

***FINAL REPORT***

***MULTICOTE MINI***

***SCOTLAND***

***Compiled by***

*Colin Stirling  
SAC  
Ferguson Building  
Craibstone Estate  
BUCKSBURN  
Aberdeen  
AB21 9YA*

*November 1999*

## Contents

	<b>Page</b>
Introduction	3
Skipness Plants	5
R & B Nursery	8
Greens Nursery	12
Christie/Elite	16
Glen Dee Nursery	19
Conclusions	21

## **Introduction**

The Multicote Mini (MM) trial was carried out across Scotland during 1999 to assess the products effectiveness when compared to a range of standard nursery practices (SNP) primarily as an observation trial but where possible measurements would be made.

The range of species trialled was quite wide, comprising herbaceous, HONS and cell grown trees. This covered nutritionally (conductivity) sensitive, general and vigorous species.

All the nurseries were visited twice during the year and spoken too by telephone on other occasions to discuss progress. Generally the growers were most helpful often phoning to let me know how the trial was going and any advantages – or otherwise – becoming apparent.

The nurseries were visited during the middle of August to assess growth after potting on the development of seedlings. In some cases a final decision on growth patterns was delayed until late September when discussions took place by phone. It was not possible to carry out statistical analysis on any of the recordings, which in most cases exhibited little or no differences. Observed differences of colour, softness etc. were usually subjective and not quantifiable.

All participating nurseries have been satisfied with the product and in one case results have exceeded expectations. It is anticipated that the production of a more vigorous rooted cutting will produce a stronger liner next year.

With such a diverse range of species being trialled and times of propagation varying it was not possible to visit all nurseries at critical times but with excellent grower involvement and co-operation everything planned has been realised

***NURSERY REPORTS IN DETAIL***

***1998-99***

***FINAL REPORT***

***SKIPNESS PLANTS***

***1998 – 99***

***MULTICOTE MINI v OSMOCOTE MINI***

**Skipness Plants, The Gardens, Skipness, Nr. Tarbert, Argyll PA29 6XU.**

Contact: Mr. W. McHugh

This is a wholesale situated on the east coast of the Mull of Kintyre producing a wide range of shrub and herbaceous liners for growing on

During October 1998 the range of species to be propagated was discussed and also a range which would be top-dressed.

During December the polytunnel skin was lost in a gale and all plants had to be moved at short notice. This led to a big mix-up, and the loss of some trial species. Further propagation took using Multicote Mini in comparison with the SNP of Osmocote Mini.

Winter propagation was carried out using a peat based compost containing 500g/m<sup>3</sup> of Osmocote (SNP) and Multicote Mini. These cells were to be top dressed with the same materials in February/March 1999 at 2 rates, 30 and 50 g/m<sup>2</sup>. Plants propagated during the summer went into cells containing the SNP compost with either SNP or MM at 7 g/m<sup>2</sup> to achieve equal distribution of granules in each cell.

Species assessed included:

Prunus rotundifolia  
Escallonia macrantha  
Berberis wallichiana purple  
Cotoneaster "Autumn Fire"  
Ligustrum aureum

Other species were propagated but were either sold or potted early.

No differences were observed with any of the assessment criteria % taken or root quality. Shoot growth was not significant as all species are cut back to encourage branching. During the visit, it was observed that the growth of both roots and shoots on Escallonia were better when grown in a compost containing MM.

During the last visit it was thought there might be a colour difference between the treatments on *Ligustrum aureum* but by October any perceived differences had gone and there was no difference in colour, size or root growth.

Overall the grower regards the trial as very successful and intends to use Multicote Mini to aid propagation and subsequent growth in the future.

***FINAL REPORT***

***R & B NURSERIES***

***1999***

***Multicote Mini v 12-14 month Osmocote Plus***

## **R & B Nursery, Dryden Walled Garden, Bilston, Midlothian**

Contact: Mr. R. Mason

After discussions between Mr. Mason and James Gordon (SAC) it was decided to concentrate the trial effort on the propagation during the summer with four main species.

Potentilla “Snowflake”  
Hypericum hidcote  
Cotoneaster dammeri  
Rubus “Ashburn”

Standard nursery practice has been to incorporate 12 – 14 month Osmocote Plus at 1.5 kg/m<sup>3</sup> into a 100% peat compost for propagation in 5 cm plugs of 54 per tray. Trial compost substituted Multicote Mini.

The Cotoneaster and Potentilla cuttings were taken in early July and the other species early August. All cuttings rooted well with 100% take. The results obtained although not statistically significant demonstrate the effect of improved cultural measures.

