

Passiflora

Volume 9, Number 3

Autumn 1999

The Official Newsletter of Passiflora Society International

Passiflora in Australia

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Passiflora aurantia is one of Australia's indigenous species. Interestingly, the flowers go from cream to pinkish on their second day. Photo courtesy of Chris Howell.

Passiflora in Australia can be divided into 3 sections—commercial edible types, ornamental types and indigenous species.

Edible *Passiflora*

Edible fruit types are very widely grown in Australia and we are one of the major world suppliers of fresh Passionfruit and fruit juice. The orchards that produce fruit for market are widespread through many different climates and where there are concentrations of orchards, you find the juice factories. The sizes of the individual orchards vary from about 5 acres to several hundred acres.

The main types are the many cultivars of *P. edulis*. The agricultural departments in some states of Australia have carried out research in different areas to develop cultivars to suit these areas. The cultivars that are the best for juice are mostly poor in color and are not as popular for the fresh fruit market. The form 'Black Beauty' is very popular being purple-black in color. This Passionfruit is often wax-coated to provide a longer shelf life in shops

and a darker color which makes it more appealing.

The average number of fruit to a market box is 160 fruit and these retail in the shops at 3 for \$1. The growers would average between \$8 and \$10 per box with prices dropping to \$5 per box in glut times and increasing to \$20 per box in scarce times. In the last 5 years the main seller in the retail market is 'Panama Red' and 'Panama Gold.' Our family company has worked at developing both of these types.

The 'Panama Red' seed we supply is a reselected strain. The fruit is first selected for size with the largest 25% of the fruit from our seed crop being chosen. When the fruit are cut, only those which have a full cavity are used for seed. The seed and pulp is then soaked in hydrochloric acid mixed 10% to 90% water for 6 hours. It is then washed with water, floating seed discarded and then dried. The seed usually has a 99% germination rate.

The same system is used for 'Panama Gold' which is a cultivar our family

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has developed from 'Panama Red.' The fruit usually ripens 2 to 3 weeks ahead of other Passionfruit and may command up to \$90 for a box of only 50 fruit. Main crop Panama fruit average between \$12 and \$15 per box of 50 to 70 fruit and usually sell for \$1 per fruit retail.

Passiflora flavicarpa is sometimes grown for fruit production but it has been developed as a rootstock plant for grafting *P. edulis*. The developed *P. flavicarpa* for rootstock is usually very bitter, but it is tolerant to many root diseases. The crop of *P. edulis* grafted into *P. flavicarpa* can increase by as much as 50%. The other edible fruit that are marketed are *P. quadrangularis*, which is only found in the tropical and sub tropical part of Australia. The large fruit usually retail for \$3 to \$4 per fruit. *Passiflora alata* is also confined to the tropical and sub-tropical climates and retails at \$1 to \$2 per fruit. The disadvantage of these two fruit is that they both have to be hand pollinated to provide a good crop.

Passiflora mollissima is another market fruit in the milder climates of Australia and usually retails at \$1 per fruit. The Australian form of this fruit is very cold tolerant and there are large patches of it growing in mountainous areas which may have 20 to 30 days of frost up to -8°C each year and several small snow falls. This form should be good for mild overseas climates. *Passiflora maliformis* is sometimes found at weekend market stalls.

One *Passiflora* book indicated that *P. antioquiensis* is widely grown in Australia but with my traveling and research about *Passiflora* in Australia, I have never found any growing or being marketed and feel someone may have mistaken *P. mollissima* for *P. antioquiensis* which is widely grown in New Zealand.

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Vol. 9, No. 3 Autumn 1999

Passiflora is published quarterly by *Passiflora Society International (PSI)*, c/o Butterfly World at Tradewinds Park, 3600 W. Sample Road, Coconut Creek, Florida, U.S.A., 33073.

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Ornamental *Passiflora*

Garden grown *Passiflora* are not common in Australia. The most common is *P. coccinea*, which prefers a tropical or sub-tropical climate. At times it may be seen growing over a fence to form a dense hedge up to 50 meters long and totally covered with thousands of red flowers day after day. It does not pollinate freely and hand pollination is required early in the day to obtain fruit.

Passiflora manicata is grown in the temperate to cold-temperate areas of Australia and it tolerates -8°C . It forms a dense vine and is covered with hundreds of bright rose-pink colored flowers for many months. It does set fruit in some locations. *Passiflora caerulea* and its cultivars are sometimes found throughout Australia and it is used as a rootstock for grafted *P. edulis* in areas where root diseases are common.



Flower and fruit of *Passiflora cinnabarina*. Photo courtesy of Christopher Howell.

Indigenous *Passiflora*

There are four *Passiflora* which are native to Australia and are difficult to find in habitat. *Passiflora aurantia* is the one most often found in nurseries. It is brick red in color and a very heavy flowering modest vine. Seed which has been offered from Europe as *P. aurantia* is either a *P. herbertiana* variation or a hybrid between *P. aurantia* and *P. herbertiana*. The photo of *P. aurantia* in one publication is actually *P. herbertiana*! *Passiflora herbertiana* is not often seen in habitat due to land clearing and I have not seen it offered in nurseries. The flower color is cream.

Passiflora cinnabarina is much more common in habitat and sometimes found in nurseries. My first find of this plant in the wild was very unusual. I had traveled along a rough bush track called 'Monkey Gum' at least every 3 months for more than 5 years harvesting various tree seeds. On one occasion I found a large area of about 4 miles of the forest had burnt in a bush fire. All that was left was a blackened area and the skeletons of the trees

and shrubs. I traveled along 'Monkey Gum' about 6 months later and to my amazement the skeletal remains were covered with thousands of vines which I identified as *P. cinnabarina*. About 12 months after the fire, the vines were in flower and fruit with millions of these fruit ripe. I harvested about 20 gallons of fruit for the seed. Three years later there was not one vine to be found but it will regenerate after the next fire. The conclusion I have come to about Australian *Passiflora* is the seed requires heat or boiling water treatment to germinate and plenty of potash when growing.

The fourth Australian *Passiflora* is an unnamed species from the tropical north. It grows on a long woody vine and has a lot of white flowers. Lord Howe island off the coast of Sydney has a sub species of *P. herbertiana* named *P. insulae-howei*. There may also be another *Passiflora* in rainforests in Islands to the north of Australia. This is *P. novo-guineensis*. It has very large pink flowers and fruit similar in appearance to *P. mollissima* but 3 times as big. I am hopeful of getting seed of this plant from New Guinea and distributing it through the *Passiflora* Society.

In my position as a seedsman and author, I produce large quantities of *Passiflora* seed for commercial use and to photograph flowers for my various books. My plantation has about 60 different *Passiflora*, mostly growing outdoors and a few in my greenhouse. I have been disappointed over the years with seed being true to type and I am very cautious with seed from glass house grown plants from Europe which hybridize either naturally or by choice and I am always seeking true to type seed.



Passiflora herbertiana. Photo courtesy of Christopher Howell.