

Hazelnut growing in Tasmania

Suitability factors for assisting in site selection



There are many varieties of hazels (*Corylus avellana* L.), each with their own climate and land limitations and their own specific purpose. Care needs to be taken to select a suitable variety.

Growth stages

Timing of key growth stages is influenced by climate and variety, but in general hazels flower in June or July, with bud break during September and fertilisation occurring late November to early December. Harvest generally is during March.

Climate

The primary climate factors that contribute to a successful hazel crop are the temperature at key growth stages and dry weather at harvest.

Daily minimum temperatures during July should be above -5°C and below 10°C . Hazels are relatively frost tolerant whilst dormant, however late spring frosts can damage emerging buds. For good flower fertilisation, mean maximum air temperature should be greater than 21°C . The mean maximum temperature in the warmest month should not exceed $30-35^{\circ}\text{C}$ as hazels can suffer heat stress if high temperatures combined with low humidity persist.

There are variable reports as to heat requirements for hazels, however more than 920 growing degree days (base 10°C , 100 days from Dec 1) would suit most varieties.



As a deciduous plant, hazels have a chill requirement to overcome dormancy of flower and leaf buds. A general value of >1500 chill hours between 0°C and 7°C from May to September inclusive can be used to assess potential site suitability. A rule of thumb is that hazels will grow in areas where apples grow.

Annual rainfall of 750-1200mm is suitable for hazel production provided adequate irrigation can be supplied during months of low rainfall or drought in the growing season. Hazels are most sensitive to water stress between October and February. A dry autumn period is essential for harvest.

Landscape

Whilst some wind is essential for pollination in late winter, protection from strong winds during the growing season is highly desirable as the leaves and young shoots are sensitive to wind.

The best sites for hazels should not suffer waterlogging, however some tolerance to short periods of waterlogging has been shown (1-2 days). Young trees are more susceptible than mature trees.

Flat ground is preferable for ease of mechanisation of harvest, but some slope is tolerated if mechanisation is not a consideration.

Soil

Ideal soils for growing hazels are loams with low salinity (EC <0.15 dS/m), a topsoil pH of 6.5, soil depth greater than 60 cm and no impeding layer within 1m of the surface.

Whilst a soil depth of >60 cm is most preferable, between 40 and 60 cm can still grow productive hazels. Less than 40 cm is not suitable for commercial production. The bulk of root growth occurs in the upper 60 cm of the soil profile.

Red basaltic soils (Ferrosols) are considered very suitable for hazel production, however other loam type soils are suitable. Duplex soils that are underlain with heavy clays, are not suitable, nor are very sandy or rocky soils.

Hazelnut trees have a fibrous root system that appears to have difficulty penetrating poorly structured heavy textured soils. They also need good soil aeration, so freely draining soils are the most suitable. Topsoil pH in water of 6.5 is most suitable, with hazel production possible at values between 5.5 and 7.1. Values outside of this range are considered unsuitable.

Although hazelnut trees can grow on less favourable soils, their growth rates are slower and they take longer to come into full production. Nut yields are strongly influenced by shoot growth.

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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