

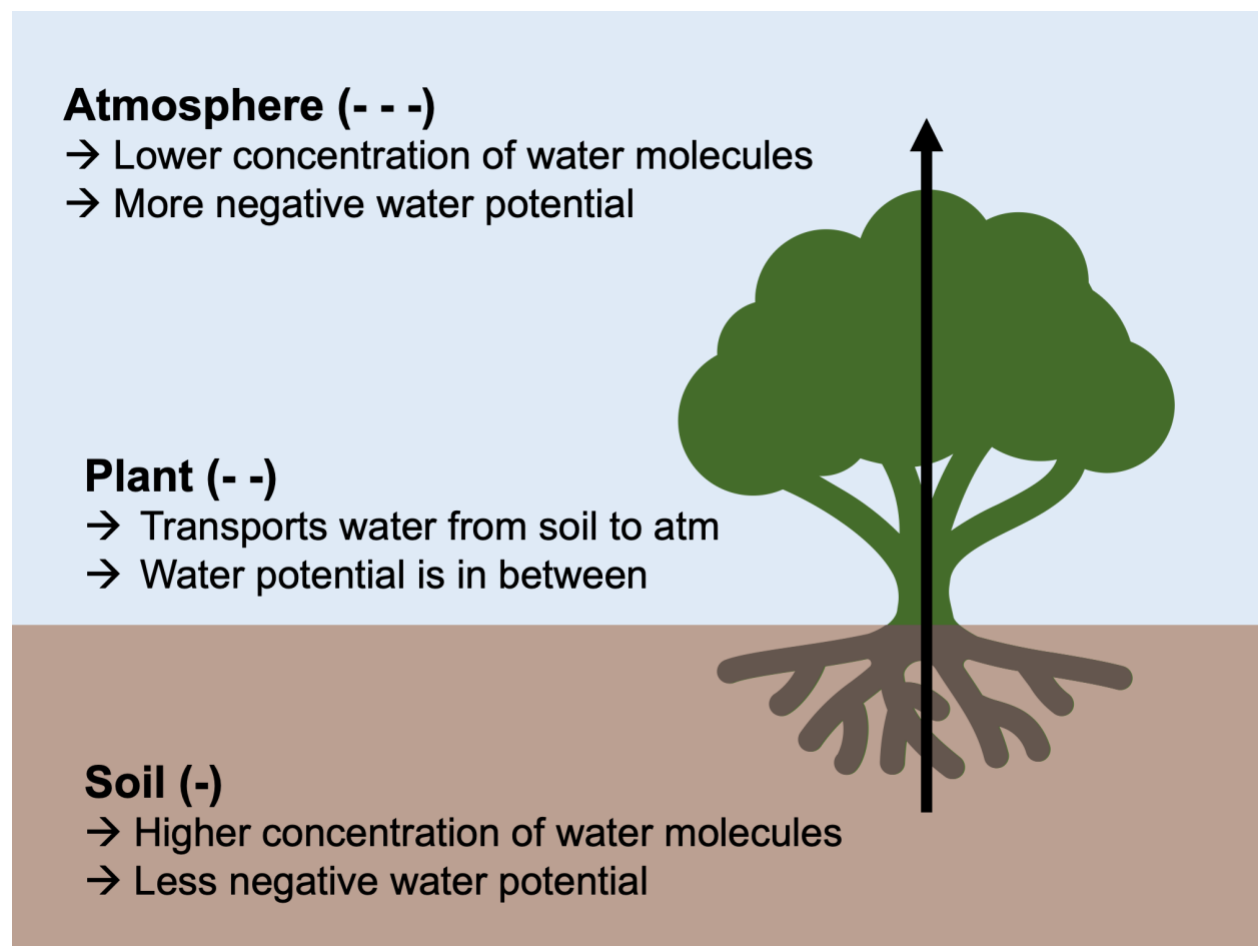
Stem Water Potential Overview

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Water potential: the potential energy of water per unit volume.

→ Quantifies the tendency of water to move from one area to another.

Soil-Plant-Atmosphere Continuum (SPAC): the continuous pathway of water movement from the soil thru plants into the atmosphere.



→ The soil and air are not in equilibrium, so water movement is driven by a water potential gradient from areas of high water potential to areas of lower water potential. Plants absorb water, transport it thru their vascular system, and release it to the atmosphere via transpiration.

Stem water potential: the potential energy of water in a leaf stem.

→ Tells you how “thirsty” your trees are.

→ This is what we measure with a pressure chamber!

General Stem Water Potential Ranges

	Bars				
	Apples & Pears	Olives	Peaches	Citrus	Grapes
Fully irrigated	-6 to -10	-8 to -15	-6 to -10	-4 to -10	-4 to -8
Slightly to moderately water stressed	-10 to -20	-15 to -25	-10 to -20	-10 to -20	-9 to -12
Severely water stressed	-20 and lower	-25 and lower	-20 and lower	-20 and lower	-12 and lower

Please note, these ranges are approximations and represent broad guidelines for interpretation of stem water potential values based on current research. Always consider your own visual observations of plant water stress together with irrigation decision support tools. If you would like more precise interpretation information, please consult UCCE resources for crop phenological stages and reference baselines which factor in air temperature and air relative humidity. UC researchers are continually refining stem water potential interpretation ranges and they may be updated in the future based on new research findings.