

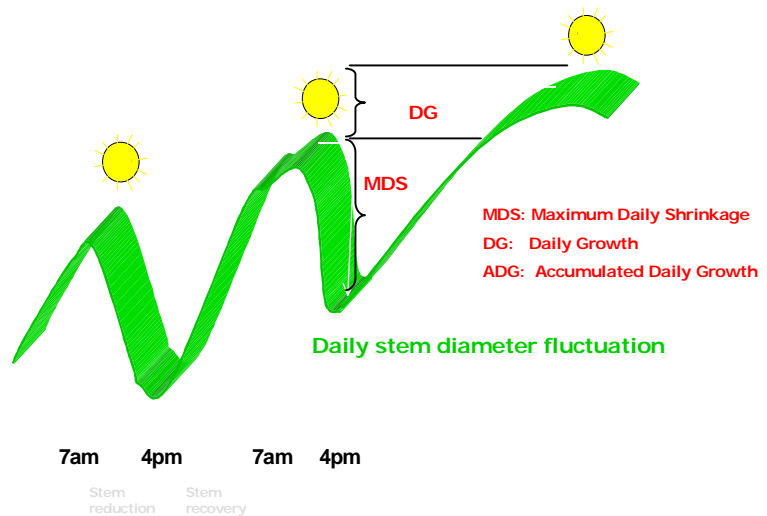


## PlantSens - Proven technology to determine true plant water potential now available to the SA wine & fruit farmer.

The principle of measuring plant stem expansion and shrinkage as an indication of plant water potential has been around for some 10 years. In most recent years modern technology has however made it possible to measure daily changes in MDS (maximum daily shrinkage) cost effectively on a continuous basis.

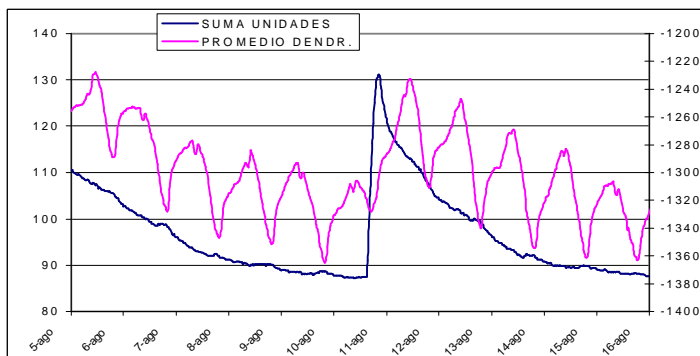
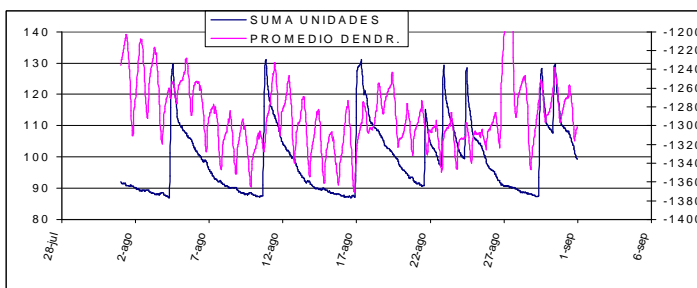
The “continuous data signature” is what it is all about. The ability to track changes in trends as they happen is the key to successfully manage moisture regimes within the plant. The ability to manage moisture regimes within the plant is one of the most important keys to superior wine quality in the cellar.

Continuous measurement of daily gain and shrinkage of the plant stem creates a specific “data signature”. If shrinkage has been bigger than gain a net negative result on overall growth is introduced. If however the night’s gain has been relatively bigger than the previous day’s shrinkage, a net gain is recorded.



This is the basis of understanding and using PlantSens to manage stress on any particular crop.

## PlantSens benchmarked against traditional methods of soil moisture measurement.



The accompanying graphs show a perfect fit between traditional continuous soil moisture measurement and continuous PlantSens measurement.

The blue line shows irrigation cycles as measured by a C-Probe™ and the pink line shows the trend of MDS (Maximum Daily Shrinkage) as measured by PlantSens.

**PlantSens vs. traditional methods.**

The most commonly used method of introducing and

controlling stress in vineyards is through soil moisture measurement. Soil moisture measurement is generally regarded as an *indirect means* of measurement where as PlantSens measures the response of the plant on all input variables on a *direct level*. "What you see is what you get".

The problem with indirect measurement such as soil moisture measurement, is that it is subject to what is generally referred to as the "Full and Refill points" or RAW (Readily Available Water). RAW, when determined on a sound scientific foundation, is a very good basis for stress/quality management. Under average agricultural practices, this is however rarely achieved and usually a function of several years' trial and error.

PlantSens is perfectly suited as an instrument to measure directly the plant's response - measuring directly what the plant is "feeling".

PlantSens has been tested and trialed in four major wine producing continents in collaboration with various international acclaimed research institutes including SARDI in Australia and is now on a commercial basis available to SA wine & fruit growers.



CropSystems has taken the lead (in SA) in this cutting edge technology and offers PlantSens as a standalone option or as a plug and play add-on option on its well established Adcon weather station network.

PlantSens is an undisputable benchmark for controlled stress management in vineyards and orchards and will offer an invaluable additional tool to existing traditional methods of regulated deficit irrigation practices. PlantSens is particularly well suited to act as a "watchdog" on premium varieties for a stress/quality management strategy on farms using an intermittent soil moisture measurement service. On farms already equipped with an Adcon weather station or C-Probes, the PlantSens can just be added as a plug & play sensor.

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