The generous contributions and sponsorship of Florida Citrus Mutual; International Society of Horticultural Sciences; and the University of Florida, Institute of Food and Agricultural Sciences, Citrus Research and Education Center is gratefully acknowledged.
Welcome to the International Symposium on Mechanical Harvesting & Handling Systems of Fruits and Nuts.

The Symposium welcomes scientists, growers, harvesters, handlers, processors, and others interested in the practices and concerns of mechanical harvesting of fruit and nut crops. Our speakers are active in academia and industry representing an array of the various fruit and nut crops. The mechanically harvested crops discussed will include olives, cherries, grapes, raspberries, blueberries, citrus, coffee, nuts, and others.

The two-day symposium will include topics of interest on harvesting systems, abscission aids, harvesting aids, robotic harvesting, automation, and new machine designs. Many different facets of mechanical harvesting will be featured including economics, plant health, crop gleaning, transport and handling that affect the U.S. and International fruit and nut markets.

The optional field trip, on day three, will take participants to Central Florida and the Sebring area and will include mechanical harvesting in a commercial citrus grove.
Sunday, April 1

Hyatt Place Orlando

Registration and Welcome Social

5:00 - 7:00 pm

Monday, April 2

6:00 - 7:30 am  Continental Breakfast
                Hyatt Place Orlando

7:30 am  Transportation to CREC

8:15 - 8:45 am  Registration and Poster Set-Up, Ben Hill Griffin Hall, CREC

8:45 - 9:00 am  Welcome
                Dr. Jackie Burns
                CREC Center Director
                General Overview
                Dr. Jim Syvertsen

9:00 - 9:40 am  Opening Keynote

How Continuous Mechanical Harvesting Transformed the Olive Industry

Leandro Ravetti
Modern Olives Inc., Boundary Bend Ltd,
Geelong, VIC, Australia
Session One  
Mechanically Harvesting Today’s Orchards  
Moderator: Fritz Roka

9:40 - 10:20 am  
Preparing Spain and California Olive Industries for Mechanical Harvesting  
Sergio Castro-Garcia  
University of Cordoba  
Cordoba, Spain

10:20 - 10:50 am  
Coffee Break in Poster Room

10:50 - 11:05 am  
Comparison of Citrus and Cherry Harvesting Systems  
Suzanne Thornsbury  
USDA-ERS  
Washington, DC, USA

11:05 - 11:20 am  
Efficiency of California Trunk Shaking Pistachio Harvesters  
Louise Ferguson  
University of California-Davis  
Davis, CA, USA

11:20 - 11:35 am  
Mechanical Harvest of Stem-On Sweet Cherries for the Brine Market  
James Flore  
Michigan State University  
East Lansing, MI, USA

11:35 - 12:30 pm  
LUNCH
Session Two  Abscission Agents  
Moderator: Bob Ebel

12:30 - 1:10 pm  Successful Abscission Agent Development and Commercialization in Florida Oranges
Mark Trimmer  AgroSource, Inc.  Mountainside, NJ, USA

1:10 - 1:25 pm  Field Experience with CMNP in Florida Processed Orange Groves
Robert (Bob) Ebel, Southwest Florida REC  University of Florida/IFAS  Immokalee, FL, USA

1:25 - 1:40 pm  Fruit Detachment in Blueberry: Abscission or Physical Separation
Tripti Vashisth  University of Georgia  Athens, GA, USA

Session Three  Orchards of the Future and Implications for Mechanical Harvesting
Moderator: Louise Ferguson

1:40 - 2:20 pm  Orchards of the Future
Bill Barber  Lykes Citrus Management Division/Lykes Bros. Inc.  Tampa, FL, USA
Monday, April 2

2:20 - 2:35 pm  Revolutionizing Cherry Production Systems
Daniel Guyer and Mollie Woods
Michigan State University
East Lansing, MI, USA

2:35 - 2:50 pm  Matching Biology with Technology: A Tree Fruit Architecture for the Future
Matthew Whiting
Washington State University
IAREC, Prosser, WA, USA

2:50 - 3:05 pm  High Density Plantation System of the Citrus Industry
Mireia Bordas
Agromillora Research
Barcelona, Spain

3:05 - 3:35 pm  Coffee Break in Poster Room

Session Four  Postharvest Issues
Moderator: Tim Spann

3:35 - 4:15 pm  Sensory Properties And Consumer Acceptance Of Mechanically Vs. Hand-Harvested Table Olives
Jean-Xavier Guinard
University of California-Davis
Davis, CA, USA

4:15 - 4:30 pm  Visual Bruise Assessment and Analysis of Mechanical Impact Measurement in Southern Highbush Blueberry
Changying Li
University of Georgia
Tifton, GA, USA

4:30 - 4:45 pm  Harvesting and In-Field Sorting of Citrus in a Self-Propelled Machine
Enrique Molto
Instituto Valenciano de Investigaciones Agraria, Spain
Monday, April 2

