OLIVE GROWING

VULNERABILITY RATING
(Low—High)

PROGNOSIS

A reduction in frost risk days and an increase in temperature and growing degree days is projected to have a positive influence on the production of olives in the region. Olives will be somewhat resilient to climate change impacts, in particular through increased land suitability.

THE FUTURE OF OLIVES IN THE CRADLE COAST REGION

Olive growing in the CCNRM region is concentrated in zone 2 (Figure 1).

The entire Cradle Coast NRM region is projected to have an increase in temperature of 2.6 to 3.3°C, which is similar to the rest of the state[1]. Olives are able to cope with large variations in temperature[2].

Rainfall in zone 2 is projected to increase in summer and winter by up to 10% and slightly decrease in spring but little change is expected during autumn. An increase in rain during summer could increase the risk of rots and moulds in olives[2]. Increased rainfall also brings flooding in low-lying areas, which could impact on olives as they do not tolerate water logging[2].

Frost incidence is expected to decrease under the Climate Futures A2 scenario for the olive growing region, although damaging spring frosts may still occur[1].

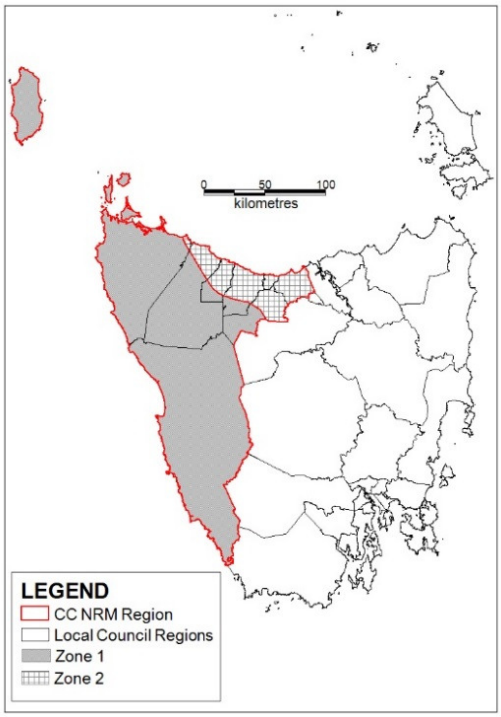

Figure 1. Cradle Coast Region depicting Zones 1 and 2.

[1] Holz et al 2010
[2] Climate change office 2014

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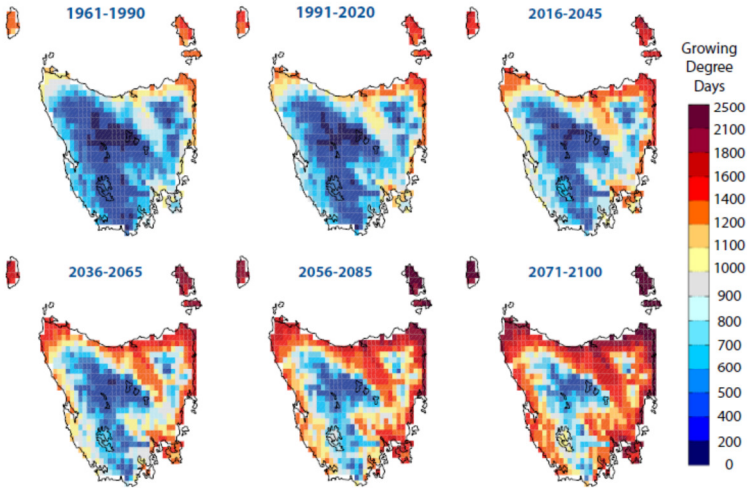

Another major contributing factor to fruit growing is the number of growing degree days (GDD). Growing degree days, also referred to as growing degree units, is a measure of the heat required to grow and ripen crops [2]. Under climate change the number of GDDs is projected to increase across the region (Figure 2).

Figure 1. Annual growing degree days under the A2 emissions scenario. Source: Holz et al., 2010

Olives respond well to winter chill hours. Chill hours, or chill units, are a measure of a plants cumulative exposure to chilling temperatures which, for the model used[1], do not occur below 0°C or above 9 °C. The predicted decrease is expected to have negative impacts on the productivity of current cultivars and fruit viability[3]. Under the A2 emissions scenario chill hours at low altitutes are expected to decrease significantly (Figure 2). At Spreyton chill hours are projected to decrease by around 40% by 2085[1] which will add significant pressure on fruit growers to manage their crops.

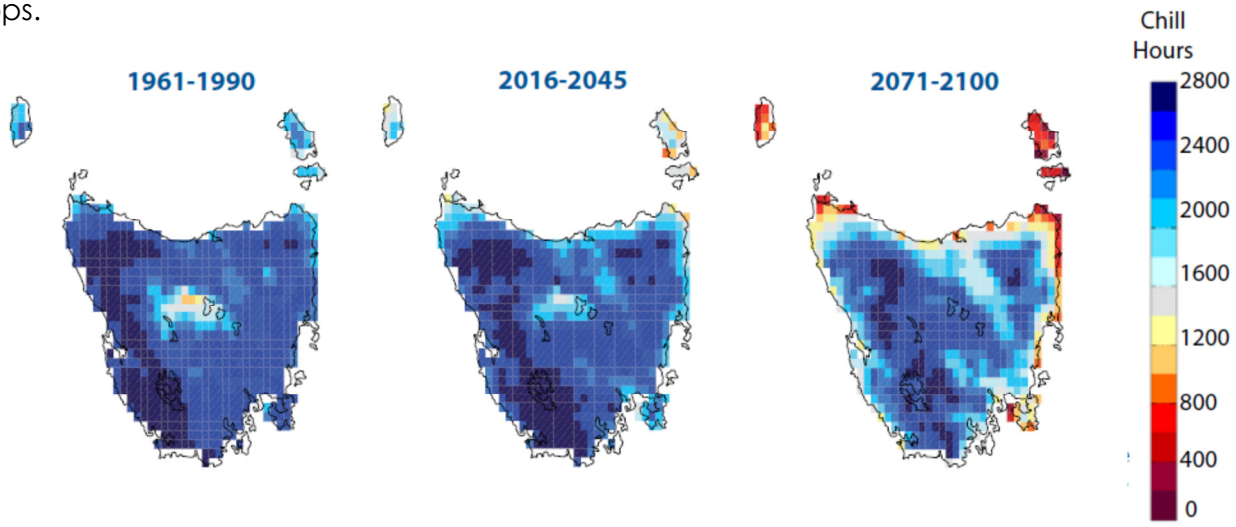

Figure 2. Annual chill hours under the A2 emissions scenario. Source: Holz et al., 2010.

[3] Luedeling et al 2011

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ADAPTATION OPTIONS FOR OLIVE FRUIT GROWERS

There are several adaptation pathways for growers to consider in order to mitigate the impacts of climate change;

⇒ Exploring the potential for land use change which may arise in areas currently limited by temperature.

⇒ Investigating the potential to introduce new varieties capable of growing in warmer conditions.

⇒ Adapting to increasing rainfall through crop protection.

⇒ Continued management of frost risk as frosts are likely to occur earlier than in the current climate.

⇒ Understanding and managing disease and considering the introduction of disease resistant crops.

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