

DAY-BY-DAY PROGRAM SCHEDULE

Sunday, September 17, 2017

7:00 AM – 6:15 PM Lower Lobby - Please Arrive 15 Minutes Prior to Departure Time

Nurseries and Gardens Of the Big Island

9:00 AM – 8:45 PM Lower Lobby - Please Arrive 15 Minutes Prior to Departure Time

Full Day Volcano Tour

Monday, September 18, 2017

7:30 AM – 5:00 PM Lower Lobby - Please Arrive 15 Minutes Prior to Departure Time

Experience Tropical Fruits and Propagation Practices on the Big Island of Hawaii

9:00 AM – 3:00 PM Water's Edge Boardroom

ASHS Board of Directors Meeting

Chair: Curt Rom

12:30 PM – 7:00 PM Lower Lobby - Please Arrive 15 Minutes Prior to Departure Time

The Hawaii Tropical Botanical Garden

3:00 PM – 4:00 PM Waikoloa 2

Moderator Training Session - Session Repeated on Tuesday

3:00 PM – 6:00 PM Career Center - Grand Promenade

Registration Open - Monday

4:00 PM – 5:00 PM Waikoloa 2

Professional Interest (Formerly Working Group) Chairs and Chairs-elect Meeting - Session Will Be Repeated on Tuesday

Presiding: John Dole

Speakers: Michael Neff and Cindy Slone

Tuesday, September 19, 2017

7:00 AM – 8:00 AM King's 1

Moderator Training Session (Repeat of Session offered on Monday)

7:00 AM – 9:00 AM Lower Lobby

5K Fun Run/Walk

Please meet in the Lower Lobby (**not the main hotel lobby**) at 7:00 AM to walk as a group to the race starting point.

This is a ticketed event. Advance registration is required.

8:00 AM – 9:30 AM Kohala 3

Nursery Crops (Oral)

Moderator: Laura Kaderabek

- 8:00 AM Effects of Aging on the Physical, Chemical, and Hydrologic Properties of Pine Bark Substrates
- 8:15 AM Risk of Incidence of Pythium Disease in Poinsettia Under Slight-deficit Irrigation
- 8:30 AM Expanding the Toolbox: Developing Tools to Help Container Nursery and Greenhouse Operations Better Understand Production Practices
- 8:45 AM Flower Development and Growth of *Salvia nemorosa* 'Ostfrieland' in Response to Substrate Water Content
- 9:00 AM Fungicides Reduce Rhododendron Root Rot and Mortality Caused By *Phytophthora cinnamomi*, but Not By *P. plurivora*
- 9:15 AM Response of *Ligustrum japonicum* to Plastic Mulch Applied over Non-spaced Containers
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8:00 AM – 9:45 AM Kohala 2

Plant Nutrient Management 1 (Oral)

Moderator: Tiare Silvasy

- 8:00 AM Rate and Timing of Meat and Bone Meal (Tankage) Applications Influence Growth and Yield of Sweet Corn (*Zea mays* var. *saccharata*) and Soil Water Nitrate Concentrations
- 8:15 AM Determining Nutrient Recommendations for Corn (*Zea mays*) Based on Soil and Plant Tissue Elemental Analysis from Different Analytical Laboratories
- 8:30 AM Why Soils with High Extractable Phosphate Levels Don't Supply Sufficient Phosphorus for Potato Production in NE Florida
- 8:45 AM Effect of Nitrogen Fertilizer on Growth and Nitrate Content of Grafted and Non-grafted Tomato in High Tunnel Production
- 9:00 AM Evaluation of Biochar and Compost Soil Amendment on Cabbage Yield
- 9:15 AM Managing Recycled Nutrient Solution for Maximum Growth of Hydroponic Lettuce
- 9:30 AM Relative Nitrate and Phosphate Leaching Reduction Capacity of Soilless Root Support Substrates during Nonrecirculating Hydroponic Culture of Swiss chard (*Beta vulgaris* L.)
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8:00 AM – 10:00 AM King's 2

Consumer Horticulture and Master Gardeners (Oral)

Moderator: Sheri Dorn

- 8:00 AM Providing Extension Master Gardeners with an International Outreach Opportunity
- 8:15 AM Extension Master Gardener National Impact and Evaluation Efforts
- 8:30 AM Assessing Educational Programming Priorities for Extension Master Gardener Volunteer Programs
- 8:45 AM Home Harvest: Measuring the Economic Impact of Food Production in Home, School, and Community Gardens
- 9:00 AM Healthy Virginia Lawns: The Nexus of Consumers, Extension Master Gardeners, Nutrient Management, and the Chesapeake Bay
- 9:15 AM Long-distance Management of Master Gardener Programs
- 9:30 AM Master Gardeners Partner with SNAP-Ed to Improve Healthy Food Access in Iowa
- 9:45 AM Project Happy Apples: Educating Homeowners in Codling Moth Management for Backyard Orchards
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8:30 AM – 9:30 AM King's 1

Root Growth and Rhizosphere Dynamics 1 (Oral)

Moderator: Astrid Volder

- 8:30 AM Influence of Porous Pavements on Growth, Establishment, and Root Distribution of *Platanus xacerifolia* (Aiton) Willd. in Simulated Urban Tree Pits
- 8:45 AM Impact of N Fertilization on Root Demographics of Young Pecan Trees
- 9:00 AM Interactive Effects of Irrigation, Nursery Production, and Pruning on Almond Water Relations, Growth, and Root Production

9:15 AM **Lessons Learned from a Course Laboratory on Plant Nutrition Utilizing Aeroponically Grown Sweetpotato [*Ipomoea batatas* (L.) Lam. var. *batatas* cv. Okinawan]**

8:30 AM – 10:00 AM *Kohala 1*

Exotic Fruits for Hawaii

Sponsor: American Pomological Society

Coordinator: Nahla V. Bassil

Moderator: Nahla V. Bassil

8:30 AM **Overview and Economic Benefits of “Ultra-Exotic” Tropical Fruit in Hawaii**
9:20 AM **The USDA Tropical Fruit and Nut Collection at Hilo, Hawaii**

8:30 AM – 10:00 AM *King's 3*

Growth Chambers and Controlled Environments 1 (Oral)

Moderator: Michael Martin

8:30 AM **Supplemental Far-red Light-emitting Diodes (LEDs) Increase Yield of Greenhouse Tomato via Morphological and Physiological Changes**
8:45 AM **Photosynthetic Rate Prediction of Whole Mango Plant Using 3D Plant Model and Ray-tracing in Greenhouse**
9:00 AM **Supplemental Far-red Irradiation Enhances Growth and Phenolic Content of *Crepidatum denticulatum* in Plant Factories with Artificial Light**
9:15 AM **Automated Determination and Maintenance of Optimal Light Levels for Controlled Environment Agriculture**
9:30 AM **Creating Lighting Uniformity in the Greenhouse**
9:45 AM **Effects of Different Light Quality on Vegetative Cutting and in Vitro Propagation of Coleus**

9:30 AM – 10:00 AM *Presentation Area - Grand Promenade*

Welcome to Hawaii

Coordinator: Kent Kobayashi

9:30 AM **Welcome and Introduction**
9:35 AM **Brief Overview of Horticulture in Hawaii**
9:40 AM **Floriculture in Hawaii**
9:45 AM **Hawaiian Horticulture from a Cultural Perspective**
9:50 AM **Fun Activities for Attendees**

10:00 AM – 10:30 AM *Monarchy*

Coffee Service - Tuesday

10:00 AM – 12:00 PM *Monarchy*

Plenary Session (William A. "Tex" Frazier Lecture) and ASHS Awards Ceremony



Jonathan Deenik

Atolls to High Volcanoes: Soil Diversity and Agricultural Adaptation Across Micronesia

Jonathan Deenik

University of Hawaii at Manoa

Micronesia, a sub-region of Oceania, comprises approximately 2,100 small islands belonging to five sovereign nations scattered across 2.9 million square miles of the Western Pacific. The majority of the islands are low-lying sandy coral atolls, but high volcanic islands and raised limestone islands are major population centers in the region. Palau, in the west, was first settled by seafaring peoples as early as 4000-4500 BP and the colonization of Marshall Islands at the eastern edge of the region was believed complete by 3000 BP. While the low-lying atolls show little soil development, the high islands show remarkable soil diversity despite a small land area. Prior to European contact, island populations across the region met their food, fiber, and fuel needs for many generations through the development of biodiverse agroforest production systems well-suited to the different soils and landscapes. Rapid political, social, and economic change, driven by globalization and modernization, threatens the traditional fabric of these fragile island cultures with potentially dire environmental and social ramifications. However, a strategic coupling of traditional practices coupled with innovation and adaptation provides a roadmap to navigate an increasingly uncertain future.

12:00 PM – 1:00 PM *Grand Staircase*

Awards Recipient Reception - By Invitation Only

12:00 PM – 1:00 PM *Kohala 1*

Professional Interest (Formerly Working Group) Chairs and Chairs-elect Meeting - Repeat of Monday Session

Presiding: John Dole

Speakers: Michael Neff and Cindy Slone

12:30 PM – 1:30 PM *King's 3*

Floriculture 1 (Oral)

Moderator: James Faust

12:30 PM **Domestication of the Poinsettia (*Euphorbia pulcherrima*) over the Past Century**

12:45 PM **Preliminary Studies in *Abelia* As a New Cut Flower/Foliage Crop**

1:00 PM **Evaluation of High Tunnel- and Field-grown Specialty Cut Flowers in the Northern Great Plains**

1:15 PM **Comparative Analysis of Responses to Low Temperature Combined with Dehydration Stress in Evergreen and Deciduous Irises (*Iris* sp.)**

12:45 PM – 2:15 PM *King's 1*

***Ficus*: An Introduction to Its Natural History, Propagation, Selection, and Landscape Management**

Sponsor: Nursery Crops

Coordinator: Donald R. Hodel

Moderator: Donald R. Hodel

Objectives:

The workshop objectives are to introduce the audience to the remarkable world of ornamental landscape species of the large and diverse genus *Ficus*, including its unusual natural history, propagation, selection of appropriate species, and landscape management.

Workshop Description:

Ficus, one of the largest and most diverse genera of woody plants, comprises about 750 species of mostly trees but also some shrubs and vines. In subtropical and tropical areas and indoors everywhere, species of *Ficus* are much used and highly valued as landscape subjects, typically as trees for shade, park, homes, and streets but also as shrubs for groundcovers, borders, hedges, and topiary, and vines for covering walls, barriers, and other structures. The vast diversity in habit, from vines to trees, and environmental adaptation, from deserts to rain forests, means that there is a species of *Ficus* for nearly every landscape situation. Many people who study, grow, and/or maintain species of *Ficus* in landscape settings are probably not too familiar with their natural history (especially its unusual pollination biology) and would likely benefit from timely, applied information about propagation, selection, and landscape management (especially new, emerging pests and diseases).

12:45 PM ***Ficus*: An Introduction to Its Natural History, Propagation, Selection, and Landscape Management**

1:00 PM **Propagation of *Ficus***

- 1:15 PM Australian *Ficus* of Exceptional Landscape Merit
1:30 PM *Acanthococcus lagerstroemia*, an Emerging Potential Threat to *Ficus carica*
1:45 PM Management of Gall Wasps and Lobate Lac Scale on *Ficus*
2:00 PM *Ficus* Branch Dieback
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1:00 PM – 2:00 PM Water's Edge Boardroom

American Pomological Society (APS) Executive and Advisory Board Meeting

Chair: Michele Warmund

1:00 PM – 2:00 PM Waikoloa 2

Student Welcome Session

1:00 PM – 2:45 PM Kohala 3

International Horticulture Issues/Commercial Horticulture (Oral)

Moderator: Michael Schnelle

- 1:00 PM Agricultural Business Management Training for Women Farmers in Turkey, Germany and Spain
1:15 PM Horticulture in Upland Myanmar: Potential and Challenges
1:30 PM Longer Photoperiods with Consistent Daily Light Integral Produces Greater Growth in Tomatoes and Lettuce
1:45 PM Measuring and Reducing On-farm Losses of Vegetable Crops with Interdisciplinary Methods
2:00 PM Rapid Expansion of Asian Vegetable Production in Florida—Challenges and Opportunities
2:15 PM Phenotypic Variation Among Trees in a Population of a *Pistacia atlantica* X *P. integerrima* Cross Sold As UCB-1 Rootstock for Grafting *P. vera* (Pistachio) Cultivars
2:30 PM Battling Rose Rosette Disease in the Great Plains
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1:00 PM – 2:45 PM Kohala 2

Marketing and Economics (Oral)

Moderator: Cindy Fake

- 1:00 PM Investigating the Plant Selection Process from the Consumer Perspective
1:15 PM U.S. Consumer Preferences for Sustainable Landscape Attributes
1:30 PM Four Key Factors in Water Conservation Attitudes of Americans
1:45 PM Demographic Characteristics of Interested and Disinterested Water Conservers
2:00 PM Small Farm Economics for Beginning Farmers: Scale, Efficiency, and Profitability
2:15 PM Return on Investment Analysis of a Robot to Automatically Transplant Plant Cuttings
2:30 PM Why Is There so Much Interest in Urban Agriculture, and Does It Pay?
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1:15 PM – 2:45 PM King's 2

Propagation (Oral)

Moderator: Sandra Wilson

- 1:15 PM Adventitious Root Development of Herbaceous Cuttings in Biochar-amended Substrates
1:45 PM Survey of Carbon Allocation, Water Status, and Photosynthesis of *Hibiscus acetosella* 'Panama Red' Cuttings during Adventitious Root Formation
2:00 PM Underdeveloped Embryos and Seed Dormancy in the Korean Endemic Species *Ranunculus Crucilobus* (Ranunculaceae)
2:15 PM The Grafting of Bell Peppers (*Capsicum annuum*) Onto Pepper (*Capsicum*) and Tomato (*Solanum lycopersicum*) Rootstocks, and the Effects on Yield and Plant Morphology

2:30 PM Reflections on Nearly Sixty Years of Changes for the Textbook “Plant Propagation: Principles and Practices”

1:30 PM – 3:00 PM Kohala 1

Water Utilization and Management 1 (Oral)

Moderator: C. Scott Stoddard

- 1:30 PM Irrigation Requirements for Intermountain West Rangeland Legume Seed Production
 - 1:45 PM Growth, Yield, and Quality of Strawberry (*Fragaria X ananassa*) as Affected By Soil Moisture Regimes
 - 2:00 PM Assessing Evapotranspiration Crop Coefficients Based on Growing Degree Days and Days after Planting Models for Watermelon
 - 2:15 PM Determining the Water Requirements of Drip-irrigated Sweetpotatoes in California
 - 2:30 PM Optimizing Water Use of Romaine Lettuce Using an Evapotranspiration-based Method
 - 2:45 PM Improved Irrigation and Management Practices for Water Conservation and Plant Growth in Citrus
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1:30 PM – 5:00 PM Meet at ASHS Registration Desk 15 Minutes Prior to Event Start Time

Behind the Scenes at Hilton Waikoloa Village

1:45 PM – 3:00 PM King's 3

Floriculture 2 (Oral)

Moderator: Kellie J. Walters

- 1:45 PM Carrier Water Alkalinity and Ambient Air Temperature Influence Ethephon Efficacy
 - 2:00 PM Ethylene and 1-MCP Effects on Botrytis Severity Using Four *Pelargonium* cultivars
 - 2:15 PM The Role of Autophagy in the Response of *Petunia xhybrida* ‘Mitchell Diploid’ to Low Fertility and Salinity Stress.
 - 2:30 PM The Impact of Light Intensity on the Vase Life of Cut Flowers of *Anthurium andraeanum* (Hort.) Cultivars Assessed Using Hyperspectral Reflectance
 - 2:45 PM Inhibition of Flowering in *Gladiolus xhybridus* ‘Vista’ Using GA Inhibitors
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2:00 PM – 3:00 PM Water's Edge Boardroom

Industry Division Advisory Council Meeting - Open to All Interested Members

Chair: Holly Little

2:00 PM – 3:00 PM Waikoloa 2

Consulting Editors Meeting

Presidings: Ron Robbins and Neal De Vos

2:00 PM – 5:00 PM Monarchy

Success in SCRI

Coordinator: Megan O'Reilly

Moderator: Thomas Bewick

- 2:00 PM Introductory Remarks
- 2:05 PM Clean WaterR3: Helping Growers Conserve Water and Money
- 2:30 PM Identification and Development of Disease-resistant Walnut Rootstocks
- 2:55 PM Rear and Release Psyllids As Biological Control Agents--an Economical and Feasible Mid-term Solution for Huanglongbing (HLB) Disease of Citrus
- 3:20 PM Researchers and Stakeholders Shape Advances in Management of Tree and Vine Trunk-disease Complexes
- 3:45 PM Development of Genetic Tools for Pecan

4:10 PM Discussion

2:00 PM – 5:00 PM Kohala 4

Undergraduate Commodity Judging Contest

Coordinator: Stephanie Burnett

2:15 PM – 2:45 PM King's 1

Nursery Crops (NUR) Meeting - Open to All Attendees

Chair: Ryan Contreras

Chair-elect: Chris Marble

Secretary: James Altland

3:00 PM – 4:00 PM Water's Edge Boardroom

Fellows Screening Committee Meeting

Chair: Robert N. Trigiano

3:00 PM – 4:00 PM Waikoloa 2

Intellectual Property Rights (IPR) Meeting - Open to All Attendees

Chair: Ralph Scorza

Chair-elect: Johnny Loff

3:00 PM – 4:30 PM Kohala 2

Improving the Quality and Alleviating the Threats to the World's Coffee Supply

Sponsor: Ecological Physiology

Coordinator: Leonardo Lombardini

Moderator: Leonardo Lombardini

Objectives:

Update ASHS attendees about recent progress on coffee science and provide interaction and networking opportunities for scientists working (or interested) in coffee.

Workshop Description:

With 2.25 billion cups consumed every day, and 170 billion dollars spent on coffee annually, directly involving 25 million producers and providing the main source of income for an estimated 100 million people worldwide, coffee is one of the world's most culturally and economically important agricultural commodities. Hawaii produces some of the finest gourmet coffees in the world, mainly due to the tropical environment and the rich volcanic soil, which provide an ideal location for coffee to grow. Yet, despite coffee's tremendous significance, the industry is facing serious obstacles. It is estimated that world's production levels must double to meet demand by 2050, yet disease epidemics and climate change effects have reduced the acreage of high-quality coffee around the world just in the last decade alone. Prevalent diseases, climate change issues, narrow genetic diversity are just a few issues badly in need of research. The coffee berry borer (*Hypothenemus hampei*) is a major pest in most coffee-growing regions around the world and was recently found on Hawaiian coffee farms. These serious threats cause hardship for all who work in the industry, leading to increased poverty, reduced food security and contributing to surges of immigration from Latin America to the United States. At the same time, advancements in sensory analysis allow researchers to identify important molecules in aroma and flavor, making it possible to link sensory attributes to specific qualities traits and field and postharvest methods, which can lead to improved cultural and processing practices, and eventually better quality coffee. The workshop will provide a brief history of coffee as a cultivated crop as well as updates on three main focuses of research and development, including challenges and opportunities in breeding, pest control and sensory analysis.

3:00 PM **History of Coffee and How It Became a Part of Morning Routines Around the World**

3:15 PM **The Coffee Breeding Program in Hawaii**

3:30 PM **Genetic Diversity of Arabica Coffee Accessions from the Catie Collection in Costa Rica**

3:45 PM **Analysis and Assessment of the Lipid Fraction of *Coffea arabica* Beans--An NMR**

Approach

4:00 PM **Implementation of an IPM Program to Fight Against the Coffee Berry Borer in Hawaii**

4:15 PM **Prevention and Rapid Response of the Coffee Berry Borer in Papua New Guinea**

3:00 PM – 4:30 PM Kohala 3

The Changing Face of the Horticulture Industry

Sponsor: Marketing and Economics

Coordinator: Alicia Rihn

Moderator: Alicia Rihn

Objectives:

The objective of this workshop is to explore issues related to changes occurring in consumer horticulture and production agriculture. Presentations will feature an understanding of issues surrounding marketing to Millennials, branding plants, sustainable landscape design, and the production and marketing decisions made by younger farmers.

Workshop Description:

Traditionally, the core consumers of ornamental horticultural goods were older women, but as younger consumers graduate and enter the workforce, they are becoming the future of the horticulture industry with a collective buying power of \$200 billion. Overall, young consumers are unique from older generations in that their values, beliefs, social norms, and communication methods are very different. Not only are they influencing demand for products, but they are influencing production methods and sustainability initiatives as well. This workshop explores various components related to young consumers in the horticulture industry from the consumer perspective and from the farmer's perspective. An overview of marketing tactics to reach Millennial consumers will be provided. Branding strategies on plants to attract Gen X and Y consumers will also be discussed. A summary of consumers' interest in sustainable landscape attributes and perceptions of landscape aesthetics and maintenance requirements will be presented. The marketing and production methods and the perceptions of younger farmers towards technology adoption will be discussed.

