

any other rooted cuttings.

Before the first frost, recover the beds for winter protection. If they are well watered at this time, they will usually carry until they are permanently uncovered the following spring. The time required from cutting to finished liner is about 10 months.

PROPAGATION OF CALLUNAS AND ERICAS IN THE UNITED KINGDOM

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INTRODUCTION

Before talking about propagation perhaps we should say something about the plants.

Calluna vulgaris. (Ling) is indigenous to the northern, western, and southern moorlands of the British Isles, as well as other parts of Europe and Asia Minor. As a garden plant it is easily grown in an open situation but most must be planted in acid soil. There are some, however, that will stand a certain amount of alkalinity. The plants are both attractive as flowering plants from July to November and as foliage plants for early spring and autumn colour. There are literally hundreds of cultivars now available from British nurseries.

Erica. (Heath)—Several species and again several hundred cultivars are propagated and grown in the United Kingdom. In fact, it is possible to have ericas in flower most months of the year. The species of particular significance are:

<i>E. herbacea</i> (Syn. <i>E. carnea</i>)	Winter-flowering heath	flowering November– April
<i>E. ciliaris</i>	Dorset heath	flowering July–October
<i>E. cinerea</i>	Bell heather	flowering June– September
<i>E. × darleyensis</i>	<i>E. herbacea</i> × <i>E.</i> <i>erigena</i>	flowering February– April
<i>E. tetralix</i>	Cross-leaved heath	flowering June–October
<i>E. vagans</i>	Cornish heath	flowering July–October

All, except *Erica herbacea*, require acid soil conditions. This will tolerate a slightly alkaline soil.

Most callunas and ericas are dwarf-growing mat-forming plants. This makes them ideal for small gardens. It is a common practice to plant with dwarf conifers, which add height to the planting and enhance the year-round color of the planting scheme.

THE MARKET

It is estimated that retail sales in the British Isles are in the region of 12 million pounds sterling per annum. The production at Blakedown Nurseries is in excess of 500,000 units per year, with a wholesale value of 250,000 pounds.

We produce three sizes: ½ litre, 1 litre, and 3 liter, based upon metric volume of the container. The ½ litre size has been grown by ourselves and other nurseries for many years. Larger pot volumes have been introduced in the last few years.

Most callunas and ericas are sold through garden centers to the private gardener. However, there is a steady and increasing demand for the more robust cultivars by landscape contractors for amenity planting.

PROPAGATION

Mother stock. We grow mother plants both in outside beds and in 1-litre pots. As pot-grown plants are often protected, it gives us the opportunity to "forward" cuttings for early propagation.

Propagation technique. Softwood cuttings are taken between late May and the end of September. They are collected from mother stock, which has been pre-disinfected by a fungicide. Nodal and heel cuttings are used. Cuttings are prepared close to the propagation area. Knives are the "throw-away" blade types, saving sharpening time. The polythene workbench tops are washed daily with hypochlorite.

Insertion of cuttings. Cuttings are inserted into modular trays, each containing 247 cells. The rooting compost, which is prepared by hand, consists of ⅔ sphagnum peat and ⅓ polystyrene granules. The filled trays are stood directly onto sand beds heated by hot water in 22mm alkathene pipes. The heat source is provided by dual-energy 28-second oil and off-peak electricity. A bed temperature of 15°C is maintained.

The misting unit is controlled by a "wet leaf". Beds are covered with a fine mesh net, which allows 40% of the mist to percolate. This technique has proved very beneficial as it gives extra shade, a cool micro-climate and, as the propagation house is ventilated by fans, no disruption to the mist. Rooting takes between 3 and 5 weeks, dependent on the time of the year and the cultivar.

Aftercare. Rooted cuttings are gradually "weaned" from the mist unit, eventually being moved to storage houses. Regular sprays of foliar feed are given to ensure starvation does not occur prior to potting on.

Potting on. Our cropping program depends upon the time that we wish to market our plants. The ½ litre program is scheduled to produce two crops. Crop one is marketed May to August. Plants intended for this crop are potted into 5.5-metre X 18-metre polythene tunnels in September. The tunnels are clad with clear 400g

film. The lightweight film ensures good light during the short autumn and winter days. Crop two is marketed between September and March. The rooted cuttings are potted-on outside during April. We use a 70% sphagnum peat and 30% bark potting compost. To each cubic metre we add:

2.5 kg	12-to-14-month Osmocote plus
0.75 kg	12-to-14-month Sierrablen
1.2 kg	magnesium limestone
400 g	Rovral.

We intend to produce a compost with pH 5.5.

The rooted cuttings are potted from a mobile potting unit that is capable of producing 24,000 7cm pots a day. A gang of five people operate the unit. They work a two-shift system, which equates to a 16-hour day. Plants are stood down pot thick on sand beds. Watering is by overhead Mamset nozzles. One-litre and three-litre plants are potted on using 1/2-litre stock as liners.

PROPAGATION OF A SELECTION OF NEW ZEALAND NATIVE SPECIES OF COMMERCIAL SIGNIFICANCE

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At Lyndale Nurseries situated in Whenuapai, Auckland, the problem of what not to grow is often more difficult to decide than the more commonly asked question of what to grow. There is a need to be continually assessing cultivars and market response to them.

When we identify a plant with "potential", resources have to be allocated to produce a required number. Given a production limit something has to be sacrificed—what not to grow. The two species discussed in this paper add to the dilemma of what not to grow.

In identifying what criteria are necessary for shrubs of commercial promise or significance the demands of the market are paramount. The market specified for these plants is for flowering shrubs with end use as patio plants in pots, or in rockeries and small courtyard gardens.

These requirements are:

1. A long flowering period.
2. Good shape and form, irrespective of flowers.
3. Good colour of flower contrasting with foliage.
4. A height of under two meters and shape suitable for a life of container growing.