

## NGRA-ARS Sensor Technology Workshop

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

7:30 a.m.	Coffee service available	
8 a.m.	Welcome	Donnell Brown, NGRA President
8:05 a.m.	Message from the Chief	Chavonda Jacobs-Young, USDA-ARS, Acting Chief Scientist

### SESSION 1 - Vine Status and Irrigation Management from Soil to Satellite

8:15 a.m.	Session moderator's kickoff Proximal and in situ sensors <i>ET, soil moisture and stress detection approaches</i>	Forrest Melton, Cal State Monterey Bay
8:30 a.m.	Leaf/Stem/Petiole sensors/Optical Method/Soil Moisture/TIR/Surface Renewal <i>Tractor/robotic mounted sensors</i>	Andrew McElrone, USDA-ARS, Davis
9 a.m.	Canopy structure/plant condition/yield estimation Airborne/UAV sensors and algorithms	Terry Bates, Cornell University
9:20 a.m.	Vine water use/stress/architecture/canopy volume	Alfonso Torres-Rua, Utah State
9:40 a.m.	Technological challenges using UAVs	Mac McKee, Utah State
10 a.m.	<b>Break</b> Satellite sensors and algorithms	
10:10 a.m.	Biomass/LAI/phenology	Feng Gao, USDA-ARS, Hydrology and Remote Sensing Lab
10:30 a.m.	Water use/stress	Martha Anderson, Hydrology and Remote Sensing Lab
10:50 a.m.	Microwave (soil moisture)	Wade Crow, USDA-ARS, Hydrology and Remote Sensing Lab
11 a.m.	GRAPEX Project -Validating remote sensing algorithms	Bill Kustas, USDA-ARS, Hydrology and Remote Sensing Lab
11:30 a.m.	GRAPEX VRDI irrigation scheduling/ET Dashboard	Kyle Knipper, USDA-ARS, Hydrology and Remote Sensing Lab
11:50 a.m.	Satellite irrigation management support & open ET + Morning Wrap-Up	Forrest Melton
12:10 p.m.	<b>Lunch</b>	

### SESSION 2 – Pests and Diseases: Getting Beyond the Buzz

1 p.m.	Session moderator's kickoff: Grape production Insects	Julie Tarara, Ste. Michelle Wine Estates
1:10 p.m.	Plume sensing	Kam Leang, University of Utah
1:30 p.m.	Insect monitoring: Now & future Pathogens	Jana Lee, USDA- ARS, Corvallis
1:50 p.m.	Spectral data/remote sensing	Moon S Kim, USDA-ARS
2:10 p.m.	Direct detection with dogs	Tim Gottwald, USDA-ARS
2:30 p.m.	Trapping and mapping resistance	Walt Mahaffee, USDA-ARS, Corvallis
3 p.m.	<b>Break</b>	

### SESSION 3 – Data Integration and Information Transfer

3:10 p.m.	Panel discussion: Making sense of the sensors <ul style="list-style-type: none"> <li>• Machine learning and AI</li> <li>• Big data and imaging</li> <li>• Dashboards and apps</li> <li>• Forecasts and models</li> </ul>	Moderator: Mike Buser, USDA-ARS <ul style="list-style-type: none"> <li>• Amy Tabb, USDA-ARS</li> <li>• Jennifer Carter, USDA-ARS</li> <li>• Nicole Kaplan, USDA-ARS</li> <li>• Brian Bailey, UC Davis</li> </ul>
-----------	--	--

### SESSION 4 – Sensors in the Real World

4:10 p.m.	Panel discussion: Applying the tech - An industry perspective <ul style="list-style-type: none"> <li>• Irrigation</li> <li>• Pests and diseases</li> <li>• Data integration</li> </ul>	Moderator: Nick Dokoozlian, E. & J. Gallo Winery <ul style="list-style-type: none"> <li>• Russ Smithyman, Ste. Michelle Wine Estates</li> <li>• Rich Schaefer, Silverado Investment Management Co.</li> <li>• Tony Stephen, Scheid Family Wines</li> </ul>
5:10 p.m.	Closing remarks and takeaways	Nick Dokoozlian
5:30 p.m.	Reception	
– 7 p.m.		