- 3:00 PM **Marketing Tactics to Increase Millennial Floral Purchases**
- 3:20 PM **Branded Plant Appeal to Gen X and Gen Y**
- 3:40 PM **Acceptance of Sustainable Landscape Attributes Among Young Consumers**
- 4:00 PM **The Ideal Landscape: Aesthetic Versus Maintenance Perceptions**

3:00 PM – 5:00 PM King's 1

Human Issues in Horticulture/Public Horticulture (Oral)

Moderator: Brian Trader

- 3:00 PM **Comparison of Physiological and Psychological Relaxation By Measurements of Prefrontal Cortex, Heart Rate Variability, and Subjective Index for Task with or without Foliage Plants**
- 3:15 PM **Horticultural Therapy Program Based on Task-oriented Training for Improving Upper Extremity Function and Balance Ability in Stroke Inpatients**
- 3:30 PM **The Effect of Participation in Greenhouse Activities on Depression, Anxiety, and Stress of University Student Military Veterans**
- 3:45 PM **Growers' and Consumers' Knowledge, Attitudes, and Opinions Regarding Roses Available for Purchase**
- 4:00 PM **Planning for Tactile Space to Improve Extension Outreach Activities**
- 4:15 PM **Awareness, Support, and Impact of Horticultural Research Institute**
- 4:30 PM **Great Gardens of the World Triad Fellowship**
- 4:45 PM **Researching, Designing, and Building Urban Pollinator-friendly Gardens: A Hands-on Learning Tool for Urban Pollinator Protection and Conservation**

3:15 PM – 4:45 PM King's 3

Teaching Methods 1 (Oral)

Moderator: Mary Meyer

- 3:15 PM **Ten Plants That Changed Minnesota: Growing Solutions to How the World Lives Today**
- 3:30 PM **Hypercorrection of High-confidence Errors in Students' Misconceptions about Gardening**
- 3:45 PM **Enhancing the First Year Experience for Plant Science Majors**
- 4:00 PM **Essential Accessibility Elements for Online Instruction**
- 4:15 PM **Online Floral Design: Opportunities & Challenges of Teaching Virtual, Lab-based Courses**
- 4:30 PM **Home Labs in an Online Horticulture Course**

3:15 PM – 5:00 PM *King's 2*

Viticulture and Small Fruits 1 (Oral)

Moderator: William Sciarappa

- 3:15 PM **Effect of pH and Sawdust on the Growth of Blueberry Rootstock Selections**
- 3:30 PM **High Tunnel Production of Southern Highbush Blueberries in Mississippi**
- 3:45 PM **High Density Honey Bee Stocking Rates Increases Yield Components of Northern Highbush Blueberry in Western Washington**
- 4:00 PM **Evaluation of Critical Temperatures for Heat Damage in Northern Highbush Blueberry**
- 4:15 PM **Comparing Soil Carbon Dioxide Levels in Organic and Conventional Highbush Blueberry (*Vaccinium corymbosum* L.)**
- 4:30 PM **Unmanned Aerial Vehicle Use for Phenotype and Plant Growth and Development Assessment in Wild Blueberry Production**

3:30 PM – 4:45 PM *Kohala 1*

Organic Horticulture 1 (Oral)

Moderator: Rebecca Brown

- 3:30 PM **High Tunnel and Grafting Effects on Organic Tomato Production in Subtropical Florida**
- 3:45 PM **Comparison of Reduced Tillage Strategies for Small-scale Organic Vegetable Systems**
- 4:00 PM **Improving Soil Conservation and Crop Performance through Reduced Tillage and Cover Crop-based Rotations in Organic Squash Production**
- 4:15 PM **Integration of Cover Crops into Extended Season Vegetable Production in Southern New England**
- 4:30 PM **Growth and Yield Performance of Fava Bean Using Fermented Foliar Fertilizers**

4:00 PM – 5:00 PM *Water's Edge Boardroom*

International Advisory Council Meeting - Open to All Interested Members

Chair: Mathieu Ngouajio

4:00 PM – 5:00 PM *Waikoloa 2*

Ornamental Plant Breeding (OPB) Meeting - Open to All Attendees

Chair: Lisa Alexander

Chair-elect: Amir Khoddamzadeh

4:30 PM – 5:00 PM *Kohala 2*

Ecological Physiology (formerly Crop Physiology and Environmental Stress Physiology) Meeting - Open to All Attendees

Chair: Rajasekaran Lada

Chair-elect: Yan Chen

Secretary: Catherine Simpson

4:30 PM – 5:00 PM *Kohala 3*

Marketing and Economics (MKEC) Meeting - Open to All Attendees

Chair: Alicia Rihn

5:00 PM – 6:00 PM *Lagoon Lanai*

Welcome Reception

Admission to the conference Welcome Reception is included in the conference registration fee for the registrant only. If you are interested in bringing a guest (even a child) to this reception, you will need to purchase a Welcome Reception Guest Ticket (Adult or Child) in order for that individual to be allowed access to the reception.

Wednesday, September 20, 2017

7:00 AM – 8:00 AM Kohala 3

Federal Partners (FP) Meeting - Open to All Attendees

Chair: Penelope Perkins-Veazie

Chair-elect: Nahla Bassil

Secretary: John Beaulieu

7:00 AM – 8:00 AM Kohala 4

Floriculture (FLOR) Meeting - Open to All Attendees

Chair: Christopher J. Currey

Chair-elect: Shaun Broderick

7:00 AM – 8:00 AM Waikoloa Coffee in Lagoon Tower

Graduate Student Morning Gathering - Wednesday

7:00 AM – 8:00 AM King's 3

History of Horticultural Science (HIST) Meeting - Open to All Attendees

Chair: David Karp

7:00 AM – 8:00 AM King's 1

Local Food Systems (LOCSY) Meeting - Open to All Attendees

Chair: Bill Evans

Chair-elect: Rebecca Brown

7:00 AM – 8:00 AM Kohala 2

Pomology (POM) Meeting - Open to All Attendees

Chair: Elina Coneva

Chair-elect: Stefano Musacchi

Secretary: Derek Woolard

7:00 AM – 8:00 AM Kohala 1

Seed and Stand Establishment (SSEST) Meeting - Open to All Attendees

Chair: Ajay Nair

Chair-elect: Amir Khoddamzadeh

Secretary: Shinsuke Agehara

8:00 AM – 9:00 AM Water's Edge Boardroom

Collegiate Activities Committee (CAC) Meeting

Chair: Stephanie Burnett

8:00 AM – 9:00 AM Waikoloa 2

Horticulture Hall of Fame Selection Committee Meeting

Chair: Paul Bosland

8:00 AM – 9:00 AM King's 3

Citrus Crops 1 (Oral)

Moderator: Rhuano S. Ferrarezi

8:00 AM **High Plant Density to Increase Grapefruit Production in the Indian River Area**

- 8:15 AM Grapefruit Production Using Different Irrigation Systems and Plant Density Under Open Hydroponics
- 8:30 AM Adoption of a New Orchard Planting Design As an Integrated On-farm Management Approach to Improve Citrus Production in South Texas
- 8:45 AM Protected Cultivation System to Reduce HLB Disease Incidence and Produce High-value Fresh Grapefruit
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8:00 AM – 9:15 AM Kohala 3

Genetics and Germplasm 1 (Oral)

Moderator: Robert N. Trigiano

- 8:00 AM Genetic Diversity and Population Structure of the Endangered Whorled Sunflower, *Helianthus verticillatus*, at Two Sites in Georgia
- 8:15 AM Identification of Relationships Between Hawaiian Taro (*Colocasia esculenta*) through Genome-wide SNP Genotypes and Implications for Breeding
- 8:30 AM Genetic Diversity and Association Analysis of Mineral Components in Spinach
- 8:45 AM A Macro-morphological Approach to Characterizing Genetic Relationships of *Plumeria* taxa
- 9:00 AM Centromeric Histone 3 Variation in Penstemon
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8:00 AM – 9:30 AM King's 1

Local Food Systems (Oral)

Moderator: Carol Miles

- 8:00 AM Fostering Regional Food Systems: The Role of the Community-embedded University
- 8:15 AM Quantification of Food Policy Groups within the Puget Sound Region
- 8:30 AM Hoophouses for Health: Effect of Access to Capital on Increasing Season Extension Production Capacity and Food Access
- 8:45 AM Breadfruit in Hawaiian Food Systems: Past, Present, and Future
- 9:00 AM Light Requirements of Lettuce in a Simulated Indoor Home Owner Environment
- 9:15 AM A Taste of Home: Growing Amaranth in New England
-

8:00 AM – 9:45 AM Kohala 1

Growth Chambers and Controlled Environments 2 (Oral)

Moderator: Alexander G. Litvin

- 8:00 AM Effect of Simulated Climate Change on Flower Development of Petunia
- 8:15 AM LED Lighting Alters Flavor Volatiles in Hydroponically Grown Basil
- 8:30 AM Combined Treatment of Low Temperature and UV-a LED Light Enhances Phenolic Content in Kale
- 8:45 AM Mild Drought Can Alleviate Soilborne Disease of *Capsicum annuum* Caused by *Phytophthora capsici*
- 9:00 AM Supplemental Light Sources and Spectra Affect Basil, Dill, and Parsley Growth, Gas Exchange, and Aroma and Flavor Profile
- 9:15 AM Environmental Practices to Optimize the Growth, Development, and Nutritional Quality of Microgreens
- 9:30 AM Fertilizer and Cultivar Selection for Lettuce, Basil, and Swiss Chard Using Nutrient Film Technique
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8:00 AM – 9:45 AM Kohala 2

Vegetable Crops Management 1 (Oral)

Moderator: Shuresh Ghimire

- 8:00 AM How Important Is Cultivar Yield Stability to the Vegetable Processing Industry?
- 8:15 AM Comparison of the Mother Stalk and Standard Harvesting Methods on Spear Yield and Quality of Three Asparagus Varieties

- 8:30 AM Influence of Plastic Mulch and Planting Dates on Yield of Tomatoes in South Texas
8:45 AM Yield of Pie Pumpkin Grown with Biodegradable Plastic and Paper Mulch
9:00 AM A Cooperative Effort to Identify the Best Performing Seed Treatments for Sweet Corn
9:15 AM Hoophouses for Health Program Provides Technical Assistance to Year-round Farmers through Multiple Approaches
9:30 AM Preliminary Evaluation of English Cucumber Cultivars in High Tunnels
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8:00 AM – 10:00 AM Grand Staircase

Administrators Breakfast (Ticket Required)

Chair: Candice A. Shoemaker

This is a ticketed event. Advance registration is required.

8:00 AM – 10:00 AM King's 2

Postharvest 1 (Oral)

Moderator: Zilfina Rubio Ames

- 8:00 AM Bitter Pit Management in *Malus domestica* Borkh cv Honeycrisp Apples Using 1-MCP and Controlled Atmosphere Established during Conditioning
8:15 AM The Involvement of Laccase in Development of Superficial Scald in Apple Fruit
8:30 AM Quantitative Proteomic Investigations Revealed the Influence of Rootstocks on Soft Scald Development in 'Honeycrisp' Apples
8:45 AM 'Golden Delicious' and 'Honeycrisp' Apple Response to Controlled Atmosphere Storage with Oxygen Set Point Determined Utilizing Fruit Chlorophyll Fluorescence
9:00 AM Multiple Applications of 1-MCP in Air Storage as an Alternative to CA Storage for 'Honeycrisp' Apple
9:15 AM Monitoring and Utilizing Fruit Maturity to Improve Harvest and Storage Decisions of New Apple Cultivars and Reduce Storage Disorders of 'Honeycrisp'
9:30 AM Harvista Effects on On-tree Maturation, Storability, and Ripening Capacity of European Pears
9:45 AM Varietal and Seasonal Differences in Volatile Composition and Sensory Quality of Two Florida Peach Varieties
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8:00 AM – 10:00 AM Kohala 4

Viticulture and Small Fruits 2 (Oral)

Moderator: Sonet Van Zyl

- 8:00 AM Assessing Variability in the Vineyard through a Spatially Explicit Selective Harvest Approach
8:15 AM Evaluation of or-151 As a Plant Growth Regulator and Bio-Stimulant to Enhance Color Development and Uniformity in Red Seedless Table Grapes
8:30 AM Susceptibility of Cold Hardy Grapes to *Drosophila suzukii* (Diptera: Drosophilidae)
8:45 AM Long-term Evaluation of Pierce's Disease-resistant Hybrid Bunch Grapes with High Potential for the Southeast
9:00 AM Impact of Basal Leaf Removal on Fruit Quality of 'Marquette', 'Frontenac', 'La Crescent', and 'Brianna' Cold Hardy Wine Grape Cultivars Grown in Cold Climate Regions
9:15 AM Impact of Training System on Vine Performance and Fruit Composition of Cold Hardy Wine Grape Cultivars
9:30 AM A Commercial Formulation of the Brown Seaweed *Ascophyllum nodosum* Improves Yield of Commercially Grown Raspberries
9:45 AM Development of a Decision Making Tool for Improved Management of Root Lesion Nematode (*Pratylenchus penetrans*) in Red Raspberry
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8:30 AM – 4:00 PM Lower Lobby - Please Arrive 15 Minutes Prior to Departure Time

Hamakua Valleys & Waterfalls Tour

9:00 AM – 10:00 AM *Water's Edge Boardroom*

Education Advisory Council Meeting - Open to All Interested Members

Chair: Cynthia McKenney

9:00 AM – 10:00 AM *Waikoloa 2*

Nominations and Elections Committee Meeting

Chair: Maria Jenderek

9:00 AM – 10:00 AM *Career Center - Grand Promenade*

Resume Review Session I

9:30 AM – 10:45 AM *King's 3*

Ecological Physiology (Oral)

Moderator: Jiwan Palta

9:30 AM **Adaptations of Five Potato Genotypes to Prolonged Heat Stress: Changes in Leaf Cell Differentiation and Chlorophyll**

9:45 AM **Temperature Sensing of Dormant Grapevine Buds Differs Between Cold Acclimation and Deacclimation**

10:00 AM **Endophytes Increase Sucrose Content of Apple Fruits, *Malus pumila* ('Honeycrisp')**

10:15 AM **Continuous Production of Bio-ethanol from Multi-feedstocks By *Saccharomyces cerevisiae* at Laboratory and Pilot Scale**

10:30 AM **Partial Solar Radiation Exclusion with Color Shade Cloths May Improve Red Wine Grape Composition**

9:30 AM – 11:00 AM *Queen's Ballroom*

Undergraduate Student (Poster)

Comparison of Calcined Aggregates for Use in Pine Bark-based Substrates in Woody Ornamental Container Production (Poster Board #251)

Cultivar Trial and Growing Practice Modifications for East Coast Lettuce Production (Poster Board #252)

Effects of Fertilizer Concentration on Initial Growth of Select Cultivars of Kale (*Brassica oleracea* L. var. *acephala*) grown in a Nutrient Film Technique System (Poster Board #253)

The Effect of Applying High Temperature on Root Water Permeability at Different Growth Stage for Several Varieties of Tomato Seedlings (Poster Board #254)

Seed Extraction Methods and After-ripening Effects on Three *Rubus* Cultivars (Poster Board #256)

Identification and Characterization of Polymorphic Microsatellite Loci in Mortiño (*Vaccinium floribundum* Kunth) (Poster Board #257)

Exploring the Genetic Diversity of Hawaiian Sweetpotato (Poster Board #258)

Comparing the Effects of Restricting Irrigation on *Diascia* and *Lobelia* Growth and Development (Poster Board #259)

The Effects of Seed Cleaner Air Velocity and Float Tests of Varying Durations on Hemp (*Cannabis sativa* L.) Seed Separation (Poster Board #260)

9:45 AM – 10:15 AM *Kona Ballroom*

Coffee Break - Wednesday AM

9:45 AM – 11:15 AM *Kohala 3*

The National Initiative for Consumer Horticulture: Examining Research on the Social, Environmental, and Economic Benefits of Consumer Horticulture

Sponsor: Consumer Horticulture and Master Gardeners

Coordinators: Lucy Bradley, Sheri Dorn and Gail Langellotto

Moderators: Lucy Bradley and Natalie Bumgarner

Objectives:

To share the results of the National Initiative for Consumer Horticulture gap analyses conducted on the social, environmental, and economic impact of consumer horticulture To gather input on implications and next steps.

Workshop Description:

The National Initiative for Consumer Horticulture (NICH) will present the results of a gap analysis of research on the environmental, social, and economic benefits of consumer horticulture. Representatives of each of the three committees will present the results of their research, the gaps identified, and the research needed to move strategically forward with the goal of increasing awareness and educating people about the value of consumer horticulture.

- 9:45 AM **Economic Benefits of Consumer Horticulture**
 - 10:15 AM **Environmental Benefits of Consumer Horticulture**
 - 10:45 AM **Social and Community Benefits of Consumer Horticulture**
-

10:00 AM – 11:00 AM *Water's Edge Boardroom*

HortTechnology Editorial Board Meeting

Chair: Neal De Vos

10:00 AM – 11:30 AM *Kohala 1*

Vegetable Breeding 1 (Oral)

Moderator: Michael Havey

- 10:00 AM **Mapping Novel QTLs Associated with Root Morphological Traits in an Interspecific Tomato Population**
 - 10:15 AM **Comparative Evaluation of Aromatic Volatiles from Tomato Fruit of 'Rutgers 250' and Its Parental Varieties Using Headspace Gas Composition**
 - 10:30 AM **Development of a High Throughput Phenotyping (HTP) System for Spinach Breeding**
 - 10:45 AM **Spontaneous Polyploidization in Cucumber**
 - 11:00 AM **Selecting Specialty Potato Clones in Florida for the *Papa criolla* Market**
 - 11:15 AM **Preparing for Climate Change: Breeding Frost-tolerant Potatoes Adapted to Andean Highlands, Especially the Altiplano**
-

10:15 AM – 11:45 AM *Presentation Area - Grand Promenade*

***The Favored Strawberry*, by award winning directors Larry Foley and Dale Carpenter--Viewing and Q&A Session**

Sponsor: National Strawberry Initiative

Moderator: Curt Rom

- 10:15 AM **Introduction**
 - 10:18 AM **Screening of *The Favored Strawberry***
 - 11:15 AM **Panel Discussion**
-

10:15 AM – 11:45 AM *King's 2*

Ornamentals/Landscape and Turf 1 (Oral)

Moderator: Yan Chen

- 10:15 AM **Keys to Successful Wildflower Meadow Establishment in New England**
- 10:30 AM **Evaluation of Rain Garden Sedges to Cyclical Flood and Drought**
- 10:45 AM **Exogenous Ethylene and Abscisic Acid Promote Flowering in *Bougainvillea x buttiana* 'Afterglow' Under Long-day Photoperiod By Regulating Endogenous Gibberellins**
- 11:00 AM **Plant Communities Suitable for Green Roofs in Arid Regions**
- 11:15 AM **Chemical Control of the Crapemyrtle Bark Scale – What We Have Learned from Landscape Insecticide Trials**
- 11:30 AM **Effect of Volumetric Water and Organic Matter Content on Off-target Herbicide Injury**

10:15 AM – 12:00 PM Kohala 2

Pomology 1 (Oral)

Moderator: Joseph Connell

- 10:15 AM **Physiological Responses of Peach Trees to Variable Climate Conditions**
10:30 AM **Differential Thermal Analysis to Understand the Environmental Bases for Cold Hardiness and Cold Damage in Peach Floral Buds**
10:45 AM **A Precision Pollination System for Tree Fruit**
11:00 AM **Thinning Time Influences Peach Fruit Size and Expression of Cell Growth and Expansion Genes**
11:15 AM **Optimizing Fertilization for Peach Tree Establishment in the Southeastern US**
11:30 AM **Non-destructive Dry Matter Prediction in d'Anjou Pears: A New Sorting Tool?**
11:45 AM **Carbon Isotope Discrimination ($\Delta^{13}\text{C}$) Is Associated with Fruit Quality in *Malus Domestica* Borkh. cv Honeycrisp**
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10:15 AM – 12:15 PM King's 1

Career Explorations

Coordinator: Brian Pearson

Moderator: Brian Pearson

- 10:15 AM **Federal Research Institution Career Representative**
10:30 AM **Extension Agent Career Representative**
10:45 AM **Industry Representative**
11:00 AM **Public and Private Garden Career Representative**
11:15 AM **Early Academia Career Representative**
-

10:15 AM – 12:15 PM Kohala 4

Floriculture 3 (Oral)

Moderator: Ryan Dickson

- 10:15 AM **Quantifying the Acidic and Basic Effects of Fifteen Floriculture Species Grown in Peat-based Substrate**
10:30 AM **Growth of 'Looking Glass' Begonias Using Saline Irrigation Water from Various Sources**
10:45 AM **The Effect of Oxygenation of Irrigation Water on Rooting and Plant Growth of Bedding Plants**
11:00 AM **Effects of Reducing Substrate Moisture Content (SMC) during Greenhouse Production and Postproduction of Poinsettia**
11:15 AM **Optimizing Nitrogen Fertilization and Flower Productivity and Quality in Greenhouse Rose Crops**
11:30 AM **Cultivar Variation in Silicon Accumulation and Distribution in Petunia (*Petunia xhybrida*)**
11:45 AM **Aesthetic Quality and Strength of Some Bioplastic Biocontainers Is Affected By Substrate Volumetric Water Content during Crop Production**
12:00 PM **Effects of Biochar and Vermicompost on Container-grown Basil (*Ocimum basilicum*) and Tomato (*Solanum lycopersicum* 'Roma')**
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11:00 AM – 12:00 PM Waikoloa 2

Asian Horticulture Meeting - Open to All Attendees

Chair: Kedong Da

Chair-elect: Guo-qing Song

Secretary: Sanjun Gu

11:00 AM – 12:00 PM King's 3

Seed Your Future – An Update on the Movement to Encourage More People to Pursue Careers in Horticulture

Sponsor: Seed Your Future

Coordinators: Susan Yoder and John Dole

11:00 AM – 1:00 PM Water's Edge Boardroom

Leafy Vegetable Crop Germplasm Committee Meeting

Chair: Beiquan Mou

11:15 AM – 11:45 AM Kohala 3

Consumer Horticulture and Master Gardeners (CHMG) Meeting - Open to All Attendees

Chair: Lucy Bradley

Chair-elect: Sheri Dorn

Secretary: Natalie Bumgarner

12:00 PM – 2:00 PM Monarchy

Featured Speaker Luncheon: John Purcell (Ticket Required)

Coordinator: Holly Little



John P. Purcell

Sponsored by the Industry Division

This is a ticketed event. Advance registration is required.

Engaging and Telling Our Story on the Farm: Lessons from Hawaii on Conversations on Modern Agriculture with the Public

John Purcell

Vegetables Global R&D Lead

Global Vegetables R&D Lead

Hawaii Business Lead

Vice President and Distinguished Science Fellow at Monsanto

Hawaii's climate, availability of agricultural lands and long history of coexistence of all types of farming practices offer a favorable growing environment for seed production in the US. Several agriculture companies have produced seeds on the islands for several decades and seed production is a major agricultural sector for the state. In recent years, a select groups of critics opposed to modern agriculture and the use of innovative technologies in farming have aggressively waged campaigns against agriculture innovation, specifically targeting agriculture companies. Listening and engaging in constructive dialogue are important to us. Monsanto and other companies have embarked on efforts to educate stakeholders and the general public on the challenges farmers face and the solutions that the agriculture industry and seed companies provide. As part of these efforts, we have opened up Monsanto farms to tours and open houses, conducted outreach into the community to engage in discussions and take questions as well as shared information on social media about our shared vision for sustainable agriculture and our farming practices. These efforts have been helpful in trying to bridge the knowledge gap between those of us involved in agriculture and the consumers of the food that is produced. In growing our food, farmers face some tough challenges as the world's population continues to grow.

