

‘UC Westside’ – A New Cultivar Release Part of a New Team to Pollenize ‘Kerman’ Better

‘UC Westside’ is a late-blooming male pistachio developed and selected through the University of California (UC) breeding program as a pollinizer for the ‘Kerman’ female cultivar. ‘UC Westside’ demonstrates the following:

- high inflorescence number per branch,
- high pollen weight per inflorescence and,
- excellent pollen germination in laboratory tests.



Inflorescences of ‘UC Westside’ on 2 April 2021 early in the bloom period

‘UC Westside’ has a reduced juvenility period than ‘Peters’ often producing inflorescences in Year 3 and a dense bloom in Years 4 and 5 unlike ‘Peters’, which may take five years to begin producing flowers. The flowering period of ‘UC Westside’ has been coincident with ‘Kerman’ in years with moderate to high chill and has produced a dense bloom in years of low chill, which overlaps the later bloom period of ‘Kerman’. For comparison, in trees of the same age and in the same location, ‘U.C. Westside’ will be at full bloom five to seven days after the male pollenizer ‘Randy’.



This picture is of ‘UC Westside’ in a “high elevation” trial 12 April 2021 in Kern County. This tree was grafted to PG1 rootstock in 2014 and shows tree size and a large number of inflorescences.

‘Peters’ flowering overlap with ‘Kerman’ was exceptionally poor in the low chill crop years of 2014 and 2015, often blooming 10 days behind ‘Kerman’. Additionally, many ‘Peters’ inflorescences were non-functional, especially on the south side of trees, producing no viable pollen. In response to this situation, the U.C. Breeding Program released ‘Famoso’ as a pollenizer for ‘Kerman’ in 2018. Previous

research has demonstrated that ‘Famoso’ bloom is highly synchronous with ‘Kerman’ in very low chill years (Kallsen et al., 2018; Kallsen and Parfitt, 2018) and like ‘UC Westside’ has a reduced juvenility period than ‘Peters’ producing flowers three to four years after budding. However, in the increasingly infrequent high-chill years, the bloom period of ‘Famoso’ may be too early to cover fully the latest bloom of ‘Kerman’. With the advent of ‘UC Westside’, a 50-50 mix of ‘UC Westside’ and ‘Famoso’ in new ‘Kerman’ commercial orchards will provide a higher quantity of pollen and better bloom synchrony as the trees move from juvenility to maturity and under all foreseeable winter chilling scenarios in the Central Valley of California.

Existing older ‘Kerman’ orchards dependent solely on ‘Peters’ for pollination and, especially, in areas subject to inadequate chilling would benefit by the incorporation of ‘Famoso’ and ‘UC Westside’ trees as additional pollenizers.

Citations

Kallsen, C.E. and D.E. Parfitt. 2018. 'Famoso', a new male pistachio cultivar to replace 'Peters'. Hortscience 52:1829-1833. <https://doi.org/10.21273/HORTSCI12218-17>

Kallsen, C.E., D.E. Parfitt and J. Maranto. 2020. UC pistachios show improved nut quality and are ready for harvest earlier than ‘Kerman’. Calif. Ag. 74(2) 86-93. <http://calag.ucanr.edu/archive/?article=ca.2020a0011>

Availability

If interested in obtaining a license to grow ‘UC Westside’ and obtain budwood this season, please contact Sonia Vazquez below:

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Plant Nutrition is Seldom the Cause of Unsatisfactory Pistachio Yields in the Southern San Joaquin Valley of California

Over the years, a significant percentage of the queries I have received related to the production of pistachios have concerned questions about nutrient fertilization. However, in my experience, insufficient nutrient fertilization is seldom the cause for disappointing yields in Kern County. When it comes to nutrition, we have some of the most “spoiled” pistachio trees in the world. A focus on balanced nutrition is important, but it can be overdone. Our heavy soils of the San Joaquin Valley (SJV) can store a lot of nutrition. More fertilizer does not mean more yield, necessarily, and this observation is especially true of pistachios. Personal observation strongly suggests to me that the two biggest limiting factors related to yield in the southern San Joaquin Valley are weather and soil salinity. Generally, nutrient availability is way down on the list of yield limiters yet stubbornly remains an expensive obsession for many pistachio growers.

Pistachio’s center of origin in central Asia has a climate very different from the SJV of California. While we in the SJV have plenty of the necessary summer heat for pistachio production, we, increasingly, are

having yield-limiting problems with insufficient winter chilling and excessively high temperatures during bloom.

Pistachio is one of the cultivars or choice in the SJV when salinity is high. Pistachio production can be profitable, even under high soil salinity, but, depending on the level of salt in the soil and water, maximum yields will be significantly less than if salinity is excessive.

So how does adverse weather and high salinity interplay with nutrient fertilization? Based on the soil analyses I review, it is obvious in some cases that fertilizer applications appear to proceed year to year based on the assumption that weather will be perfect allowing maximum nut yield production and that soil salinity is not a serious impediment limiting crop yields. However, in pistachio these assumptions have a high probability of being wrong.

