



TENTATIVE GUIDELINES FOR INTERPRETING PRESSURE CHAMBER READINGS (MIDDAY STEM WATER POTENTIAL-SWP) IN WALNUT, ALMOND, AND DRIED PLUM. UPDATED MAY 2007.

Allan Fulton and Richard Buchner, UCCE Farm Advisors, Tehama County, Joe Grant, Farm Advisor, San Joaquin County, Terry Prichard, Bruce Lampinen, Larry Schwankl, Extension Specialists, UC Davis, and Ken Shackel, Professor UC Davis.



Pressure Chamber Reading (- bars)	WALNUT	ALMOND	PRUNES
0 to -2.0	Not commonly observed	Not commonly observed	Not commonly observed
-2.0 to -4.0	Fully irrigated, low stress, commonly observed when orchards are irrigated according to estimates of real-time evapotranspiration (ETc), long term root and tree health may be a concern, especially on California Black rootstock.	↓	↓
-4.0 to -6.0	Low to mild stress, high rate of shoot growth visible, suggested level from leaf-out until mid June when nut sizing is completed.	↓	↓
-6.0 to -8.0	Mild to moderate stress, shoot growth in non-bearing and bearing trees has been observed to decline. These levels do not appear to affect kernel development.	Low stress, indicator of fully irrigated conditions, ideal conditions for shoot growth. Suggest maintaining these levels from leaf-out through mid June.	Low stress, common from March to mid April under fully irrigated conditions. Ideal for maximum shoot growth.
-8.0 to -10.0	Moderate to high stress, shoot growth in non-bearing trees may stop, nut sizing may be reduced in bearing trees and bud development for next season may be negatively affected.	↓	Suggested levels in late April through mid June. Low stress levels enabling shoot growth and fruit sizing.
-10.0 to -12.0	High stress, temporary wilting of leaves has been observed. New shoot growth may be sparse or absent and some defoliation may be evident. Nut size likely to be reduced.	Mild to moderate stress, these levels of stress may be appropriate during the phase of growth just before the onset of hull split (late June).	Suggested mild levels of stress during late June and July. Shoot growth slowed but fruit sizing unaffected.
-12.0 to -14.0	Relative high levels of stress, moderate to severe defoliation, should be avoided.	↓	Mild to moderate stress suggested for August to achieve desirable sugar content in fruit and to reduce "dry-away" (drying costs).
-14.0 to -18.0	Severe defoliation, trees are likely dying.	Moderate stress in almond. Suggested stress level during hull split, Help control diseases such as hull rot and alternaria, if diseases are present. Hull split occurs more rapidly	Moderate stress acceptable in September.
-18.0 to -20.0	Crop stress levels in English walnut not observed at these levels.	Transitioning from moderate to higher crop stress levels	Moderate to high stress levels. Most commonly observed after harvest. Generally undesirable during any stage of tree or fruit growth. Most appropriately managed with post-harvest irrigation
-20 to -30	↓	High stress, wilting observed, some defoliation	
Less than -30	↓	Extensive defoliation has been observed	High stress, extensive defoliation

* These guidelines are tentative and subject to change as research and development with the pressure chamber and midday stem water potential progress. This table should not be duplicated without prior consent by the authors.