12:00 PM – 4:00 PM Kohala 1

Food and Nutritional Security in the Developing World: Challenges and Opportunities

Sponsor: International Division

Coordinators: Elizabeth Mitcham and Bhimanagouda Patil

Moderators: Bhimanagouda Patil, Elizabeth Mitcham and Roland Ebel

- 12:00 PM **Introductory Remarks**
- 12:10 PM **The Nexus of Food Security & Nutritional Security, Sustainability and Hunger: Multidisciplinary Educational and Research Opportunities and Challenges**
- 12:35 PM **New Trends in Food Security at USAID: The Role of Horticulture**
- 1:00 PM **Innovative Technologies to Enhance Availability of Nutritious Foods in Bangladesh**
- 1:25 PM **Building Horticultural Postharvest Capacity and Entrepreneurship – Experiences from Rwanda and Burkina Faso**
- 1:50 PM **Insect Exclusion Netting As a Profitable and Affordable Technology for Smallholder Growers to Produce Healthy Vegetables Under Tropical Climates**
- 2:15 PM **Farmer-led Innovation in Irrigation for Smallholder Vegetable Production in Uganda**
- 2:40 PM **African Indigenous Vegetables, a Neglected Treasure, for Improved Nutrition and Income in Eastern and Southern Sub-Saharan Africa**
- 3:05 PM **Panel Discussion**

12:15 PM – 1:00 PM Kona Ballroom

Ecological Physiology/Bioenergy/Herbs, Spices & Medicinal Plants (Poster)

- Effect of Soil Type on Root Growth and Nutrient Uptake of Two Grass Species *Bouteloua curtipendula* and *Bouteloua gracilis* Grown Under Adequate Water and Drought Stress** (Poster Board #163)
- Impact of Three Canopy Shapes of Apple Trees on the Foliar Photosynthetic Physiology** (Poster Board #164)
- Diurnal Patterns of Photosynthesis and Water Relations in Four Orchard-grown Pomegranate Cultivars** (Poster Board #165)
- Some Impacts of a Warming Climate on Fruit and Nut Crops in Subtropical North Florida** (Poster Board #166)
- Effects of Temperature on Flower Development of Blueberry and Pollinator Emergence** (Poster Board #167)
- Farm to Fuel: Guayule As a Feedstock for a Sustainable Bioeconomy in Arid Regions** (Poster Board #168)
- Effect of Colored Shade Cloth on the Growth of Field-grown Tea in Mississippi** (Poster Board #169)
- Is Trichome Presence and Oil Content Linked in *Ocimum* (Basil) Cultivars?** (Poster Board #170)
- Organic Nitrogen Fertilizer Effect on Growth and Phytonutrients of *Echinacea purpurea* in Eastern Washington** (Poster Board #171)
- Enzymatic Production of Gallic Acid Glycoside Using Dextransucrase and Its Functional Characterization** (Poster Board #172)

12:15 PM – 1:00 PM Kona Ballroom

Growth Chambers and Controlled Environments 1 (Poster)

- The Impact of LED Lighting on Carotenoid Concentrations in Hydroponically Grown Genovese Pesto Basil** (Poster Board #280)
- Effect of Supplemental CO₂ in Leafy Green Production in Hydroponics** (Poster Board #281)
- Vegetative Growth of *Phalaenopsis* Plants As Affected By Nutrient Solution Supply Method in a Closed Plant Factory System** (Poster Board #282)

Possibility of Dye-sensitized Solar Cell As a New Greenhouse Glazing Material for *Panax ginseng*
(Poster Board #283)

Difference of Emission Scent Compounds in Sweet Basil Cultivated at Plant Factory (Closed Environment) and Greenhouse Conditions (Poster Board #284)

Optimizing Light Spectral Composition and Vertical Distribution to Improve Yield and Quality in Greenhouse Tomato and Sweet Pepper Production (Poster Board #285)

Effects of Different Doses of Far-red LED Light on Growth and Yield of Greenhouse Strawberry
(Poster Board #286)

Physiological Responses of High-wire Tomato to Intrac canopy Light-emitting Diode Towers vs. Overhead High-pressure Sodium Lamps (Poster Board #287)

12:15 PM – 1:00 PM Kona Ballroom

Ornamentals/Landscape and Turf 1 (Poster)

Assessing the Tolerance of Texas Red Oak, Durand Oak, and Pin Oak to High Substrate pH (Poster Board #201)

Expanded Shale As a Soil Amendment for Colorado Soils (Poster Board #204)

Host Plant Relationships Between Native Lepidoptera and Three Native Grasses (Poster Board #205)

Effect of Bag Material and Rooting Substrate Components in the Growth and Performance of *Petunia x hybrida* 'Easy Wave Silver' (Poster Board #206)

Guests of Longwood Gardens Vote to Determine Superior Planting Combinations (Poster Board #207)

Relative Salt Tolerance of Marigold Cultivars (Poster Board #208)

Environmental Effects on Pollen in Five Insect-pollinated Herbaceous Annuals (Poster Board #209)

12:15 PM – 1:00 PM Kona Ballroom

Plant Growth Regulation (Posters)

Root Absorption and Xylem Movement of Ethephon in Tomato (Poster Board #188)

Quantifying the Effect of Foliar Ethephon Spray Application Concentration and Application Number on Growth Control of Containerized Vegetable and Herb Bedding Plants (Poster Board #189)

Repeated Foliar Sprays of Abscisic Acid to Strawberry Plants Influence Plant Growth and Yield
(Poster Board #190)

Changes in Citrus Yield and Flowering Apparently Associated with Climate Change in Florida (Poster Board #191)

Growth Inhibition of Tomato Plug Seedlings Using Temperature Control (Poster Board #192)

Use of Vibration Stimulation for Growth Inhibition of Tomato Plug Seedlings (Poster Board #193)

Exogenous Plant Growth Regulators Show Promise for Management of Alternate Bearing in Pecan
(Poster Board #194)

Differential Expression of Key Flowering Genes in Response to Plant Growth Regulator Application and Alternate Bearing in Pecan (Poster Board #195)

Optimized Growth Condition with Cost-effective Medium Based on Fertilizer and Chitin of *Bacillus thuringiensis* KKY (Poster Board #196)

Effect of the Antagonistic Bacteria, *Bacillus amyloliquefaciens* Y1 on Fusarium Wilt Disease Control and Growth Promotion of Tomato (Poster Board #197)

Effects of *Bacillus amyloliquefaciens* Y1 Culture on Growth and Disease Incidence of Shallot (Poster Board #198)

Control of Crown Rot and Head Blight Diseases in Wheat By a Dipeptide, Cyclo (L- Pro-D-Tyr) from *Bacillus amyloliquefaciens* Y1 (Poster Board #199)

Using a Maize Cytokinin Mutant to Study Organ Formation (Poster Board #200)

12:15 PM – 1:00 PM Kona Ballroom

Teaching Methods (Poster)

Propagation of Ornamental *Ficus* (Poster Board #001)

Willow Lake Student Farm – a Hands-on Educational Opportunity to Develop Technical and Soft Skills (Poster Board #002)

Developing an Urban Food Production Platform on Campus to Enhance Experiential Learning of Horticulture Students (Poster Board #003)

Season By Semester: Addressing Challenges to Sustaining a Student Horticulture Farm (Poster Board #004)

Faculty Mentoring and Peer-to-Peer Teaching for Hands-on Active Learning in Growing Princettia Plants (Poster Board #005)

Students Predicting Their Achievement in a Plant Identification Class (Poster Board #006)

Using Portfolios to Gauge Students' Meaningful and Mindful Effort in a Plant Identification Class (Poster Board #007)

Experiential Learning through Production and Marketing of Princettia and Poinsettia Plants for Fundraising Sales (Poster Board #008)

A Comparison of Senior-level Integrative Capstone Courses for Agricultural, Food Systems, and Integrated Plant Science Students at Washington State University (Poster Board #009)

Using a Program-wide Rubric to Assess Scientific Literacy Improvement of Students in the Integrated Plant Sciences Program at Washington State University (Poster Board #010)

Teaching a Plant Science Class in an Interdisciplinary Environment (Poster Board #011)

Student Perception of Teaching Approaches to Student Learning (Poster Board #012)

Assessing Conventional, Hybrid, and Distance Learning Courses in Horticulture (Poster Board #013)

12:15 PM – 1:00 PM Kona Ballroom

Vegetable Crops Management 1 (Poster)

Finding Herbicide Tolerance in Tomatoes (Poster Board #299)

Growing and Analyzing International and Alternative Vegetables for Production, Marketing, and Medicinal Properties in Tennessee (Poster Board #300)

Introduction of Bottle Gourd and Bitter Melon to Tennessee (Poster Board #301)

Determining Seed Germination Requirements for Navajo Spinach, *Cleome serrulata* (Poster Board #302)

Prospects of Soil Tests to Predict Spinach Cadmium Contents (Poster Board #303)

Evaluation of Irrigation Practices on Soil Salinity and Tomato Productivity in the Sacramento-San Joaquin River Delta, California (Poster Board #304)

Cropmanage Online Decision Support Tool for Irrigation and Nutrient Management of Vegetables and Strawberries (Poster Board #305)

Two Sweetpotato (*Ipomoea batatas* var. *batatas*) Field Trials on Maui Demonstrate the Potential of Utilizing Tissue-cultured Planting Materials (Poster Board #306)

Microbial Inoculant (*Bacillus subtilis* and *Saccharomyces cerevisiae*) Had No Effect on Bell Pepper (*Capsicum annuum* L.) Plant Growth and Yield (Poster Board #307)

Time-dependent Microclimate Effects on Yield and Anthocyanin Levels in Leafy Vegetables (Poster Board #308)

12:30 PM – 1:30 PM Kohala 2

Plant Nutrient Management 2 (Oral)

Moderator: Chandra Reddy

12:30 PM **Optimizing Locally Sourced, Organic-compliant Fertilizers for Vegetable Production in a Crowded Island Environment**

12:45 PM **Adopting 4R Nutrient Stewardship Practices to Protect Water Quality for Turf**

1:00 PM **Nutrient Runoff from Agricultural Green Roofs: A Possible Indicator of Runoff Problems in Other Urban Agricultural Systems**

1:15 PM **Site-specific Nutrient and Water Management to Foster Environmental Stewardship**

1:00 PM – 1:45 PM Kona Ballroom

Commercial Horticulture/Marketing and Economics (Poster)

Management of Rough Sweetpotato Weevil, *Blosyrus asellus* (Coleoptera: Curculionidae) in Hawaii Using Insecticides (Poster Board #034)

Pruning and Mulching for Control of Spotted Wing Drosophila: Effects on Fruit Marketability and Infestation (Poster Board #035)

Association of a Previously Undescribed RNA Virus with Witches Broom of Blue Palo Verde (Poster Board #036)

Hop Selections for North Dakota (Poster Board #037)

The Long and Winding Road: A Retrospective of the Development of the Cannabis Industry (Poster Board #038)

Consumers' Willingness to Purchase Low-input Turfgrasses (Poster Board #039)

Consumer Willingness to Pay for Plants Grown in Aquaponic Systems (Poster Board #040)

Consumer Test of Spring-Planted, Day-neutral Strawberries Grown in a High Tunnel System (Poster Board #041)

1:00 PM – 1:45 PM Kona Ballroom

Fruit Breeding (Poster)

Breeding for Brown Rot Tolerance in Peach (Poster Board #114)

Growth Media Selection Is Important for Embryo Rescue in Cold Hardy Table Grapes (Poster Board #115)

Biotypes and Resistance to the Raspberry Aphid *Amphorophora agathonica* in the Pacific Northwest (Poster Board #116)

Novel Tea Cultivar, Cold- and Disease-tolerant Tea Plant (*Camellia sinensis* L.) 'Chamnok' (Poster Board #117)

Utilizing Visible/Near-infrared Spectroscopy as a Non-destructive Phenotyping Method in the WSU Apple Breeding Program (Poster Board #118)

Production of Hypo- and Hyper-tetraploid Seedlings from Open-, Self-, and Cross-pollinated Hypo- and Hyper-tetraploid Grape (Poster Board #119)

Integrating the RHS Colour Chart with the Nix™ Pro Color Scanner for Fast and Accurate Color Descriptions in Horticulture (Poster Board #120)

Muscadine Grape (*Vitis rotundifolia*) Breeding at the University of Arkansas (Poster Board #121)

1:00 PM – 1:45 PM Kona Ballroom

Nursery Crops (Poster)

Utilizing Electrolyte Freeze Tests to Measure Magnolia Cold Hardiness Survival (Poster Board #219)

Novel Approaches for Measuring Properties of Pine Bark Inventories On Site (Poster Board #220)

Evaluation of Four Biochars As Potential Media Amendments for Container Plant Production (Poster Board #221)

Irrigation Water Acidification to Neutralize Alkalinity for Nursery Crop Production: Substrate pH, Electrical Conductivity, and Nutrient Concentrations; and Plant Nutrition and Growth (Poster Board #222)

Irrigation Water Alkalinity, Not pH, Affects Substrate pH (Poster Board #223)

Irrigation Affects Severity of Root Rot Caused By *Phytophthora plurivora* and *P. cinnamomi* on *Rhododendron* (Poster Board #224)

Salt Tolerance of *Cornus alba* Seedlings (Poster Board #225)

Irrigation Crop Coefficients of Three Edible Ornamental Container-grown Landscape Plants (Poster Board #226)

Degree and Timing of Taproot Pruning Influence Root Development of Seedling Bitternut Hickory (Poster Board #227)

***Serianthes nelsonii* Stem Bending Improves Nursery Transplant Quality** (Poster Board #228)

Extension Plant Diagnostic Clinic: A Reliable Source for Plant Protection of the Ornamental Industry (Poster Board #229)

1:00 PM – 1:45 PM Kona Ballroom

Organic Horticulture (Poster)

Advancing Mulching Strategies Using Conservation Tillage for Sustainable Weed Suppression in Tropical Organic Pumpkin and Okra Cropping Systems (Poster Board #055)

Soil Characteristics of a Permaculture Orchard in Western Kentucky (Poster Board #056)

High Tunnel Production of Organic Sweetpotato Slips in the Central United States (Poster Board #057)

Soil Quality and Crop Productivity in Two Contrasting Organic Vegetable Cropping Systems (Poster Board #058)

Production of Organically Managed June-bearing Strawberries in Low and High Tunnels. (Poster Board #059)

Production of Day-neutral Strawberry in Organically Managed High/Low Tunnels (Poster Board #060)

Soil Application of Chitosan Affects Growth and Physiology of Lettuce (Poster Board #061)

Physiochemical and Functional Properties of Organic Green Tea (Poster Board #062)

Organic Field Performance of Carrots on the Delmarva Peninsula (Poster Board #063)

The Tomato Organic Management and Improvement Project (TOMI): An Interdisciplinary Approach to Managing Foliar Diseases in Tomato (Poster Board #064)

Organic Fertility Amendments: Composition and Location Affect Soil Microbial Activity, Nitrogen Availability, and Pest Incidence and Severity on Vegetable Farms (Poster Board #065)

Compost Application Method Affects Plant Establishment: A Case Study of Organic Spinach Production (Poster Board #066)

1:00 PM – 1:45 PM Kona Ballroom

Postharvest 1 (Poster)

Relationships between the Longevity, Ethylene Sensitivity, and Gene Expression of Cut Roses (Poster Board #077)

Delayed Harvest and Cold Storage Performance of 'Gloria'™ NJ351 Peaches (Poster Board #078)

Physiological Effects of Phytosanitary Irradiation on 'Fuji' Apples (Poster Board #079)

Storage Temperature and Time Impacts the Quality of East Coast Broccoli (Poster Board #080)

Quality Changes According to Packing Film and Storage Temperature of *Allium victorialis* var. *platphyllum* Makino (Poster Board #081)

Metal Organic Frameworks Can Sorb, Store, and Release Ethylene and 1-Methylcyclopropene (Poster Board #082)

Modified Water Systems and Effects on Needle Retention in Balsam Fir (*Abies balsamea* L.) (Poster Board #083)

Fatty Acid Changes Linked to Needle Abscission in Two Clones of Balsam Fir Postharvest (Poster Board #084)

Mandarin Peel Desiccation Does Not Readily Influence Internal Oxygen Concentration (Poster Board #085)

Storage of Mechanically Harvested Blueberry (*Vaccinium* spp.) Fruit Using a Limb Shaker Is Affected By Shaking Vigor, Catching Surface, and Cultivar (Poster Board #086)

The Exact Quantification of Major Plant Hormones and ABA-related Genes (*FaNCED1*, *FaNCED2* and *FaCYP707A1*) Expressions during Strawberry Fruit Development (Poster Board #087)

Correlation Between Sensory and Instrumental Crispness of a Honeycrisp Apple Breeding Population (Poster Board #088)

Evaluation of Muscadine for Four-week Storage Life (Poster Board #089)

Use of Near-infrared Spectroscopy (NIRS) to Determine Soluble Sugars and Anthocyanin Content in Strawberry Fruit (Poster Board #090)

1:30 PM – 2:00 PM Kona Ballroom

Beverage Break - Wednesday Afternoon

1:45 PM – 3:15 PM Kohala 4

Advances in Genomic Analyses and Genetic Modification Technologies for Woody Horticultural Species

Sponsor: Plant Biotechnology

Coordinator: James Leebens-Mack

Moderator: Dilip Panthee

Objectives:

The objective of this workshop is to 1) learn how researchers use genetic modification to assist breeding of woody horticultural species, and 2) discuss how genetic modification can be used for a broad range of genetic improvement applications.

Workshop Description:

Long-lived woody ornamentals and fruit and nut trees pose a challenge for traditional breeding and improvement programs. Reference-quality genome assemblies and annotations are becoming a foundational resource for an increasing number of species. Reference genomes enable genome-wide association analyses and marker-assisted breeding programs. However, the long generation time of most woody horticultural species remains a major limitation for efficient cultivar improvement through marker-assisted breeding. At the same time, genetic modification has been an effective tool for improvement of some long-lived woody species. This workshop highlights how reference genomes are being developed and used to identify targets for both traditional breeding and gene editing in woody horticultural species. Strategies for successful genetic modification including CRISPR-based gene editing will be presented as well.

- 1:45 PM **A Chromosomal Assembly of the Flowering Dogwood (*Cornus florida*) Genome Serves As a Reference for Woody Horticultural Species across the Cornales**
- 2:05 PM **Comparative and Functional Genomics in *Cornus* (Dogwoods)**
- 2:25 PM **Genome Editing in Woody Species**
- 2:45 PM **The American Chestnut Research and Restoration Project**
- 3:05 PM **Future Prospects for Genome Analyses and Genetic Engineering of Woody Species**

1:45 PM – 3:30 PM Kohala 3

Plant Biotechnology (Oral)

Moderator: Ainong Shi

- 1:45 PM **Efficient Biolistic Transformation of Citrus Rootstocks**
- 2:00 PM **In Vitro Plant Regeneration of 'Polana' Red Raspberry (*Rubus idaeus*)**
- 2:15 PM **CRISPR/Cas-mediated Genome Engineering in Citrus**
- 2:30 PM **Whole Genome Sequencing and Resequencing for Genome-wide Study in Cowpea**
- 2:45 PM **Functional Analysis of Transcription Factor PhERF039 for Enhancing Water Stress Tolerance in *Petunia × hybrida* 'Mitchell Diploid'**
- 3:00 PM **A *Petunia* ocs Element Binding Factor, *PhOBF1*, Is Essential for the Virus-induced Gene Silencing and Antiviral Defense**
- 3:15 PM **Production and High-throughput Screening of Non-transgenic Mutant Plants Resulting from Agrobacterium-mediated Transient CRISPR/Cas9 Expression**

1:45 PM – 3:45 PM Kohala 2

Growth Chambers and Controlled Environments 3 (Oral)

Moderator: Geoffrey Weaver

- 1:45 PM **Growth and Yield of Vegetables Grown in Aquaponics in Comparison to Hydroponics**
- 2:00 PM **A Low-input Alternative Healing System for Grafted Tomato Transplants**
- 2:15 PM **Using Chlorophyll Fluorescence Data to Model Efficient Lighting Strategies for Lettuce**
- 2:30 PM **Bedding Plant Seedling Quality and Production Time Are Influenced By Supplemental and Photoperiodic Light Intensity, Quality, and Duration**
- 2:45 PM **Far-red Radiation Promotes Lettuce Seedling Growth Under Low and High Light**
- 3:00 PM **Physiological Acclimation of *Petunia* Seedlings to Varying Light Quality, Light Intensity, and Carbon Dioxide Concentration for Indoor Production**
- 3:15 PM **Fertilizer and Cultivar Selection for Sweet Pepper and Eggplant in Closed Hydroponics System.**

3:30 PM **Morphological and Developmental Responses of Chrysanthemum to Night Interruption with Different Red: Far-red Ratios**

2:00 PM – 3:00 PM *Waikoloa 2*

***Meeting Canceled - Horticultural Landmarks Selection Committee Meeting**

Chair: Richelle Stafne

2:00 PM – 3:00 PM *Presentation Area - Grand Promenade*

Exhibitors' Workshop I: New Innovations

2:00 PM **The LI-6800: Advancements in Gas Exchange and Fluorescence Measurements Presented by LI-COR Biosciences**

2:20 PM **A Change of View: Using Root and Canopy Imaging to Expand Your Research Presented by CID Bio-Science, Inc.**

2:40 PM **The Latest Innovations from Apogee Instruments**

2:00 PM – 3:00 PM *Water's Edge Boardroom*

Plenary ("Tex" Frazier) Lecturer & Invited Speakers Selection Committee Meeting

Chair: John Dole

2:00 PM – 3:15 PM *King's 1*

Fruit Breeding 1 (Oral)

Moderator: Sujeet Verma

2:00 PM **Resources for Breeders in the Genome Database for Rosaceae**

2:15 PM **Genomic Sequencing of Japanese Plum (*Prunus salicina* Lindl.) Mutants Provides a New Model for Rosaceae Fruit Ripening Studies**

2:30 PM **Detection of a QTL for Soluble Solids Content in the University of Florida Strawberry (*Fragaria xananassa*) Breeding Program Using Pedigree-based Analysis**

2:45 PM **Identifying Haplotypes for Flowering and QTLs for Fruit Quality in the Michigan and Oregon Strawberry (*Fragaria xananassa*) Breeding Sets Using Pedigree-based Analysis**

3:00 PM **What You See Is What You Can Improve: Breeding Utility of Genome-wide Haplotype Mosaics**

2:00 PM – 3:15 PM *King's 2*

Postharvest 2 (Oral)

Moderator: Jinhe Bai

2:00 PM **Changes in Postharvest Quality and Polar Metabolites of Kiwifruit By Exogenous Ethylene**

2:15 PM **Suppression of Volatile Production in Tomato Fruit Exposed to Chilling Temperature and Alleviation By Pre-Chilling Heat and Methyl Salicylate Treatments**

2:30 PM **Not Just Diffusion: Insights on Mechanisms for Water Loss in Blueberry**

2:45 PM **Improving Post-storage Walnut Quality By Understanding Water Activity Relationships**

3:00 PM **Innovative Evaporatively Cooled Solar-Refrigerated Structures for Storage of Perishables in India**

2:00 PM – 3:30 PM *King's 3*

Organic Horticulture 2 (Oral)

Moderator: Eric Brennan

2:00 PM **Participatory Research on Organic Farms Does Not Support the Use of Biochar**

- 2:15 PM **Increasing Enrollment in Horticulture Courses through a Novel Program and Partnership: The Organic Farming Certificate Program**
- 2:30 PM **Production and Phenology of Organic Industrial Hemp and Its Adoption By Midwest Organic Farmers**
- 2:45 PM **Cover Cropping Furrows: A “Greener” Way to Grow Strawberries and Other Plasticulture Crops**
- 3:00 PM **Fruit Quality, Adaptability, Yield, and Biomass Production of Organically Grown Indigenous and Exotic Melons (*Cucumis melo* L.) on a Heavy Soil**
- 3:15 PM **Alternative Effects of Shade Netting over Apple Orchards**
-

2:30 PM – 4:30 PM *Meet at ASHS Registration Desk 15 Minutes Prior to Event Start Time*
Student Activity: Snorkeling (Ticket Required)

This is a ticketed event. Advance registration is required.

