PROPAGATING *HIBISCUS* BY CUTTINGS AND GRAFTING

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INTRODUCTION

Bayly's Nurseries Ltd have been engaged in the propagation of hibiscus (*Hibiscus rosa-sinensis*) for the past 25 years, since founding the nursery in Gisborne. All hibiscus in the early days were propagated by cuttings only, including the ''so called'' Fijian type, which was found growing well in the New Zealand East coast climate. Occasional frosts were experienced in winter, but the summers were usually hot and dry.

Cultivars popular at that time were: 'Agnes Gault', 'Suva Queen', 'Mrs Tonkins', 'Wrightii', 'Lambertii', 'Primrose', and 'Island Empress'. Eighteen years ago, we decided to grow more exotic types, mainly Hawaiian cultivars. Those on which we concentrated were: 'Golden Belle', 'Nathan Charles', 'Betty Patterson', 'Haywood', 'Ben James', 'Christine Phillips', 'Double Rainbow', 'Golden Oriel', 'Hawaiian Sunset', 'J. F. Kennedy', 'Molly Cummings', 'Powder Puff', 'Surfrider', and 'Tango'

These more exotic and tender cultivars need a strong, resistant rootstock to withstand our cooler and wetter conditions experienced in winter. Hence the decision was made to graft. Another reason to graft was that the amount of propagating wood available was limited

In our district, being geographically isolated, there were not many of the newer cultivars growing in gardens accessible to us. The fact that in grafting we only use one tip, and one bud, made the material go a lot further.

After studying the hibiscus that were grown in our district we decided that 'Agnes Gault', and 'Suva Queen' would be the most suitable for understock. They had stood the test of time, frost, drought, and wet conditions, and also there was plenty of suitable material available. We also found that home gardners were very happy for us to feed, spray, and subsequently prune their plants for the wood that we needed.

CUTTINGS

The cutting material was collected early in the day and kept moist. Cuttings were cut below a node to a length of 10 to 12 cm; ⅔ of the leaves were removed and the top leaves reduced by half. The cuttings were then wounded, dipped into a Captan bath, removed, and left to drain. When dry, the cuttings had a 3 sec. dip in 2000 ppm IBA in 50% alcohol, and were then placed in 6 cm square pots. The medium

consisted of pumice: peatmoss, 2:1 (vv). Cuttings were then placed under intermittent mist, with bottom heat at 23 to 25 °C.

There was a high percentage of complete rooting in 6 to 8 weeks, after which the plants were liquid-fed at weekly intervals. This gave them a good start before potting into 2 litre P.B. 3s.

GRAFTING

Firstly, the understock material was collected and kept moist. The wood was then cut into 8 to 10 cm lengths and all nodes removed with a sharp knife, placed into a Captan bath, and drained. The understock pieces were graded for approximate size and then wrapped in wet towelling to keep moist until the next stage. The scionwood was then prepared by cutting just above a bud, or using the tip, leaving just enough wood for the grafting. We used vigorous wood with wide internodes, which gave more room for the grafting machine.

The grafting machine used was a Ragget Field Grafter, designed and built in Gisborne, New Zealand. It consisted of two identical blades, forming a 'V' so that each cut was identical. Firstly, a cut was made in the scionwood, then a correct size understock was selected and cut from the opposite side. The two pieces were fitted together and then tied with floral tape. The grafted piece was then wounded and dipped for 3 sec. in 2,000 ppm IBA in 50% alcohol solution. The graft was then treated the same as cuttings, using mist, etc.

The graft took and the roots formed on the understock in 6 to 8 weeks. Once rooted it was essential to liquid-feed regularly to get buds started and also to produce growth before potting. We found that by feeding in the small pots we could get good growth and a better rooting system before potting in the usual manner in early spring.

TIMING PROCEDURE

The timing procedures for our nursery and climate are as follows:
Grafting is started in late fall and continued until mid-winter.
The grafted and cutting-grown hibiscus plants are potted in early spring into P.B. 3. standard potting mix, and then put into tunnel houses. They are kept as close and as warm as possible without the use of artificial heat. We expect, in a normal season, to have saleable plants ready for despatch by early summer. This timing programme means that we only need artificial heat during the propagation period. A regular spray programme during the growing period to control aphids, caterpillars, etc. is essential. Liquid feeding was done every two weeks.

CONCLUSIONS

These methods suit our particular climate in sunny Gisborne, and the use of the Ragget Field Grafter machine has sped up the whole operation, compared with the grafting knife method. The percentage of takes is 95% in most cultivars and the neatness of the graft union is evident. We graft in excess of 20,000 hibiscus each season. By using the methods described, we reduce the grafting time by two-thirds over other methods.

Five years ago, after attending the first world hibiscus convention in Brisbane, 1,000 cuttings of 100 cultivars, mostly new to New Zealand, were imported. They consisted of some older Hawaiian cultivars, plus many new Australian hybrids. We have trialled these cultivars and found that most of them can be grown in the warmer parts of this country.

A note of interest—two new models of grafting machines based on the same principle as the top grafter are being developed. One is a bench model, and the other is a foot-operated bench model, which will sell at a much lower price than the Omega-type machines, and give better results. Both these new machines will be built by Ragget Industries. To round off, if you are planning to grow hibiscus in quantity, check not only your climate, but also the market potential in your area.