4:45 - 5:00 pm  
**Microbial and Fruit Quality Issues Related to Mechanical Harvesting**  
Michelle Danyluk  
Citrus REC  
University of Florida/IFAS  
Lake Alfred, FL, USA

5:00 - 6:30 pm  
**Poster Session and Reception**  
Topics 1 - 4  
(Posters 1-19)

6:30 pm Dinner, sponsored by:

Guest Speaker: Mike Sparks  
Florida Citrus Mutual

8:15 pm  
Leave CREC to return to Hyatt Place

Tuesday, April 3

6:00 - 7:30 am  
Continental Breakfast  
Hyatt Place Orlando

7:30 am  
Transportation to CREC

8:15 - 8:30 am  
Open Poster Viewing
<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Speaker</th>
<th>Affiliation</th>
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</thead>
<tbody>
<tr>
<td>8:30 - 9:10 am</td>
<td>Mechanical Harvesting of Fruit - Past Achievements, Current Status, and Future Prospects</td>
<td>Yoav Sarig</td>
<td>Institute of Agricultural Engineering and Agricultural Research Organization, Israel</td>
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<tr>
<td>9:25 - 9:40 am</td>
<td>Fruit Removal Efficiency of a Mechanical Shaker for Sweet Cherry Harvest</td>
<td>Q. Zhang</td>
<td>Center for Precision and Automated Agricultural Systems</td>
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<tr>
<td>9:40 - 9:55 am</td>
<td>Keeping the Debris Out of Mechanically Harvested Loads</td>
<td>Reza Ehsani</td>
<td>Citrus REC</td>
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<td>10:00 - 10:30 am</td>
<td>Coffee Break in Poster Room</td>
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Tuesday, April 3

Session Six

Robotics Technology
Moderator: Reza Ehsani

10:30 - 11:10 am Present Situation and Future Prospects on Fruit Harvesting and Grading Robots
Naoshi Kondo
University of Kyoto
Kyoto, Japan

11:10 - 11:25 am Robotic Mass Removal of Citrus Fruit
James English
Energid Technologies Corp.
Cambridge, MA, USA

11:25 - 11:40 am Tree Modeling and Visual Positioning in Orchards
Carl Wellington
Carnegie Mellon University
Pittsburgh, PA, USA

11:45 - 1:00 pm LUNCH

Session Seven

Harvest Aid
Moderator: Jim Syvertsen

1:00 - 1:40 pm Collaborative Efforts with a Commercialization Partner to Develop a Vacuum Assisted Harvest System
Paul Heinemann
Penn State University
University Park, PA, USA
Tuesday, April 3

1:40 - 1:55 pm  Field Testing of Two Harvest Aids in Apple Orchards in Washington
Karen Lewis
Washington State University
Prosser, WA, USA

1:55 - 2:10 pm  Development of Small Electric Work Platform With High Mobility for Apple Production in Japan
Tomohiko Ota
National Agriculture and Food Research Organization
BRAIN-IAM, Saitama, Japan

2:10 - 2:25 pm  A Historical Timeline of Research Efforts to Implement Mechanized Pear Harvest in California
Rachel Elkins
University of California Cooperative Extension
Lakeport, CA, USA

2:30 - 3:00 pm  Coffee Break in Poster Room

Session Eight  Commercializing Mechanical Harvesting Technologies
Moderator: Fritz Roka

3:00 - 3:40 pm  Implementation of a Product Development Process
Gary Stich
Oxbo International Corporation
Byron, NY, USA
Tuesday, April 3

3:40 - 3:55 pm  Immigration Reform and Citrus Harvest Mechanization in a World of Uncertainty
Nobuyuki Iwai
Food and Resource Economics
University of Florida/IFAS
Gainesville, FL, USA

3:55 - 4:25 pm  Policy Drivers for Mechanical Harvesting Adoption
Linda Calvin
USDA-ERS, Crops Branch
Washington, DC, USA

4:30 - 6:30 pm  Poster Session
Topics 5 - 8 (Posters 20 - 31) and Closing Reception

6:30 pm  Return to Hotel

Thank you for your participation, enjoy the tour, and safe travel home.
Wednesday, April 4

Field Trip and Tour

(Pre-registration required)

6:15 am    Bus leaves UF/IFAS/CREC
            Lake Alfred, FL

7:00 am    Bus leaves Hyatt Place,
            Orlando, FL

8:30 - 11:00 am    Plant Tour
            Mosaic Phosphate Plant
            Ft. Meade, FL

11:00 am    Leave for Sebring

11:45 am - 1:00 pm    Lunch at Island View
            Restaurant at Sun & Lake
            Golf Course

1:00 pm    Leave for Ft. Basinger

2:00 - 4:00 pm    Demonstration
            (Lykes, Ft. Basinger)
            Precision Ag Technology
            and Harvesting Units at
            Work

4:00 pm    Bus leaves for Orlando

6:00 pm    Arrive Hyatt Place, Orlando

6:45 pm    Arrive UF/IFAS/CREC