3:00 PM – 4:00 PM *Water's Edge Boardroom*
ASHS Certified Horticulturist Board (CH) Meeting
Chair: Janet Cole

3:00 PM – 4:00 PM *Waikoloa 2*
International Horticultural Consultants (ICON) Meeting - Open to All Attendees

Chair: Louise Ferguson
Chair-elect: Bizhen Hu
Secretary: Russell Galanti

3:00 PM – 5:00 PM *Grand Staircase*
Project Leaders – National Strawberry Sustainability Initiative Program
Presiding: Curt Rom

3:15 PM – 3:45 PM *Kohala 4*
Plant Biotechnology (BTCH) Meeting - Open to All Attendees
Chair: Dilip Panthee

3:30 PM – 5:00 PM *King's 1*
Strategies for Mitigating Invasiveness of Native Species

Sponsor: *Invasive Plants Research*

Coordinator: Michael Schnelle

Moderator: Michael Schnelle

Objectives:

To explore methods of reducing "weediness" of native species via cultural management techniques as well as breeding efforts.

Workshop Description:

Plants indigenous to the United States can sometimes become invasive under the right conditions. Presenters will address problematic genera and then practical strategies for mitigating damage from these species.

- 3:30 PM **Plants of the Great Plains with Potential to Become Invasive**
- 3:45 PM **Native "Pests" of the Deep South**
- 4:00 PM **Reforming a Seedy Character--*Prunus caroliniana***
- 4:15 PM **Induced Sterility As a Management Strategy for Invasive Species**
- 4:30 PM **Breaking Bad: Native Aquatics Edition**

3:45 PM – 5:15 PM Kohala 3

Bud Biology and Manipulation of Chilling Requirement in Fruit Crops

Sponsor: Fruit Breeding

Coordinator: Chunxian Chen

Moderator: Chunxian Chen

Objectives:

The workshop focuses on research advances in chilling requirement of fruit crops and manipulation of the bud dormancy and break cycle. The four topics are: 1) impact of inadequate chilling on production; 2) effect of chemical sprays and/or horticultural practices on bud physiology; 3) mechanisms of manipulations to alter bud phenology; 4) genetic and genomic perspectives on chilling requirement.

Workshop Description:

The onset of dormancy at an appropriate time followed by sufficient chilling are essential for normal bud development and spring budbreak in many temperate fruit crops, and the dormancy cycle is directly related to blooming, fruit set, and vegetative growth. Weather data has indicated a tendency of extended growing seasons, warmer winters, and an earlier return of spring-like conditions in recent years. As a result, some geographical regions where fruit crops are planted, have encountered delayed dormancy and an insufficient number of chilling hours, leading to uncertainty in budbreak and fruit cropping, especially in the Southeastern commercial production regions. This uncertainty is causing the use of extra chemical sprays (e.g., hydrogen cyanamide) and/or adjusted horticultural practices (e.g., pruning), in hopes of manipulating bud development and phenology in a manner that ensures sufficient cropping. Many questions regarding the regulation of leaf/flower bud development, however, still remain unanswered, as do those on the mechanism of manipulations used to stimulate dormancy and break. This workshop is designed to exchange information on research advances in bud development and manipulation studies in fruit crops with a chilling requirement and foster research collaborations that will address the need to develop solutions to bud development/break issues caused by inadequate chilling and/or delayed dormancy.

3:45 PM **Historical Trends in Chill Hour Accumulation and Peach Bud Response to Hydrogen Cyanamide**

4:05 PM **Insufficient Winter Chilling in Peach: Horticultural Ramifications and Recommendations**

4:25 PM **CBF-Transgenic Apple: A Model for Studying the Interaction between Cold Hardiness, Dormancy, and Growth**

4:45 PM **Genetics of Chilling Requirement in Peach**

4:00 PM – 5:30 PM Kohala 2

Effect of Nutrient and Water Management on Citrus Huanglongbing (HLB)

Sponsor: Citrus Crops

Coordinator: Kelly Morgan

Objectives:

1) Presentation of the latest field scale data on nutrient and water management effects on HLB; 2) Discussion of future research questions relative to cultural management impacts of HLB on citrus production; 3) Discussion of related experience relative to nutrient and irrigation practices in commercial groves.

Workshop Description:

As most citrus growers are well aware that Huanglongbing (HLB) or Citrus Greening is one of the most devastating citrus diseases in many parts of the world. The disease is widespread in Florida, Texas, Brazil, Mexico and other major producing areas causing significant concerns about the economic viability of these citrus industries. Leaf chlorosis develops as a result of infection with *Candidatus liberibacter asiaticus* (Clas) including interveinal chlorosis of young leaves, similar in symptomology to manganese (Mn) and zinc (Zn) deficiencies that develop early in the growing season, followed by amorphous mottling of older leaves which develop later in the growing season. Nutrient deficiency-like symptoms develop in HLB-affected trees, including potassium (K), phosphorus (P), magnesium (Mg), calcium (Ca), Mn, Zn, and iron (Fe). HLB causes fibrous roots to decline within a few months after infection and before foliar symptoms develop. Fibrous roots are responsible for the bulk of nutrient uptake and their decline likely explains the deficiency symptoms that develop in the canopy. Research has demonstrated that HLB symptoms can be reduced by ground and/or foliar applications of micronutrients, especially Mg, Mn, Zn, and boron (B). Water management is also a critical factor in maintaining vigor and productivity of citrus affected by HLB. These responses have promoted development and use of enhanced foliar nutritional programs in Florida and other areas of the world. Efficacy of these programs have been a topic of considerable discussion and debate. Fertilization programs have varied considerably among growers, and have consisted of various rates and application schedules of essential macro- and micronutrients and irrigation management.

4:00 PM **Nutrient Uptake in Huanglongbing0-affected Plants**

4:15 PM **Effect of Foliar Essential Nutrient Applications on Growth and Yield of Sweet Orange Affected By HLB**

4:30 PM **Citrus Root Distribution and Turnover As a Result of Different Management Practices**

- 4:45 PM Clues Emerging Regarding the Relationship of Nutrition and Root Health in HLB-infected Trees
- 5:00 PM Water Use and Irrigation Scheduling Effects on HLB-affected Citrus Trees Grown on Sandy Soils
- 5:15 PM Discussion
-

4:00 PM – 5:30 PM King's 2

Hawai'ian Medicinal Plants and Their Health Amelioration Properties

Sponsor: Herbs, Spices, & Medicinal Plants

Coordinator: Hideka Kobayashi

Objectives:

The objective of this workshop is to provide the premier interdisciplinary and multidisciplinary forum for researchers, students, and educators with the most updated information on Hawai'ian plants used in human health amelioration.

Workshop Description:

Remotely isolated, the Hawai'ian Islands are a hot spot in biodiversity, including many unique plant species that have been utilized by indigenous people for food, clothing, and medicine. Additional notable plant species (canoe plants) such as taro (*Colocasia esculenta*) noni (*Morinda citrifolia*) and kava (*Piper methysticum*) were brought to the islands from the Pacific along with human migration. With a vast number of native and few introduced species, Hawai'i is also noted for its rich tradition in native medicine. Popularity of such plants has substantially increased in the last few decades, and commercial products as a form of food or dietary supplements are widely available. The workshop will focus on three medicinal plants such as kava, noni and ohelo (*Vaccinium reticulatum*), known for their use in traditional Hawai'ian medicine and health amelioration properties.

- 4:00 PM Bioactive Constituents from Fermented Noni (*Morinda citrifolia*) Juice
- 4:30 PM Cytoprotective Actions of Flavokawains from Kava (*Piper methysticum* G. Forst)
- 5:00 PM Gauging Health-protective Polyphenol Bioavailability Using the Hawai'ian Ohelo Berry
-

4:00 PM – 5:30 PM King's 3

High Tunnel Temperature and Nutrient Management

Sponsor: Commercial Horticulture

Coordinator: Lewis Jett

Moderator: Lewis Jett

Objectives:

The objective of this workshop is to provide updates on information related to temperature and fertility management of high tunnel cropping systems.

Workshop Description:

Commercial high tunnel production of many specialty crops is rapidly expanding across the US, with more than 5000 high tunnels in production. Best management practices specific to successful high tunnel crop production include optimum temperature and nutrient management. Growers using passively heated and vented high tunnels must maintain an optimal microenvironment for crop production. In addition, nutrient management of diverse high tunnel crops has not been extensively researched with many recommendations being extrapolated from field-based fertilization programs. This workshop brings together information from diverse geographical regions and seasons of high tunnel production to evaluate temperature management and fertilization of high tunnel crops.

- 4:00 PM Crop Growth and Environment in Indiana Winter High Tunnel Production
- 4:15 PM High Tunnel Temperatures--Characteristics and Management Strategies
- 4:30 PM Using Infrared Heat Strips to Extend the Spring and Fall Season Even Further in a High Tunnel
- 4:45 PM High Tunnel Production on the Semi-arid, Windy Texas High Plains: Worth the Cost and Effort?
- 5:00 PM Integrated Approaches to Improving Soil and Nutrient Management for High Tunnel Organic Vegetable Systems: A Case Study in Florida Sandy Soils
-

4:00 PM – 5:30 PM Kohala 4

Precision Breeding

Sponsor: Genetics & Germplasm

Coordinators: Michael Dossett and Theodore Kisha

Objectives:

The objectives of this workshop are to define and introduce precision breeding concepts and regulatory hurdles as well as to promote discussion regarding the future of precision breeding tools in development of horticultural crops.

Workshop Description:

Technological advances over the last two decades have made precision breeding of horticultural crops a reality, but their success ultimately is dependant on whether precision breeding makes economic sense, and on consumer acceptance and regulatory hurdles. There are several different approaches to precision breeding and achieving the desired goals in an improved variety. This workshop will explore the areas that show the most promise as well as the challenges that still exist for precision breeding of horticultural crops. This session will conclude with discussion and a 30-minute working group meeting.

- 4:00 PM **Concept of Precision Breeding**
 - 4:15 PM **Precision Breeding in Perennial Crops**
 - 4:30 PM **Regulatory Issues with Plant Breeding Technologies**
-

4:15 PM – 5:45 PM Kohala 1

Maintaining Healthy Landscapes Under Drought and/or Permanent Water Restrictions

Sponsor: Ornamentals/Landscape and Turf

Coordinator: Janet S. Hartin

Moderator: Janet S. Hartin

Objectives:

Many states have enacted legislative action and/or executive orders than permanently reduce allocated water for landscape irrigation in and out of drought. In California, a maximum allowable water application of 45% of reference evapotranspiration (ET_o) was enacted for newly installed moderate to large size landscapes. Water suppliers in many other states have been mandated to permanently reduce potable water supplies to residential, commercial, industrial, and institutional properties on a permanent basis, as well as banking a minimum of a 3-year water supply. The proposed workshop will provide a forum for researchers/educators from five universities to present updates on topics related to maintaining healthy landscapes under drought and/or water restrictions and allow for an exchange of information relevant to a large group of stakeholders across the nation during a panel discussion following the presentations.

Workshop Description:

Five speakers from five separate universities with extensive knowledge and expertise in their specific topic will present 15 minute talks followed by participation in a 15 minute panel discussion in which questions and perspectives from workshop attendees will be addressed.

- 4:15 PM **Landscape Irrigation Research in California**
 - 4:35 PM **Landscape Tree Responses to Deficit Irrigation in the Southwest**
 - 4:50 PM **Techniques & Technologies for Turfgrass Irrigation Management**
 - 5:05 PM **Developing Native Plants for Low-water Landscaping**
 - 5:20 PM **Assessing the Potential of Non-traditional Water Sources for Landscape Irrigation**
-

5:00 PM – 5:30 PM King's 1

Invasive Plants Research (INPR) Meeting - Open to All Attendees

Chair: Michael Schnelle

Chair-elect: Neil Anderson

5:15 PM – 5:45 PM Kohala 3

Fruit Breeding (FRBR) Meeting - Open to All Attendees

Chair: Chunxian Chen

Chair-elect: Dario J. Chavez

Secretary: Cameron Peace

5:30 PM – 6:00 PM Kohala 2

Citrus Crops (CITR) Meeting - Open to All Attendees

Chair: Kelly Morgan

Chair-elect: Catherine Simpson

5:30 PM – 6:00 PM King's 3

Commercial Horticulture (CHEX) Meeting - Open to All Attendees

Chair: Gordon Johnson

Chair-elect: Lewis Jett

5:30 PM – 6:00 PM *Kohala 4*

Genetics and Germplasm (GG) Meeting - Open to All Attendees

Chair: Michael Dossett

Chair-elect: Theodore Kisha

Secretary: Wenhao Dai

5:30 PM – 6:00 PM *King's 2*

Herbs, Spices, and Medicinal Plants (HSMP) Meeting - Open to All Attendees

Chair: Hideka Kobayashi

Chair-elect: Katherine Warpeha

Secretary: Changbin Chen

5:45 PM – 6:15 PM *Kohala 1*

Ornamentals/Landscape and Turf (O/LT) Meeting - Open to All Attendees

Chair: Dayton Wilde

Chair-elect: Mengmeng Gu

Secretary: Timothy Rinehart

6:00 PM – 7:30 PM *Kona Ballroom*

Graduate Student Poster Competition

Coordinators: Amir Khoddamzadeh and Christopher J. Currey

6:00 PM – 9:00 PM *King's 1*

Early Career Competition Presentations

Chair: Kimberly Moore

6:00 PM **Reviving Indigenous Crops and Cropping Systems**

6:20 PM **Developing a Horticulture Program in the Columbia Basin of the Western United States: The First Year**

6:40 PM **Overcoming Limitations to Tropical Fruit Breeding in Southern Florida**

7:00 PM **Developing a Weed Management Program in Ornamentals: A Tremendous Opportunity, Brilliantly Disguised As a Hard Row to Hoe**

7:20 PM **Strengthening the Minnesota Grape Industry through Improved Genetics and Community Building**

7:40 PM **Engaging Students in Ag through the Development of an Urban Food Platform**

8:30 PM – 10:00 PM *Water's Edge Boardroom*

Cornell Alumni Gathering

Coordinator: Thomas Bjorkman

Thursday, September 21, 2017

7:00 AM – 8:00 AM *King's 3*

BioEnergy (BioE) Meeting - Open to All Attendees

Chair: Vanessa Gordon

Chair-elect: Stevens Brumbley

7:00 AM – 8:00 AM *Waikoloa Coffee in Ocean Tower*

Graduate Student Morning Gathering - Thursday

7:00 AM – 8:00 AM *Kohala 1*

Organic Horticulture (ORGH) Meeting - Open to All Attendees

Chair: Mary Rogers

Chair-elect: Brian Ward

Secretary: Annette Wszelaki

7:00 AM – 8:00 AM *King's 1*

Plant Nutrient Management (PNM) Meeting - Open to All Attendees

Chair: Dharmalingam Pitchay

Chair-elect: Donald Merhaut

7:00 AM – 8:00 AM *Kohala 2*

Temperate Tree Nut Crops (NUTS) Meeting - Open to All Attendees

Chair: Richard Heerema

7:00 AM – 8:00 AM *King's 2*

Water Utilization and Management (WUM) Meeting - Open to All Attendees

Chair: Susmitha Nambuthiri

Chair-elect: John Majsztrik

7:00 AM – 4:00 PM *Lower Lobby - Please Arrive 15 Minutes Prior to Departure Time*

Kona Joe's Coffee & Vanilla Farm Tour

7:30 AM – 8:30 AM *Kohala 4*

Produce Quality, Safety, and Health Properties (QUAL) Meeting - Open to All Attendees

Chair: Matthew Kleinhenz

Chair-elect: Chris Gunter

Secretary: Xin Zhao

7:30 AM – 8:30 AM *Kohala 3*

Vegetable Breeding (VGBR) Meeting - Open to All Attendees

Chair: Samuel F. Hutton

Chair-elect: Carlos Avila

Secretary: Geoffrey Meru

7:30 AM – 5:00 PM *Lower Lobby - Please Arrive 15 Minutes Prior to Departure Time*

Gardens of the Big Island

8:00 AM – 9:00 AM *Water's Edge Boardroom*

HortScience Editorial Board Meeting

Chair: Ron Robbins

8:00 AM – 9:00 AM *Waikoloa 2*

Membership Committee Meeting

Chair: Candice A. Shoemaker

8:00 AM – 9:15 AM Kohala 1

Organic Horticulture 3 (Oral)

Moderator: Milton McGiffen

- 8:00 AM Fertilizer Source and Cultivar Had More Impact Than Mulch Type on Biomass Allocation in Mature Northern Highbush Blueberry Grown in Long-term Organic Production
 - 8:15 AM Improving Seedling Quality with Locally Produced Liquid Organic Fertilizer Derived from Solid Local Meat and Bone Meal
 - 8:30 AM Carbon Sources for Anaerobic Soil Disinfestation in Southern California
 - 8:45 AM Biochar and Cover Crops Shift Microbial Communities to Improve Soil Fertility in a Southern California Organic Mango Orchard
 - 9:00 AM The Future of Biochar
-

8:00 AM – 9:15 AM Kohala 2

Root Growth and Rhizosphere Dynamics 2 (Oral)

Moderator: Anne J. Anderson

- 8:00 AM Fertility Practices Affect Soil Health and Pathogen Dynamics in High Tunnels
 - 8:15 AM In Vitro Evaluation of New *Oidiendron mainus* Strains on Blueberry Growth
 - 8:30 AM Characterizing Root Morphological Responses of Bare-root Strawberry Transplants to Nitrogen Fertilization Rates Using a Scanner-based Rhizotron System
 - 8:45 AM Response to Drought Stress of Plants Colonized By a Beneficial Microbe and Challenged By Metal Oxide Nanoparticles
 - 9:00 AM Assessing the Effect of Root Hair Growth of Phosphorus-stressed Barley (*Hordeum vulgare*) on Physiological Characteristics Using a Split-root System
-

8:00 AM – 9:15 AM King's 1

Vegetable Crops Management 2 (Oral)

Moderator: Barbara Liedl

- 8:00 AM Control Effect of Organic Materials on Powdery Mildew and Seasonal Occurrence of Diseases and Insect Pests in Small-type Watermelon in Korea
 - 8:15 AM Bacterial Spot of Cucurbits (*Xanthomonas cucurbitae*): A Serious Emerging Disease and Progress for Management
 - 8:30 AM The Effect of Calcium Application and Irrigation on Development of Blossom-end Rot in Tomato
 - 8:45 AM Evaluation of Anaerobic Soil Disinfestation Soil Amendments and Rates for Conventional Tomato Production in Florida
 - 9:00 AM Trialing Glucose Esters with the Biocontrol Generalist Predator, Green Lacewing, *Chrysoperla rufilabris*
-

8:00 AM – 9:45 AM King's 2

Water Utilization and Management 2 (Oral)

Moderator: Craig Ramsey

- 8:00 AM Floating Treatment Wetlands As a Remediation and Production Tool for Growers
- 8:15 AM Evaluation of Ozonated Water and Ultraviolet Light for Sanitizing Recycled Greenhouse Irrigation Water
- 8:30 AM Remediating Agrichemicals from Irrigation Water Using Granular Activated Carbon
- 8:45 AM Collaborative Efforts to Reduce Pesticide Concentrations in the Walla Walla Watershed-What Have We Learned?
- 9:00 AM Efficiency of Bioreactor Nutrient Remediation in the Presence of the Organophosphate Chlorpyrifos

- 9:15 AM Drivers and Barriers to Producers' Voluntary Adoption of Practices That Protect Water Quality
9:30 AM Biofilm Buildup on PVC and Polyethylene at Three Irrigation Frequencies
-

8:15 AM – 9:30 AM King's 3

Teaching Methods 2 (Oral)

Moderator: Elizabeth Driscoll

- 8:15 AM Seed Your Future Update: Positioning Horticulture to Create Excitement and Interest Among Students
8:30 AM Residential Pre-college Program Recruits the Next Generation of Youth in Horticulture
8:45 AM Cultivating Group Efficacy and Positive Science Attitudes in Middle School Horticulture Programs
9:00 AM Greenscaping & Growing It Green Readies Youth for Green Industry Employment
9:15 AM The Use of Outdoor Teaching Resources
-

