



Dry Season Information: Pears

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Introduction

There are critical stages in the annual growth cycle of pear trees that require adequate soil moisture to produce a commercially viable crop:

1. Pre flowering

- Root growth commences from late August onwards, so the soil needs to be moist and soft to establish an early root system before flowering.

2. Flowering and fruit set

- Bare or closely slashed tree rows with moist soil are needed to absorb heat during the day to minimise the impact of frosts.
 - Adequate soil moisture until approximately 4 weeks after full bloom is critical for root growth, fruit set and to maximise cell division during the early stages of fruitlet growth
 - Do not discount thinning as an option for pears. Aggressive flower thinning or secateur thinning early after flowering - especially if weather has been fine during flowering - may be warranted to maximise fruit size for the more valuable pear varieties, especially if water availability for irrigation is low and flowering and fruit set have been strong.

3. Fruit growth



- Pears do not continue to size fruit during November to mid December. Moisture stress during this time reduces the growth of leaves and shoots - but not the fruit. This presents an opportunity to use Regulated Deficit Irrigation (RDI). A water saving of 1 to 1.5 megalitres per hectare are possible during this 6 week period.

- Fruit growth by cell expansion, and the accumulation of sugars by the fruit depends heavily on optimum soil moisture and good irrigation during the final rapid fruit growth stage in the last 6 to 8 weeks to harvest.

4. Post harvest

- Irrigations after harvest can be reduced but not to the level that causes significant leaf loss. Continue post harvest irrigations to water in nitrogen fertilisers and maintain leaf activity (photosynthesis) for some of the day. Minor wilting in the hottest part of the afternoon will not be too detrimental if water is really short.
- Irrigating as long as possible after harvest ensures nutrients are accumulating in the tree for budburst, fruit set and early shoot development in the following spring.

Dry season issues

Insect and mite pests can flare up quickly in a dry season when trees are water stressed. Monitoring or scouting pear orchards will need to be thorough and regular.

Frosts are likely to be more severe and occur later into the season. Install a frost alarm system. Use the irrigation system, soil management and other frost reduction methods in the orchard.

If there is no frost damage, heavy fruit set is possible because of fine weather at flowering.

There could be excessive fruit shedding in November if the soil was dry during flowering and fruit set.

Strategies for a dry season- Pears

The following strategy is suggested if irrigation water entitlements are low:

- Prior to the commencement of the season set out a water budget for each irrigation block on a weekly basis using long term irrigation requirements, incorporating RDI strategies and assuming no effective summer rainfall.
- On a regular basis review water allocation, long-term rain forecasts and market potential for each variety.
- If insufficient irrigation water is available, then decide on one of the following strategies:-
 - Purchase water.

- Irrigate at a deficit and suffer a fruit size loss. Heavier thinning may offset some of the loss in fruit size.
- Do not irrigate. Lower productivity blocks could be de-blossomed or even pollarded (main limbs cut in half or pruned even lower) to reduce water needs. Wound dressing must be applied to these larger pruning cuts. Alternatively, some older trees may be close to being non-viable. This may be a good time to pull them out earlier than planned and transfer the water to productive blocks of trees to ensure some commercially viable fruit can be harvested.

Incorporate the following orchard management to save water:

- Prune the most valuable and productive blocks first. Leave the lower value blocks to be pruned until last. This gives more time to evaluate the seasonal rainfall and means decisions about abandoning poorer blocks to save water can be left until later.
- Strip all fruit off trees one and two years old and those just planted. Three to four year old trees should be thinned heavily or the fruit stripped off if water is short.
- Measure soil moisture to schedule irrigations.
- Eliminate all weed competition. If micro-irrigated, spray weeds emerging in the irrigated zone during spring and summer.
- Slash the orchard more often and as close to the ground as possible. Spraying out all the understorey pasture and weeds may be needed under drastic water shortages.
- If possible, mulch the tree-line and irrigate the soil shaded by the tree and not out in the traffic row area.

Irrigation Requirements for Pears

- Irrigate at budswell to enable root growth to commence ahead of flowering.
- Irrigate to maintain good soil moisture from budswell to 4 weeks after flowering. Make sure the water penetrates to the full depth of the rootzone - but not past the rootzone. Moist soil is needed at this stage for early fruitlet growth, root growth and to reduce frost risks.
- Tensiometers or other soil moisture measuring instruments will indicate when irrigation is needed. This will be of great benefit to guide irrigation needs whilst trees are leafing up and if there has been any effective rainfall which can save on irrigation water.
- Use Regulated Deficit Irrigation (RDI) for William's Bon Chretien (WBC) during November to 1st week of December, and for Packham during November to mid December
- Assume 6 megalitres of water per hectare are needed to grow WBC and 7 megalitres per hectare for Packham and later varieties.

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