

Hort Forum

Webinar:
The present and future
of the use of autonomous
equipment and robotic
harvesters in field-based
fruit production

Thursday
27th April 2023,
Hours: 17:00 – 19:00
Central European Time (CET)

Registration link:
https://us02web.zoom.us/webinar/register/WN_-tm-PprKRnC6K6KSdMCVuQ

ISHS

International Society for Horticultural Science



The International Society for Horticultural Science invites you to the second episode of Hort Forum:

The present and future of the use of autonomous equipment and robotic harvesters in field-based fruit production

Speaker: Stavros Vougioukas, Professor
*Department of Biological and Agricultural Engineering,
University of California*

Abstract

Mechanizing the manual harvesting of fresh market fruits constitutes one of the biggest challenges to the sustainability of the fruit industry. Robotic harvester prototypes are being developed and field-tested for high-volume, high-value crops, such as apples, kiwifruit, and strawberries. However, most of the developed robots have not, to date, successfully replaced the judgment, dexterity, and speed of experienced pickers at a competing cost; the challenges of inadequate fruit picking efficiency and throughput remain largely unsolved. This first part of this presentation will present the main factors – horticultural and technological – that shape robots' harvest efficiencies and speeds and will stimulate discussion on approaches to overcome the existing limitations. As an intermediate step to full automation, mechanical labor aids have been introduced to increase productivity by reducing workers' non-productive time. The second part of this presentation will introduce the state of the art in robotic harvest-aid technology and present results from deploying robotic harvest-aid systems during commercial harvesting. Finally, the presentation will conclude by discussing 'big-picture' issues related to autonomous agricultural machines, labor, and the existing and necessary standards and regulatory framework.



Short Bio

Stavros Vougioukas is a Professor in the Department of Biological and Agricultural Engineering at the University of California, Davis. He received his Ph.D. in Electrical, Computer, and Systems Engineering from Rensselaer Polytechnic Institute, Troy, NY, in Robotics and Automation, under a Fulbright fellowship. Before joining the UC, he worked as a post-doctoral researcher at the Department of Industrial Engineering at the University of Parma, Italy, and as faculty at Aristotle University, Greece, at the department of Agricultural Engineering. He has published approximately 150 journal and conference papers in agricultural robotics and automation. He is currently leading several research projects on robotic harvesting and labor-saving technologies, and on precision yield mapping, with funding from USDA-NIFA, grower commodity boards, and industry.

Organizers



Theodore DeJong,
University of
California, Davis,
USA



George Manganaris,
Cyprus University
of Technology,
Cyprus

Panelists



Ines Hanrahan,
Washington Tree
Fruit Commission,
USA



Tim Delbridge,
Oregon State
University,
USA



Lorenzo Marconi,
University of
Bologna, Italy



Elia Bruni,
Agrtec, Italy