8:30 AM – 9:30 AM Kohala 3

Vegetable Breeding 2 (Oral)

Moderator: Rebecca L. Wentz

- 8:30 AM Deploying Root-knot Nematode Resistance in Carrot
8:45 AM Efficacy of Whitefly Resistance in *Solanum habrochaites* Accession LA1777 Under Field Conditions
9:00 AM Novel Sources of Resistance to Fusarium Wilt Race 3 in Tomato
9:15 AM Characterization of Dominant Resistance to Tobacco Etch Virus Discovered in *Capsicum baccatum* and Its Introgression into a *Capsicum annuum* Background
-

8:30 AM – 9:45 AM Kohala 4

Produce Quality, Safety, and Health Properties (Oral)

Moderator: Jacqueline Gordon

- 8:30 AM Improving Apple Packinghouse Food Safety in Washington State with Tailored Workshop Modules
8:45 AM High Tunnel and Grafting Effects on Postharvest Quality of Tomato in Subtropical Florida
9:00 AM Survival of Generic *E. coli* on Fuji Apples with the Applications of Overhead Evaporative Cooling Water Near Harvest
9:15 AM Current Perspectives on Microbial Food Safety of Fresh Produce
9:30 AM Sweetpotato Composition and Nutritional Attributes
-

9:00 AM – 10:00 AM Waikoloa 2

Research Advisory Council Meeting - Open to All Interested Members

Chair: Dean Kopsell

9:00 AM – 10:00 AM Water's Edge Boardroom

Finance Committee Meeting

Chair: Joan Davenport

9:30 AM – 10:00 AM Kona Ballroom

Coffee Break - Thursday AM

9:30 AM – 10:30 AM Kohala 1

Genetics and Germplasm 2 (Oral)

Moderator: James Nienhuis

- 9:30 AM **Characterization of Sugar Concentration Among Edible Podded Accessions in the USDA *Phaseolus vulgaris* Germplasm Collection**
- 9:45 AM **A New Crimson Flowered Vegetable Type Faba Bean Germplasm Line**
- 10:00 AM **Relationship Between Seed Coat Colors and Patterns with Phenolic Content and Antioxidant Activity in a Collection of 120 Heirloom Accessions of Beans (*Phaseolus vulgaris*) from the National Plant Germplasm System.**
- 10:15 AM **Genome-wide Divergence and Linkage Disequilibrium Analyses for *Capsicum Baccatum* Revealed By Single Nucleotide Polymorphisms**
-

9:30 AM – 11:00 AM *Kohala 2*

Growth Chambers and Controlled Environments 4 (Oral)

Moderator: Marc van Iersel

- 9:30 AM **Identifying the Spectral Range of Far-red Light That Enhances Photochemistry of Lettuce Grown Under Different Spectra**
- 9:45 AM **LED Blue Wavelengths Impact Biomass and Water-soluble Carbohydrates in Kale Microgreens Grown in Controlled Environments**
- 10:00 AM **Nutrient Use Efficiency in Aquaponics and Hydroponics**
- 10:15 AM **Effects of Slight Changes in Supplemental Light Quality on the Growth, Height, and Compactness of *Geranium* and *Petunia* Plugs**
- 10:30 AM **Minimum UV-B Radiation Dose to Prevent Intumescence Injury of Tomato Rootstock Plants Grown Under LEDs**
- 10:45 AM **Impact of Green, Far-red, and White Light on Lettuce Grown Under Sole Source Lighting**
-

9:45 AM – 11:00 AM *Kohala 3*

Computer Applications in Horticulture (Oral)

Moderator: Russell Plowman

- 9:45 AM **Quantifying the Environmental Services That Selected Trees, Shrubs and Herbaceous Plants Provide in an Urban Arid–Semi-Arid Environment**
- 10:00 AM **Using Field Book and Other Free Apps for Specialty Crop Field and Lab Data Collection**
- 10:15 AM **Using Tripal As a Project Database: The Hardwood Genomics Project**
- 10:30 AM **Evaluating an Online Tool for Managing Water and Nitrogen Fertilizer for Celery and Strawberry Production in California**
- 10:45 AM **Non-destructive Imaging of Buds Using X-ray Phase Contrast**
-

9:45 AM – 11:15 AM *King's 3*

Pomology 3 (Oral)

Moderator: Stefano Musacchi

- 9:45 AM **Research at the Intersection of Biology and Technology: Sweet Cherry Orchard Systems for the Future**
- 10:00 AM **Blue Photosensitive Protective Netting Improves Light Use Efficiency in *Malus domestica* Borkh during a Heat Stress Event**
- 10:15 AM **Cosmic Crisp™: Optimization of Rootstock, Training System, and Pruning Technique**
- 10:30 AM **Evaluation of Flower, Fruit, and Juice Characteristics of a Multinational Collection of Cider Apple Cultivars Grown in the US Pacific Northwest**
- 10:45 AM **Individual Sugar and Acid Composition within Southeastern Peach Germplasm**
- 11:00 AM **Self-compatibility in Pawpaw: Parentage Confirmation and Evaluation of Fruit and Seed Set in Two Pawpaw Varieties 'Sunflower' and 'Susquehanna' in Kentucky**
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10:00 AM – 11:00 AM *Water's Edge Boardroom*

Endowment Fund Committee Meeting

Chair: Paul Thomas

10:00 AM – 11:00 AM Presentation Area - Grand Promenade

International Horticultural News & Opportunities - What's in it for You?

Coordinator: John Griffis

10:00 AM – 11:00 AM Waikoloa 2

Emeriti (EMER) Meeting - Open to All Attendees

Chair: Blanche Dansereau

Chair-elect: L. Gene Albrigo

10:00 AM – 11:30 AM King's 2

Advances in Orchid Cultivar Development and Production

Sponsor: Orchid Working Group (OWG)

Coordinator: Kenneth Leonhardt

Moderator: Kenneth Leonhardt

Objectives:

Exchange and discuss information and data on the current trends in variety development and cultivation advances of the most popular orchid genera for both potted plant and cut flower cultivation.

Workshop Description:

This is the first year of existence for the Orchid Working Group (OWG) and it is fitting that an orchid workshop be held at this ASHS conference being held on the Island of Hawaii, long known as the Orchid Isle. Potted orchids are #1, according to the USDA Floriculture Crops 2015 Summary. Potted flowering plants for indoor or patio uses were valued at \$810 million, with orchids continuing to lead this category with \$288 million in sales value (over 35% of all potted flowering plant sales), up 5% from 2014.

10:00 AM **History and Significance of Orchids in Hawaii**

10:15 AM **Effects of Short-term Nitrogen Application on Flowering of Phalaenopsis Varied with Size of Cultivars**

10:30 AM **Hybridizing Spathoglottis; New Directions for Creating Colorful Orchids for the Landscape and for Potted Flowering Plants**

10:45 AM **Fusarium: The New and Powerful Pathogen of Orchids**

11:00 AM **Use of Growth Regulators to Induce Out-of-season Flowering and to Improve Flower Quality in Dendrobium Orchids**

11:15 AM **Breeding Dendrobium Orchids in Hawaii**

10:00 AM – 11:30 AM Kohala 4

Integrating Cover Crops, Conservation Tillage Techniques, and Insectary Strips for Sustainable and Organic Vegetable Production Systems

Sponsor: Vegetable Crops Management

Coordinator: T. Casey Barickman

Moderators: T. Casey Barickman and Brian Ward

Objectives:

To introduce how the use of cover crops, reduced tillage techniques, and insectary flowering strips can be integrated to increase vegetable crop productivity, suppress pest and weed densities, and increase overall soil health.

Workshop Description:

Conventional tillage practices such as roto-tilling and other conventional soil management techniques can cause costly nutrient losses because of runoff and leaching, and serious depletion of soil organic matter. Cultivating can facilitate crop establishment, but prolonged bare-soil periods increase the risk of erosion and crusting, depress soil biological activity and open niches for weed growth. Alternatively, cover crops and conservation tillage techniques help producers sustain healthy soils, which are the foundation for organic vegetable production. These sustainable farming practices can be used to obtain high crop yields, while building and maintaining high soil quality for long-term production capacity. Cover crops and insectary flowering strips play a key role in organic vegetable production because they protect and feed the soil, improve tilth, promote nutrient availability and balance, reduce weed pressure, and provide habitat for beneficial insects. Additionally, organic exudates from living cover crop roots sustain beneficial root-zone bacteria and fungi during off-seasons in annual vegetable rotations. Conservation soil tillage practices, such as no-till and

strip/zone tillage techniques disturb the soil as little as possible, retaining a cover of crop residue. This residue left on the soil surface can suppress weeds, retain soil moisture, and reduce erosion. As organic matter increases over time, soil fertility improves and biological diversity increases. This workshop will discuss cover crop planting dates and cultivar selection, reduced tillage techniques for improving soil health, and management of weed and insect densities.

10:00 AM **Effect of Planting Date and Cultivar on Cereal Rye Development and Termination for Conservation Tillage Systems**

10:20 AM **Managing Cover Crops in Strip-tilled Organic Vegetables**

10:40 AM **Impacts of Strip Tillage and Compost on Soil, Weeds, and Crops in a Long-Term Organic Vegetable Experiment**

11:00 AM **Rotational No-till and Insectary Strips for Organic Cucumber Production**

10:15 AM – 12:15 PM *King's 1*

Advocating Locally for Public Support of Horticulture

Sponsor: National Issues Committee

Coordinators: John Dole, Carl Sams and Thomas Bjorkman

Moderator: Susan Miyasaka

10:15 AM **County of Hawaii - Agricultural Grants**

10:15 AM **Joy**

10:15 AM **Lobbying Congress**

11:00 AM – 11:45 AM *Kohala 1*

Citrus Crops 2 (Oral)

Moderator: Manjul Dutt

11:00 AM **Citrus Genome Database: Resources That Enable Basic, Translational, and Applied Research**

11:15 AM **Utilizing Australian Lime Genetics for Citrus Improvement**

11:30 AM **Breeding Citrus Scion Cultivars--New Opportunities and Overcoming Obstacles**

11:00 AM – 12:00 PM *Water's Edge Boardroom*

Journal of the American Society for Horticultural Science Board Meeting

Chair: Neal De Vos

11:00 AM – 12:00 PM *Presentation Area - Grand Promenade*

Career Presentation: Driscoll's Global Career Opportunities

Driscoll's Global Career Opportunities

11:00 AM – 12:00 PM *Waikoloa 2*

Certified Professional Horticulturist Board (CPH) Meeting

Chair: Chad T. Miller

11:15 AM – 12:15 PM *Kohala 2*

Temperate Tree Nut Crops (Oral)

Moderator: Jessica Chitwood

11:15 AM **History of Macadamia Domestication in Hawai'i**

11:30 AM **Pistachio Improvement--Future Directions**

11:45 AM **The Characterization of Pecan (*Carya illinoensis*) Germplasm Using Genotyping By Sequencing (GBS)**

12:00 PM **Using Dormant Almond Orchards for Groundwater Recharge--Impacts on Trees**

11:15 AM – 12:30 PM *Kohala 3*

Herbs, Spices, and Medicinal Plants (Oral)

Moderator: Alexander G. Litvin

11:15 AM Hydroponic Cilantro, Dill, and Parsley Growth and Tissue Nutrient Concentration As Affected By Electrical Conductivity or Daily Light Integral

11:30 AM Daily Light Integral Affects Growth, Development, and Chlorophyll Fluorescence of Eight Culinary Herbs Grown Hydroponically

11:45 AM Interspecific Variation for Yield, Curcumin, and Elemental Content of Turmeric (*Curcuma longa*) Rhizomes Grown in Alabama

12:00 PM Development of Non-opioid Antiinflammatory Extracts Derived from Vegetative Mass of Common Medicinal Plants and Vegetables

12:15 PM Study of Antibacterial Properties of Herbal Essential Oils and Plant Extract Against Plant Pathogenic Bacteria

11:30 AM – 12:00 PM *King's 2*

Orchid Meeting - Open to All Attendees

Chair: Kenneth Leonhardt

11:30 AM – 12:00 PM *Kohala 4*

Vegetable Crops Management (VCM) Meeting - Open to All Attendees

Chair: Casey Barickman

Chair-elect: Ramon Arancibia

Secretary: Shinsuke Agehara

11:30 AM – 12:30 PM *King's 3*

ASHS Member Representative Meeting

Moderator: Cindy Slone

12:00 PM – 2:00 PM *Monarchy*

Featured Speaker Luncheon: Stephen Weller (Ticket Required)

Coordinator: Mathieu Ngouajio



Stephen Weller

Sponsored by the International Division

This is a ticketed event. Advance registration is required.

Trials, Tribulations, and Lessons Learned over 30 Years of International Horticulture Research

Stephen C. Weller

Purdue University

I will discuss the many experiences I have had in international development activities during my academic career. International involvement has allowed me the chance to visit over 50 countries and become involved in teaching, research, outreach, and advising to agricultural communities in many host countries. Starting as a rural boy in Michigan, I had a limited worldview. My advantage was that I had an opportunity for education and a mindset to explore opportunities for personal growth. Being a university professor over the last 38 years has provided a base for international development work. Initially, my first international opportunity in Honduras in 1982 was serendipity. I became involved because it was a chance to see the world. I quickly learned that international research involved a commitment to specific objectives to support agriculture production improvements in less developed parts of the world. Further, my overriding goal was to work with people to develop agriculture systems that lead to opportunities for personal, economic, educational, nutritional and social improvements. My title says trials, tribulations and lessons learned; however, I feel the trials and tribulations were minor. The lessons I learned far outweighed any problems encountered. I learned that working with local people and providing them with empowerment, through agriculture development, results in improved life within impoverished areas. Empowerment is the basis of my discussion. I will provide my perceptions of why a person would become involved, how programs

are funded, and how results are implemented, institutionalized and become the norm. Examples include activities in Central and South America, Europe, Africa, and China. My work has focused on addressing major world issues regarding food availability, nutrition, ecological sustainability, income generation, social justice and improved lives for people throughout the world.

12:00 PM – 2:00 PM *Grand Staircase*

Pi Alpha Xi Luncheon (Ticket Required)

This is a ticketed event. Advance registration is required.

12:15 PM – 1:00 PM *Kona Ballroom*

Growth Chambers and Controlled Environments 2 (Poster)

Response of Grafted Cucumber Seedlings to Grafting Method, Healing Conditions, and Cultivar (Poster Board #288)

Effects of High Temperature on Pollen Development in Tomatoes Grown in Glass Greenhouse (Poster Board #289)

Development of a Moisture Content Monitoring System Using Arduino, Load-cell, and Soil Moisture Sensor (Poster Board #290)

Effect of Salinity of Base Water Source on Growth and Quality of Four Leafy Vegetables in a NFT System (Poster Board #291)

Impact of Soilless Media on Strawberry (*Fragaria x ananassa*) Growth and Fruit Production (Poster Board #292)

Development of Low-cost Incubator for Large-scale Antagonistic Microbial Cultivation without Autoclave (Poster Board #293)

Development of Three-variable Canopy Photosynthesis Model of Romaine Lettuce (*Lactuca sativa* L.) Grown in Plant Factory (Poster Board #294)

Growth and Productivity of Vegetable Crops As Affected By Nutrient Management Practices in an Aquaponics System (Poster Board #295)

Evaluating Rank Order of Microgreen Cultivars for Biomass and Water-soluble Carbohydrate Concentrations Across Diverse Environments (Poster Board #296)

Aquaponic Production of Tomato and Sweet Pepper Cultured in Two Media Types (Poster Board #297)

Nanoracks--Girl Scouts of Hawaii--Arugula Plant Growth Project on the International Space Station (ISS) (Poster Board #298)

12:15 PM – 1:00 PM *Kona Ballroom*

Ornamentals/Landscape and Turf 2 (Poster)

Restoring an Exotic Grassy Slope Using Native Hawaiian Ferns: From Spore to Sporophyte (Poster Board #210)

Plant Mortality Rates in Bioswales Along Interstate 95, the Busiest Highway in the US (Poster Board #211)

A Comparison of Two Horsechestnut (*Aesculus hippocastanum* L.) Street Tree Plantings in Pripyat and Kiev, Ukraine (Poster Board #212)

Landscape Shade Tree Performance after Ten Years of Drought (Poster Board #213)

Florida's Green Industries Best Management Practices Training Promotes Sustainable Urban Landscapes (Poster Board #214)

Potassium Fertilization Affects Microdochium Patch Severity on Creeping Bentgrass (Poster Board #215)

Turfgrass Nutrient Management and Regulatory Issues in the Chesapeake Bay Watershed (Poster Board #216)

Perennial Ryegrass Overseeding Rates Affect Fairway Coverage of Dormant Bermudagrass (Poster Board #218)

12:15 PM – 1:00 PM *Kona Ballroom*

Pomology 1 /Citrus/ Temperate Tree Nut Crops (Poster)

Results from the First Year of an Olive Varietal Evaluation in Louisiana (Poster Board #328)
Cyclic Adenosine Monophosphate (cAMP) in Fruit and Leaves of Jujube Cultivars Grown in New Mexico (Poster Board #329)
Poplar Auxin Transport and Auxin Influence Shoot Regeneration and *Agrobacterium* Infection of Juvenile Citrus Explants (Poster Board #330)
KSU-Benson™: A New Pawpaw Variety from Kentucky State University (Poster Board #331)
Timing of Bark Inlay Grafting of Pawpaw Affects Success Rate (Poster Board #332)
Comparison of Fruit Characteristics of Pawpaw (*Asimina triloba*) Advanced Selections from Kentucky State University with Commercially Available Cultivars (Poster Board #333)
Field Trials of 22 Pomegranate Cultivars in West Texas: A Preliminary Report (Poster Board #334)
Effect of Calcium and Anti-transpirant Sprays on Grapefruit Sunburn (Poster Board #335)
Distinguishing Phytohormone Expression Profiles Associated with Abscission of HLB-affected Sweet Orange Revealed By RNA Sequencing Analysis (Poster Board #336)
Genome-wide Association of Beneficial Polyphenols in Mandarins (Poster Board #337)
Evaluation of Select Preemergent Herbicides on Nonbearing *Castanea sativa* (Spanish chestnut) (Poster Board #338)
Effect of Shade Cloth and Kaolin Clay on Pomegranate Fruit Sunburn (Poster Board #339)

12:15 PM – 1:00 PM Kona Ballroom

Propagation (Poster)

Propagation of 'Tishomingo' Crape Myrtle Using Hardwood Cuttings (Poster Board #273)
Safety of Alcohol in Auxin Solutions Applied to Stem Cuttings of Impatiens (Poster Board #274)
The Timing of Scion Foliar Trimming Relative to Grafting Date and Its Effects on Healing and Regrowth in Pepper (Poster Board #275)
Rooting Response of Pacific Lovegrass (*Eragrostis deflexa*) Clumps to Rooting Hormone Soaks (Poster Board #276)
Rooting Response of Two *Chenopodium Oahuense* Selections to Indolebutyric Acid (IBA) Application (Poster Board #277)
Rooting Response of Native Hawaiian *Peperomia* Leaf Cuttings to Indolebutyric Acid Application (Poster Board #278)
Effect of Bottom Ash-containing Substrate on Seed Germination, Growth, and Performances of Four Bedding Plants (Poster Board #279)

12:15 PM – 1:00 PM Kona Ballroom

Vegetable Breeding 1 (Poster)

Evaluation of Bacterial Speck Resistance in Tomato Breeding Lines (Poster Board #101)
Susceptibility to Cavity Spot, Pythium Root Dieback, and Carrot Leaf Blights in Carrot Breeding Material (Poster Board #102)
Improvement of Fruit Quality and Insect Tolerance in Pumpkin Varieties for Hawaiian Markets Using Organic Systems (Poster Board #103)
Approaches to Phenotyping PRSV and ZYMV Resistance in Tropical Pumpkin (Poster Board #104)
Microscopic Analysis of Variation in Cuticle and Epicuticular Wax Structure in Cucumber Fruit (Poster Board #105)
Genome-wide Association Study Using Next-generation Sequencing in Spinach (Poster Board #106)
Evaluation of Association Analysis of Salt Tolerance in Cowpea (Poster Board #107)
Genetic and Phenotypic Diversity Analysis in Cowpea (Poster Board #108)

12:15 PM – 1:00 PM Kona Ballroom

Weed Control and Pest Management (Poster)

Laurel Wilt of Avocado: Management of an Unusual and Lethal Disease (Poster Board #148)
A Grower's Integrated Pest Management Program for Coffee Berry Borer in Hawaii (Poster Board #149)

Delia Species Involved in Cabbage Maggot Damage, and Prevalence of Chlorpyrifos Resistance: Results from a Canada-wide Survey (Poster Board #150)

Survey Says: Arthropod Pests of Tea Plants, *Camellia sinensis*, Grown in the Southeastern US (Poster Board #151)

Preemergence and Postemergence Control of Artilleryweed (*Pilea microphylla*) in Ornamental Production Nurseries (Poster Board #152)

The Role of *Bacillus amyloliquefaciens* Y1 on Control of Root Knot Nematode, *Meloidogyne incognita* By Producing Cyclo (D-Pro-L-Leu) (Poster Board #153)

Advancement of Laser-guided Intelligent Pesticide Spray Control Technology in Specialty Crop Production (Poster Board #154)

Environmentally Friendly Management of Root-knot Disease on Melon with Bioformulated *Pseudomonas chlororaphis* O6 (Poster Board #155)

Overview of the University of Tennessee Weed Diagnostics Center (Poster Board #156)

Evaluating Variable-rate, Laser-guided Sprayer Performance and Powdery Mildew Control in *Cornus florida* 'Cherokee Princess' (Poster Board #157)

Infection Degree of Major Five Viruses for Commercial Nursery Trees in Apple Cultivars 'Hongro' and 'Fuji' (Poster Board #158)

Evaluation of Bicyclopyrone in Sweetpotato (Poster Board #159)

Response of Seashore Paspalum (*Paspalum vaginatum*), Bermudagrass (*Cynodon dactylon*), and Goosegrass (*Eleusine indica*) to Post-emergence Herbicides (Poster Board #160)

Vegnet: How Long-term Crop Pest Monitoring Protects Vegetable Growers in the Pacific Northwest (Poster Board #161)

