

# Labor and Automation Effects on Social Sustainability and Resilience in U.S. Agriculture

Board on Agricultural and Natural Resources (BANR)  
National Academies of Sciences, Engineering, and Medicine  
Hosted by Washington State University

September 7, 2022

Location: Tri-Cities campus, Richland, WA

Tri-Cities airport is in Pasco, WA (PSC).

Headquarter hotel: The Lodge at Columbia Point, 530 Columbia Point Dr., Richland, WA 99352

September 7

## Workshop on labor and automation

Location: WSU-Tri-Cities East Auditorium

- 8:30 Welcome to the Workshop -**Charles Rice**, BANR Chair, Agronomy, Kansas State University
- 8:40 Welcome to WSU -**Kirk Schulz**, President Washington State University System; **Christopher Keane**, VPR, WSU, and **Wendy Powers**, Dean, College of Agricultural, Human, and Natural Resource Sciences, WSU.
- 8:50 Innovations in Specialty Crop Harvest Technologies -**Manoj Karkee**, Biological Systems Engineering, WSU
- 9:20 Innovations in Dairy Technologies - **Marcos Marcondes**, WSU Animal Science
- 9:50 Economic implications of adoption of labor-saving technologies -**David Zilberman**, NASEM member, Ag. and Resource Economics, UC Berkeley
- 10:20 Break
- 10:35 Social implications of labor-saving technologies -**Leland Glenna**, Rural Sociology, Penn State University
- 11:10 Future Prospects for Farm Labor -**Diane Charlton** Ag. and Resource Economics, Montana State University
- 11:40 Panel: **Ines Hanrahan**, Executive Director of the Washington Tree Fruit Research Commission; **Karina Gallardo**, Economics, WSU; **Tomás Madrigal**, Community to Community Development (C2C) and Washington State Dept. of Health; **Steve Mantle**, Founder & CEO of innov8.ag, a Walla Walla Washington-based AgTech startup and Microsoft-partnered company.
- 12:25 Closing remarks -**Jill McCluskey**, BANR member, Economics, WSU
- 12:30 Adjourn

*The National  
Academies of*

SCIENCES  
ENGINEERING  
MEDICINE



WASHINGTON STATE  
UNIVERSITY

## Speaker Bios



**Diane Charlton** is an assistant professor in the Department of Agricultural Economics and Economics at Montana State University. Her research interests are at the intersections of labor markets and labor migration, agricultural production, and development economics.



**Leland Glenna** is a Professor of Rural Sociology and Science, Technology, and Society at Penn State University. His research focuses on 1) social and environmental impacts of agricultural science and technologies, 2) the role of science and technology in agricultural and natural resource policy making, and 3) the social and ethical implications of democratizing science and technology research.



**R. Karina Gallardo** is a Professor and Extension Specialist in the School of Economic Sciences at Washington State University. She studies consumers' preferences for fresh fruit quality and understanding the profitability and various other factors affecting growers' adoption of new technologies, such as new cultivars, improved pest management systems, and labor enhancing mechanisms.



**Ines Hanrahan** is Executive Director of the Washington Tree Fruit Research Commission (WTFRC). Ines strives to ensure all funding is geared towards investments in industry priority areas to enable increased productivity, improved product quality and to help growers stay economically viable in a globally competitive marketplace. She is committed to fostering vibrant public-private partnerships with tree fruit scientists worldwide.



**Manoj Karkee** is an Associate Professor in Biological Systems Engineering at WSU. He is primarily interested in Automated and autonomous agricultural machinery systems, field robotics, and machine intelligence for production agriculture, and in Agricultural systems modeling, simulation, and control.



**Tomás Madrigal** is the son farmworkers and part of a large migrant family that settled in the lower Yakima Valley. He has been a volunteer for Community to Community Development (C2C), a farmworker women-led organization since 2006, where he serves as Food Systems Researcher. He works as an Equity and Social Justice consultant for the Washington State Dept. of Health. Tomás holds a Ph.D. with a specialization in Mexican Labor and the development of U.S.

agriculture. He shapes policy at the state level, as a member of the WA state Governor-appointed Food Systems Roundtable and the Environmental Justice Taskforce on behalf of the C2C. Tomás has advised multiple coalitions including Front & Centered, the Food Chain Worker's Alliance, and the Domestic Fair Trade Association. He has held leadership roles with C2C, La Resistencia, Tacoma SEED, Solidarity Research Cooperative, Canopy Collective, Acción Zapatista, Agroecology Research-Action Collective, and Masc On / Masc Off.



**Steve Mantle** is the founder of innov8.ag, a Walla Walla Washington-based agtech startup and Microsoft-partnered company. Prior to embarking on the startup, Steve spent 12 years at Microsoft where he most recently focused on Microsoft's fastest growing product line, Azure Cloud. An Australian by birth, Steve has his MBA from the University of Washington.



**Marcos Marcondes** is an assistant professor in Animal Sciences at WSU. His research focuses on feed evaluation, management strategies, nutrient requirements, and economics of dairy operations. His research program uses an integrated approach by collaborating dairy cattle nutrition, reproduction, and behavior and their impact on greenhouse gas emissions and the environment.



**David Zilberman** is a Professor and holder of the Robinson Chair in the Dept. of Agricultural and Resource Economics at UC Berkeley. His areas of expertise include agricultural and environmental economics and policy, water, marketing, risk management, the economics of innovation, natural resources, biotechnology, and biofuels. He is the recipient of the 2019 Wolf Prize in Agriculture and is a Member of the National Academy of Sciences, Engineering, and Medicine.