<b>Species</b>	<b>No of trays x54</b>	<b>Date Stuck</b>	<b>% Take</b>	<b>Root Quality score 1-10</b>	<b>Plant colour 1-10</b>	<b>Average length of new growth cm</b>	<b>Other comments</b>
Rubus 'Ashburn'							Little difference – slightly larger leaf and denser foliage with MM.
SNP	20	1 Aug 99	100	8	8	18	
MM	20	1 Aug 99	100	8	9	18	
Cotoneaster dammeri							Much more variability with SP.
SNP	50	3 July 99	100	8	8	8-9	
MM	40	3 July 99	100	9	9	12	
Hypericum hidcote							SNP had more red stems and red/orange young shoots – possibly N deficiency. MM much better plants. SNP plants had more flower visible after rooting. MM plants were cut back after making much more growth.
SNP	9	1 Aug 99	100	6	5	6-8	
MM	5	1 Aug 99	100	9	9	10-11	
Potentilla "Snowflake"							SNP plants had more flower visible after rooting. MM plants were cut back after making much more growth.
SNP	25	3 July 99	100	5	6	7	
MM	25	3 July 99	100	10	10	10	

## **General conclusions**

R & B nurseries are particularly impressed with the performance of MM compared to their previous practice. The plants produced were generally of a better quality with more even size and less disease. After rooting, the plants are over wintered as plugs and potted – on in early Spring as liners.

The overall improvements in plant growth and development has been so marked that this nursery will be changing the system forthwith.

***FINAL REPORT***

***GREENS NURSERIES***

***1999***

***Multicote Mini v Bedding or Seed Compost***

## **Green's Nurseries, New Fleenas, Nairn, IV12 5QN.**

Contact: Donald Green

Green's Nurseries are primarily wholesale bedding plant producers who also specialise in herbaceous perennials. They are members of the PICT plant consortium.

The original trial with MM was intended to demonstrate the products effectiveness or otherwise using pot grown bedding i.e. Pelargoniums, Petunias, Salvias and Pansies. The absence of the nursery propagator at the critical time due to extended sick leave prevented the original trial from taking place in a meaningful manner. It was therefore decided to reschedule the trial using a different range of species.

Delphinium (Pacific Giants) sown direct 21 June 1999 into Linpac 216cells. Germinated with bottom heat Potentilla sanguinea sown direct 21 June 1999 into Linpac 216 cells to be potted on mid August. Pansy (Ultima) bought in as Colegrave Seed plugs 230 prick out into 6 packs mid to end of July (wks. 28-30) for sale wk 34 onwards.

Aubretia and Campanula seedlings were top-dressed in the seedbox at a rate equivalent to 3 kg/m<sup>3</sup>.

### **Trial Compost**

The SNP is to use Bulrush bedding compost for Delphiniums, Potentilla, Aubretia and Campanula. For the trial MM was added at 2 kg/m<sup>3</sup> for the Pansies, and 3 kg/m<sup>3</sup> for the remainder, to ensure an adequate number of granules/cell.

### **Results**

Delphinium – the plants in the SNP compost were bigger and more uniform. The germination was much better than those in the compost containing MM. These plants were very uneven with poor roots, which were also less fibrous. The plants exhibited all the symptoms of excessive nutrients (high salt levels) probably induced by the bottom heat for germination. A conductivity analysis was carried out on cells exhibiting poor results.

The details shown confirm that the conductivity was far too high. The level in these cells should have been about 150 – 300 micro Siemens.

It can be concluded that MM should not be added to seed compost for Delphiniums, especially if bottom heat is going to be used for germination.

### **Potentilla sanguinea**

Plants grown in the compost containing MM were bigger and with superior root system. The Bulrush seed compost had run out of nutrients and had produced plants which were small yet tough. It was thought that these would hold well and grow away when potted but were at a considerable disadvantage when involved with a precision growing system. It might be that the bedding plant compost would have not been too strong for this species and lasted longer.

### **Pansies**

No differences were observed after only a few weeks of growing. A number of trays of each were withheld from sale to determine the longer term differential – no differences were observed at sale (week 34) or those held over until mid November (week 46).

### **Aubretia and Campanula**

Boxes of seedlings were germinated and grown on to a stage nearly suitable for pricking out. The compost ran out of nutrients and the plants made no more growth until MM was applied overhead to the surface of the compost. Growth resumed within 1 week, plant colour improved and the root growth became extensive and fibrous.

The success of this exercise has promoted the idea of using a sowing machine to accurately place the correct number of granules into each cell rather than increasing the rate to ensure partial success. Top dressing could possibly be done in the same way by passing the trays back through the “seeding” machine.

The use of MM at Greens has certainly found a niche and will be developed in time to ensure strong healthy growth of all plants at all stages.



