The Development of Lignocell Coir as a Propagating Medium

Michael J. Dyke[1]
Darby Nursery Stock Ltd, Old Feltwell Road, Methwold, Norfolk. IP26 4PW

INTRODUCTION

Initial screening of peat-free container growing media at this nursery in 1991 identified various products with potential as alternatives to peat. Surplus material from these trials was tried in propagation to see what would happen. Results suggested that these materials were worthy of further investigation and a decision was taken in 1992 to investigate their potential.

MATERIALS AND METHODS

Three out of the five products trialled were commercial products and the proportions of their constituents were known (Table 1).

Table 1. Constituents of growing media used in trial.

Supply company	Product	Contents[1]
UF Horticulture	UF8s	Pine bark Pine chips Straw
Camland Products	Propagation mix	Fine pine bark Wood fibre
Golden Grow	Own mix	50% coir 30% perlite 20% fine pine bark
SHL	Propagation mix	50 : 50 DIY Pine bark Perlite
Hensby Biotech	Own mix	50% lignocell coir 30% perlite 20% fine pine bark
Darby peat mix	Own mix	50% Medium peat 30% perlite 20% fine pine bark

[1] To each mix was added 1kg/m^3 of Osmocote 5-6 month mini granules.

Materials were mixed in a paddle mixer and transferred via a Universal fabrications tray filler into PG Horticulture PG96D 75-cm^3 cell trays. Two trays per species, per mix, were used in the trial.

Current address: Anglia Alpines, St. Ives Road, Somersham, Huntingdon, Cambridgeshire PE17 3ET.

Softwood cuttings, stripped and nodal (with the exception of *Clematis* which are a standard 7.5 cm length), dipped in Synergol (IBA, NAA + Dichlorophen) at 1 : 9 strength, were inserted and placed in open mist with a variable floor temperature around 18C. Mist burst length was 10 sec, with the interval between bursts varying dependent on weather conditions, but usually 20 min. Removal from the mist was based upon individual species' rooting time, but whichever mix rooted first (to around 60% capacity) were removed. Average rooting period was 3 to 4 weeks.

Once removed, trays were placed in the weaning houses and in October 1992 a visual assessment was undertaken. This was followed in March 1993 at the point of potting into an 8-cm liner, by a count of cuttings rooted and a measure of grade quality.

RESULTS

Comments by the staff regarding the ease of inserting and setting the cuttings into each medium were noted. The Camland mix was impossible to insert into, often resulting in prepared cuttings breaking as they were pushed into the medium. The SHL and Golden Grow mixes were also difficult in this respect. All mixes except the

Table 2. Visual assessment of percent of cuttings rooted in various growing media (October 1992).

Plant species	Peat[1]	UF	GG	SHL	Camland	Hensby
Buddleja davidii 'Royal Red'	3[2]	4	2	0	4	5
Cotoneaster horizontalis	3	0	2	2	2	4
Clematis montana var. *rubens*	3	0	5	1	5	5
Escallonia 'Apple Blossom'	3	5	4	-[3]	3	4
Euonymus fortunei Emerald 'n' Gold®	3	1	5	4	4	5
Genista lydia	3	3	3	-	3	3
Hebe ×*fransicana* 'Variegata'	3	0	2	5	5	4
Hypericum calycinum	3	2	5	3	4	5
Jasminum officinale 'Argenteovariegatum'	3	4	5	4	4	-
Ligustrum ovalifolium 'Aureum'	3	3	3	3	3	-
Lonicera nitida 'Baggesen's Gold'	3	0	1	0	2	5
Polygonum baldshuanicum	3	4	5	2	2	3
Santolina chamaecyparissus	3	5	4	-	2	5
Brachyglottis greyi (syn. *Senecio greyi*)[4]	3	2	5	2	2	3
Spiraea japonica 'Little Princess'	3	5	3	-	4	5
Viburnum tinus	3	4	4	-	4	5
Average	3	2.6	3.6	2.6	3.3	4.5

[1] All peat scores were set at "3" for comparison purposes.
[2] Key: 0 = dead to 5 = best.
[3] Means no material trialled.
[4] Botanical Editor: this may refer to one of the Dunedin hybrids such as *B*. Sunshine.

peat mix and the coir based mixes were difficult to set, with cuttings tending to lean over when placed in the mist. A general comment was that it was easier to insert and set cuttings in the Hensby lignocell coir mix than the peat equivalent.

Visual assessment of the cuttings (Table 2) based on colour, growth, and fullness, suggested early on that the Hensby lignocell coir mix was out-performing other mixes, with both the Golden Grow and Camland mixes a close second.

Watering requirements in each of these mixes were different. The SHL, Camland and UF mixes were very free-draining, making it difficult to keep cuttings turgid. The peat mix however, dried out unevenly making watering difficult with a tendency to over-compensate. Both the Hensby and Golden Grow coir mixes, although appearing to dry out on the surface were easy to re-wet. Surplus water was found to move more freely through the coir mixes, with sufficient moisture being retained in the rooting zone.

The final assessment in March 1993 (Table 3) further confirmed the initial findings that the Hensby lignocell coir mix had, overall, performed between 10% to 15% better than peat.

Table 3. Rooting percentage of cuttings in various growing media (March 1993).

Plant species	Peat	UF	GG	SHL	Camland	Hensby
Buddleja davidii 'Royal Red'	60.1	56.8	45.8	49.5	50.0	81.7
Cotoneaster horizontalis	76 0	58.9	82.8	74.5	77.1	67.7
Clematis montana var. *rubens*	22.2	41.7	55.2	52.6	67.7	55.4
Escallonia 'Apple Blossom'	84.0	95.8	94.3	-[1]	87.0	85.4
Euonymus fortunei Emerald 'n' Gold®	96.5	81.8	95.3	98.4	99.0	97.1
Genista lydia	9.7	0	56.3	-	68.8	46.9
Hebe ×fransicana 'Variegata'	94.8	81.3	91.1	96.9	95.3	94.2
Hypericum calycinum	77.1	82.8	88.0	78.1	89.1	88.8
Jasminum officinale 'Argenteovariegatum'	6.3	45.8	71.9	53.1	71.9	-
Ligustrum ovalifolium 'Aureum'	93.8	93.2	94.8	88.5	99.0	-
Lonicera nitida 'Baggesen's Gold'	71.5	59.4	76.6	70.8	67.7	65.6
Polygonum baldshuanicum	26.7	11.5	50.5	45.3	31.3	31.8
Santolina chamaecyparissus	93.1	64.6	51.0	-	31.3	87.9
Brachyglottis greyi (syn. *Senecio greyi*)[2]	93.8	53.6	66.1	60.4	73.9	92.5
Spiraea japonica 'Little Princess'	91.3	78.1	80.2	-	88.0	96.9
Viburnum tinus	76.0	75.0	95.8	-	93.8	91.0
Average	67.1	61.3	74.7	69.8	74.4	77.4

[1] Means no material trialled.

[2] Botanical Editor: this may refer to one of the Dunedin hybrids such as *B*. Sunshine.

CONCLUSIONS

Results show that both the coir-based mixes and the Camland bark mix performed better than the peat mix. Although no conifers were trialled on this occasion, work continued in 1993-94 on these products.

Out of 44 species rooted in the lignocell-coir mix, 24 species rooted better than in the peat equivalent, 19 performed as well as they did in peat and only one species performed worse. As a result, a decision was taken to gradually move into lignocell coir for propagation. By 1994 all plants being propagated were rooted in lignocell-coir-based mixes and although problems have subsequently occurred which were not entirely unexpected, work is continuing to solve them.