



# Christopher Chen, Ph.D.

Integrated Vineyard Systems Advisor; UC ANR

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🐦 @GrapeProblems R<sup>6</sup> ResearchGate in LinkedIn

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## About Me

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My name is Christopher Chen, and I was hired in January 2022 as the University of California Cooperative Extension Integrated Vineyard Systems Advisor for Sonoma, Mendocino, and Lake counties. My research has focused on mitigating drought and heat damage in vineyards and exploring the potential for salinity tolerance in grapevine rootstocks. Starting in a new role is always a challenge, but I am thankful to have the opportunity to share new viticultural information and practices across northern California.

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## Professional Experience

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01.2022 – present

### **Integrated Vineyard Systems Advisor**

*University of California ANR*

This position entails the practical research and dissemination of information related to viticulture and grapevine physiology.

Through this position I interact with industry grape growers and wine producers in Sonoma, Mendocino, and Lake Counties of California. Some responsibilities include:

- Experimental design and implementation
- Data synthesis and analysis
- Publication of findings
- Community outreach and education
- Event planning
- Popular media production
- Branding
- Public speaking

09.2021 – 12.2021  
Davis, CA

### **Postdoctoral Researcher**

*Department of Plant Sciences, UC Davis*

This position entails the research and exploration of physiological responses to salinity and drought stress in almond orchards, grapevine, and tomato under the direction of Dr. Patrick H. Brown at the University of California Davis. As a Postdoctoral researcher at one of the best higher-education, plant science programs in the world, expectations are high for production of timely and high-quality work. This position is self-governed and requires responsible commitments to progress as research feasibility is reliant upon external funding. Some responsibilities include:

- Experimental design and implementation
- Data synthesis and analysis
- Publication of findings
- Community outreach and education
- Mentoring graduate students

06.2018 – 08.2021  
Davis, CA

### **Ph.D. Candidate**

*Department of Viticulture and Enology, UC Davis*

Research focused on elucidating mechanisms of sodium chloride tolerance in *Vitis* spp. and development of rootstock breeding methods for rapid and quantitative screening of many collections of novel genetic material for salt-tolerant phenotypes in large populations. Responsibility for own progress with regular reporting to supervisors.

Collected data from self-designed experiments for purpose of developing breeding methodology for salt-tolerance screening procedures:

- o Experimental Design and Setup
- o Applicable Instrumentation and Applied Understanding of Theoretical Concepts
- o Treatment Application and Sample collection
  - o Sample Processing

Generation of data through laboratory analysis, and/or the process of:

- o Silver-Ion Titration
- o Determination of chloride concentrations in different plant tissues
  - o Scanning Electron Microscopy for Subcellular Differentiation

Exposure and/or further experience with:

- o Plant propagation from hardwood and herbaceous cuttings
- o Statistical data analysis using R
- o Proper experimental design and maintenance
- o Sample preparation for complex analyses
- o Viticultural management practices
  - o Vineyard design and maintenance

06.2016 – 2021  
Davis, CA

### **Graduate Student Researcher**

*Department of Viticulture and Enology, UC Davis*

Independent and cooperative research focused on abiotic stress responses in *Vitis vinifera* and mechanization of commercial wine grape vineyards of several premier viticulture regions in California. Organized and participated in field and laboratory work to analyze and determine effects of differing, scientific treatments on wine grape yield and quality.

Collected industry-standard data from field trials for, but not limited to:

- o Crop coefficients, Vine water status, Irrigation scheduling
  - o NDVI, Crop Sensing and Imaging, Site logistics
  - o Berry sampling for quality, Yield predictions and Final yield
- Generation of data through laboratory analysis, and/or the process of:

- o Berry phenolic: biosynthesis, composition, and temporal development
- o Determination of quality and concentration of flavonoid classes.
- o Small-batch, experimental wine making

Exposure and/or further experience with:

- o Basic statistical data analysis using R
- o Proper experimental design and maintenance
- o NDVI and Crop Sensing
- o Harvest of wine-grapes
- o Basic management practices of viticulture

01.2020 – 04.2020  
Davis, CA

### **Graduate Studies Admissions Committee Member,** *Horticulture and Agronomy Graduate Group, UC Davis*

Student committee member representing graduate student opinions on new applicants to the horticulture and agronomy graduate group; served in conjunction with faculty committee members.

- Socratic discussion with committee members on merit of new applicants
- Review and commentary on applications of potential students
- Overall referral to admit, deny, or reapply for each applicant

09.2017 – 01.2020  
Davis, CA

### **Teaching Assistant**

*Department of Viticulture and Enology, UC Davis*

Served as a teaching assistant for undergraduate level courses for three viticulture courses under instruction of Dr. M. Andrew Walker for three consecutive years. Requirements included course material preparations, student well-being and assistance, and providing independent lectures during discussion sections. Other duties were assigned in this position depending on need.

