITLE	PRESENTER
IRCHLB-01: Pathogen Genome Analysis		
IRCHLB-P1- 01	A new genomic organization for prophages SC1 and SC2-like in Candidatus Liberibacter asiaticus from Brazil	Silva, Priscila
IRCHLB-P1- 02	C2-like repressor may be involved in the Candidatus Liberibacter asiaticus SC1 bacteriophage regulation	Munoz-Bodnar, Alejandra
IRCHLB-P1- 03	Contextualization of CLas Expression Data using Metabolic Models to Obtain a Deeper Understanding of HLB Pathology	Peacock, Beth
IRCHLB-02: Cultural Control		
IRCHLB-P2-04	Anaerobic soil disinfestation impacts the soil microbiome and growth of citrus trees infected with Candidatus Liberibacter asiaticus	McCollum, Greg
IRCHLB-P2-05	Assessing CLas viability to determine the efficacy of steam-generated thermotherapy	Thapa, Naweena - IOCV-IRCHLB Scholarship Recipient
IRCHLB-P2-06	Benefits of biochar on HLB-affected citrus in sandy soils	Strauss, Sarah
IRCHLB-P2-07	Can negative effects of HLB be mitigated by calcium and magnesium fertilizations in citrus trees?	Mattos Jr., Dirceu
IRCHLB-P2-08	Citrus nutrient uptake, biomass accumulation and root density patterns as influenced by citrus greening and regulated deficit irrigation under greenhouse conditions	Kadyampakeni, Davie
IRCHLB-P2-09	Development of a predictive screening process including field assessment for identification of potential commercial therapies for HLB	Manker, Denise

IRCHLB - POSTER PRESENTATIONS

POSTER NUMBER	TITLE	PRESENTER
IRCHLB-02: Cultural Control		
IRCHLB-P2-10	Droplet deposition and control efficacy of pyriproxyfen sprayed with an unmanned aerial vehicle against citrus psyllid Diaphorina citri	Cui, Li
IRCHLB-P2-11	Effect of soil and irrigation water pH on physiology of Huanglongbing-affected sweet oranges	Vashisth, Tripti
IRCHLB-P2-12	Effects of Huanglongbing Disease on Mature Fruit Detachment Force and Expression of Genes Related to Fruit Abscission in 'Valencia' Sweet Orange	Vashisth, Tripti
IRCHLB-P2-13	Field evaluation of integrated management for mitigating citrus huanglongbing in Florida	Powell, Charles
IRCHLB-P2-14	Flush Phenology Manipulation by Naphthalene Acetic Acid and Gibberellic Acid Application in Sweet Orange (Citrus sinensis L. Osbeck).	Li, Sheng-yang
IRCHLB-P2-15	Fruit quality of orange trees, cultivar Valencia, infected with HLB submitted to different nutritional treatments	Creste, Andre
IRCHLB-P2-16	Getting Out of the HLB Jar of Pickles – A Texas Model	Skaria, Mani
IRCHLB-P2-17	HLB differential response of 'Valencia' sweet orange grafted on several citrus rootstocks in a endemic area	Stuchi, Eduardo
IRCHLB-P2-18	Huanglongbing severity and AUDPC in mandarin genotypes grafted onto three rootstocks and grown under field conditions in Isabela, Puerto Rico	de Jensen, Consuelo
IRCHLB-P2-19	Molecular Therapy Targets for Huanglongbing	Li, Hong

