WATER & SOIL

Installing Tensiometers

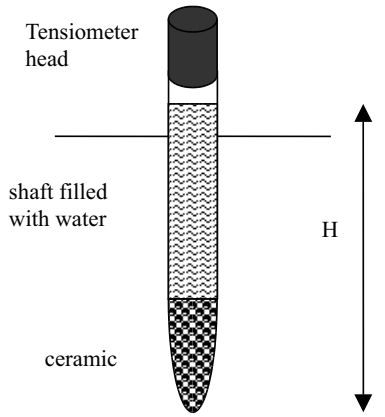
Tensiometers can be installed in soil or growing medium at almost any angle, however, it is not recommended to install exactly horizontal.

Most users prefer to install tensiometers vertically, at varying depths according to the rooting system of the crop which is being monitored. In shallow rooting crops or where the soil is accessible from a vertical wall, tensiometers can be installed at suitable angles in order to place the ceramic tip just at the point of measurement.

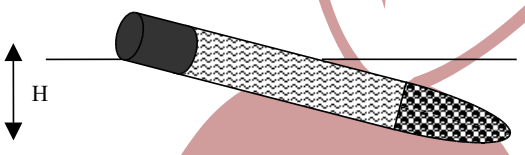
Before installation, tensiometers must be filled with water (preferable distilled and boiled to remove entrapped air). Care must also be taken to force all the air out of the porous ceramic tip before filling - either 'backfill' by sitting the empty tensiometer in water, or fill and let the water drip through the ceramic under gravity - please see the tensiometer manual for details.

Once installed, it is important that the water level in the tensiometer does not get so low as to let air back into the pores of the ceramic, or the suction held inside the tube will be lost and measurements will fail. In general, it is best not to let the 'air bubble' increase more than 2-4 cms. For near horizontal installations, this 'air bubble' is very important. The shallow angle of the tensiometer can mean that even a small 'air bubble' may reach down to the ceramic - see diagram below.

When taking measurements from a tensiometer, it is also important to take into account the hydrostatic pressure of the column of water inside the instrument itself. This pressure must be subtracted from the (already negative) tensiometer pressure reading - please see the tensiometer manual for a table of instrument lengths against pressures to be subtracted. If you are using a Skye DataHog datalogger or HydroSense meter then this length 'offset' can be automatically subtracted from the measured reading.



VERTICAL INSTALLATION



NEAR HORIZONTAL INSTALLATION

H = hydrostatic pressure

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