- UC Davis: VEN 101A – Grapevine Identification
- UC Davis: VEN 101B – Viticultural Practices
- UC Davis: VEN 101C – Vineyard Establishment and Management Practices

- 01.2018 – 04.2018  
Davis, CA
- Teaching Assistant**  
*Department of Horticulture and Agronomy, UC Davis*  
Served as a teaching assistant for undergraduate level courses for ENH 133: Woody Plant Management under instruction of Dr. Astrid Volder. Requirements included course material preparations, student well-being and assistance, and addressing students' needs and questions during discussion sections. Other duties were assigned in this position depending on need.
- UC Davis: ENH 133 – Woody Plant Management
- 01.2014 – 06.2016  
Davis, CA
- Student Research Assistant**  
*Department of Plant Sciences, UC Davis*  
Research assistant position focused on understanding plant and soil community responses to climate change, grazing management and nutrient availability in California's annual grasslands.
- Performed plant-soil processing methods including root extraction, biomass sampling and seed sorting.
  - Experience operating specialized ecological processing equipment and seed imaging software WinSeedle.
  - Knowledgeable in ecological field sampling methodology including California grassland species identification and vegetation surveys.
  - Performed data analysis using JMP statistical software.
  - Trained supervisors on seed imaging software procedures.
- 04.2015 – 07.2015  
Davis, CA
- Student Research Assistant**  
*School of Natural Sciences, UC Merced*  
Assisted with Master's thesis research investigating physiological adaptations over four decades to climate change in cut-leaf monkey flower in the Sierra Nevada mountain range.
- Independently monitored monkey flower growth experiment recording regular phenotypic measurements.
  - Communicated results to supervisor via bi-monthly meetings.
  - Performed regular maintenance and monitoring of greenhouse experiment, including watering, segregation, and pruning.
  - Experience troubleshooting and problem solving in experimental greenhouse settings.
- 09.2013 – 06.2014  
Davis, CA
- Resident Advisor**  
*Student Housing Services, UC Davis*  
In-house advisor position responsible for facility management, resident welfare and safety, community building and resource referrals.
- Trained in emergency response, safety.
  - Experience in conflict resolution, incident reporting, new resident resource referrals.

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## Peer-Reviewed Publications

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- 2022 **Plant responses to heterogeneous salinity: agronomic relevance and research priorities** [↗](#)  
*Annals of Botany*  
Valenzuela F, Reineke D, Leventini D, Chen C, Barrett-Lennard E, Colmer T, Dodd I, Shabala S, Brown P, Bazihizina N.
- 2020 **Mitigating Heat Wave and Exposure Damage to 'Cabernet Sauvignon' Wine Grape with Partial Shading Under Two Irrigation Amounts** [↗](#)  
*Frontiers in Plant Science*  
Martínez-Lüscher, J., Chen, C. C. L., Brillante, L., & Kurtural, S. K.
- 2017 **Partial Solar Radiation Exclusion with Color Shade Nets Reduces the Degradation of Organic Acids and Flavonoids of Grape Berry (*Vitis vinifera* L.)** [↗](#)  
*Journal of Agricultural and Food Chemistry*  
Martínez-Lüscher, J., Chen, C. C. L., Brillante, L., & Kurtural, S. K.

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## Non- Peer Reviewed Publications

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- 2022 **Wine Without Water**  
*Strategies for farming grapes in California's drought*  
Chen, C  
[Link](#) [↗](#)
- 2022 **Salinity and Grapevines**  
*Lecture handout*  
Chen, C.  
[Link](#) [↗](#)
- 2022 **Grapevines an Introduction**  
*Informational Video*  
[Link](#) [↗](#)

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## Research Abstracts

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- 2019  
Napa, CA **Rapid Screening for Salt-Stress Tolerance Through Chloride-Ion Accumulation in Leaves of Wild *Vitis* spp. Rootstocks**  
*70th ASEV National Conference*  
Chen, C. C., Romero N., Walker, M. A.

- 2018  
Monterey, CA  
**Partial Solar Radiation Exclusion, Not Applied Water Amount, Mitigates Grape Berry Flavonoid Concentration**  
*69th ASEV National Conference*  
Chen, C. C., Martínez-Lüscher, J., Brillante, L., and Kurtural S. K.
- 2017  
Bellevue, WA  
**Proximal sensing and stratified sampling in vineyards provide directions in coalescing vineyard variability**  
*68th ASEV National Conference*  
Yu, R., Brillante, L., Martínez-Lüscher, J., Plank, C., Chen, C., Sanchez, L., Bates, T., Sams, B., Kurtural, S. K.
- 2017  
Bellevue, WA  
**Partial solar radiation exclusion with color shade cloths may improve red wine grape composition**  
*68th ASEV National Conference*  
Martínez-Lüscher, J., Chen, C. C., Brillante, L., Kurtural S. K.
- 2016  
Monterey, CA  
**Shifts in Proanthocyanidin Composition of Cabernet Sauvignon Are Modulated by Selective Shading and Water Deficit**  
*67th ASEV National Conference*  
Chen, C. C., Martínez-Lüscher, J., Kurtural S. K.

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## Extension Presentations

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- 2022  
Davis, CA  
**Salinity in Grapevines**  
*UC Davis*  
Chen, C.
- 2022  
Fresno, CA  
**Grapevines and Salinity**  
*CSU Fresno*  
Chen, C.
- 2017  
Oakville, CA  
**Partial Shading: A short-term response to climatic shifts in vineyards**  
*University of California Field Day*  
Chen, C. C., Martínez-Lüscher, J., S. Kurtural S. K.
- 2017  
Paso Robles, CA  
**Farming for Phenolics: How much exposure do we need to grow high quality fruit?**  
*UCCE Conference*  
Martínez-Lüscher, J., Chen, C. C., Brillante, L., Kurtural S. K.

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## Skills

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### Data Analysis

*R*

### Document Processing

*Excel, Word, Powerpoint, PDF*

### Experimental Design

### Vineyard Management Practices

### Grapevine Pests & Diseases

### LaTeX

*Document creation*

### Information Technology

### Website Programming

*HTML, Java, CSS*

### Laboratory Biological Sample Processing

### Grapevine Identification

*Ampelography*

### GIS/Mapping

*QGIS*

### Public Speaking and Outreach

### R

*Statistical Software*