

Vine Crops

Project: 102A Wine Grape Cultural Practices

Project Leader: *Matthew Fidelibus, Ph.D., Viticulture Specialist, Department of Viticulture and Enology, UC Davis, Kearney Agricultural Center*

Objective: 1) Compare the yield, fruit quality, canopy characteristics and fruit zone microclimate of Chardonnay grapevines grown under six modern wine grape trellis/training systems used in California. 2) Determine the effects of in-row spacing on the yield, fruit quality, canopy characteristics and fruit zone microclimate of Syrah grapevines. Examine potential interactions among in-row spacing, training systems and balanced pruning levels on vine performance and production efficiency.

Project: 115 Arthropod Management in Vines and Cover Crops

Project Leader: *Walt Bentley, IPM Entomologist, DANR Central Valley Region, Kearney Agricultural Center*

Objective: 1) Determine the impact of a rye/vetch cover crop and vine nitrogen on the biology and abundance of leafhoppers and spiders, and on the interaction between ants, cover crops, and grape mealybug. 2) Continue to determine the long term impact of using a rye/vetch cover crop as dry mulch for weed suppression in vine rows; soil nitrate, soil microbial biomass and vine-nutrient status; water use and vine-water status; and grape yield and quality.

Project: 425 Alternatives to Pre-plant Soil Fumigation for Tree and Vine Crops

Project Leader: *Michael McKenry, Ph.D., Nematologist, Department of Nematology, UC Riverside, Kearney Agricultural Center*

Objective: 1) Conduct preliminary examinations of a wide variety of potential nematicidal agents or rootstocks. 2) Conduct intensive evaluations on products or organisms that have been found to be interesting or having nematicidal potential in commercial settings.

Project: 506 Effect of Irrigation Frequency on Thompson Seedless Productivity

Project Leader: *Larry Williams, Ph.D., Professor, Department of Viticulture and Enology, UC Davis, Kearney Agricultural Center*

Objective: Determine how production practices and sampling procedures may contribute to the variability in petiole nitrate-N, ammonia-N and total N and K of Thompson Seedless, Chardonnay and Cabernet Sauvignon grapevines and correlate N and K nutrient status of petioles sampled at bloom, veraison and just prior to harvest, with one another. In addition, the above petiole values will be correlated with the N and K concentrations of the leaves, stems and fruit sampled at bloom, veraison and harvest of the major cultivars used for wine, table and raisin production and major rootstocks where available.

Project: 808A Table Grape Cultural Practices

Project Leader: *Matthew Fidelibus, Ph.D., Viticulture Specialist, Department of Viticulture and Enology, UC Davis, Kearney Agricultural Center*

Objective: Compare the productivity, fruit quality and canopy characteristics of Thompson Seedless table grapes trellised to the open gable and traditional "T" trellis systems. Determine the effects of canopy separation on the productivity of Thompson Seedless table grapes trellised to the open gable system. Determine the interaction between in-row spacing and vine training method on the yield and fruit quality of Crimson Seedless table grapes.

Project: 955 Control of Vineyard Pests

Project Leader: *Kent Daane, Ph.D., CE Assistant Specialist, Division of Insect Biology, UC Berkeley, Kearney Agricultural Center*

Objective: BLACK WIDOWS – 1) Evaluate chemical control tactics for the black widow.
2) Determine black widow life-history traits in the San Joaquin Valley.
MEALYBUGS – 1) Study vine mealybug mating behavior and adult male biology.
2) Study mealybug biology.

Project: 2010 Evaluation of Hail Damage on Thompson Seedless Grapevine Yield

Project Leader: *Stephen Vasquez, Viticulture Farm Advisor, UC Cooperative Extension, Fresno County*

Objective: To determine the affects of hail damage on Thompson Seedless grapevine yields using a hail simulator.

Project: 0306 Raisin Research

Project Leader: *Matthew Fidelibus, Ph.D., Viticulture Specialist, Department of Viticulture and Enology, UC Davis, Kearney Agricultural Center*

Objective: Evaluate new raisin selections for early maturity and DOV performance. Determine the best vine training and trellising systems for potential DOV cultivars. Develop complete DOV systems that integrate cultivar, trellis and equipment. Determine the effect of DOV practices on vine physiology, including canopy leaf area and photosynthesis.

Project: 0405 New Winegrape Varieties for the San Joaquin Valley

Project Leader: *James Wolpert, Ph.D., Specialist, Department of Viticulture and Enology, UC Davis,*

Objective: 1) Establish replicated plots of promising new red and white wine varieties. 2) Evaluate varieties for viticultural characteristics including growth and yield components and fruit composition. 3) Evaluate the most promising varieties in small lot wines at the UC Davis pilot winery. Wines will be shared with industry. 4) An industry oversight committee (proposed at this time) will have input into the advancement of selections to second-stage trials in industry.

Project: 0411 Crimson Seedless Nitrogen Application Evaluation

Project Leader: *Stephen Vasquez, Viticulture Farm Advisor, UC Cooperative Extension, Fresno County*

Objective: Evaluate the effects of nitrogen application timing and rate on Crimson Seedless/Freedom.

