

NGRA-ARS Sensor Technology Workshop

Wednesday, November 13, 2019 | Embassy Suites, Sacramento, CA

7:30 a.m. **Coffee service available**

8 a.m. Welcome

8:05 a.m. ARS and the grape industry: Partnering to drive innovation

Donnell Brown, NGRA President

Chavonda Jacobs-Young, USDA-ARS Administrator and
Acting Chief Scientist

SESSION 1 – Introduction to Sensor Technologies

8:15 a.m. Session introduction

8:20 a.m. Proximal and in situ sensors in vineyards

8:40 a.m. Sensor technology and precision vineyard management

9 a.m. UAV sensor applications in vineyards

9:20 a.m. UAVs: Opportunities and challenges

9:40 a.m. Use of satellites in agriculture management

10 a.m. **Break**

Donnell Brown, NGRA

Andrew McElrone, USDA-ARS, Davis

Terry Bates, Cornell University

Alfonso Torres-Rua, Utah State

Mac McKee, Utah State, Utah Water Research Laboratory (retired)

Forrest Melton, Cal State Monterey Bay, NASA

SESSION 2 – Remote Sensing and Irrigation Management

10:10 a.m. Session introduction

10:20 a.m. GRAPEX: An interdisciplinary project for developing irrigation scheduling tools

10:40 a.m. Monitoring canopy size and development

11 a.m. Mapping daily vineyard evapotranspiration (ET)

11:20 a.m. Water balance modeling for estimating plant available water

11:40 a.m. Development of an operational dashboard for irrigation scheduling

12 p.m. Remote sensing tools for irrigation management at scale

12:20 p.m. **Lunch**

Tony Stephen, NGRA Board Chair (American Vineyard Foundation)

Bill Kustas, USDA-ARS, Hydrology & Remote Sensing Lab (HRSL)

Feng Gao, USDA-ARS, HRSL

Martha Anderson, USDA-ARS, HRSL

Wade Crow, USDA-ARS, HRSL

Kyle Knipper, USDA-ARS, HRSL

Forrest Melton, Cal State Monterey Bay, NASA

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or navigate to https://gpsr.ars.usda.gov/NGRA_Survey

12:50 p.m. Afternoon welcome

Tim Rinehart, USDA-ARS National Program Leader-Specialty Crops

SESSION 3 – Pests and Diseases

12:55 p.m. Session introduction

Julie Tarara, Ste. Michelle Wine Estates

1:05 p.m. Current and future directions in insect monitoring

Jana Lee, USDA-ARS

1:25 p.m. Direct detection of disease with dogs

Tim Gottwald, USDA-ARS

1:45 p.m. Plume estimation and localization: Potential applications for pest and disease monitoring

Kam Leang, University of Utah

2:05 p.m. Hyperspectral sensors for disease management

Kaitlin Gold, Cornell University and NASA

2:25 p.m. Postharvest sensing and instrumentation

Moon S. Kim, USDA-ARS, Environmental Microbial & Food Safety Laboratory

2:45 p.m. Trapping and mapping disease resistance

Walt Mahaffee, USDA-ARS

3:05 p.m. **Break**

SESSION 4 – Data Integration and Information Transfer

3:15 p.m. Panel discussion: Making sense of the sensors

Moderator: Mike Buser, USDA-ARS

- Machine learning and AI
- Big data and imaging
- Dashboards and apps
- Forecasts and models

- Ken Sudduth, USDA-ARS
- Jennifer Carter, USDA-ARS
- Nicole Kaplan, USDA-ARS
- Brian Bailey, UC Davis

SESSION 5 – Sensors in the Real World

4 p.m. Panel discussion: Applying the tech - An industry perspective

Moderator: Tom Smith, NGRA Vice Chair (E. & J. Gallo Winery)

- Irrigation
- Pests and diseases
- Data integration

- Russ Smithyman, Ste. Michelle Wine Estates
- Chris Storm, Vino Farms
- Tony Stephen, Scheid Family Wines

4:45 p.m. Closing remarks and takeaways

Donnell Brown and Tim Rinehart

5 - 7 p.m. **Reception**

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