

# Blueberry growing in Tasmania

## Suitability factors for assisting in site selection



The blueberry is a perennial crop native to North America. Three main species are grown commercially: Highbush (*Vaccinium corymbosum*), Rabbiteye (*Vaccinium ashei*) and Southern Highbush (a complex hybrid). Highbush blueberries are the most common commercial type grown in cool climates such as Tasmania.

### Growth stages

Blueberries are generally propagated by a specialist blueberry nursery from either hardwood (dormant) or softwood cuttings. Field planting occurs when the plant has achieved sufficient root mass, generally at 18 months to 2 years. Flower buds may be present on young blueberry plants but are removed until the plant has established a good framework. Flowering time is site dependent with bud break generally beginning in late August, the main flowering period starting in September and continuing into October.

Harvest date of blueberries is both site and variety dependent. In Tasmania, harvest date can be from December to May, with most commercial varieties in the main production regions ripening in February and early March. The target market will determine variety selection.

### Climate

An essential requirement for successful blueberry production is sufficient winter chill hours to successfully break dormancy. Chill hours are variety dependent. Highbush species generally have a chill requirement of between 800-1200 hours. Chill hours are the accumulated number of hours temperature is between 0°C and 7.2°C from May to August inclusive. A site with 700-800 chill hours is also suitable, however less than 700 chill hours is considered unsuitable for Highbush blueberries. Other varieties with lower chill requirements could potentially be used.

Blueberries prefer a climate with mild summer temperatures, such as a site with a mean maximum monthly temperature of 15-26°C between October and March inclusive.

Spring frost is an important consideration when assessing site suitability for blueberry production. Although blueberries have a chill requirement, spring frosts can kill flowers. Because flowering time is site dependent, the timing, severity and number of frosts create a complicated frost risk matrix. Not all flowers open at once so the likelihood of complete crop loss as a result of a single frost event is minimal.

Highly suitable sites for blueberries won't experience spring frosts. However, sites that only experience mild frosts during flowering (between -2 and 0°C) should also be profitable. Marginally suitable sites are those which experience more severe frosts (-2 to -3°C) during flowering, while even more frequent or severe (lower temperature) frosts will render a site unsuitable.

### Landscape

Slope is not a major consideration in site suitability, although flat sites on valley floors can be less well drained and more prone to frost, while very steep sites can increase both soil erosion risk and the risk to worker safety.

Shelter from prevailing winds is important. Fully laden boughs can break in high winds and plant vigour can be reduced. Windbreak design should take into consideration prevailing summer winds and not prevent cold air drainage in spring.



## Soil

The best suited soils for blueberry production are acidic (pH in water of top 15 cm of 5.0-5.7) and well or moderately well drained with high levels of organic matter. For example, a coarse sandy loam or well structured clay soil such as a Ferrosol would be ideal. Clay or compacted soils are unsuitable.

Soil pHs of 4.5-5.0 or 5.7-6.7 are also suitable for blueberry production, however values of 6.7-7.5 are only considered marginally suitable. Soil pH can be decreased by incorporating elemental sulphur into the soil but rates of several tonnes per hectare may be needed and the additions should be made well before planting. A pH value of above 7.5 or below 4.5 would be considered unsuitable.

Blueberry plants prefer well drained soil. Imperfectly drained soils can also support blueberry production with the use of raised beds, however poor or very poorly drained soils are not suitable. Stony soils are not preferred for blueberry production.

Most blueberry roots occur in the top 20 to 30cm of soil. Top soil depth of less than 10cm is unsuitable for blueberry production. Best production will be achieved on soils that have a depth greater than 100cm to a sodic or other impervious layer, however good production can still be achieved if the impervious layer is at least 75-100cm below the surface.

If other site suitability factors are well suited, then a sodic layer depth of 50-75cm can produce marginal crops, however a sodic layer depth of less than 50cm is considered unsuitable.

## Developing rules to guide enterprise suitability mapping

Many plants require particular climatic and land characteristics for best performance. Frost, winter chilling, summer heat, drainage, slope and salinity are some of these characteristics. For each enterprise mapped by the Department of Primary Industries, Parks, Water and Environment (DPIPWE), the Tasmanian Institute of Agriculture (TIA) consulted industry experts and reference material to define land and climate "rules" that distinguish suitable from less suitable areas. These rules define the boundaries between the different classes of the enterprise suitability maps.

Suitability classes used are well suited, suitable, marginally suitable and unsuitable. Any limiting factors are also identified to guide the management practices that could help to overcome the limitations.

Landowners and potential investors are able to access comprehensive soil, climate, crop and enterprise information plus complementary farm business planning tools at:

<http://dpiipwe.tas.gov.au/agriculture/investing-in-irrigation>

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