Characterization of *Bacillus amyloliquefaciens* Y1 on Autoclaved and H₂O₂-Treated Medium (Poster Board #162)

12:15 PM – 1:45 PM Kohala 1

Undergraduate Student (Oral)

Moderator: Joel Loveland

12:15 PM Improved Cultivars for Blueberry and Blackberry Production Affected By Increased Seasonal Temperatures

12:30 PM Increasing the Efficiency of Vitis Somatic Embryo Germination Utilizing Cold and Desiccation Treatment

12:45 PM The Effect of Marketing and Compost Education on College Students' Compost Knowledge, Attitudes, and Actions

1:00 PM Germination Success Rates of *Zinnia grandiflora*, *Salvia farinacea*, and *Berlandiera lyrata*

1:15 PM Bobcat Bloom: Using a Service-learning Campus Floral and Plant Marketing Program to Teach Advanced Floral Techniques

1:30 PM Effect of Pollen Parents on Oil Characteristics in European Hazelnuts

1:00 PM – 1:45 PM Presentation Area - Grand Promenade

Exhibitors' Workshop II: New Innovations

1:00 PM Cold Chain Innovations: Adapting the CoolBot for Smallholders around the World Presented by Horticulture Innovation Lab

1:20 PM New Products & Innovations from Spectrum Technologies

1:00 PM – 1:45 PM Kona Ballroom

Genetics and Germplasm 1 (Poster)

Development and Evaluation of Centipedegrass Mutant Lines with Improved Agronomic Performance (Poster Board #133)

Genetic Diversity of Kikuyugrass Using Dartseq Markers (Poster Board #134)

Genome-wide Association Study for Lettuce Cultivars with Improved Salad Processing Efficiency
(Poster Board #135)

Determination of Genetic Relationship Among *Kalmia latifolia* L. Cultivars Using ISSR Markers
(Poster Board #136)

Identification of a Gene Controlling Interspecific Lethality in *Nicotiana* (Poster Board #137)

Oil, Protein and Fatty Acid Composition of 35 *Cucurbita pepo* Accessions (Poster Board #138)

Identifying Late Blight Resistance QTL in a Diploid Mapping Population of *Solanum microdontum*
(Poster Board #139)

1:00 PM – 1:45 PM Kona Ballroom

Plant Biotechnology (Poster)

Fox Hunting in Wild Apples: Searching for Novel Apple Genes in *Malus sieversii* (Poster Board #373)

An Improved 10-SSR *Pyrus* Fingerprinting DNA Test to Confirm Parentage (Poster Board #374)

Quantification of Bioactive Compounds in Hot Pepper Genotypes Selected from the USDA/ARS National Germplasm Collection (Poster Board #375)

Isolation of *Anthurium* Nuclei for Molecular Applications (Poster Board #376)

Optimizing Tissue Culture Methods in Diverse Nightshade Species (Poster Board #377)

1:00 PM – 1:45 PM Kona Ballroom

Plant Nutrient Management 1 (Poster)

Natural Amendment Type Affects Kale Nutrient Content (Poster Board #173)

A Framework to Improve Nitrogen Fertilizer Use Efficiency in Intensive Vegetable Systems of Hawaii
(Poster Board #174)

Yield, Biomass Accumulation, and Phytonutrient Concentrations Are Affected By Location and Lettuce Cultivar (Poster Board #175)

Characteristics of Inorganic Compound in Waste Nutrient Solution Used and Leaves According to Fruiting Node on Hydroponic Culture of Cherry Tomato (Poster Board #176)

Characteristics and Changes of Waste Nutrient Solution Used in Semi-forcing Hydroponic Cultivation of Tomato cv Bonus (Poster Board #177)

Effects of Potassium Rates on Tomato Growth, Potassium Uptake, and Use Efficiency in Calcareous Soils (Poster Board #178)

Impact of Nitrogen (N) Concentration on Shoot and Root Development and Water Uptake in Cherry Tomato (*Solanum lycopersicum* var. *cerasiforme*) (Poster Board #179)

1:00 PM – 1:45 PM Kona Ballroom

Postharvest 2 (Poster)

Potential of Postharvest Coatings to Maintain Freshness of Red-fleshed Pitaya (*Hylocereus costaricensis*) (Poster Board #091)

Handling of 'Tommy Atkins' Mango (*Mangifera indica* L.) for Ripe and Ready-to-eat Markets (Poster Board #092)

Determination of Total Flavonoid Content of Selected Genomically Diverse Banana Cultivars in the Southeastern United States: Effect of Maturity and Extraction Solvent (Poster Board #093)

Chemical Composition and Antifungal Activity of Five Plant Essential Oils Against Anthracnose (*Colletotrichum gloeosporioides*) in Avocado and Papaya Fruit (Poster Board #094)

Hypobaric Storage of Fresh Tropical Fruit (Poster Board #095)

Sensory Comparison of Hand- and Machine-harvested 'Brown Snout' Utilizing a Trained Panel and the α -Astree II Potentiometric Electronic Tongue (Poster Board #096)

Manufacture of Spring Black Tea with Newly Developed Korea Tea Cultivar and Their Physicochemical Properties (Poster Board #097)

Development of Flavored Teas Using Korean Green and Black Tea (Poster Board #098)

Uncovering the Relationship Between Hydrolytic Enzymes and Postharvest Needle Abscission in Balsam Fir (Poster Board #099)

Low-temperature Storage Overcomes the Negative Effects of Baling on Postharvest Needle Abscission in Balsam Fir Trees (Poster Board #100)

1:00 PM – 1:45 PM Kona Ballroom

Produce Quality, Safety, and Health Properties (Poster)

- Developing a Produce Safety Course Module for Undergraduate Students** (Poster Board #240)
 - Effect on Growth and Leaf Color of Baby Leaf Lettuce in Multi-layer System** (Poster Board #241)
 - Food Safety Risks of Leafy Greens from Small-acreage Farms in Minnesota** (Poster Board #242)
 - Metabolites Change Under Insect Herbivory and Exogenous Methyl Jasmonate Application in 'Red Russian' Kale** (Poster Board #243)
 - Difference in Attachment of *Salmonella enterica* to Waxy or Glossy Collard Leaves** (Poster Board #244)
 - Cultivar Specific Changes in Primary and Secondary Metabolites in Pak Choi (*Brassica rapa*, Chinensis Group) by Methyl Jasmonate** (Poster Board #245)
 - Sweetpotato (*Ipomoea batatas* var. *batatas*) Cultivars Evaluated on Hawaii Island for Yield, Resistance to Pests, and Quality** (Poster Board #246)
 - Use of NIRS for Carotenoid Prediction in Butternut Squash** (Poster Board #247)
 - Consumer Preference of Apple Characteristics** (Poster Board #248)
 - Nanoprimer: An Effective Technique to Improve Seed Germination, Growth and Quality in Onion (*Allium cepa* L.)** (Poster Board #249)
 - Identification and Quantification of Tomato Volatile Markers Grown in High Tunnel and Open-field Conditions** (Poster Board #250)
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1:00 PM – 1:45 PM Kona Ballroom

Public Horticulture/International Horticulture Issues/History of Horticultural Science (Poster)

- Milkweed Varieties for an Extreme Climate; Tracking the Migration Pathway of Western Monarch Butterflies** (Poster Board #014)
 - Campus Pollinator Habitat and Outreach Efforts at North Carolina Colleges and Universities** (Poster Board #015)
 - Camp Turf: Raising Awareness of the Horticultural Fields through a Summer Academy** (Poster Board #016)
 - First Conference on Arboriculture in Kiev, Ukraine: Methods and Results** (Poster Board #017)
 - The History and Evolution of the Northeast Region-ASHS: New Opportunities** (Poster Board #018)
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1:00 PM – 1:45 PM Kona Ballroom

Root Growth & Rhizosphere Dynamics/Plasticulture/Seed & Stand Establishment (Poster)

- Sorghum Root Growth and Exudation in Response to Drought Stress** (Poster Board #067)
- Comparative Root Growth and Competition Among Seven Eastern Colorado Species of Annuals and Perennials** (Poster Board #068)
- Soil Core Sampling Is Not Reliable for Assessing Biodegradable Mulch Fragments in Soil** (Poster Board #069)
- Management Practices to Minimize Stormwater Pollution from Macrotunnel Production Systems** (Poster Board #070)
- Effect of Grafting and Fertilizer Source on Tomato Yield and Fruit Quality in High Tunnel Production** (Poster Board #071)
- Different Combinations of Blood Meal, Feather Meal, and Pelletized Chicken Manure on the Establishment of Fenugreek (*Trigonella foenum-graecum*) and Bok Choy (*Brassica rapa chinensis*) Seedlings** (Poster Board #072)
- Ethylene Alleviates Lettuce Seed Germination Under Salinity Stress through Modulation of Proline Biosynthesis** (Poster Board #073)

Germination of Papaya (*Carica papaya* L. cv. Kapoho Solo) Seed in Response to Gibberellic Acid, Potassium Nitrate, and Heat (Poster Board #074)

Dormancy Habit Differences By the GA/ABA Balance in Morphological (MD) and Morphophysiological Seed Dormancy (MPD) (Poster Board #075)

Effects of Biochar and Vermicompost on Seed Germination and Seedling Growth (Poster Board #076)

1:00 PM – 2:00 PM Water's Edge Boardroom

National Issues Committee Meeting

Chair: Thomas Bjorkman

1:00 PM – 2:00 PM Waikoloa 2

SR-ASHS Executive Committee Meeting

Presiding: David Reed

1:30 PM – 2:00 PM Kona Ballroom

Beverage Break - Thursday Afternoon

1:45 PM – 2:00 PM Presentation Area - Grand Promenade

Pi Alpha Xi Photography Contest Award Presentations

1:45 PM – 3:30 PM King's 1

Plant Nutrient Management 3 (Oral)

Moderator: Mehdi Sharifi

1:45 PM Optimizing Compost and Fertigation Rates to Maximize Yield in a Biennial Day-neutral Strawberry Plasticulture

2:00 PM Comparison between Fertigation and Granular Application of Potassium Fertilizer on Mineral Nutrition, Yield, and Fruit Quality in Northern Highbush Blueberry

2:15 PM Reducing the Environmental Footprint of Red Raspberry (*Rubus idaeus* L.) Production – N Dynamics in Response to Water and Nutrient Management Practices.

2:30 PM Creating Acidic Compost Using Elemental Sulfur

2:45 PM Physiology and Morphology of Container-grown Ornamentals in Response to Phosphorus Fertilization

3:00 PM Potassium Release Pattern and Mechanics from Three Invasive Algae with Different Media in Leachate Column Studies

3:15 PM Wastewater-grown Algae Pellets and Paste As Slow-release Fertilizers

1:45 PM – 3:30 PM Kohala 2

Postharvest 3 (Oral)

Moderator: Elizabeth Baldwin

1:45 PM Abiotic Stress Hormesis As a Tool to Enhance the Phytochemical Composition of Fruits and Vegetables during Storage

2:00 PM Transcriptome and Metabolomic Analysis of High CO₂-responsive Genes in Harvested Strawberry Fruit

2:15 PM Fresh Orange Fruit Juice Versus Processed for Flavor, Phytonutrients, and Phytonutrient Bioavailability

2:30 PM Comparative Browning Susceptibility of Genomically Diverse Banana (*Musa* spp.) Cultivars in the Southeastern United States

2:45 PM Enhancing Postharvest Tree Fruit Quality with Functional Genomics

3:00 PM Postharvest Management Practices for Improving Quality of Blackberries

3:15 PM Preharvest Effects on Harvest and Postharvest Quality of Spring-planted, Day-neutral Strawberries in High Tunnel Systems

2:00 PM – 3:00 PM Waikoloa 2

Awards Committee Meeting

Chair: Paul Bosland

2:00 PM – 3:00 PM Career Center - Grand Promenade

Resume Review Session II

2:00 PM – 3:00 PM Presentation Area - Grand Promenade

Undergraduate Student (UG) Meeting - Open to All Attendees

Chair: Dylan Neuhaus

Chair-elect: Ashlyn Perry

Secretary: John Scott

2:00 PM – 3:30 PM King's 2

The Status and Future of Strawberry Industry in the United States

Sponsor: Viticulture and Small Fruits

Coordinators: Jayesh Samtani and Curt Rom

Moderator: Jayesh Samtani

Objectives:

The objectives of this workshop are to i) highlight strawberry production practices across the different regions of the US and determine needs and challenges based on the region; ii) utilize information and knowledge gained as a source to direct future research and extension programs to ensure sustainable strawberry industry in the US.

Workshop Description:

The US is the world's largest producer of strawberries. Strawberries have been an important national horticultural crop with value of utilized production varying between \$2.3 and \$2.8 billion during the past 3 years. Strawberries rank 3rd in value of utilized production of fruit behind grapes and apples. In 2016, an estimated 92% of the crop was produced in California, 7% in Florida, with all other states combining for approximately 1%. Other important production states include North Carolina, Oregon, and Washington. Smaller-scale production occurs throughout the US for local and regional markets. Approximately 10-12% of the US supply of strawberries is imported. US consumption has increased during the past 2 decades with increasing production and import allowing commodity-like year-round supply. Consumption is expected to continue to increase. As there are new developments in strawberry production technology and management, increasing production in nontraditional areas, and new developments in cultivars, this workshop has been designed to give a benchmark status of the industry from several regions and states of the US, and looks forward to the future development of the industry.

2:00 PM **Introduction to the Workshop**

2:05 PM **California Strawberry Production Trends**

2:15 PM **Northwest Strawberries--Perennially Proud of Processing Quality**

2:25 PM **Strawberry Production in the Upper Midwest: Modernizing Traditional Practices to Increase Yields and Harvest Windows**

2:35 PM **Current and Future Status of Strawberry Production in the Mid-Southern United States**

2:45 PM **Current Status and Future of Strawberry Production in the US: Northeast and Mid-Atlantic States**

2:55 PM **Current Status and Future of Strawberry Production in the Southern Region of the US: NC, SC, VA, GA, AL**

3:05 PM **The Florida Strawberry Industry: Current Status and Future Prospects**

2:00 PM – 3:30 PM Kohala 1

Grant Writing: Listen, Learn, Apply, and Get Funded!

Sponsor: Graduate Student

Coordinator: Wendy Hamilton

Moderator: Wendy Hamilton

Objectives:

1) Learn what information to assess before writing a grant proposal. 2) Understand the language of grantwriting--terminology matters. 3) Develop the skills needed to prepare professional, competitive, compelling, and successful grant proposals. 4) Recognize why many proposals are not funded by thinking like a reviewer.

Workshop Description:

Competition for US public and private grant funding is stiff yet securing project funding is critical to career success. This workshop will cover often overlooked strategies for successful grantwriting. Learn what you should always do before writing a proposal, during proposal development, and before submission. Listen, learn, apply, and get funded!

2:00 PM – 3:30 PM Kohala 3

Ornamentals/Landscape and Turf 2 (Oral)

Moderator: Charles Fontanier

- 2:00 PM **Perceptions of Homeowner Association (HOA) Board Members in Orange County, Florida, about Water Conservation and the Use of Florida-friendly Landscaping (FFL) Principles**
 - 2:15 PM **Nutrient Use, Water Use, and Growth of Manilagrass, Hybrid Bermudagrass, and Seashore Paspalum Turfgrass in Central Thailand**
 - 2:30 PM **Glyphosate Application Timing Affects Tall Fescue Conversion to ‘Sharp’s Improved II’ Buffalograss**
 - 2:45 PM **Chilling Tolerance and Post-dormancy Regrowth of Three Turf-type Bermudagrasses**
 - 3:00 PM **Effects of Biochar and Compost on Tall Fescue Establishment Rates**
 - 3:15 PM **Impact of Metsulfuron-methyl on Landscape Species When Applied to Adjacent Turf Areas**
-

2:00 PM – 3:30 PM Kohala 4

Vegetable Crops Management 3 (Oral)

Moderator: Samuel Essah

- 2:00 PM **Preliminary Data Indicates Annual and Perennial Pollinator Attracting Plants Differentially Affect Yield of Cucumbers and Habanero Peppers**
 - 2:15 PM **Use of Single Line Source Irrigation Technique for Deficit Irrigation Studies in Potatoes**
 - 2:30 PM **Stormwater Performance of a Full-scale Rooftop Farm: Runoff Quantity**
 - 2:45 PM **Low Tunnels Increase Vegetative Growth and Yield, and Reduce Insect Injury in Kale and Swiss Chard in Virginia**
 - 3:00 PM **Expanding Local Specialty Crop Opportunities in North Dakota through Season Extension Using High Tunnels**
-

2:00 PM – 4:00 PM Water's Edge Boardroom

Graduate Student Activities Committee Meeting

Chair: Brian Pearson

2:00 PM – 4:00 PM King's 3

NRSP10: Bioinformatic and Database Resources for Specialty Crops

Sponsor: Education Division

Coordinator: Dorrie Main

Moderator: Mike Kahn

Objectives:

This workshop will showcase informatics tools and databases developed or under development for specialty crops by the USDA funded National Research Support Project 10. Specific databases include the Genome Database for Rosaceae (GDR), the Citrus Genome Database (CGD), the Genome Database for Vaccinium (GDV) and the Cool Season Food Legume Database (CSFL) as well as various informatic tools such as the FieldBook App for phenotype data collection and GenSAS, an all in one online tool for annotation and curation of genome sequences. Users of these tools and databases will demonstrate the utility of these resources and we will have an open discussion about other resources the specialty crop community would like developed.

- 2:00 PM **What Is NRSP10 and What Can It Do for Specialty Crop Research**
- 2:10 PM **NRSP10 Resources for Translational Tree Fruit Research**
- 2:25 PM **Using Tripal As a Project Database**
- 2:40 PM **NRSP10 Resources for Small Fruit Research**
- 2:55 PM **Using Gensas for Specialty Crop Community Genome Annotation**

- 3:10 PM **Using Fieldbook and Other Free Apps for Specialty Crop Field and Lab Data Collection**
3:25 PM **A Breeders Perspective on Using the Breeding Information Management System for Fruit Breeding**
3:40 PM **Open Discussion on Direction of NRSP10**
-

3:00 PM – 5:00 PM *Waikoloa 2*

National Initiative for Consumer Horticulture (NICH) Meeting

Presiding: Lucy Bradley

3:30 PM – 4:00 PM *Kohala 1*

Graduate Student (GRAD) Meeting - Open to All Attendees

Chairs: Laura Kaderabek and Kauahi Perez

Chair-elects: Travis Robert Alexander and Jack McCoy

3:30 PM – 4:00 PM *King's 2*

Viticulture and Small Fruits (VSF) Meeting - Open to All Attendees

Chair: Jayesh Samtani

Chair-elect: Jill M. Bushakra

Secretary: Elina Coneva

4:00 PM – 5:30 PM *Kohala 3*

Applications of Remote Sensors in Horticulture

Sponsor: Computer Applications in Horticulture

Coordinator: Arturo Duarte Sierra

Moderator: Arturo Duarte Sierra

Objectives:

To describe advanced tools in remote data collection including: crop area estimation; canopy measurements; crop yield estimation; stress measurements; and phytochemical content estimation.

Workshop Description:

Remote sensors, on planes, drones, or space platforms, provide information of important parameters and processes that occur on the ground level. This data of high frequency and low cost, combined with meteorological, topographic information, and systems of geographic information, are a powerful tool in the optimization of horticulture management.

4:00 PM **Application of Remote Sensing to Monitor Crop Input Needs in Controlled Environment Agriculture Systems**

4:30 PM **Discussion and Audience Participation**

5:15 PM **Small Group Discussion**

4:00 PM – 5:30 PM *King's 1*

Novel Means of Funding for Horticultural Projects Around the Globe

Sponsor: International Horticultural Issues & Networking

Coordinator: Michael Schnelle

Moderator: Michael Schnelle

Objectives:

Determine funding streams to initiate horticultural projects outside the US.

Workshop Description:

Many horticulturists have skill sets that could be invaluable to horticultural growers and/or consumers in other countries. However, university or industry-based scientists often are unaware of sources of financial backing that could be utilized to defray significant expenses required to initiate and maintain horticultural projects abroad. Speakers will review less commonly sought after funds and will provide examples of successfully funded projects around the world.

4:00 PM **Less Common Funding Streams for Horticultural Projects in the Greater Middle East**

4:20 PM **Searching for International Grant Funding Opportunities: Exploring Possibilities**

4:40 PM **International Opportunities from the U.S. and East Asia**

5:00 PM **Global Horticultural Linkages**

4:00 PM – 5:30 PM Kohala 2

Technology Update for Agricultural Plastic Use

Sponsor: *Plasticulture*

Coordinator: Josh Freeman

Moderator: Josh Freeman

Objectives:

The objectives of this workshop are to present members with updates on new technology that has been introduced into agricultural plastics. Topics to be included are plasticulture films, survey of plasticulture use in strawberry, postharvest packaging plastics, agricultural plastics recycling efforts, and an update from the International Committee of Plastics in Agriculture.

Workshop Description:

Plastics are used in nearly all facets of agriculture, from the initiation and production of the crop, to delivery to consumers. The technology incorporated into agricultural plastics has changed, bringing numerous benefits to end users. The use of these plastic materials has improved productivity and efficiency for growers, reduced postharvest loss for retailers, and improved shelf life for consumers. Though agricultural plastics are important to production and consumption of horticultural crops, their production relies mostly on non-renewable resources, and they must be stewarded properly after use to avoid environmental contamination. This workshop will describe recent advances in agricultural plastic use and recycling efforts.

