

Growing conditions for Smitten apples, with Montague Smitten orchardists



What is a Smitten apple?

A Smitten apple is a cross between several different types of apple – a Royal Gala, Braeburn, Falstaff and Fiesta. The result is a sweet apple with a crisp texture, with its characteristics coming from the blend of these other apple types.

The Smitten apple is an early season apple, with picking commencing in February, at the start of the new apple season in Australia. The Smitten apples are then available in shops for just 10 weeks from February to May – a short but sweet season.

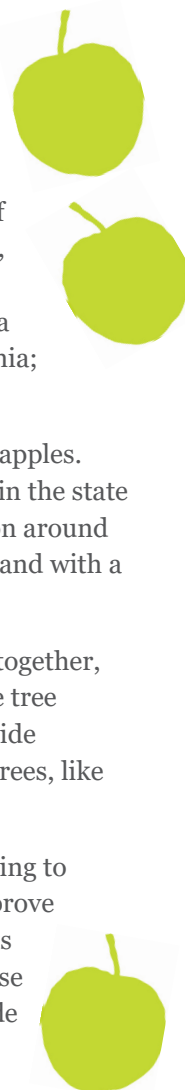
Where are they grown?

You'll find Smitten apple orchards in many of the major apple-growing regions in Australia, including Stanthorpe in Queensland; Batlow in New South Wales; Gippsland and the Yarra Valley in Victoria; the Huon Valley in Tasmania; and Pemberton in Western Australia.

A cool but sunny climate is good for growing apples. With Stanthorpe's status as the coldest town in the state (according to aussieapples.com.au), the region around Stanthorpe is one of the few areas in Queensland with a climate suitable for growing apples.

The Smitten apple trees are generally grown together, but there is always a different variety of apple tree growing as well – a companion tree – to provide pollination. This is needed as Smitten apple trees, like most apple trees, are not self-fertile.

In the understorey you'll also find grass growing to reduce erosion, and companion plants to improve soil and plant health. These companion plants include legume (pea) species that help increase nitrogen-fixing bacteria in the soil and provide habitat for beneficial invertebrates such as insects, spiders and worms.



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Water requirements

The Smitten orchardists typically use about four megalitres of water annually to grow one hectare of apple trees – that’s about the amount of water in one and a half Olympic swimming pools. Each hectare (a hectare is about the size of 15 tennis courts) produces about 60 tonnes of apples per year.

The most common form of irrigation is double-line drip irrigation, which provides small quantities of water directly to the soil from evenly spaced drippers. In some sites, they also use overhead sprinklers to provide cooling during summer.

The Smitten orchardists note that watering is not always performed to a schedule; rather, they apply water as the trees require it. They may use a preventative approach to stop the plant getting into a state of stress during acute periods of heat, or they may apply water to a schedule to ensure the root zone has ample soil moisture to encourage healthy tree and fruit growth.

Climate change and apple growing

Climate change is having a major impact on apple production in Australia, say the Smitten orchardists. The most serious impacts of climate change are felt during El Nino years. In these years, low rainfall and extreme heat place stress on apple trees. The result is a smaller fruit size and lower yields.

To mitigate this effect Smitten growers have installed overhead netting. This decreases the impact of radiant heat and reduces water consumption by about 20%.

They also use overhead sprinklers to cool the plants during times of extreme heat. By applying water to the trees from above, growers can dramatically decrease the temperature in the orchard and in turn decrease the heat stress on the trees.

They find that in La Nina years, apples usually perform better. Higher summer rainfall and lower heat days reduce tree stress, increasing yield and improving colour.

What are El Nino and La Nina?

El Nino and La Nina are climate patterns in the Pacific Ocean that can affect weather worldwide. According to the Australian Bureau of Meteorology, these two climate drivers have perhaps the strongest influence on climate variability in Australia.

An El Nino occurs when sea surface temperatures in the central and eastern Pacific Ocean become substantially warmer than average, causing a shift in circulation of the trade winds and preventing the usual circulation of the warm water from east to west. The result is more cloud formation and wetter conditions in the central and eastern Pacific Ocean, but drier and hotter conditions in southern Pacific areas such as Australia.

A La Nina has the opposite effect, with even stronger trade winds than usual leading to warmer waters in the western Pacific and to the north of Australia, and associated higher rainfall and milder temperatures, particularly across the east and north of Australia.

El Nino and La Nina are recurring patterns that occur every two to seven years on average, though not on a regular cycle. According to a recent study published in the Proceedings of the National Academy of Science, climate change is increasing the frequency of extreme El Nino events, leading to intensifying droughts, worsening floods and shifting storm patterns.

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