involved, not only in planning and assisting with practical training, but through membership of Advisory Committees, and by maintaining a close and meaningful link with the teaching institution and the staff involved in teaching. Unfortunately, trained and skilled teaching staff are scarce in Australia. Staff need training too, and they will become more efficient teachers by industry contact and observation, than they can from theoretical knowledge and limited college training.

Burnley Horticultural College and the Apprenticeship training schemes at Oakleigh and Collingwood are indeed fortunate to have the enthusiastic support of the Nurseryman's and Seedsmen Association, members of the International Plant Propagators' Society, and the many nursery enterprises within easy reach of the training centres.

In the next decade it will become increasingly important for the plant propagator not only to be a skilled technician, but to have effective knowledge of plant growth and development. He will also need to be aware of what is going on around him and have the ability to "trouble-shoot" when the occasion arises.

VIRUS-INDUCED DWARFING OF CITRUS

K.B. BEVINGTON and R.A. SAROOSHI
N.S.W. Department of Agriculture,
Dareton, New South Wales

A major change in attitude towards management of citrus orchards is the interest in smaller, densely planted trees which yield well and can be easily sprayed and harvested.

There are various methods currently being investigated to control tree size in citrus. A simple method is the use of a bud transmissible factor which can produce dwarf trees on certain rootstocks. This follows from work done in New South Wales which showed that citrus on *Poncirus trifoliata* rootstock inoculated with exocortis or scaly butt virus produced pronounced dwarfing, while trees on Troyer and Carrizo citrange and Rangpur rootstocks were less dwarfed. Most other citrus rootstocks did not respond.

Different inoculants produced varying levels of dwarfing on *P. trifoliata.* From these, two dwarfing budlines have been selected as future sources for inoculations. They are classed "mild" dwarfing budlines and produce moderately dwarf tress with no symptoms of scaly butt, periodic leaf drop or unthriftiness which can be associated with exocortis.

A number of dwarf trials established at Yanco, Gosford and Dareton research centres have yielded promising results with Navel and Valencia oranges and with lemons. In all trials dwarfing budlines were inoculated into trees of known virus status. Dwarfing in other citrus species such as grapefruit and Ellendale mandarin is also to be investigated.

Small demonstration plantings of dwarf citrus on five commercial orchards made in 1973 and 1974 have given further information under different soil conditions.

COMPARISON OF POTTING MIXES FOR MACADAMIA NUT TREES

T. TROCHOULIAS

Tropical Fruit Research Station
Alstonville, New South Wales 2477

Abstract. Nine month old composted macadamia husks were tested with sand, soil and sawdust in a combination of potting mixes.

Sand and husks increased macadamia seedling height by 73% after one year in 10 containers while sand and sawdust depressed growth by 39% compared to soil and sand

Dry weight of leaves, stems, tap roots and fibre roots at the end of the experiment showed high dry matter in the leaves (61%) compared to *Pinus radiata* (49%) The shoot to root ratio was 4.6 compared to 2 1 recorded for avocados

The sand and husks treatment (1 1 v/v) would reduce the time for macadamia seedlings to reach graftable size by 9 months compared to sand and soil (1 1 v/v)

INTRODUCTION

The macadamia industry on the north coast of New South Wales has increased from about 100 ha in 1970 to over 1500 ha in 1980. This rapid expansion has resulted in a heavy demand for nursery trees. The time from the potting of seedlings to planting out of grafted trees is usually about two years. Slow growth of seedlings in soil and sand based potting mixes has forced nurseries to outlay considerable investment in floor space and materials to supply the demand for grafted trees.

Field observations have shown that unthrifty mature trees benefit from heavy mulching with macadamia husks. The husk is the fleshy green carpel enclosing the nut. Chemical analysis of 9-month-old decomposed husks show a larger concentration of most major and minor elements compared with red soil. (Appendix 1). An experiment was initiated at Dunoon via Lismore in July, 1979, and terminated in July, 1980, to examine the growth