- 4:00 PM **New Technology in Plasticulture Films--Impermeable Films for Soil Fumigation**
- 4:15 PM **New Technology in Plasticulture Films--Degradable Films**
- 4:30 PM **Use of Plastic Mulches in Strawberry Production: Growers' Experiences and Opinions**
- 4:45 PM **New Technology in Postharvest Plastics**
- 5:00 PM **Recycling Technology for Agricultural Plastics**
- 5:15 PM **Update from the International Committee of Plastics in Agriculture**

4:00 PM – 5:45 PM Kohala 4

Floriculture 4 (Oral)

Moderator: Qingwu Meng

- 4:00 PM **Water and Fertilizer Management in Geranium Under Elevated CO₂**
- 4:15 PM **Regulation of Flowering By Different Green Light Intensities: A Dose-Response Relationship**
- 4:30 PM **Light Spectrum Effects on Edible Pansy**
- 4:45 PM **Regulating Flowering and Extension Growth of Poinsettia Using Red and Far-red LEDs for End-of-day Lighting**
- 5:00 PM **Creating Customized Photoperiod Tools for Growers of Calibrachoa**
- 5:15 PM **Investigating CO₂ Uptake Behaviors Under Increasing Relative Humidity and Nighttime CO₂ Concentration in Young *Phalaenopsis* Orchids**
- 5:30 PM **Monitoring Supplemental Light Use of Petunia Using Normalized Difference Vegetation Index (NDVI) and Quantum Sensors**

4:15 PM – 5:00 PM Kohala 1

B.Y. Morrison Memorial Lecture: Frank Zalom

Sponsor: *Agricultural Research Service*

Moderator: Chavonda Jacobs Young

Coordinator: Kim Kaplan



Frank Zalom

Significance of Integrated Pest Management to Sustainable Horticultural Production – Observations and Experiences

Frank Zalom
University of California

The Integrated Pest Management (IPM) concept was developed by pest scientists in response to economic, environmental, and societal issues facing growers. The application of IPM concepts to horticultural crops has been particularly useful to facilitate sustainable production when presented with extrinsic challenges that arise from the presence of insect pests. Changing consumer preferences, new governmental regulations, limited pesticide availability and resistance development, and invasive species introductions are among challenges to horticultural crop production that have been mitigated with an IPM approach. Observations and experiences demonstrate that effective IPM benefits from a transdisciplinary approach that places the plant as the unifier of knowledge.

4:15 PM – 5:45 PM King's 3

Beyond Shovelomics: Unraveling the Secrets of the Root System and the Rhizosphere

Sponsor: Root Growth & Rhizosphere Dynamics

Coordinator: Arthur Villordon

Moderator: Arthur Villordon

Objectives:

1. Provide an overview of advances in the understanding of the root system and the rhizosphere. 2. Highlight advances in the study of root systems and the rhizosphere in some horticultural species. 3. Examine current challenges in the study of root development and the rhizosphere in horticultural species. 4. Stimulate research collaborations through interactions and networking among the participants.

Workshop Description:

Knowledge about root architecture and the rhizosphere in horticultural species is limited, and measurements of root systems and the rhizosphere are often overlooked in horticultural research. One of the main reasons for this is methodological. The study of root systems and rhizosphere dynamics has always been tedious, and the accuracy of measurements has been inconsistent. As a consequence, there are gaps in knowledge about root system adaptations to biotic and abiotic stress as well as the response of soil microbial communities to rhizosphere modifications in horticultural species. There is a need for more information about emerging methods for studying root systems and the rhizosphere as well as discussions about the advantages and disadvantages of these methods as applied in horticultural research. One of the goals of this workshop is to provide an overview of available tools and approaches for studying root systems and the rhizosphere in horticultural species. The advantages and disadvantages of each approach as well as other methodological considerations will be discussed.

4:15 PM **Want to Peek at Tree Roots? From Rhizotrons to Aeroponics, How We Peek at Apple Roots and Learn What They Do**

4:35 PM **Exploring the Rhizosphere Via Metabolic Profiling**

4:55 PM **Deciphering Rhizosphere Microbial Communities Using Modern Sequencing Tools**

5:15 PM **Found in Translation: Phosphorus Availability and Mechanical Impedance Alter Sweetpotato Storage Root Length and Shape Attributes**

4:15 PM – 5:45 PM King's 2

New Frontier in Subtropical and Tropical Fruit Crop Improvement: Germplasm Collection, Evaluation, Utilization and Impacts of Genetic Engineering

Sponsor: Tropical Horticultural Crops

Coordinator: Hideka Kobayashi

Objectives:

Objectives of this workshop are to: 1) Introduce participants to new and lesser-known fruits such as papaya and dragon fruit; 2) Provide networking opportunities for researchers, educators and students in different disciplines, including pomology, tropical horticulture, plant hunting and germplasm collection, genetic engineering, horticulture science and possibly sociology; and 3) Identify the needs and assess the hurdles for future opportunities of tropical pomology.

Workshop Description:

Fruits currently available on the market are the culmination of continuous efforts to collect, select, and improve germplasm since the beginning of human history. In addition to traditional breeding and selection of spontaneous mutants, scientists are now using molecular techniques to artificially induce mutation and further improve existing germplasm to combat serious obstacles such as virus infection. Despite significant improvement in size, color, taste, and disease and insect resistance of commonly available fruits, consumers have largely developed a thirst for something different and unusual. In response to their demand, researchers continue to look for fruits that are currently neglected or underutilized. This workshop will look at challenges and opportunities that tropical pomology is currently facing, using three tropical fruit crops as a model.

4:15 PM Pitahaya or Dragon Fruit Production in the US: Challenges, Opportunities, and Future Prospects
4:45 PM Papeda, the Mysterious Fifth Column of the *Citrus* World
5:15 PM Development of Genetically Modified Papaya and Its Impact

5:00 PM – 5:30 PM Kohala 1

B.Y. Morrison Reception

Coordinator: Kim Kaplan

5:30 PM – 6:00 PM Kohala 3

Computer Applications in Horticulture (COMP) Meeting - Open to All Attendees

Chair: Arturo Duarte Sierra

Chair-elect: Kent Kobayashi

Secretary: Tongyin Li

5:30 PM – 6:00 PM King's 1

International Horticultural Issues & Networking (IHIN) Meeting - Open to All Attendees

Chair: Michael Schnelle

Chair-elect: John Griffis

5:30 PM – 6:30 PM Kohala 1

USDA-ARS All-Employee Meeting

5:45 PM – 6:15 PM Kohala 2

Plasticulture (PLAST) Meeting - Open to All Attendees

Chair: Josh Freeman

Chair-elect: Gordon Johnson

Secretary: Xin Zhao

5:45 PM – 6:15 PM King's 3

Root Growth and Rhizosphere Dynamics (RHIZ) Meeting - Open to All Attendees

Chair: Arthur Villordon

Chair-elect: Gerardo H. Nunez

Secretary: Susan Miyasaka

5:45 PM – 6:15 PM King's 2

Tropical Horticultural Crops (TROP) Meeting - Open to All Attendees

Chair: Hideka Kobayashi

Chair-elect: Hao Wu

Secretary: Hao Wu

6:30 PM – 8:30 PM King's 1

American Pomological Society (APS) Annual Business Meeting

Chair: Michele Warmund

6:30 PM – 9:00 PM Kohala 2

Scholars Ignite Competition

Coordinator: Brian Pearson

6:30 PM **Travis Alexander**
6:35 PM **Shuresh Ghimire**
6:40 PM **Pragya Adhikari**
6:45 PM **Qingwu Meng**
6:50 PM **Lauren M. Garcia Chance**
6:55 PM **Stephanie Fong**
7:00 PM **Krishna Bhattarai**
7:05 PM **M. Kabir**
7:10 PM **Teng Yang**
7:15 PM **Leynar Leyton Naranjo**
7:20 PM **Nadia A Valverdi**
7:25 PM **Francisco Javier de la Mota Daniel**
7:30 PM **Megha R. Poudel**
7:35 PM **Srijana Thapa Magar**
7:40 PM **Heidi Anderson**
7:45 PM **Kauahi Perez**
7:50 PM **Alex Rajewski**
7:55 PM **Brian T. Lawrence**
8:00 PM **Yanjun Guo**
8:05 PM **Zachary N. Hoppenstedt**

Friday, September 22, 2017

7:00 AM – 8:00 AM *Kohala 1*

eXtension (EEXT) Meeting - Open to All Attendees

Chair: Danielle Treadwell

Chair-elect: Eric Stafne

7:00 AM – 8:00 AM *King's 3*

Human Issues in Horticulture (HIH) Meeting - Open to All Attendees

Chair: Tina Waliczek

Chair-elect: Carl Motsenbocker

7:00 AM – 8:00 AM *Kohala 3*

Plant Growth Regulation (PGR) Meeting - Open to All Attendees

Chair: Casey Barickman

Chair-elect: Tripti Vashisth

Secretary: Christopher J. Currey

7:00 AM – 8:00 AM *King's 1*

Postharvest (PH) Meeting - Open to All Attendees

Chair: Randolph Beaudry

Chair-elect: Peter Petracek

Secretary: Steven Sargent

7:00 AM – 8:00 AM *Kohala 2*

Propagation (PROP) Meeting - Open to All Attendees

Chair: Youping Sun

Chair-elect: Maria Jenderek

7:00 AM – 8:00 AM Kohala 4

Public Horticulture (PUBHORT) Meeting - Open to All Attendees

Chair: Elizabeth Barton

Chair-elect: Matthew Taylor

Secretary: David Graper

7:00 AM – 8:00 AM King's 2

Weed Control and Pest Management (WCPM) Meeting - Open to All Attendees

Chair: Josh Freeman

Chair-elect: Mary Rogers

Secretary: Craig Ramsey

7:30 AM – 5:00 PM Lower Lobby - Please Arrive 15 Minutes Prior to Departure Time

Discovering the Jewels of the Crown: Small Specialty Crops Farm Tour

8:00 AM – 9:00 AM Water's Edge Boardroom

Scholarship Awards Committee Meeting

Chair: Jeremy Cowan

8:00 AM – 9:00 AM Waikoloa 2

Association of Horticulturists of Indian Origin (AHIO) Meeting - Open to All Attendees

Chair: Shehbaz Singh

Chair-elect: Sastry S. Jayanty

8:00 AM – 9:30 AM King's 3

Advances in LED Lighting Technology and Applications to Horticultural Research - CCA CEU Approved

Sponsor: Growth Chambers and Controlled Environments

Coordinators: Dean A. Kopsell, Roberto G. Lopez and Christopher J. Currey

Moderator: Dean A. Kopsell

Objectives:

The objective of this workshop is to discuss the most recent technology and applications of LEDs in research and commercial settings. Light-emitting diode (LED) technology is being adopted as both sole-source and supplemental lighting for horticultural plant production in controlled environments. Opportunities now exist to apply LED technologies to increase the efficiency of specialty crop production and maximize product quality. What is lacking is research support for these industries. This technology allows for specific control of light quality to eliminate spectra outside the photosynthetic action spectrum to maximizing photosynthetic efficiency. Reducing abiotic light stress may have dramatic impacts on plant growth and development, physiology, and energy fluxes within metabolic pathways. Work by many research groups around the country, and around the world is establishing important plant responses to different wavelengths of light from LEDs. Nick Klase, co-founder & CEO of Fluence Bioengineering, has agreed to speak at the workshop to discuss the latest advances in controlled environment lighting using LEDs. The company supplies innovative LED lighting to specialty crop markets world-wide. The workshop will also be highlighted by a roundtable discussion group of our CE group members to share their experiences with LED lighting and to discuss current and future applications. As producers select LEDs as a lighting option, they will need more information on the delicate management needed to maximize crop production and quality parameters.

Workshop Description:

The workshop will discuss recent technology and applications of LEDs in research and industry. The featured speaker will be Nick Klase, CEO of Fluence Bioengineering, who will discuss the latest commercial LED advances. A roundtable discussion group of CE members on current and future applications will precede the business meeting.

8:00 AM – 9:30 AM Kohala 4

Genetics and Germplasm 3 (Oral)

Moderator: Chihcheng T. Chao

- 8:00 AM Increased Phloridzin Content Associated with Russetting in Apple Fruit
- 8:15 AM Apomixis As an Alternative for Preservation of Wild *Malus* Germplasm
- 8:30 AM Morphological and Genetic Perspectives of Peach Fruit Responses to Spring Frost
- 8:45 AM Environmental Stability of Genomic Predictions of Cherry and Peach Performance Using Models of Large Effect QTL and Genetic Background Effects
- 9:00 AM The Global Conservation Strategy for Coffee Genetic Resources
- 9:15 AM Development and Characterization of 13 Polymorphic Microsatellite Loci for *Cryptolepsis sanguinolenta*, an African Antimalarial Plant

8:00 AM – 9:30 AM King's 1

Postharvest 4 (Oral)

Moderator: John Beaulieu

- 8:00 AM Postharvest Evaluation of Stored Dudaim Melon Fruits (*Cucumis melo* var. *dudaim*) Harvested at Different Stages of Maturity
- 8:15 AM Preharvest Soil and Tissue Nutrition Linked to Postharvest Needle Abscission Dynamics in Balsam Fir
- 8:30 AM Production of Organic Tomatoes in High Tunnels Reduces Pre- and Postharvest Losses
- 8:45 AM Biodegradable Plastic and Paper Mulches Produced Pumpkin with Similar Quality As Polyethylene Mulch
- 9:00 AM Assessing Green-processing Technologies for Wet Milling Freshly Hulled and Germinated Brown Rice, Leading to Naturally Fortified Plant-based Beverages
- 9:15 AM The Mechanism of Deterioration of the Glucosinolate Myrosinase System in Radish Roots during Cold Storage after Harvest

8:00 AM – 9:30 AM Kohala 1

Teachers Ignite! CCA CEU Approved

Sponsor: Teaching Methods

Coordinator: Brian Pearson

Moderator: Andrew R. King

Objectives:

To provide a workshop platform where society members can share teaching tips, ideas, and experiences to enhance student learning and scholarship of teaching and learning. The ignite format utilized for this session will foster an exciting and engaging workshop environment and allow for a relatively large number of topics to be presented.

Workshop Description:

Although we may develop and implement unique and new teaching strategies that lead to enhanced teaching effectiveness, we may not often have the opportunity to share our teaching methods with others. To address this, an ignite format workshop utilizing a fast, fun, and informative presentation format will provide a venue for 15 society members to present their teaching tips within 3 minutes and using only 1 slide. Following each presentation, the audience will have 3 minutes to discuss the topic and ask questions. This exciting and fun format provides for a unique presentation style that is both informative and engaging.

- 8:00 AM A Quiz Each Week?
- 8:05 AM Utilizing an International Immersive Experience to Assist in Educational Food System Program Development
- 8:10 AM Mentors Ignite!
- 8:15 AM Teaching on the Edge of Forever
- 8:20 AM Challenge Question Rubrics
- 8:25 AM The 10 Plants That Changed Minnesota
- 8:30 AM Thoughts on Integrating Your Teaching, Research, Extension, and Service
- 8:35 AM March Madness Meets Plant Identification
- 8:40 AM Accessing Grade Retention in a Subtractive Grading System

- 8:45 AM Home Labs System
8:50 AM Student Preference in Course Content Delivery
8:55 AM Active Learning: Examining Techniques to Transform a Course from Instructor-based to Learner Centered
9:00 AM Individual Test-group Test
9:05 AM Engaging Learners through Relevancy
9:10 AM Hands-on Learning Using the Campus Farm to Teach Vegetable Production
-

8:00 AM – 9:30 AM Kohala 3

Viticulture and Small Fruits 3 (Oral)

Moderator: William T. Hlubik

- 8:00 AM Effect of Drought on Southern Highbush Blueberry Photosynthesis and the Positive Impact of Using *Vaccinium arboreum* As a Rootstock
8:15 AM Assessing the Status and Needs of the Small Fruit Industry in New Jersey with a Focus on Strawberries
8:30 AM Effects of Low Tunnels on Day-neutral Strawberry Production in the Northeastern US
8:45 AM Alleviating Heat Stress during Early Season Establishment of Containerized Strawberry Transplants
9:00 AM Does Incorporating Straw Mulch Negatively Affect Strawberry Plant Growth and Productivity?
9:15 AM Evaluating Paper Pellet Mulch and Mustard Seed Meal As Fumigation Alternatives in Annual Plasticulture Strawberry Production
-

8:00 AM – 9:30 AM King's 2

Weed Control and Pest Management (Oral)

Moderator: Ed Peachey

- 8:00 AM Intra-row Weed Control Automation in California Vegetable Crops
8:15 AM The Potential of Brassicaceous Seed Meal Amendment and Root Inoculum Removal to Affect *Pratylenchus penetrans* and Other Soil Microorganisms in Red Raspberry (*Rubus idaeus*)
8:30 AM Developing Practical Interseeding Strategies for Cover Crops in Sweet Corn: The Effects of Timing, Interseeding Method, and Postemergence Herbicide.
8:45 AM Improving Soil Fumigation Strategies in Raised-bed Production
9:00 AM IPM for the Master Gardener Program in West Virginia
9:15 AM Air Potato Biological Control Extension Program
-

8:00 AM – 9:45 AM Kohala 2

Water Utilization and Management 3 (Oral)

Moderator: Erik Feibert

- 8:00 AM Water and Salt Balance in Desert Vegetable Cropping Systems
8:15 AM Using Matric Potential to Schedule Irrigation of Horticultural Crops in Soils and Soilless Substrates
8:30 AM Irrigation Requirements for Seed Production of *Eriogonum* Species for Use in Intermountain West Rangeland Restoration
8:45 AM Photosynthesis, Growth, and Water Use of *Hydrangea paniculata* 'Silver Dollar' Produced with Different Irrigation Schedules and Biochar Substrate Amendment
9:00 AM How Much and for How Long? Determining Ornamental Plant Water-Use Requirements with Sensor Based Technologies.
9:15 AM Controlling Irrigation Onset By Soil Water Tension
9:30 AM Measuring the Impact of Irrigation Distribution and Nursery Media on Plant Growth
-

9:00 AM – 10:00 AM Water's Edge Boardroom

Extension Advisory Council Meeting - Open to All Interested Members

Chair: Desmond Layne

9:00 AM – 10:00 AM *Waikoloa 2*

Photography (FOTO) Meeting - Open to All Attendees

Chair: James McConnell

Chair-elect: Michelle Atkinson

9:30 AM – 10:00 AM *King's 3*

Growth Chambers and Controlled Environments (CE) Meeting - Open to All Attendees

Chair: Dean Kopsell

Chair-elect: Christopher J. Currey

Secretary: Roberto G. Lopez

9:30 AM – 10:00 AM *Kohala 1*

Teaching Methods (TCHG) Meeting - Open to All Attendees

Chair: Brian Pearson

Chair-elect: Jill Bushakra

Secretary: Andrew King

9:45 AM – 10:15 AM *Monarchy*

Coffee Service - Friday AM

10:00 AM – 11:30 AM *Monarchy*

Presidential Address and ASHS Annual Business Meeting

Speaker: John Dole

11:30 AM – 12:30 PM *Monarchy*

Invited Featured Speaker: Riley E. Dunlap



Riley E. Dunlap

How Global Warming Became Controversial: Examining the Climate Change Denial Movement

Riley E. Dunlap

Regents Professor of Sociology and Laurence L. and Georgia Ina Dresser Professor
Oklahoma State University

Global warming was widely recognized as a problem by the early 1990s, but a long-term and ever-evolving campaign to deny its reality and seriousness has turned anthropogenic climate change into a major controversy. The basic findings of climate science are constantly challenged by a growing set of interconnected actors who portray climate change as uncertain, even a hoax, leading large segments of the public and many policy-makers to dismiss its importance—and thus the need to take action. Key actors in what is termed the “denial movement,” the economic and ideological interests motivating them, and the primary strategies and tactics they employ will be outlined and traced over time. The success of the denial movement has contributed to the emergence of “alt-science” and our “post-fact” and “post-truth” era, posing profound challenges to science, evidence and reason more generally in contemporary America.

12:00 PM – 1:00 PM *Career Center - Grand Promenade*

Resume Review Session III

12:00 PM – 2:00 PM Kohala 2

The Path to Publication: Tools for Successful Academic Writing - CCA CEU Approved

Sponsor: ASHS Editorial Boards

Coordinators: Laura Kaderabek and Kauahi Perez

- 12:00 PM **Techniques to Improve Writing and Output for Research and Extension**
12:25 PM **From Data to Information to Knowledge: How to Get the Most out of Your Research**
12:50 PM **How to Properly Present Data and Create Publication Quality Tables and Figures**
1:15 PM **Panel Discussion**
-

12:30 PM – 2:30 PM Kohala 1

Featured Speakers Luncheon: Kelvin Sewake and Eric Tanouye (Ticket Required)

Coordinator: Desmond Layne



Kelvin Sewake



Eric Tanouye

The Importance of Partnership for the Hawaii Floriculture Industry: An Extension and Industry Perspective

Sponsored by the Extension Division

This is a ticketed event. Advance registration is required.

Kelvin Sewake, Interim Associate Dean & Associate Director for Cooperative Extension Service, University of Hawaii at Manoa, College of Tropical Agriculture and Human Resources

Eric Tanouye, Greenpoint Nurseries, Inc.

A strong partnership between the Cooperative Extension Service, private companies, and industry organizations is vital to successful growth of the agriculture sector. Hawaii's Extension has partnered with the Hawaii Floriculture Industry for over 70 years to help a once fledgling industry grow to the number one diversified agricultural industry in Hawaii from prior to 1990 through 2006. Extension Associate Dean & Associate Director Kelvin Sewake, and Greenpoint Nurseries, Inc. President & CEO Eric Tanouye, who have worked with each other over the last 28 years, will speak about the Hawaii Floriculture Industry's challenges and successes from both the extension and industry perspective. Key aspects for true partnership and collaboration will be presented with real-life examples of beneficial results of that relationship.

