Stages III & IV. This will see the completion of the irrigation blocks — the future addition of carbon dioxide enrichment to the plants in the greenhouse, controlled by our heating unit, and the construction of a large drive through the shade house. Future plans are laid down for the provision of a propagation room, bagging, packing and dispatch, office, etc., all contained within one building next to our greenhouses. So what appeared to be a major undertaking 9 to 10 months ago is now well on the way to being a productive and worthwhile venture.

PROPAGATION OF *ENSETE VENTRICOSUM* – (MUSA ENSETE) — PURPLE FORM

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Plants of most *Musa* species are propagated by division, the exception being *Ensete ventricosum* (*Musa ensete*) which does not normally produce divisions, but does flower and set seed which germinates in prolific quantities if conditions are right. In New Zealand, however, a purple variety of *Ensete ventricosum* has not been known to flower and therefore the only known method of propagation is by mutilation of the bud tip which causes an artificial means of divisions or, in other words, meristem culture on a large scale.

Removing the Leaves. The parent plant must be of reasonable size and should have a stem not less than 10 cm diameter at the base. The top foliage should be removed by cutting through the stem about 30 cm up from the base. Then begins the delicate operation of removing all the leaf bases to expose the crown and the growing tip. In a plant with a 10 cm diameter stem, the crown would be about 3 to 4 cm high. The leaves are removed partially by tearing and partially by cutting with a sharp knife. It is often difficult to tell where the leaf ends and where the crown begins and it is only by experience that this knowledge is gained. When all the leaf bases have been removed, the mound of the crown will be exposed with the small growing tip appearing as a sharp point in the centre.

Preparing the Crown. The crown should be scraped clean of any vestigal leaf bases and the growing tip removed. This involves cutting out a saucer shaped depression about 3 cm across and 2 cm deep. All soil should be carefully washed from the roots and any long or damaged roots trimmed back. The crown should then be placed in a container of sphagnum moss. The moss should not be packed down, otherwise it becomes too

wet. A light covering of moss over the crown is beneficial to the development of callus.

Position. The plant should now be placed in a glasshouse with average temperature between 20° and 25°C (68° and 77°F), preferably with bottom heat and high humidity, such as in a house with intermittent mist. A drench of benomyl will deter fungus infections. Sometimes removal of the growing tip may not have been successful, in which case the growing point breaks through the centre of the depression in the crown. If this happens the growth should again be removed, leaving a deeper depression.

Formation of a Callus. A callus will begin to appear in about two to three weeks. As the callus spreads it will develop nodules which will form small green buds. Each bud will then divide and grow into small clusters of plantlets and it is not long before each plantlet is producing its own foliage and roots, the latter spreading over the surface of the crown. A healthy crown about 10 cm across will produce about 100 plants on its first crop.

Removal of Plantlets. When the tallest of the plantlets is about 30 cm high the first crop should be removed and potted up. It is important that a small portion of the parent callus be removed with each plant. The young plants will visibly "flop" for a week or so but will soon pick up and produce new foliage. The temperature of 20° to 25°C should be maintained for several weeks to force growth into the young plants. After this they can be slowly hardened off at cooler temperatures.

Timing. Provided the temperature of 20° to 25°C is maintained, there appears to be no difference in the time of year that the propagation is done.

Follow Up. If some of the larger plantlets with developing foliage are left attached to the callus, it should go on producing plantlets for a second, third and even fourth batch although each succeeding batch will have fewer numbers and lower vigour.

Pests. Spider mite is the principal pest attacking *Ensete ventricosum* and, if left unchecked, it will soon disfigure a plant, leaving brown paper-like blotches mainly on the underside of the leaves. High humidity lessens the likelihood of infection and several applications of a miticide should soon eradicate the pest.

It is my belief that if this method of propagation were done under sterile laboratory conditions and if a nutrient solution were used, as is done with orchids, then vast numbers of this plant could be propagated in a very short time.