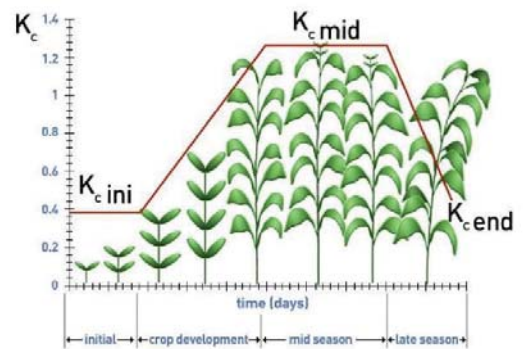
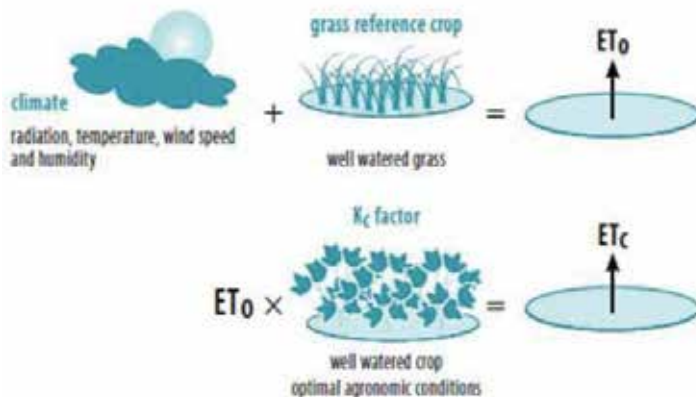


Irrigation Scheduling

Irrigation scheduling is one of the most important management practices to achieve optimum water use efficiency. There are two things to consider here when scheduling the irrigation. One is how much water will my crop need. Two is how often will it need water.

Scheduling according to climatic conditions requires very little equipment. You will need to know what E_{t0} (this is the evapotranspiration using well maintained lawn as a reference) is and what the crop coefficient is (also known as crop factor or K_c value) as the crop grows.

E_{t0} is published daily by the Bureau of Meteorology. The diagram below shows the relationship between E_{t0} and E_{tc} and how E_{tc} is calculated.



Rainfall also is part of scheduling irrigation. The important thing here is to determine what effective rainfall is. (Generally speaking this could be a rain event over 5mm and under 50mm depending on ground cover and soil condition)

Irrigation application efficiency can have a bearing on the amount of water you need to apply but is often difficult to determine without advanced skills. Put simply it is the ration of water that the crop can use.

A typical calculation using just these factors only:

This could be shown as $E_{t0} \times K_c \times A_e - \text{effective rainfall} = \text{Required irrigation depth}$

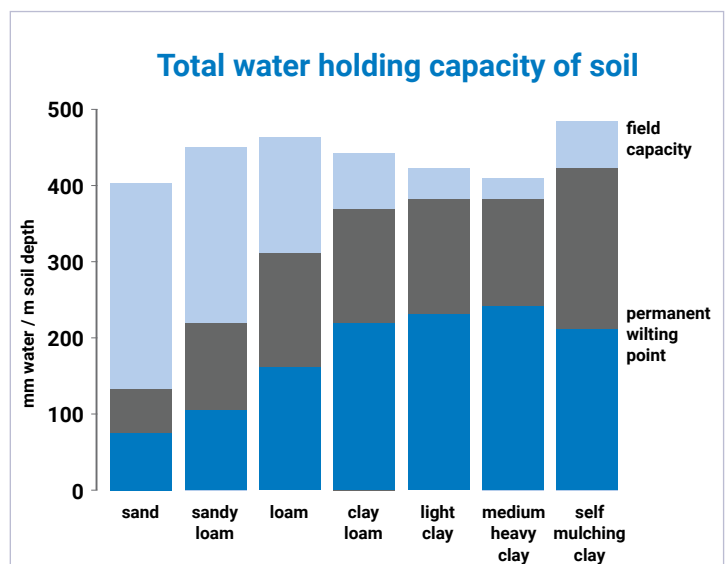
The Pro's and Con's of using this method only:

Pro's It is cheap and simple to implement as you only require the Bureau of metrology E_{t0} data, rain gauge, understanding of the crop K_c value at its different stages of growth and a calculator.

Con's can be that there is little understanding of what soil water is available to the crop at planting, what sub surface flows that are present, capillary rise and what is the actual application efficiency of the irrigation system.

Using soil moisture will help fine tune the above scheduling through a better understanding of

- how much PAW (plant available water) is in the soil?
- when is the crop taking up water?
- how often do you need to water?
- is water going past the plant root zone?
- what is the infiltration limitations of the soil?
- what is the drainage rate? ■■



This fact sheet has been developed by Pat Daley from Daley's Water Service in conjunction with the Dairying Better 'n Better team as part of the Let the Benefits Flow Project. This project is supported through funding from the Australian Government's National Landcare Programme and is delivered through the Dairying Better 'n Better program which is a partnership between Queensland Dairyfarmers' Organisation and Subtropical Dairy Program.