



Water Use Efficiency : Almonds

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Based on information from TL Pritchard

This article is to be read in conjunction with the 'Water Restriction in Sunraysia 2003-2004' document.

For maximum growth, yield, crop quality and orchard longevity, almond trees should receive a full water requirement. If water is limited, growers can adjust by applying water when trees are most sensitive to stress and by taking measures to minimise water losses that occur during irrigation. Water stress affects almond orchards not only in the year in which stress occurs, but also in the following seasons. Water stress reduces vegetative growth, causing a subsequent reduction in nut load and yield. Nut size is reduced in the year stress occurs.

Timing of water stress

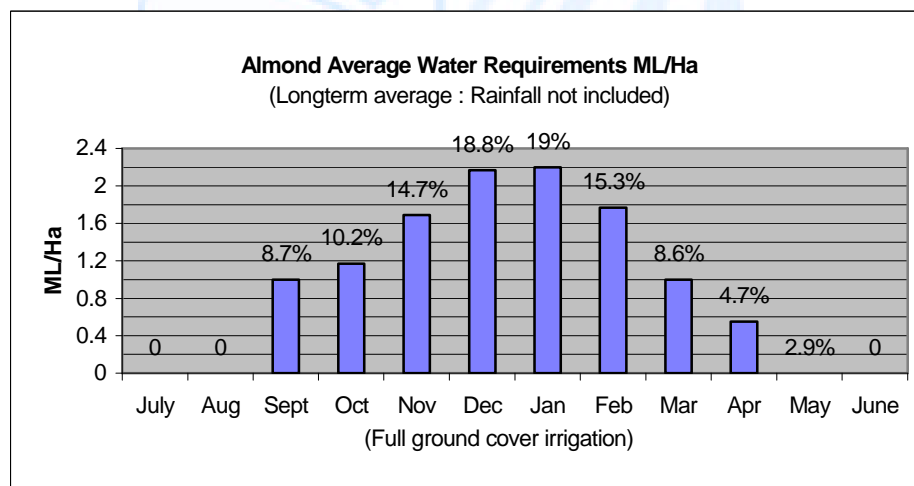
Early season – Water stress is most harmful during the early season – from budbreak through to fruit set. During this period, rapid vegetative development is necessary for canopy development and fruit positions next season. In addition, as orchard water use during this time is low there is no room for Regulated Deficit Irrigation (see below) and potential water savings.

Fruit growth and development – Nuts undergo a rapid growth phase early in the fruit growth and development stage; however the trees can tolerate drought stress fairly well during the two months prior to harvest. This allows for the successful use of deficit irrigation strategies. By providing less than full water requirement during this period, minimal impact on kernel weight has been noticed. However, severe water stress shortly before hull split significantly reduces hull split. Irrigation prior to hull split will reverse this trend and will improve hull split and reduce number of hull-tights.

Postharvest – The effect of water deficits during the postharvest period is substantially affected by preharvest conditions and the quantity of water use for the remainder of the season. With almond trees, bud differentiation continues through mid- March. Severe water stress during bud differentiation has been found to dramatically reduce fruit set the following spring.

Regulated Deficit Irrigation for Almonds – Water use from bud break through mid December should not be compromised. From mid December through harvest, 50 to 70% full water will result in only minimal reductions in kernel weight. It is important to supply the trees with water near hull split to avoid hull-tights.

Predicted Water Use for Almonds





Further Reading

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