

DAVIDSON PLUM

Davidsonia jerseyana; Davidsonia pruriens



RURAL
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Overview

Davidson plum is a brilliant coloured fruit, dark blue purple on the outside and a deep reddish-pink on the inside. It has a juicy pulp and sharp acidic taste that means it is not often eaten fresh. However, the tart flavour and deep colour lend the plums to many uses in food manufacturing industries for value-added products such as jams, chutneys, sauces and yoghurt.

The use of Davidson plum is widely recognised throughout Indigenous culture, although documented information is scarce. Following European settlement they were sometimes dipped in salt and sugar obtained from the settlers, but more often eaten fresh.

The early settlers, meanwhile, used Davidson plum for making jam and jelly as well as a full-flavoured, dry red wine.

Davidson plum was first written about in 1879 when the species was listed as an ornamental plant in the British publication, *Gardeners Chronicle*. It was also promoted in 1900 by the botanist F.M Bailey, in his book *Edible fruits Indigenous to Australia*.

There are several species of Davidson plum, with a natural growing range spanning from tropical north Queensland to regions of far-north New South Wales.

Wild harvest is limited these days, and mostly occurs in the forests of north Queensland. The species found mainly in New South Wales is classified as endangered and a permit is required to pick and/or sell material from these plants.

Commercial crops are grown in orchards located in northern New South Wales and both south-east and tropical north Queensland.

Davidson plum contains high levels antioxidants, as well as vitamin E, lutein, folate, zinc, magnesium and calcium.



Davidson plum

Source: *New Crop Industries Handbook*

There are two species of Davidson plum used primarily for commercial production.

The predominant species is *D. jerseyana*. The tree's natural range is sub-tropical rainforest areas from around Ballina to the Tweed Valley in far northern New South Wales, and around 30 kilometres inland from the coast. This suggests the optimum growing area.

The fruit of the *D. jerseyana* has trunk-bearing characteristics, which lends well to hand-harvesting from ground level.

The other species, *D. pruriens*, has a natural range in the coastal and upland rainforests of north-east Queensland; however, the species is also grown commercially in mid-north coastal areas of New South Wales and on the Atherton Tableland in north Queensland.

Its fruit is larger, firmer and generally grows on the upper branches of the fruit tree, rather than along the trunk as in *D. jerseyana*.

Both *D. jerseyana* and *D. pruriens* fruit contain 2 flat fibrous seeds, which need to be removed for production of products from the fruit or its pulp.

Production of Davidson plum has increased significantly over the past ten years, and there's general agreement the market is currently oversupplied. However, current volumes are not large enough for industrial-scale commercial production and several growers are intending to increase production. By 2016 annual production is forecast to reach 12-15 tonnes.

Enterprises with existing value-adding or tourism operations are the best placed to generate a viable income from growing the plums through integration with the other businesses.

Growing conditions

Davidson plum varieties naturally occur across a range of soil types. However, the most productive orchards appear to be those grown in full sun or east-facing slopes with adequate soil fertility and irrigation or high natural rainfall.

There are problems with losses occurring due to sunburnt fruit, which has led to suggestions that south-facing slopes and/or shade tree inter-plantings are appropriate, and Davidson plums are able to produce in these conditions.

Orchards should be protected from wind to reduce tree stress.

Irrigation is generally thought to be essential for good productivity, particularly during spring set when the tree is flowering and the fruit is set. Once established, the trees can tolerate seasonal dry periods.

Harvesting

The fruit of *D. jerseyana* appear in early to mid-summer. Trees will bear in year three, with commercial production by year four or five.

D. pruriens bears fruit in winter in its natural range, but the fruiting period rangers over a longer period when it is cultivated. *D. pruriens* will bear in year five or six or later.

Depending on temperature and cloud cover, harvesting must be done every one to three days. Fruit picked just as it is beginning to develop its purple blush will ripen readily off the tree, and this will minimise pest build-up.

D. jerseyana is susceptible to fruit fly infestation, with monitoring and control measures necessary.

Harvested fruit should be picked into bags or boxes and field heat removed as soon as possible. Food-grade approved ripening space at high humidity and low temperature will be needed for ripening the fruit to full colour.

Storage

Once harvested, Davidson plums are best left to ripen for around a week to allow the sugars to develop. They can be stored in chilled conditions for a few days, and also freeze well.

Davidson plums are not often eaten as fresh fruit due to the intense fruit acid and low sugar content.

However, the tart flavour and intense burgundy colour lend the plum to many uses in food manufacturing industries. The flat fibrous seeds must be removed. If fruit is halved and seeds removed by hand, the fruit shape remains intact, though this process is very labour intensive. For bulk manufacturing purposes, whole fruit may be processed mechanically into a puree form which is an efficient way to remove the seeds.