12:45 PM – 1:15 PM Kona Ballroom

Beverage Service - Friday Afternoon

12:45 PM – 1:30 PM Kona Ballroom

Floriculture (Poster)

Responses of *Phalaenopsis* Plantlets to Nitrogen Deficiency Stress in Vitro (Poster Board #261)
Evaluation of First Color Date of *Gediflora* Mums in Oklahoma (Poster Board #262)
Photoperiod Influences Flowering of Foliage Annuals (Poster Board #263)
Effect of Storage on Unrooted Cuttings of *Euphorbia pulcherrima* 'Prestige Red' and 'White Star' (Poster Board #264)
Container Fertilization of Native North American Herbaceous Perennials with Controlled-release Fertilizers (Poster Board #265)
Floral Design Using Tropicals (Poster Board #266)
New Daily Light Integral Maps for the United States (Poster Board #267)
Ice Cube Irrigation of Potted *Phalaenopsis* Orchids Does Not Decrease Display Life (Poster Board #268)
Investigation of Suitable Substrate to Save Water in *Cymbidium* Orchid Production By Using Sensor-based Irrigation System (Poster Board #269)
Non-invasive Imaging Using Fluorescence to Measure Growth Rate of Annual Bedding Plant Seedlings (Poster Board #270)
Spatial Location of Pigmented Cells in Bracts of Modern Poinsettia Cultivars (*Euphorbia pulcherrima*) and *Euphorbia* Interspecific Hybrids (*E. pulcherrima* × *Euphorbia cornastra*) (Poster Board #271)
Anatomical Analysis of *Cypripedium* Root and Associated Mycorrhizal Fungi (Poster Board #272)

12:45 PM – 1:30 PM Kona Ballroom

Genetics and Germplasm 2 (Poster)

Variation in Ploidy and Nuclear DNA Content in Blueberry (Poster Board #140)
Phenotypic Diversity Among Peach and Nectarine (*Prunus persica* L.) Fruit in the National *Prunus* Collection at the USDA-ARS, National Clonal Germplasm Repository (NCGR) (Poster Board #141)
Genetic Structure and Diversity of Apple Germplasms Using Genome-wide SNPs Originated from Genotyping By Sequencing (Poster Board #142)
A Genetic Linkage Map in Interspecific Asian Pear Using SNP and Indel Derived from Next Generation Sequencing (Poster Board #143)
Association Mapping of QTLs for Presence and Absence of Pollen Interspecific Asian Pear (*Pyrus* spp.) Using a Genotyping By Sequencing (Poster Board #144)
Genetic Diversity Analysis in Asian Pears (*Pyrus* spp.) Based on Genotyping By Sequencing (Poster Board #145)
Increased Phylogenetic Resolution Using Target Enrichment of Nuclear Loci in *Rubus* (Poster Board #146)
Genetic Improvement of Taro for Taro Leaf Blight Resistance in Hawai'i (Poster Board #147)

12:45 PM – 1:30 PM Kona Ballroom

Plant Nutrient Management 2 (Poster)

Foliar Applications of Boron and Calcium Fertilizers Do Not Improve Fruit Set of Northern Highbush Blueberry (Poster Board #180)
Foliar Nutrient Concentration in Southern Highbush Blueberry Plants and Impact of Grafting Onto *Vaccinium arboreum* (Poster Board #181)
Nitrogen Use Efficiency in Strawberry (*Fragaria* × *ananassa*) (Poster Board #182)
Trends and Comparisons in Sugar Maple Sap Flow and Physiology over Two Years (Poster Board #183)
Evaluating the Efficacy of Nickel Fertilization on Micropropagated Pecans (Poster Board #184)
Phosphorus Requirements of Geranium, Marigold, and Coleus during Vegetative and Reproduction Growth (Poster Board #185)
Water and Nitrogen Uptake Patterns during a One-year Production Period for Winter-dormant versus Summer-dormant Succulents in a Greenhouse System (Poster Board #186)

Soil Testing Survey and Soil Fertility Management Practices of Smallholder Farmers in Chitwan, Nepal (Poster Board #187)

12:45 PM – 1:30 PM Kona Ballroom

Pomology 2 (Poster)

Early Growth and Productivity of Four Training Systems for High-density European Pear Orchards in the US (Poster Board #340)

Characterization of Pistil Growth, Relative Water Content and Freeze Resistance of Tart Cherry Reproductive Buds during the Transition from Eco-dormancy to Growth (Poster Board #341)

Periodic Analysis of Soil and Peach Tree (*Prunus persica*) Leaf Tissue Nutrients Profile in a Peach Tree Short Life Syndrome Study (Poster Board #342)

Post-release Performance of MP-29, a Clonal Interspecific Rootstock for Peach, in Grower Trials (Poster Board #343)

Transient Water Stress Responses in Young Potted *Malus domestica* Borkh (Poster Board #344)

Response of 'Honeycrisp' and 'Gala' Apple Trees to Heat and Water Stress. (Poster Board #345)

Optimizing in Vitro Pollen Germination for *Malus* (Poster Board #346)

Effects of Precipitation on Apple Phenology in Addition to Air Temperature (Poster Board #347)

Crop Load Effect on Fruit Quality in Cosmic Crisp™ (Poster Board #348)

Ploidy Level of American Persimmon in Kentucky: Could It Impact Production Strategies for Seedless Fruit? (Poster Board #349)

12:45 PM – 1:30 PM Kona Ballroom

Vegetable Breeding 2 (Poster)

Heritability Estimates and Gene Effects for Heat-tolerance Traits in Tomato (*Solanum lycopersicum* L.) (Poster Board #109)

Characterizing Pathogen Phenotypes and Diversity to Inform Optimum Management Decisions for the Management of Bacterial Spot of Tomato in North Carolina (Poster Board #110)

Using Scarification to Enhance Seed Germination Rate in Sweetpotato (Poster Board #111)

Evaluation of Dwarf Ornamental Chile Peppers Cultivars for Commercial Greenhouse Production (Poster Board #112)

Correlation between Glucosinolates Profiles and Individual Amino Acids in Brassica Species Seeds (Poster Board #113)

12:45 PM – 1:30 PM Kona Ballroom

Vegetable Crops Management 2 (Poster)

Use of Biologicals As an Integrated Pest Management Strategy in High Tunnels (Poster Board #309)

Efficacy of Nematicides and Soil Fumigants on Field Production of Sweetpotatoes in California (Poster Board #310)

Evaluation of the Effects of Fluensulfone (Nimitz) on Seepage-Irrigated Fresh-market Tomato Production in Florida (Poster Board #311)

Analysis of Control Efficacy of Different Fungicides Against Downy Mildew of Onion in South Korea (Poster Board #312)

Development of a Rapid Detection Method for *Peronospora destructor* Using Loop-mediated Isothermal Amplification (LAMP) (Poster Board #313)

Chitosan-Based Biostimulant Had No Effect on Zucchini Squash (*Cucurbita pepo* L.) Plant Growth, Fruit Yield, and Root-knot Nematode Gallings (Poster Board #314)

Investigating the Impact of Soil Amendments on Field-grown Tomato (Poster Board #315)

Nitrate Leaching Index for Surface Drip-irrigated Cauliflower Fertilized with Organic Soybean Meal (Poster Board #316)

Evaluation of Seven Processing Sweet Corn (*Zea mays*) Hybrids at Four Plant Populations in the Columbia Basin of Washington (Poster Board #317)

12:45 PM – 1:30 PM Kona Ballroom

Viticulture and Small Fruits 1 (Poster)

Replacing Herbicides with Groundcovers to Enhance Vineyard Sustainability (Poster Board #350)

Impact of Leaf Removal on 'Marquette' and Cluster Removal on 'La Crescent' Grape Quality and Yield (Poster Board #351)

Exogenous Abscisic Acid Increases Freezing Tolerance and Induces Sugar Accumulation in Grapevines (Poster Board #352)

Caneburning Herbicides Do Not Greatly Affect Red Raspberry Fruit Quality, Cane Growth, and Cane Carbohydrate Content (Poster Board #353)

Annual and Perennial Alleyway Cover Crops Vary in Their Effects on *Pratylenchus penetrans* in Pacific Northwest Red Raspberry (*Rubus idaeus*) (Poster Board #354)

A Comparison of Twenty Raspberry Cultivars for North Dakota (Poster Board #355)

Container Production of Blackberries, Blueberries, and Raspberries for Farm Diversification, Season Extension, and Winter Protection in Ohio (Poster Board #356)

Application of Manure-derived Fertilizers in Red Raspberry and Blueberry (Poster Board #357)

Effects of Spring High Tunnels on Primocane Raspberry Production (Poster Board #358)

Natural Elderberry Rust Infection of *Sambucus nigra* subsp. *canadensis* Plants (Poster Board #359)

Determining Harvest Indices of 'AU Golden Dragon' and 'AU Golden Sunshine' (*Actinidia chinensis* Planch) Based on Consumer Preference and Postharvest Longevity (Poster Board #360)

1:00 PM – 5:00 PM Waikoloa 2

Certified Horticulturist Examination

Sponsor: Certified Horticulturist Program

1:30 PM – 2:15 PM Kona Ballroom

Computer Applications in Horticulture (Poster)

Horticultural Apps Connect Florida-friendly Landscaping and Its Extension Outreach Audience (Poster Board #028)

Improving an RNA-Seq Analysis Workflow in Blueberry (Poster Board #029)

Evaluating Ag-Zoom Software for Near Real-time Access of Remote Sensor Data (Poster Board #030)

A Process-based Approach for Modeling Leaf Development and Growth in Hardneck Garlic (*Allium sativum* L.) (Poster Board #031)

Horticultural Crops in the "Ultra Niche" (Poster Board #032)

The Cibra-2017 Software for Integrated Crop and Pest Management in Eastern Canada (Poster Board #033)

1:30 PM – 2:15 PM Kona Ballroom

Consumer Horticulture & Master Gardeners/Local Food Systems (Posters)

Minnesota Yard and Garden Extension Ask an Expert Builds Relevancy and Value Answering Questions (Poster Board #019)

Water Wisely: Healthy Plants, Healthy People, Healthy Planet--A Master Gardener Advanced Education Program on Water Resources (Poster Board #020)

Elements of an Award-winning Newsletter for Master Gardeners (Poster Board #021)

Field Day Attendees' Perceptions of Local Food Security (Poster Board #022)

Benefits and Barriers of Involving Master Gardener Volunteers As Citizen Scientists (Poster Board #023)

Building Capacity of the Northwest Arkansas Food System (Poster Board #024)

Virginia Cooperative Extension (VCE) Community, Local, and Regional Food Systems (CLRFS) Partnership (Poster Board #025)

Strengthening Local Food System Using a Mobile Cooler during Marketing Process in Underserved Community (Poster Board #026)

Regenerating the Social Context of Agriculture (Poster Board #027)

1:30 PM – 2:15 PM Kona Ballroom

Ornamental Plant Breeding (Poster)

An Overview of Ornamental Plant Breeding in China (Poster Board #122)

Determination of Interspecific Hybrids between *Hydrangea paniculata*, *H. macrophylla* and *H. serrata* Using ISSR Markers (Poster Board #123)

Pollen Nuclei Identification, in Vitro Pollen Germination, and Self-incompatibility Systems in *Abelia* (Poster Board #124)

Autotetraploid Induced Sterility in the Golden Shower Tree (Poster Board #125)

***Cornus mas* L. Hardiness Evaluation Based on Controlled Freeze Testing** (Poster Board #126)

Ploidy Levels and Interploidy Hybridization in Panicle *Hydrangea* (Poster Board #127)

Survival and Rooting of Irradiated Cuttings of *Illicium parviflorum* michx. Ex Vent. (Poster Board #128)

***Oenothera drummondii* 'TX-10-G-L-11-9-12-5'--A Production-friendly Beach-loving Native Cultivar for Coastal Landscapes** (Poster Board #129)

Floral Design Characteristics As an Evaluation Criteria for Anthurium Cut Flower Variety Development (Poster Board #130)

Novel Transient Assay for Color Expression in Detached Anthurium Spathes (Poster Board #131)

Characterizing Powdery Mildew Resistance in Gerbera Using Next Generation Sequencing (Poster Board #132)

1:30 PM – 2:15 PM Kona Ballroom

Tropical Horticultural Crops (Poster)

Determining Volatile Compounds in 'Hass' and 'Fuerte' Avocado Flowers with Comprehensive Gas Chromatography Time of Flight Mass Spectrometry (Poster Board #230)

***Moringa oleifera* Lam. Flowering and Fruiting Under Sub-optimal Conditions and Effects of Starch Storage** (Poster Board #231)

Improvement of Yield per Acre By Managing Canopy Size and Close Spacing Planting of 'Hass' and 'Lamb Hass' Avocados (*Persea americana*) (Poster Board #232)

Mitigation of Phosphorus-induced Iron Deficiency of Macadamia in Hawaii (Poster Board #233)

Seedless Purple-fruited Pitanga (*Eugenia uniflora* L.)--Another Discovery from the Long-term Pitanga Breeding Project at the Kona Experiment Station in Hawai'i (Poster Board #234)

Lab Choice and Field Evaluation to Determine Japanese Beetle (*Popillia japonica*) Feeding Preference for Banana Leaves (*Musa* sp.) of Certain Cultivars (Poster Board #235)

Susceptibility of Pitahaya Species to the Southern Root-knot Nematode (Poster Board #236)

Effect of Age of a Sunn Hemp Cover Crop and Soil Amendment on Leaf Gas Exchange and Growth of Papaya (Poster Board #237)

Intergeneric Hybridization of *Carica papaya* L. with *Vasconcellea* Wild Relatives (Poster Board #238)

Influence of Seed Size and Spacing on Turmeric Production (Poster Board #239)

1:30 PM – 2:15 PM Kona Ballroom

Vegetable Crops Management 3 (Poster)

Genotypic and Environmental Influences on Yield and Total Glucosinolate Concentrations of Aquaponic-grown Pak Choi (*Brassica rapa*, Chinensis Group) (Poster Board #318)

Evaluation of Different Growing Mediums in Nutrient Film Technique (Poster Board #319)

Salinity Tolerance of Lettuce in a Hydroponic System and Soil (Poster Board #320)

Pruning Greenhouse Bell Peppers for Productivity (Poster Board #321)

Evaluation of Tomato Nethouse Production in South Texas (Poster Board #322)

Grafting for Increased and Earlier Yield of Spring Watermelon in Arizona (Poster Board #323)

Evaluating Grafting for Hybrid and Heirloom Tomatoes in a Midwest High Tunnel Production System (Poster Board #324)

LED and Fluorescent Lighting Effects on Hydroponically Grown 'Tom Thumb' Lettuce (Poster Board #325)

A Non-circulating Micro-hydroponic System for Miniature Vegetables (Poster Board #326)

Field Trials of Twelve Asian Vegetables in West Texas (Poster Board #327)

1:30 PM – 2:15 PM Kona Ballroom

Viticulture and Small Fruits 2 (Poster)

Planning to Increase the Productivity and Competitiveness of Sustainable Strawberry Systems (Poster Board #361)

A National Strawberry Production System Needs Assessment Survey (Poster Board #362)

Biodegradable Plastic Mulches for Strawberry Production: Experiences and Opinions of Growers in Three Regions of the United States (Poster Board #363)

Effects of Low Tunnel Plastic Type on Organic Production of Day-neutral Strawberries in the Upper Midwest (Poster Board #364)

Evaluating the Role of Root- and Foliar-applied Nutrients in Annual Plasticulture Strawberry Production (Poster Board #365)

The Phenomenal 'Phenomenal': The Cultivar Developed in Queensland over a Hundred Years Ago Used in Disease Resistance Research Today (Poster Board #366)

Blueberry Leaf Tissue Nutrient Concentrations As Influenced By Canopy and Branch Position (Poster Board #367)

Measuring Cold Hardiness in Highbush Blueberry Grown in Two Distinct Regions of Washington State (Poster Board #368)

Evaluation of Selected Rabbiteye Blueberry Cultivars Grown in High pH Soil (Poster Board #369)

Performance of Grafted and Own-rooted Southern Highbush Blueberry in Pine Bark-amended and Non-amended Soils (Poster Board #370)

Evaluation of Preemergent Herbicides on Nonbearing, Container-Grown *Photinia Melanocarpa* (Aronia) (Poster Board #371)

The Influence of Fertility Management on Yield and Phytochemical Content of Aronia (Poster Board #372)

1:30 PM – 2:15 PM Kona Ballroom

Water Utilization and Management (Poster)

Macadamia Nut Oil Derivative Reduces Irrigation Needs of Several Crops (Poster Board #043)

Evaluation of Products to Alleviate Salinity Stress in Bermudagrass Turf (Poster Board #044)

Influence of Growing Degree Days on the Crop Water Use of Processing Tomato (Poster Board #045)

Assessing Evapotranspiration Crop Coefficients Based on Growing Degree Days and Days after Planting Models for Tomatoes (Poster Board #046)

Performance of Cool-season Turfgrasses Irrigated with Varying Evapotranspiration Replacement Rates (Poster Board #047)

Evaluation of a Tri-daily Water Use Irrigation Schedule and Cyclic Irrigation on Plant Growth and Water Use of *Cornus florida* and *Cornus kousa* var. *Chinensis* Dogwoods (Poster Board #048)

Evaluation of Substrate Moisture Based On On-demand Nursery Irrigation Scheduling for 'Kwansan' Cherry (*Prunus serrulata*) (Poster Board #049)

Irrigating Juniper with an Automated Leaching Fraction-based Irrigation Schedule (Poster Board #050)

Pesticide Retention By Soilless Media Components and Aluminum-Water Treatment Residuals (AI-WTRs) (Poster Board #051)

Sensitivity of *Impatiens walleriana* to Chlorine in Irrigation Water (Poster Board #052)

Exploring Ways to Encourage Nursery and Greenhouse Growers' Adoption of Water Conservation Technologies (Poster Board #053)

Understanding How Nursery and Greenhouse Growers Make Decisions about Adopting Water Treatment Technologies (Poster Board #054)

2:00 PM – 4:00 PM Water's Edge Boardroom

Annual Conference Technical Program Committee

Chairs: Dennis Ray and Carl Sams

2:15 PM – 3:15 PM King's 2

Ornamental Plant Breeding (Oral)

Moderator: Ryan Contreras

- 2:15 PM Interspecific Hybridization with *Abutilon menziesii*
 - 2:30 PM Use of SEM to Select Genotypes for Increased Trichome Production in *Chrysanthemum cinerariifolium*
 - 2:45 PM Developing Triploid Maples
 - 3:00 PM Autotetraploid Induced Sterility in *Cassia bakeriana*, the Pink Shower Tree
-

2:15 PM – 3:45 PM King's 3

Fruit Breeding 2 (Oral)

Moderator: Stephanie Fong

- 2:15 PM Aroma and Fruit Quality Analysis of 20 Guava Varieties at Three Stages of Fruit Development
 - 2:30 PM Mapping of Fruit Color and Flower Type in Muscadine Grape (*Vitis rotundifolia*)
 - 2:45 PM Identifying New Sources of Resistance to Phylloxera in a Hybrid Grape Population
 - 3:00 PM Pucker Down!: Breeding for Lower Acidity in Cranberry Fruit
 - 3:15 PM Pollen Viability and Genetic Diversity of East African Diploid Bananas and Their Impact on International *Musa* Breeding
 - 3:30 PM Naturally Occurring Resistance to Banana Bunchy Top Virus
-

2:15 PM – 3:45 PM Kohala 4

Growth Chambers and Controlled Environments 5 (Oral)

Moderator: Krishna Nemali

- 2:15 PM Transient Low-light Stress and the Effect on Tassel Quality in Maize Grown in a Controlled Environment
 - 2:30 PM Using Crop Reflectance Ratio to Optimize Nitrogen Concentration in the Nutrient Solution for Hydroponic Lettuce
 - 2:45 PM Factors Affecting Relative Growth Rate of Lettuce and Spinach
 - 3:00 PM Effects of Interaction Between Atmospheric Humidity and Nutrient-solution Water Potential on Growth and Photosynthesis of Cucumber Seedlings Under Different Atmospheric CO₂ Concentration Levels
 - 3:15 PM The Biological Effects of Different Phosphors Used in LED Down Conversion
 - 3:30 PM Far-red LED Light on Greenhouse Fruiting Vegetables Grown Under High Pressure Sodium Light
-

2:15 PM – 3:45 PM Kohala 3

Plant Growth Regulation (Oral)

Moderator: Aimee N. Uyehara

- 2:15 PM Pre-plant Treatment of 1-Methylcyclopropene: A New Stress Management Strategy for Vegetable Transplants
- 2:30 PM Effect of Soil Drenches of Gibberellic Acid on Root Development of Citrus Nursery Trees

- 2:45 PM **Engineering Rootstocks with an Auxin Biosynthetic Gene Improves Their Rooting Performance and Micro-grafting Success**
- 3:00 PM ***miRNA156* and *DOG1* regulate Seed Dormancy and Vegetative Phase Transitions**
- 3:15 PM **Investigating the Roles of the Plant Hormones Jasmonic Acid and Cytokinin in Control of Maize Leaf Growth**
- 3:30 PM **Changes in Growth, Physiology, and Antioxidant Systems during UV-B Radiation Treatments in Cucumber Seedlings in the Biotron**
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2:15 PM – 4:00 PM *King's 1*

Pomology 2 (Oral)

Moderator: Charles Forney

- 2:15 PM **Long-term Effects of Tree Density and Tree Shape on Apple Orchard Performance--A 20-year Study**
- 2:30 PM **Comparing the Efficacy of Blossom Thinning Chemicals on 'Golden Delicious' Apple**
- 2:45 PM **New Pruning and Flower Removal Techniques to Improve Fruit Quality of 'Wonderful' Pomegranate (*Punica granatum* L.)**
- 3:00 PM **Efficacy of Hydrogen Cyanamide in Inducing Budbreak in 'Harvester' Peach (*Prunus persica*) during an Exceptionally Mild Winter**
- 3:15 PM **Renewal Pruning Strategies for Tart Cherry in High-density Management Systems**
- 3:30 PM **Whole-tree Renewal Regenerates Fruiting Structure Quickly in Mature Orchards**
- 3:45 PM **Rootstock Effects on Phloem Amino Acid Composition: Role in Aphid Resistance**
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2:15 PM – 4:00 PM *Kohala 2*

Vegetable Crops Management 4 (Oral)

Moderator: Xin Zhao

- 2:15 PM **Increasing Survival of Splice-grafted Watermelon Seedlings Using a Sucrose Application**
- 2:30 PM **Grafting with Cold-tolerant Rootstocks Enhance Early Season Cucumber Production in High Tunnels**
- 2:45 PM **Performance of Grafted English Cucumbers in High Tunnel**
- 3:00 PM **Effects of Leaf Mold and Grafting on Yield and Fruit Quality of High Tunnel-grown Tomatoes**
- 3:15 PM **Grafting and Microbial Crop Biostimulant Effects on Early Growth of Greenhouse Tomato**
- 3:30 PM **Grafting Melons Increases Yield, Harvest Period, and Resistance to Sudden Wilt**
- 3:45 PM **Yield Performance of Field-grown Grafted Tomato with Different in-row Plant Spacings**
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5:30 PM – 10:00 PM *Kamehameha Court*

Legends of Hawaii Luau - Closing Dinner & Show (Ticket Required)

This is a ticketed event. Advance registration is required