



## Concerns About Chill Portions on the Westside of the San Joaquin Valley

The 2020/2021 season for pistachios is well underway. December and January are high chill accumulation months. While the eastside of the San Joaquin Valley has enjoyed some foggy days, the westside and southern San Joaquin Valley (SJV) have been much warmer. Almond and pistachios trees rely on enough chilling for fruit and leaf buds to develop normally.

While the physiological changes in carbohydrate dynamics in trees preparing for dormancy are still poorly understood, the effects of poor chill accumulation are well documented. If the buds do not receive sufficient chilling temperatures during winter to completely release dormancy, trees develop physiological symptoms such as delayed and extended bloom (too little altogether can result in bud death), delayed foliation, reduced fruit set and reduced fruit quality.

During the fall of the year (post-harvest) the trees accumulate non-structural carbohydrates (NSCs), i.e., sugar and starch. Carbohydrates provide the energy for growth, defense, healthy flowering, and yield. Chill accumulation preserves the accumulated carbohydrates during the dormant period.

Orchards that are healthier going into the fall/post-harvest season accumulate higher carbohydrate production and storage than those that enter under stress. The orchards that have higher carbohydrate levels during the dormant period can withstand lower chill accumulation while still maintaining high yield levels.

The eastside of the SJV will likely achieve adequate accumulated chill and is looking forward to a nice crop this year. The weather outlook for the westside of the SJV has been warm (little fog) and the forecast shows higher than normal temperatures. This not good in achieving the accumulation of 60 to 65 chill portions needed for a pistachio orchard to meet its yield potential.

Accumulative Chill Hours Thru 1/15/21		
Location/Station	Chill Portions (Deficit)	Chill Hours Needed
Arvin #125	42 (-18)	Kerman 54-58 Peters 58-65
Belridge #146	37 (-23)	
Coalinga #205	39 (-21)	
Five Points #002	35 (-25)	
Westlands #105	43 (-19)	
Panoche #124	31 (-29)	

With four weeks yet to the magic number of 60 Chill Portions, there needs to be a radical shift in the weather to achieve the Chill Portions needed on the west and southside of the SJV. The average weekly accumulation for the previous month has been around 3-4 chill portions per week. In other words, we are rapidly running out of time.



Elizabeth Fichtner (UCCE Tulare County) offered the disclaimer that the models for calculating chill is just that. She said, "It's a model, not a law of nature," meaning reaching some magic numbers – or not doing so - is not an assurance of crop size.

Now that we have concluded that we may be running short on Chill Portions, the question is: What can or should be done about it?

Apply a dormancy enhancing product. This would need to be done soon. These are best used earlier, but with the forecast of 65°F plus temperatures now is the time. There are various products available for this, but **Ultra Gro Foliar Crop Shield** is an excellent choice. The rate is 1 gallon per acre and can be applied by ground or by aerial application. This has demonstrated the ability of lowering the radiant temperature on plant tissue.

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 its root flush and starting to utilize the nutrients in the soil. You can fertilize up to a month before this to have an adequate at beginning of root flush.

**Ultra Gro 2-17-17** is an exceptional product containing plant readily available Phosphorus and Potassium. Phosphorus is particularly important for root development, flower initiation and energy transport within the tree. Phosphorus is crucial for the ATP component. This is the energy compound in the plant system. Potassium is a paramount macro-element for overall survival of living things. It is an abundant mineral macronutrient present in plant tissues. The rate of respiration by plants is largely the determining factor for proper uptake and transport of potassium by plants. Its uptake is dependent on sufficient energy (ATP). Potassium plays a vital role in the trans-location of essential nutrients, water, and other substances from the roots through the stem to the leaves.

**Ultra Gro 2-17-17** can be mixed with a various Zinc and Boron products as needed. **Ultra Gro 2-17-17** can be applied through your irrigation system or foliar at bud break.