

# THE WHY'S AND HOW'S OF PASSION FRUIT GROWING IN QUEENSLAND

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In the early years, passion fruit growing in Queensland was simple. Seed of the purple passion fruit (*Passiflora edulis*) was sown either directly into the field, usually a newly felled patch of scrub, or transplanted from a seedbed.

The Woodiness virus, also known as "Bullet", because of the effect it had on the fruit, was sometimes present to a minor extent, especially during cooler weather, but did not cause any great concern. However, during the late 1940's it became so bad that production suffered severely.

**Breeding Programme.** A selection and breeding programme was begun at Redlands Horticultural Research Station, Ormiston. By the late 1950's several unfixed hybrids were produced, two of which were to become the mainstay of production, 'Redlands Triangular' (Selection 3-1) and Selection E-23. Selection 3-1 became the basis for the fresh fruit trade until the mid 1970's. Vines of this cultivar are not as vigorous as those of Hybrid E-23, and are less tolerant to Woodiness virus. In fact by the mid-1970's the incidence of Woodiness virus had become so severe that 3-1 was rapidly losing favour to E-23 and to less extent other hybrid selections released for grower assessment from earlier breeding programmes. Also during the 1950's plant losses from fusarium wilt were becoming serious and, in fact, nearly wiped out the industry in the older growing areas. Trials showed that the golden passion vine (*P. edulis* forma *flavicarpa*) was resistant to wilt. Spectacular results were obtained by grafting scionwood of *P. edulis* and selected hybrids onto *P. edulis* f. *flavicarpa* stock. Land which had been abandoned because of the wilt problem was able to be brought back into full production again.

**Rootstock.** The golden passion vine used for rootstock is very vigorous, often growing 8 meters or more in a season and flowering profusely. Many vines are self incompatible and single vines often fail to set a crop. Pollination by one or more vines is often required to set a good crop of fruit. As well as having resistance to fusarium wilt, golden passion fruit is also resistant to nematodes. However, it is more susceptible to frost than the common purple or hybrid plants.

**Propagation.** Commercial passion fruit production in Queensland is now based on hybrid types. Wilt resistance is obtained by grafting selected scions on seedling rootstocks of resistant strains of *P. edulis* f. *flavicarpa*. Grafting is normally

carried out in the nursery but can be done on *P. edulis* f. *flavicarpa* seedlings which have been established in the field.

Rootstock seedlings are raised in seed boxes and when at the 2 to 3 leaf stage they are pricked into 100mm plastic pots. When they are 40 to 50 cm high they are cleft grafted with the selected scion.

The scion consists of a small piece of vine wood, usually the tip, about 80 to 100 mm long with the older leaves removed. The lower edge is cut to a fine wedge to fit neatly into the cleft in the stock and the union is completely bound with PVC tape. Grafted plants are ready for transplanting into the field after the graft has callused, which normally takes 4 to 6 weeks.

## SPECIES THAT I HAVE DIFFICULTY PROPAGATING

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***Eucalyptus ficifolia*.** One of the most difficult plants I have attempted to propagate is *Eucalyptus ficifolia*, the prolific and colourful Western Australia native.

This species is usually grown from seed and takes several years to flower. There is no way of guaranteeing the colour of the flower as a tray of seedlings will vary from white to several shades of pink and red, also orange and maroon. Gardeners buy what they believe to be a red or orange coloured *E. ficifolia*, and after waiting for years find that it eventually flowers an entirely different colour and could be white.

I have attempted to propagate these both from cuttings and by grafting. By selecting matured softwood cuttings I have rooted a small percentage.

The low percentage didn't worry me as I have found from experience that the few odd plants from a difficult-to-strike species can be grown on in containers and the cuttings from these will give a better percentage. Cuttings from their progeny will give an even better percentage until eventually the cultivar can become quite domesticated.

However, with *E. ficifolia* I found that when the few that I struck were potted into various soil mixes they lived for a period of time, some of them for several months or even years, but they eventually died.

I grafted *E. ficifolia* onto various rootstocks including *E. robusta* and *E. maculata* and quite a few of the grafts actually took, but the scion never grew. It stayed dormant for varying