Project: 0504 Evaluation of Grape Rootstock Selections

Project Leader: *Peter Cousins, Ph.D., Geneticist (Plants), USDA-ARS, Plant Genetic Resources Unit, New York State Agricultural Experiment Station, Cornell University, Geneva, NY*

Objective: The specific objectives of this project are to evaluate selections from the USDA Plant Genetic Resources Unit grape rootstock breeding program for their horticultural performance relative to the standard rootstock Freedom and identify those which are superior to Freedom. We have already tested these rootstocks and determined that they are resistant to the nematodes that feed on and damage Freedom. However, we do not know if they are horticulturally superior to Freedom; most importantly, do they produce higher yields or better fruit?

Project: 0508 Pathogenicity of Various Eutypa and Botryosphaeria Species

Project Leader: *Doug Gubler, Ph.D., CE Specialist, Department of Plant Pathology, UC Davis*

Objective: The goal of this research is to identify the different species of Botryosphaeria and Eutypa associated with dieback of grapevines in California and to determine their pathogenicity. Botryosphaeria Ces & De Not (1863) constitutes a complex genus with many taxonomic and nomenclature problems. Beyond the controversy around the taxonomy of both genera the pathogenicity of these newly found species of Botryosphaeria and Eutypa have also been a subject of confusion.

Project: 0604 Rootstock Mothervine Evaluations

Project Leader: *Peter Cousins, Ph.D., Geneticist (Plants), USDA-ARS, Plant Genetic Resources Unit, New York State Agricultural Experiment Station, Cornell University, Geneva, NY*

Objective: The specific objective of this project is to grow vines of grape rootstock selections from the USDA Grape Genetics Research Unit grape rootstock breeding program in the vineyard. Cuttings will be taken from these vines for use in propagation studies and rootstock trials.

Project: 0607 Evaluation of Novel Abscission Agents to Facilitate Mechanical Harvesting of Raisin Grapes

Project Leader: *Matthew Fidelibus, Ph.D., Viticulture Specialist, Department of Viticulture and Enology, UC Davis, Kearney Agricultural Center*

Objective: To evaluate the efficacy of several novel abscission agents on grape berries.

Project: 0703 Herbicide Symptomology in Grapes

Project Leader: *Kurt Hembree, Farm Advisor, U.C. Cooperative Extension, Fresno County*

Objective: To provide a reference for growers, PCAs, agricultural commissioner agents, and others, highlighting specific herbicide symptomology occurring in a standard grape variety, when diagnosing potential herbicide-related symptoms.

Project: 0812 Redglobe Grapes: Influence of Cluster-Directed Sprays on Grape Quality

Project Leader: Joseph L. Smilanick, Ph.D., Research Plant Pathologist, USDA-ARS, Parlier, CA

Objective: Specific quality aspects to be evaluated include berry color, size firmness, bunch rot, postharvest gray mold, 'Redglobe' postharvest breakdown disorder.

Project: 0815 Environmental Effects on Grape Berry Shivel Disorder

Project Leader: K. A. Shackel, Ph.D., Professor, Department of Plant Sciences, UC Davis

Objective: To Test the hypothesis that a stressful environment, such as that of the central valley, will increase the incidence of BS compared to cooler environments, such as Mendocino.

Project; 0906 Enhancing Bio-Control of Insect Pests Using Flowering Intercrops in Vineyards

Project Leader: Kent Daane, Ph.D., CE Assistant Specialist, Division of Insect Biology, UC Berkeley, Kearney Agricultural Center

Objective: 1) Test hypotheses of conservation biological control by measuring the efficacy of three flowering inter-crop species (*Phacelia tanacetifolia*, *Lobularia maritima*, *Daucus carota*) on the enhancement of biological control of specific arthropod pests (variegated grape leafhopper, mealybugs, and spider mites) in grapes. 2) Generate new and relevant information that will serve as a basis for practical and cost-effective ecologically-based pest management strategies that meet or exceed the USDA National Organic Program (NOP) standards for certified organic production in wine grapes.

Project: 0908 Peracetic Acid Treatment of Grapes for Post-Harvest Pathogen Control

Project Leader: Stephen Vasquez, Viticulture Farm Advisor, UC Cooperative Extension, Fresno County

Objective: To determine to what extent a pre-harvest application of peracetic acid can be used instead of or in conjunction with SO₂ gas and/or SO₂ pads in storage.

Project: 1015 Grape Pre/post Herbicide Weed Control Evaluation

Project Leader: Kurt Hembree, Farm Advisor, UC Cooperative Extension, Fresno County

Objective: To determine the potential residual control of new pre-emergent herbicides and determine the influence of different spray volumes and spray nozzles on efficacy of emerged weeds.

Project: 1018 Abscisic Acid and Water Efficiency in Grapes

Project Leader: Matthew Fidelibus, Ph.D., Viticulture Specialist, Department of Viticulture and Enology, UC Davis, Kearney Agricultural Center

Objective: Measure the water use, mid-day canopy temperature, yield, fruit quality, pruning weights, and return bud fruitfulness, of mature 'Thompson Seedless' grapevines subjected to different irrigation (100% or 50% ET_c) and abscisic acid (none, ABA, or ABA analog) treatments from bud burst through harvest.