IRCHLB - POSTER PRESENTATIONS

POSTER NUMBER	TITLE	PRESENTER
IRCHLB-02: Cultural Control (Continued)		
IRCHLB-P2-20	Nutrition programs featuring soil-applied controlled release fertilizer (CRF) containing enhanced micronutrient packages can reduce CLas populations and improve the health, growth and productivity of HLB-infected trees	Grosser, Jude
IRCHLB-P2-21	Phenology driven management: a useful tool for citrus management in the tropics.	Castillo, Andres
IRCHLB-P2-22	Physiological effects of oak bioactive compounds on Florida citrus when applied to contain and suppress HLB disease	Pitino, Marco
IRCHLB-P2-23	Protecting the UCR Citrus Variety Collection from the citrus disease Huanglongbing.	Kahn, Tracy
IRCHLB-P2-24	The effects of N-acetylcysteine on oxidative stress of sweet orange plants infected with Candidatus Liberibacter asiaticus	Bergamo, Henrique
IRCHLB-P2-25	TsnRNA-IIIb reduces citrus apical shoot growth and overall canopy size. Can it help citrus growers in the HLB management?	Lavagi, Irene
IRCHLB-P2-26	Use of Engineered Solar Energy Thermotherapy to Treat HLB Infected Citrus Trees	Aiken, Geoff
IRCHLB-03: Vector Function		
IRCHLB-P3-27	Citrus hosts drive the genetic differentiation of Diaphorina citri Kuwayama (Hemiptera: Liviidae) in China	Zhang, Zhen-yu and Yao, Zhichao
IRCHLB-P3-28	DcitOBP3 may work as a potential essential olfactory protein in the volatile recognition system of psyllid-citrus	Yao, Runxian - IOCV-IRCHLB Scholarship Recipient

IRCHLB - POSTER PRESENTATIONS

POSTER NUMBER	TITLE	PRESENTER
IRCHLB-03: Vector Function (Continued)		
IRCHLB-P3-29	Differential expression analysis and validation of lncRNA between Asian citrus psyllid and Candidatus Liberibacter interaction	Xiao, Huamei
IRCHLB-P3-30	Effect of host switch between Murraya and citrus plants on acquisition and transmission of huanglongbing (citrus greening) bacterium by the Asian citrus psyllid Diaphorina citri	Ammar, El-Desouky
IRCHLB-P3-31	Hot Spot Cluster Analysis of Asian Citrus Psyllid Samples in Texas and California	Bartels, David
IRCHLB-P3-32	Impact of Candidatus Liberibacter asiaticus on Adaptability of Asian Citrus Psyllid (Diaphorina citri Kuwayana)	Ran, Chun
IRCHLB-P3-33	Interactive digital video animation promotes accessibility of complex ACP anatomy to cytological and molecular audiences in pursuit of solving the citrus greening problem	Cicero, Joseph
IRCHLB-P3-34	Localization of Candidatus Liberibacter asiaticus in Diaphorina citri at the ultrastructural level	Levy, Amit
IRCHLB-P3-35	Lower reproduction rates of Diaphorina citri on 'Tahiti' acid lime than 'Valencia' sweet orange	Lopes, Silvio
IRCHLB-P3-36	Peptidomics-driven insights into Diaphorina citri physiology and response to 'Candidatus Liberibacter asiaticus'.	Fleites, Laura
IRCHLB-P3-37	Phylogeography of Diaphorina citri and its primary endosymbiont, 'Candidatus Carsonella ruddii' : an evolutionary approach to host-endosymbiont interaction	Cen, Yijing
IRCHLB-P3-38	Effect of agriculturally common metals on Asian citrus psyllid sheath morphology and transmission of Candidatus Liberibacter asiaticus	Heck, Michelle

IRCHLB - POSTER PRESENTATIONS

POSTER NUMBER	TITLE	PRESENTER
IRCHLB-04: Pathogen Detection and Culturing		
IRCHLB-P4-39	A new real-time PCR method for the detection of Candidatus Liberibacter africanus (CLaf) in citrus root tissue	Kunta, Madhurababu
IRCHLB-P4-40	Antibody-based detection of Huanglongbing (HLB)-associated pathogen	De Francesco, Agustina
IRCHLB-P4-41	Biochemical characterization of Liberibacter crescens lipopolysaccharide (LPS)	Jain, Mukesh
IRCHLB-P4-42	Closer to a culture: creation of a minimal media in Liberibacter crescens reveals essential growth requirements	Triplett, Eric
IRCHLB-P4-43	Detection of huanglongbing (HLB)-associated bacterium, Candidatus Liberibacter asiaticus (CLas) in citrus seedlings	Choi, Cheol
IRCHLB-P4-44	Developing strategies and protocols for efficient testing of field trees for HLB	Polek, MaryLou
IRCHLB-P4-45	Development of a tandem repeat-based polymerase chain displacement reaction method for sensitive detection of 'Candidatus Liberibacter asiaticus'	Lou, Binghai
IRCHLB-P4-46	Development specific markers for Psy62, Gxpsy and Ishi-1 strains huanglongbing (HLB)-associated bacterium Candidatus Liberibacter asiaticus.	Choi, Cheol
IRCHLB-P4-47	Duplex droplet digital PCR for detection of Candidatus Liberibacter asiaticus using 16S rRNA and ribonucleotide reductase genes	Yokomi, Raymond
IRCHLB-P4-48	Enhancing PCR capacity in early detection of "Candidatus Liberibacter asiaticus" utilizing whole genome sequence information	Bao, Minli

