I have also found that a weekly application of a hormone growth stimulant such as Formula 20 is beneficial. To save time and effort I combine this with the Captan application.

A sound root system is apparent 6-8 weeks after sticking, the pots of cuttings are then placed under a shade cloth frame for one month to harden.

Pricking off is done into 2" tubes in a light sand containing about 10% peat moss. These are placed under glass for 2 weeks, then put outside with a light shade cover over them which is removed 10 to 14 days later depending on weather conditions at the time.

Plants are potted on in the spring and placed in full sunshine. A sandy medium with a little compost gives good results and a mild fertilizer, such as blood and bone, will stimulate growth.

A SUCCESSFUL TECHNIQUE FOR GRAFTING HIBISCUS

ALEX SCOTT

Birkdale Nursery
Cleveland Road, Birkdale, Queensland

Hibiscus is a line that we grow well and have built up an Australia-wide trade supplying something like 50,000 a year in containers from a 2" tube to a 4" liner. There is a particularly strong demand for the Hawaiian type of hibiscus. This type produces extremely large flowers in some very unusual shades and colours. Examples which I feel would be known in any areas where hibiscus is grown are 'Surf Rider' and 'Golden Belle'.

When we first started to produce the Hawaiian cultivars from cuttings our stock bushes were young and vigorous and our production results were very high indeed. However as the stock bushes matured, the strike became less and less. I was faced with the decision of having to bed out new stock bushes every few years, or to look into the possibility of grafting.

We had to develop a technique that we could use as our standard procedure and one which could produce a high percentage of success. We set down a series of trials to determine:

(1) The most suitable rootstocks. The three most satisfactory cultivars were found to be White La France, Ruth Wilcox and Apple Blossom. I personally feel that Apple Blossom is the best of the three rootstocks used. They all produce long canes with well spaced internodes.

(2) The most suitable grafting method. Cleft graft was chosen.

(3) Post-grafting environment. Our first trial was to cover the grafts with plastic bags enclosing pot and all. The grafts were packed in trays of 40 and placed in a well-shaded bush house. We tried clear bags and blue bags. The results in the blue bag were far better than those in the clear bag but losses were still too great. In the next trial we put the completed grafts under mist and over bottom heat. The results here were much more promising. In most cases, a complete union had taken place in 3 weeks; they were then left in the house for an extra week before shifting into a shady bush house for hardening off. Within 7 days the plants were standing quite rigid and at the end of the second week they were ready for potting on or for sale.

As a result of this testing the following routine procedure was developed. The rootstock wood selected is usually around pencil thickness and about 5″ long. The two upper-most buds are left to produce new growth and all other buds are removed. We strike the cuttings in 9″ plastic containers in pure sand — about 30 cuttings to a container. The three rootstocks selected are noted for their quick strike and I feel that the co-factors that facilitate easy striking also assist in quicker callus and union in grafting.

When struck, the cuttings are potted on into a 3″ diameter 4″ deep growing tube and placed in the open sun for rapid root development and top growth. Once adequate root growth has taken place, the stocks are ready for grafting. We use the cleft graft which is made about 4″ from the top of the soil level in the pot. The scion that we use is of firm new growth with about 4 leaves. The diameter of the scion relates to the diameter of the stock, so that cambial contact is assured. We then paint the completed graft with a solution of Benlate and derris dust. The graft is then bound with 1/2″ clear budding tape and the upper part of the tie covered with grafting mastic. The grafts are held for 4 weeks, with bottom heat and mist, in a sarlon covered propagation house covered with U.V. inhibited polythene. The grafts are hardened off for two weeks in a 50% sarlon shade house. The grafting tape is left on at this stage to give strength to the graft, but the tapes are cut after potting on.

The plants are ready for sale or potting on 6 weeks after grafting. If scion and rootstock diameters are the same, it is difficult to even notice that the plants are grafted once the tape is removed.

Using this technique we are able to graft virtually all year,

but most grafts are made between October and March. I feel sure that the economics of grafting far outweigh a continual re-planting program of stock bushes for cuttings. Grafted plants commands a much better price than plants on their own roots. Grafted plants are more vigorous, flower better and live longer.

VIC LEVY: We have found 'Apple Blossom' hibiscus to be most susceptible to phytophthora.

ALEX SCOTT: That surprises me and is not our experience. I will check into that.

COMMERCIAL PROPAGATION OF MACADAMIAS

LINCOLN M. DOGGRELL

CSR Limited
Macadamia Orchards
P.O. Box 521
Bundaberg, Queensland 4670

Macadamia trees were regarded as impossible to graft up to the 1920's. Around this time a high school student in Hawaii successfully grafted two macadamias. However, it was probably not until the late 1940's that any large scale commercial grafting of macadamias took place in Hawaii.

In Queensland grafting of macadamias was still generally an unsolved mystery by 1960 with one or two notable exceptions. One man in particular, Mr. Norman Greber of Beerwah, had mastered the art and attempted to teach others his relatively simple, very successful grafting technique. Mr. Greber could not understand the failures of others to copy his method. This continued failure at propagation was the major stumbling block to the establishment of a macadamia industry around this time.

Mr. Greber's graft is a modified side wedge which allows almost any sized scion and stock to be united. Success rates were generally high with rootstock sizes ranging from small seedlings to limbs on topworked trees 6 to 10 inches in diameter. This method was adopted by one or two nurserymen and also by CSR for commercial propagation for several years. This graft relies on a small wood plane to achieve a flat surface on the scion. Propagator skill is required to produce a matching cut on the rootstock with a knife. Propagation rate is a maximum of 130 per day with a success rate from 60% to 90% depending on scion cultivar. This technique also requires an in-