

## California Pistachio Research Board 2022 Research Projects

Proposal Title	Principal Investigator	Amount Awarded
<b>Education</b>		
California Pistachio Research Board Event Facilitation	Julia Stover	\$15,000
<b>Entomology</b>		
Advancing Enhanced Raman Spectroscopy to Detect and Measure NOW Pheromones	Tiziana Bond	\$59,230
Cover Crops and trap crops to support biological control of large bugs	Kent Daane	\$52,403
Seasonal biology and controls of the Gill's mealybug in pistachio	Kent Daane	\$51,437
Optimizing chemical control programs for Gill's mealybug, <i>Ferrisia gilli</i> , in Pistachio	David Haviland	\$29,545
Attractants for Leaf-footed Bugs in Pistachios	Andrea Joyce	\$24,575
Identification, synthesis, and development of the sex pheromone of the mealybug <i>Ferrisia gilli</i>	Jocelyn G. Millar	\$23,745
Another look at pheromonal or related attractants for leaf-footed bugs ( <i>Leptoglossus</i> spp.) infesting California nut crops	Jocelyn G. Millar/Houston Wilson	\$32,169
Effective biological control of Gill's mealybug from drone releases of Green lacewing	Andreas Neuman/David Haviland.	\$8,402
Improved control of navel orangeworm: focus on increasing insecticide efficacy using adjuvants and improved timing	Joel Siegel	\$80,000
Producing sterile navel orangeworm on demand for improvement of pest management	Houston Wilson/Chuck Burks/Raman Bansal	\$125,645
Influence of Pistachio Hull Degradation and Shell Split on NOW Egg Deposition and Infest	Houston Wilson/Chuck Burks/Selina Wang	\$65,749
<b>Food Safety</b>		
Comparing Efficacy of two registered atoxigenic strains biocontrol products to reduce aflatoxin contamination and expanding Area-wide Long-term Mycotoxin Management Programs	Themis J. Michailides	\$77,500
A survey of fungi producing Ochratoxin A in California pistachios and management of contamination in the field	Themis J. Michailides	\$65,499
<b>Horticulture Agronomics</b>		
Investigating the effects of winter cover cropping on radiation balance, soil-water dynamics, and water productivity of mature micro-irrigated pistachio orchards	Daniele Zaccaria	\$96,825
Assessing Nitrogen Uptake to Develop Best Management Practices and Early Leaf Sampling Protocols for Pistachio Cultivars 'Lost Hills' and 'Golden Hills'	Douglas Amaral	\$91,352
Determining non-bearing pistachio nitrogen and phosphorus needs	Phoebe Gordon	\$68,485
Evaluating commercially available passive plant water status measurement devices	Phoebe Gordon	\$33,969
Evaluation of Salinity, Boron, and Soil Hypoxia on Pistachio Tree Growth Year 3	Phoebe Gordon	\$57,020
Evaluating new training systems for pistachio	Bruce Lampinen/Mae Culumber	\$93,978
California Pistachio Weather Models Update	Julia Stover	\$20,000
Saline Irrigation on Young Kerman Trees Pistachio on UCB-1 and PGI Rootstock grown in Field Lysimeters	Kaomin Vang/Gary Banuelos	\$56,000
Saline Irrigation Strategies for Pistachios	Louise Ferguson	\$285,792
<b>Horticulture Genetics</b>		
Collaborative Pistachio Rootstock Breeding	Pat J. Brown/Themis J. Michailides/Florent Trouillas	\$152,024
Pistachio Improvement Program	Pat J. Brown	\$178,663
Dissecting the genetics/genomics of nutritional quality traits in pistachio	Christine Diepenbrock	\$51,704
Dissection of Pistachio Fruit Development Towards Optimal Shell Split and Insect Resistance	Georgia Drakakaki	\$96,848
Pistachio Scion and Rootstock Evaluation	Craig Kallsen	\$9,700
Development of Molecular Markers and Biotechnological Approaches to Improve Agricultural Traits in Pistachio	Richard Michelmore	\$126,796
Pistachio Pan-genome for Accelerated Breeding	J. Grey Monroe	\$127,594

Horticulture Physiology		
Do cover crops help lower canopy temperatures and enhance chill accumulation in Pistachios?	Gurreet Brar	\$47,451
Metabolomics analysis of bud and shoot samples during the dormant period from two pistachios cultivars	Gurreet Brar	\$62,612
Effect of bloom time on pistachio hull integrity and nut quality at harvest	Barbara Blanco-Ulate	\$80,431
Early detection of pistachio hull breakdown by biomarkers in Kerman and Golden Hills	Barbara Blanco-Ulate	\$40,510
Gene expression marker-enabled precise and reliable application of rest-breaking enhancing chemicals	Li Tian	\$64,597
Confronting Central Valley's Variable Climatic Conditions: Developing Novel Tree Carbohydrate Budget-Based Methods for the Sustainable Management of Pistachio Orchards	Maciej Zwieniecki	\$99,280
Determining severity of Internal Kernel Discoloration Incidence in Pistachio Cultivars	Pheobe Gordon	\$22,175
Mechanics		
Development of Precision Yield Monitor For Pistachio	Stavros Vougioukas/Patrick H. Brown	\$60,000
Pathology		
Quantification and management of fungicide resistance in Alternaria populations causing Alternaria late blight in California pistachio orchards	Themis J. Michailides	\$65,038
Is there a risk of plant-parasitic nematodes in pistachio on current and future rootstocks?	Andreas Westphal	\$64,582
Evaluating the Efficacy of Phosphites, Mefenoxam and New Oomycota Fungicides for Managing Phytophthora Crown and Root Rot of Pistachio	Florent Trouillas	\$66,753
		\$2,931,078