IRCHLB - POSTER PRESENTATIONS

POSTER NUMBER	TITLE	PRESENTER
IRCHLB-P4-49	Evidence for natural transformation in Liberibacter crescens strain BT-1	Gabriel, Dean
IRCHLB-P4-50	How early is "early detection"?	McCollum, Greg
IRCHLB-P4-51	Isolation of CLas specific monoclonal antibodies (mAbs) for development of immunological tools for early detection of HLB pathogen	Ramadugu, Chandrika
IRCHLB-P4-52	Liberibacter crescens exhibits both flagellar swimming and Type IV pili-mediated twitching motility in culture	Gabriel, Dean
IRCHLB-P4-53	Loop-mediated isothermal amplification (LAMP) assay for detection of Candidatus Liberibacter asiaticus (CLas), the bacterium associated with citrus huanglongbing (HLB)	Choi, Cheol
IRCHLB-P4-54	Multiplex qPCR detection of three Candidatus liberibacter species	Osman, Fatima
IRCHLB-P4-55	Optimization of grapefruit fruit juice for culturing of 'Candidatus Liberibacter asiaticus'	Merfa, Marcus - IOCV-IRCHLB Scholarship Recipient
IRCHLB-P4-56	Optimization of Liberibacter crescens growth suggests ammonium and phosphate as important factors in the plant-host interface	Petrone, Joseph
IRCHLB-P4-57	Progress on the development of a field-use optical sensor for screening of citrus pathogens in California	Edwards, Perry
IRCHLB-P4-58	Targeted early detection of citrus Huanglongbing causal agent 'Candidatus Liberibacter asiaticus' before the symptoms appear	Pandey, Sheo

IRCHLB - POSTER PRESENTATIONS

POSTER NUMBER	TITLE	PRESENTER
IRCHLB-04: Pathogen Detection and Culturing (Continued)		
IRCHLB-P4-59	Universal detection system for Liberibacters	Lee, Richard
IRCHLB-05: Epidemiology		
IRCHLB-P5-60	Analyzing the impact of sampling on PCR efficiency from field studies under HLB epidemic development in FL	Posny, Drew
IRCHLB-P5-61	High-risk based field survey and high-throughput qPCR detection system for Huanglongbing-associated bacteria in commercial groves of California	Hajeri, Subhas
IRCHLB-P5-62	Rates of disease progress in peripheral and internal citrus blocks emphasize role of primary spread in Huanglongbing epidemiology	Pazolini, Kelly
IRCHLB-P5-63	Risk based HLB survey extension: optimizing delimitation radius for cost-effective disease control	Luo, Weiqi
IRCHLB-P5-64	Spatial distribution and temporal progress of Huanglongbing are strongly influenced by vector control and neighbouring non-commercial Rutaceae plants	Belasque, José

IRCHLB - POSTER PRESENTATIONS

POSTER NUMBER	TITLE	PRESENTER
IRCHLB-06: Host Resistance and Tolerance		
IRCHLB-P6-65	CRISPR/Cas9 editing of candidate susceptibility genes to improve citrus resistance to Huanglongbing	Parajuli, Saroj
IRCHLB-P6-66	Development of HLB Resistant Citrus Varieties for California Using CRISPR-Cas9	von Mogel, Karl
IRCHLB-P6-67	Exploring Transient Expression of Cas9 Proteins and Heat Treatments for Increasing Gene Editing Efficiency in Citrus	Parajuli, Saroj
IRCHLB-P6-68	Overexpression of the Arabidopsis NPR1 protein in citrus confers robust tolerance to Huanglongbing	Mou, Zhonglin
IRCHLB-P6-69	Particle Bombardment for Transient Gene Expression in Citrus Plant Cells Using the Helios® Gene Gun.	Levy, Amit
IRCHLB-P6-70	Progress in the analysis of HLB tolerance in a segregating population	Moore, Gloria
IRCHLB-P6-71	Transgenic success-guided reproduction of Huanglongbing resistance/tolerance in citrus by gene editing	Mou, Zhonglin
IRCHLB-P6-72	Use of high-density genetic maps to detect QTLs associated with Huanglongbing tolerance in citrus	Qibin, Yu
IRCHLB-P6-73	Using Agrobacterium-mediated transient expression of Cas9 and sgRNA to produce transgene-free, gene-edited citrus plants	Li, Yi

