— Reports on the plants available at a particular age, particular container size, for a particular contract . . .

— Plants ready to be planted out.

— Plants ready to be sown as seeds in a particular month.

What size computer. Many computer companies promise many things. By the time you find out they aren't quite what you thought it is too late.

A good rule of thumb is that to integrate and control all the functions of a plant production nursery, a minimum of 15 megabytes of disc storage (Winchester or fixed disc preferably), a 16 bit processor, suitable backup medium, one visual display unit, and a printer is needed. In May 1983, this would have cost about 25,000 Australian dollars. However, in a very short time additional visual display units and a second printer would be required. To install something smaller simply means that less information can be stored and retrieved with less speed. Although time is ensuring you receive more for your money, the money you spend is not going down because the labour involved in putting the systems together is increasing. Software, or the programmes which make the computer think and work, are still the most expensive part and least efficient area of computerisation.

MACADAMIA HUSKS AS A POTTING MEDIUM FOR ORNAMENTALS

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Abstract. Ten ornamental species were grown in two combinations of sand and macadamia husks (1:1, 1:3) and compared to a control which included sand, peat, sawdust, and polystyrene beads (1:2:2:3). After 51 days all species growing in both the sand and husks media showed significantly ($P<0.05$) greater vigour than the control. The fresh and dry weight determinations of the tops of one species examined (Nephrolepis exaltata) showed significantly ($P<0.05$) higher growth rates than the control. Macadamia husks are suitable for use in potting media with a wide range of ornamentals.

INTRODUCTION

Macadamia husks, the fibrous carpels which enclose the nut and are mechanically removed after harvest have been shown to be an inexpensive alternative to peat as a component

of potting media for raising macadamia seedlings in the nursery (2). Husks can be used after composting in a heap for 6 to 9 months or after 4 to 6 weks if hammermilled. An experiment was initiated at Booyong, New South Wales (29°S) in December, 1982, to investigate the response of 10 ornamental species to potting media containing husks.

MATERIALS AND METHODS

The following 10 species were used:-

1. *Oxalis hedysaroides 'Rubra'*
2. *Epipremnum aureum* [Syn. *Scindapsus aureus*]
3. *Nephrolepis exaltata*
4. *Cissus discolor*
5. *Monstera deliciosa*
6. *Syngonium podophyllum*
7. *Chamaedorea elegans*
8. *Begonia* 'Orange Rubra'
9. *Aphelandra squarrosa* 'Dania'
10. *Pepermomia obtusifolia*

Plants were struck in 50 mm rock-wool cubes; 15 plants of each species were selected for uniformity.

Three potting media were examined:

a) sand and husks (1:1)

b) sand and husks (1:3)

c) sand, peat, composted sawdust, a. expanded polystyrene beads (1:2:2:3) as the control.

The husks were hammermilled to 5 mm size and composted for six weeks.

The 1:3 sand-husk mix was used to reduce the weight of the growing medium. All three media had the following fertilizers added per cubic metre:

2500 h 8 to 9 month Osmocote (NPK 18-2.6-10)

750 g dolomite lime

1000 g Micromax (trace elements)

50 g ferric sulfate

10 g flowers of sulfur

The plants were potted into 140 mm squat white pots and replicated into five blocks at random. Occasionally plants were removed from their pots to gain a visual impression of water holding capacity. After 51 days the plant were scored for vigour, according to the following scale:

1. very weak, 2. weak, 3. moderate, 4. strong, 5. very vigorous

All plants (15) from one species *(Nephrolepis exaltata)* were removed from their pots, composite soil samples taken from the three treatments, and the potting medium washed from their roots. Fresh and dry weight of tops and roots were then determined.

RESULTS AND DISCUSSION

The two media incorporating husks produced significantly ($P<0.05$) more vigorous plants than the control (Table 1).

Table 1. Effect of potting medium on top growth of ten species (1 = very weak; 5 = very vigorous).

Treatment	Score
1. Control	3.520
2. Sand/husks (1:1)	4.053
3. Sand/husks (1:3)	4.020
LSD .05	0.297

Fresh and dry weight of *Nephrolepis exaltata* tops produced significantly ($P<0.05$) greater growth than the control (Table 2). This experiment has shown that a range of species, such as *Nephrolepis* and *Oxalis*, which are susceptible to reduced air porosity, through to *Begonia* and *Monstera* (Figure 1) which are relatively hardy, responded well to the use of husks in the potting medium.

Figure 1. *Begonia* 'Orange Rubra' 51 days after growing in (*left*) T-1 (control); (*center*) T-2 (1:1 sand/husks); and (*right*) T-3 (1:3 sand/husks).

Removal of the plants from the pots before irrigation showed that the roots of plants in the control medium were dry and the foliage appeared stressed compared to the sand husks mixtures.

Table 2. Effect of potting medium on top weight of *Nephrolepis exaltata*

Treatment	Fresh wt. (g)	Dry wt. (g)
1. Control	13.5	1.86
2. Sand/husks (1:1)	16.3	4.20
3. Sand/husks (1:3)	22.2	3.92
LSD .05	9.45	1.65

The media incorporating husks had higher K and Mg at the end of the experiment compared to the control in *Nephrolepis* (Table 3). It can therefore be inferred that besides water retention properties, husks do have a better nutrient retention capacity for some elements or have a storage of nutrients within themselves as has been shown in previous experiments with husks (1). More work would have to be done to clarify the moisture and nutrient exchange properties of media incorporating husks.

Table 3. Chemical analysis of the potting media at the end of the experiment with *Nephrolepis exaltata*

	Treatment		
	Control	Sand/husks (1:1)	Sand/husks (1:3)
pH (water)	5.30	5.66	5.45
Conductivity (millimhos/cm)	0.43	0.48	0.78
Total N, %	0.20	0.18	0.36
K (meq./100 g)	1.23	2.85	6.15
Ca (meq./100 g)	18.54	11.24	18.25
Mg (meq./100 g)	2.41	2.51	4.33
P (bicarb.)	52	62	69

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