



Pistachio Bloom

By Robert Smith, Agronomist, Ultra Gro

The 2020 pistachio harvest wrapped up just a few months ago with the industry's largest crop in history totaling 1,050,228,756 pounds. Yes, that is ten figures. Now we are looking towards the 2021 crop season. Budbreak/bloom extends from budbreak to nut set. Activities for this season generally occur mid-March to mid-April, but dates vary according to region, variety, and weather.

The seemingly warm winter temperature for the start of 2020/2021 season leaves us pondering whether the 2020/2021 winter provided enough chill to facilitate the set of a 2021 crop. In general, the chill requirement has been met at most pistachio-growing locations in California. Looking closely at the numbers, however, it is not hard to notice that several sites fall short of the target (Westside SJV) and are below the long-term average of cumulative chilling hours in a season. And a large quantity of those hours came late in the dormant season which has some in the industry questioning the effectiveness of the portions that are received late.

Once growth begins (Bud Swell), the available carbohydrate is critical for bloom, nut set and yield as well as next year's flower bud retention. All the energy that the tree uses in budbreak/bloom to 50% leaf out is stored carbohydrates and nutrients.

If cool temperatures prevail during bloom, enough heat will be available for slow but normal flower development, a threshold where temperatures are too cold for fertile male and female flowers to develop. Flower development must occur within a given time frame, and flowers cannot wait indefinitely for warmer temperatures. Trees adapt to a certain time frame, and if this time frame is missed, there are fewer nuts set per cluster.

In the San Joaquin Valley, pistachio trees that experienced insufficient fall and winter cooling, compounded by fall and winter solar bud warming, will have the following symptoms: Male and female trees not blooming together; North side of tree blooms before south and top of tree resulting in late or prolonged bloom – or no bloom on south side; Abnormal flower development; Flagging of shoots; and Leaves only pushing at ends of branches. "Nut crop yield records show that bud break based chilling requirements may not reflect yield..." Pope et al., 2014 suggests that potential yield cannot be based on bud break and % bloom, that physiological processes after bud break, also affected by temperature, must be considered.

Orchards that are healthier, well maintained, fertilized, and properly irrigated overcome stress in the spring. We can influence this with properly fertilizing your orchard. Yes, there is a right and a wrong time to fertilize your orchard. Just before bud break is the perfect time. This is when the orchard is beginning their root flush and start to utilize the nutrients in the soil. You can fertilize up to a month before this to have an adequate beginning of root flush.