IRCHLB - POSTER PRESENTATIONS

POSTER NUMBER	TITLE	PRESENTER
IRCHLB-07: Chemical and Biological Vector Management		
IRCHLB-P7-74	A novel methodology to produce and collect Tamarixia radiata and their release by Unmanned Aerial Vehicle or drones:	Kladt, Roberto
IRCHLB-P7-75	Advances in the evaluation of localized chemical control of Diaphorina citri on Valencia orange young trees in Mexico	López-Arroyo, Isabel
IRCHLB-P7-76	Assessing the impact of fungal pathogens for the integrated biological control of the Asian citrus psyllid in the Lower Rio Grande Valley of TX	Flores, Daniel
IRCHLB-P7-77	Biological control of Asian citrus psyllid: Conservation and augmentation for enhanced vector suppression	Qureshi, Jawwad
IRCHLB-P7-78	Biological Control of the Asian Citrus Psyllid, Diaphorina citri, in the Lower Rio Grande Valley of Texas Using the Ectoparasitoid, Tamarixia radiata	Flores, Daniel
IRCHLB-P7-79	Citrus psyllids around the world	Halbert, Susan
IRCHLB-P7-80	Comparison of the effectiveness of applying different pesticides to foliar spraying and soil-drench to control Diaphorina citri Kuwayama	Yao, Zhichao
IRCHLB-P7-81	Effect of horticultural mineral oil on the acquisition of Candidatus Liberibacter asiaticus by Asian citrus psyllid from Citrus	Yang, Qiongyu
IRCHLB-P7-82	Entomopathogenic fungus Isaria fumosorosea, deploy an array of effector proteins during infection of Candidatus Liberibacter asiaticus infected-Diaphorina citri.	Pitino, Marco
IRCHLB-P7-83	Frequency of processed kaolin applications to prevent Diaphorina citri infestation in flushing citrus trees	Tomaseto, Arthur

IRCHLB - POSTER PRESENTATIONS

POSTER NUMBER	TITLE	PRESENTER
IRCHLB-07: Chemical and Biological Vector Management (Continued)		
IRCHLB-P7-84	Implementing a resistance monitoring program for ACP in California citrus	Byrne, Frank
IRCHLB-P7-85	Integrated management of Asian citrus psyllid, vector of the associated pathogens of HLB	Qureshi, Jawwad
IRCHLB-P7-86	Regional Successes in Managing Asian Citrus Psyllid in Southern California	Grafton-Cardwell, Elizabeth
IRCHLB-P7-87	Surveys for Asian citrus psyllid (Diaphorina citri)-infecting viruses and their influence on Candidatus Liberibacter asiaticus (CLas) dispersal in Florida citrus groves	Britt, Kellee - IOCV-IRCHLB Scholarship Recipient
IRCHLB-P7-88	The Greening Management Program at Cambuhy	Ferracini, Cláudia
IRCHLB-08: Antimicrobials		
IRCHLB-P8-89	An in vitro protocol for rapidly assessing the effects of antimicrobial compounds on Candidatus Liberibacter asiaticus	Krystel, Joseph
IRCHLB-P8-90	Bacteriophage communities associated with citrus roots and rhizosphere	Fagen, Jennie
IRCHLB-P8-91	Demonstrating Topical Delivery of Antimicrobial Products as a Means of Controlling Citrus Greening.	Shatters, Robert
IRCHLB-P8-92	Develop effective protectants and therapies to manage citrus HLB using a novel class of citrus-derived antimicrobial peptides	Huang, Chienyu