**SCOTTISH HORTICULTURAL SUBSTRATES CENTRE**

John F Niven Building  
SAC Auchincruive  
Ayr, KA6 5HW  
Telephone: 01292 525326  
FAX: 01292 525333

**Client:** *Colin Stirling*  
*Agronomy Dept (Horticulture)*  
*SAC*  
*Ferguson Building*  
*Craibstone Estate*  
*Bucksburn*  
*Aberdeen, AB21 9YA*

**ANALYSIS REPORT: HORTICULTURAL SUBSTRATES**

**Date Reported:** 23 August 1999

---

**Sample Reference:** Multicote Mini Compost

**Lab Reference Number:** 99/118

**Order Number:** SAC Invoice Aberdeen

---

**WATER Extract (6:1 v/v)**

**Conductivity ( $\mu\text{S}/\text{cm}$ )** 1003 (7)

Numbers in brackets refer to conductivity and nutrient indices.

**Signed:** \_\_\_\_\_

***FINAL REPORT***

***CHRISTIE ELITE***

***1999***

***Multicote Mini v Sinclair compost + Sincrocell 12***

## **Christie Elite Nurseries, Forres, Moray, IV36 0TW**

Contact: Brian McCamon

Christie Elite is one of the major producers of cell grown trees in the UK. Both deciduous and conifers are grown from seed and cuttings for the farm and forestry market.

This trial was particularly difficult to set up because of the compost used as SNP. All seed compost is purchased from Sinclair with 4 kg/m<sup>3</sup> of Sincrocell 12 added. It was not possible to obtain this compost without Sincrocell and therefore the Sinclair General Purpose compost was used with the addition of 2 kg/m<sup>3</sup> of MM.

The trial concentrated on seed raised plants which were either sown direct or pricked-out into the compost during June

Species	Prunus avium	Gean (SD)
	Betula pubescens	Downy Birch (PO)
	Fraxinus excelsior	European Ash (PO)
	Alnus glutinosa	Common Alder (PO)
	Sorbus aucuparia	Rowan (PO)
	Ilex aquifolium	Holly (PO)

SD sown direct

PO pricked out

These were either sown direct or pricked out between 2 June and 23 June 1999 into 150 ml cells.

### **Results**

The trial was assessed on 18 August 1999 and re-assessed in early November to confirm treatment variations. Holly, Gean and Rowan exhibited no differences between treatments of colour, height, thickness of stem and root growth.

Downy Birch plants were very slightly bigger with the MM treatment but still within the same grade. Ash plants were the same size as the SNP treatment but the leaves were noticeably darker with the MM treatment. Alder plants demonstrated the greatest difference of all species trialled. The MM treatment plants were half the height of SNP, a lighter leaf colour and quite uneven. Some seedlings died after pricking out which could reflect the different levels of skill of the people pricking out but this is unlikely.

Overall it was felt the MM treatment gave a much greater range of variability than the SNP. The use of a CRF mini was generally not as acceptable as the CRF 12 month product for this purpose.

***FINAL REPORT***

***GLEN DEE NURSERY***

***1998/99***

***Multicote Mini for propagation***

## **Glen Dee Nursery, Drumoak, Banchory, AB31 3AS**

Contact: Mrs M. Ogden

This is a wholesale nursery concentrating on the production of Polygala and Lewisia species. The Polygala have been the centre of interest for a number of years when growth was less than satisfactory. The potted plants suffer from root death over winter, a leaf spot disease and as a result of root damage a range of nutritional symptoms. The cuttings raised on an isolated nursery site away from the production site where they remain green and root well.

The purpose of this trial was two-fold.

1. Top dressing of rooted cuttings to improve post-potting establishment and growth.
2. Incorporation of MM into cuttings compost to prevent nutritional loss during propagation.

The top dressing was applied on 17 October 1998 at 30 x 50g/m<sup>2</sup> over the cell trays.

The propagation compost, a coir based medium, had MM incorporated by hand at 2 kg/m<sup>3</sup> for use in 20 – 25 ml cells.

### **Results**

Assessment of the propagules in mid March 1999 showed that they have a preference to root through into the grit below the trays but were air pruned there was no difference between the treatments although very little of the nutrient would have been released at temperatures below 10<sup>0</sup>C. Root growth in all cells was very good and fibrous.

Re- assessment during June and July showed no differences.

Propagation into a compost containing MM, even one year later, has shown no differences between treatments. This is very disappointing and probably reflects more on a difficult species than the CRF.

## **Conclusions**

Trials across Scotland and a wide range of species have demonstrated considerable differences in the products suitability.

Multicote Mini can be used as a top dressing to great effect providing a controlled release “liquid feed” to the seedlings/plants over a temperature dependant period. When incorporated into the compost and used in cells for direct sowing, the salt sensitivity of the species becomes very important. With small sized cells it is necessary to use higher total rate to ensure at least some granules in each cell but with sensitive species the chance of increasing the dose beyond the plants requirement is increased. Cuttings generally respond better than seedling.

Cuttings which have rooted into the compost containing Multicote Mini should be air-pruned and not allowed to root into the standing substrate. Drainage of the leachate into this substrate will encourage rooting out with the cell.

Multicote Mini can provide the necessary short-term, complete nutrition for a wide range of species but great care should be taken in recommending its comprehensive use for compost incorporation when direct sowing into small cells.