Davidson plum can be used in a range of sweet and savoury dishes, including cakes and other bakery products, jams, sauces, yoghurt, ice cream and other value-adding products, and even rojak, a traditional Indonesian shredded spicy fruit salad.

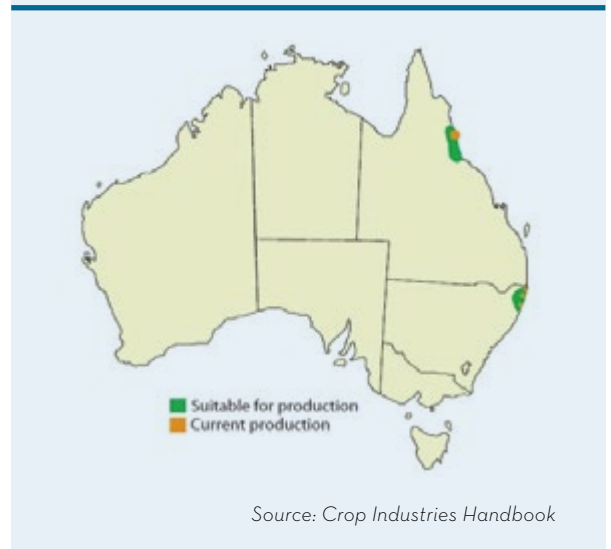
Health benefits

Davidson plum contains high levels of anthocyanins, natural pigments that are strong antioxidants. Its antioxidant capacity is higher than the blueberry, which is renowned worldwide as the 'health-promoting fruit'.



Davidson plum on the tree

GROWING REGIONS



FLAVOUR PROFILE

“...**earthy aroma like fresh beetroot** with a slight pickled note [*D. jerseyana*]...”

Aroma of **rosella jam** and **stewed rhubarb**; some **musk and lolly notes** [*D. pruriens*]...

Taste is **sour** with **some astringency** and slight bitterness

The substantial amount of antioxidants found in Davidson plum compared to other fruit and vegetables means consumers are able to eat smaller amounts and still receive the equivalent nutritional benefits.

Antioxidants are believed to hold a number of benefits for human health, potentially preventing and delaying diseases such as Alzheimer’s disease, autoimmune and cardiovascular disease, cancer, and diabetes.

Davidson plum is a good source of potassium and also contains lutein (a compound that plays an important role in eye health and wellbeing), vitamin E, folate, zinc, magnesium and calcium.

The skin of the Davidson plum contains the majority of the nutrients, so it is recommended to consume the fruit in full for all the benefits.

Due to its intense colouring, Davidson plum can act as a natural food colour without the use of preservatives and additives.

Other uses

Other studies are researching the antimicrobial properties, which could reduce the amount of preservatives such as sulphite used in a number of products and food.

When tested on kangaroo meat, a product made from Davidson plum extended the shelf life of the meat by 21 days in chilled conditions.

More research is needed to fully investigate the opportunities of using Davidson plum as a preservative.



Processing - Separating ripe davidson plums and packaging them for sale

NUTRITIONAL INFORMATION

<i>(per 100 grams as frozen fruit - D. pruriens)</i>		<i>(per 100 grams dry weight - D. pruriens)</i>	
Energy	264 Kj	Zinc (Zn)	0.426 mg
H ₂ O	78.2 gm	Magnesium (Mg)	138.1 mg
Protein	1.0 gm	Calcium (ca)	217.35 mg
Total fat	0.2 gm	Iron (Fe)	1.24 mg
Total saturated fatty acids	-	Selenium (Se)	0.0
Carbohydrates	14.3 gm	Phosphorus (P)	94.45 mg
Sugar (total)	3.9 gm	Sodium (Na)	1.77 mg
Fibre	-	Potassium (K)	1465.5 mg
		Manganese (Mn)	19.55 mg
		Copper (Cu)	0.638 mg
		Molybdenum (Mo)	11.0 µg
		K : Na	828

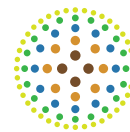


Ripening *D. pruriens* fruit. Source: *New Crop Industries Handbook*



For more information

This fact sheet is one of a series summarising Native Foods R&D from 2007 to 2012. In a partnership between government and industry, the Rural Industries Research and Development Corporation (RIRDC) and Australian Native Food Industry Limited (ANFIL) are working towards an innovative, profitable and sustainable Native Foods industry.



RURAL INDUSTRIES
Research & Development Corporation

Australian Native Food Industry Limited (ANFIL) was formed in 2006 and is the peak national body which represents all interests in the rapidly growing Australian native food industry. ANFIL has taken the lead in working with industry, governments and other organisations to determine and prioritise research and market development strategies to progress the industry.

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The Rural Industries Research & Development Corporation (RIRDC) is a statutory authority established to work with industry to invest in research and development for a more profitable, sustainable and dynamic rural sector.

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