IRCHLB - POSTER PRESENTATIONS

POSTER NUMBER	TITLE	PRESENTER
IRCHLB-08: Antimicrobials (Continued)		
IRCHLB-P8-93	Evaluation of the in planta minimum inhibitory concentration of oxytetracycline against Candidatus Liberibacter asiaticus	Li, Jinyun
IRCHLB-P8-94	Expression of snakin-1 antimicrobial peptide as a strategy for HLB resistance in citrus rootstocks	Gardella, Victoria
IRCHLB-P8-95	Identification, assessment and delivery of antimicrobial compounds for the management of citrus HLB	Duan, Yongping
IRCHLB-P8-96	In vitro antimicrobial activity and mode of action of ZinckicideTM against Liberibacter crescens, a surrogate of 'Candidatus Liberibacter asiaticus'	Naranjo, Eber
IRCHLB-P8-97	Novel antimicrobial peptides against Huanglongbing (HLB)	Velasquez Guzman, Jeanette
IRCHLB-P8-98	Physiological and mechanical constraints on bacteriophage therapy for the in planta treatment of Liberibacter asiaticus.	Lince, Kevin and Fagen, Jennie
IRCHLB-P8-99	Uptake, translocation and stability of the antibiotics, streptomycin and oxytetracycline in citrus trees	Killiny, Nabil
IRCHLB-P8-100	Zinkicide improved yield and fruit size on younger Huanglongbing-affected trees	Dewdney, Megan
IRCHLB-09: Molecular and Cultural Vector Management		
IRCHLB-P9-101	A high-quality reference genome for Diaphorina citri with manually curated genes in developmental, structural and immune related pathways	Hosmani, Prashant

IRCHLB - POSTER PRESENTATIONS

POSTER NUMBER	TITLE	PRESENTER
IRCHLB-09: Molecular and Cultural Vector Management (Continued)		
IRCHLB-P9-102	Attributes of color that affect attraction of the Asian Citrus Psyllid	Allan, Sandra
IRCHLB-P9-103	Capability of 'Photonic Fence' technology to detect, track, and control Asian citrus psyllid	Patt, Joseph
IRCHLB-P9-104	Could Brazilian native rutaceous support the Asian Citrus Psyllid?	Alves, Gustavo
IRCHLB-P9-105	Developing field detection systems and characterizing other Liberibacters associated with citrus HLB	Ramadugu, Chandrika
IRCHLB-P9-106	Effect of organic fertilizer on the biological characteristics of Asian citrus psyllid Diaphorina citri Kuwayama	Cen, Yijing
IRCHLB-P9-107	Evaluating lighting preferences to enhance trapping efficacy of Asian Citrus Psyllid	Jenkins, Daniel
IRCHLB-P9-108	Field Assays of 3D Printed Asian Citrus Psyllid (Diaphorina citri) Trapping Systems	Rohrig, Eric
IRCHLB-P9-109	Genetic manipulation of Asian Citrus Psyllid (ACP), Diaphorina citri, by CRISPR/Cas9 technology to mitigate the effects of Huanglongbing in Florida citrus	Killiny, Nabil
IRCHLB-P9-110	Host plant selection in the Asian citrus psyllid is affected by salinity stress in citrus plants	Fancelli, Marilene
IRCHLB-P9-111	Impact of transgenic grapefruit and orange plants expressing a Bt toxin gene on the Asian citrus psyllid	Orbović, Vladimir
IRCHLB-P9-112	Lower Asian Citrus Psyllid populations by timing sprays based on flush development	Albrigo, Gene

IRCHLB - POSTER PRESENTATIONS

POSTER NUMBER	TITLE	PRESENTER
IRCHLB-09: Molecular and Cultural Vector Management (Continued)		
IRCHLB-P9-113	Production of genetically modified Murraya koenigii plants expressing a Bt toxin gene	Orbović, Vladimir
IRCHLB-P9-114	RNA interference of candidate effector genes promotes reduction of Diaphorina citri feeding	Machado, Marcos
IRCHLB-P9-115	RNA interference of Ras-like family small GTPases genes of Asian citrus psyllid, Diaphorina citri (Kuwayama), vector of citrus Huanglongbing	Machado, Marcos
IRCHLB-P9-116	Silencing genes implicated in osmoregulation as a potential control in Diaphorina citri	Killiny, Nabil
IRCHLB-P9-117	Trapping of male Diaphorina citri with combinations of vibrational and light stimuli	Mankin, Mard and Kiefer, Maximilian
IRCHLB-P9-118	Use of 3D Technology for Asian Citrus Psyllid (Diaphorina citri) Trapping Systems	Rohrig, Eric
IRCHLB-10: Regulatory and Programs Updates		
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