Up to a point, nutrient demand is correlated with crop yields. The more yield, the greater the nutrient requirement. This statement is not, necessarily, the same as saying that the more nutrients, the greater the yield. According to this relationship, when yields decrease, or fall short of expectations, then nutrient demand will be less. However, it is clear from historical soil analyses in some orchards that, frequently, fertilization rates are not adjusted downward for weather and salinity-related yield decreases. Often, there is a lot of nutrition leftover in the pistachio root zone because of yield-limiting events.

If salinity is a limiting factor, and fertilizers are applied to meet the nutrient requirements of vigorous, high-yielding trees in good soils, the fertilizer left unused by the salinity-affected trees, will likely be lost to deep drainage in the dormant-season irrigation-leaching fraction. There is no point in fertilizing (or irrigating) for maximum yields, in a salt-affected orchard that does not have the potential to produce maximum yields. In many of our salt-affected soils, I can understand an obsession with soil amendments, much more so than nutrient fertilization. Even in great soils, in an on-year in the alternate-bearing cycle of pistachio, a poor chill year or hot weather during bloom can reduce yield and associated nutrient demand unexpectedly, resulting in plenty of residual fertilizer in the root zone at the end of the season.

Soil analysis, conducted prior to the new season, can provide important information on the existing residual nutrient availability in the soil. Admittedly, soil chemistry is complicated and not an exact science. Converting the information in a soil analysis to what is actually required in terms of additional fertilization and soil amendment requires knowledge, experience, and access to records of the historical fertilization and amendment program in that orchard. However, trusted expertise is out there in private industry. The interpretation of some nutrients in the analysis, such as for nitrate nitrogen, are straightforward. It is not unusual for soil analyses brought to me to show that there may be 200- 400 lbs. of available nitrate-nitrogen in the top 3-ft. of soil profile. Even with the soil report in hand, I have been unable to dissuade some from going ahead and scheduling additional nitrogen fertilization. Nitrogen can be harmful to roots at high concentrations, so why not use some of this residual up, and save money in the process.

I have seen soil analyses that show, assuming adequately scheduled irrigation, that even bearing trees could likely produce excellent yields, without any additional fertilization for two seasons. Using up residual fertilizer in the soils where soil sampling indicates that there is plenty there, make senses environmentally and economically. If soil analysis is not being conducted at all, who knows what the

potential fertilization savings might be. With many annual crops, such as cotton and tomatoes where profit margins are potentially smaller and excessive nitrogen can negatively affect crop quality, many producers have the soil chemistry in their fields down to a fine art.

Even if a miscalculation occurs that suggests an insufficient fertilizer application, pistachio has the capability of ameliorating such issues. Pistachio trees have a vigorous root system that goes deep and spreads wide. Pistachio can access nutrients, which are not available to many other fruit and tree crops, well below the zone where most growers are balancing their nutrient applications. Often, these deeper zones in the profile, which, typically, are not sampled in routine soil testing, can harbor a rich source of nutrients leached there over time. There appears to be little risk, and plenty to gain, in giving pistachio a chance to show how well it performs in tapping residual nutrients in the root zone.

Craig Kallsen, UC Farm Advisor – Kern County, to Retire July 1, 2023



I began working for the University of California Cooperative Extension in January 1995. Recently, upon reaching 70 years of age, I concluded it was time to retire. To be an effective farm advisor, I found that I had to be able to juggle seven or eight things at once. I realized not too long ago, that I was down to being able to do only two or three things at once, which wasn't really enough.

By far, being a UCCE farm advisor has been the best job among many that I have worked. It has been humbling, interesting and exciting at the same time. This job would have been impossible for me without the good-will and support that I have received from hundreds of you involved in the pistachio and citrus industries. There is no way I can really quantify everything that I have learned from all of you. Especially, I want to thank the many cooperating growers that have given me and the University of California access to land; and planting, field maintenance, pruning and harvesting assistance for the many test trials that my UC collaborators and I have developed over the years. My research program would not have been possible without these grower cooperators. Some of these field trials will continue and I have found great people in the University of California that have been in the process of transitioning into leadership roles in these trials.

Likewise, without the wonderful advice, help and encouragement of my coworkers and mentors at U.C., I would have been lost.

I think I have timed my retirement well. We have had great winter chilling, there is plenty of irrigation water in storage and the set of the upcoming pistachio crop looks to be excellent. The University over the past six years or so has hired some great farm advisors, specialists, and professors so the future research and extension outlook is bright. I have never been as impressed with the breadth, originality and knowledge of the researchers that have been submitting proposals to and being funded by the California Pistachio Research Board and the U.S.D.A., as I have been these past couple of years. Future research in pistachio in California is in good hands. Knowing the pistachio industry as I do, I have no doubt that they will receive the great support from you that I have over the years.

I will still be around. I have been granted emeritus status, which allows me to remain associated with the University of California, to finish working on some projects that are near completion and to work in an advisory capacity, if needed, on others that, likely, will require a decade or more to fully evaluate.

Also, a final thank you to those of you who have supported this newsletter by reading it over the years. So, in closing, you all have my heartfelt wish for a future of safe, happy, productive, and profitable farming!

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