Eucalyptus as Cut Foliage

Interim Report

Year Ending 2007

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Background

Eucalyptus is widely used as a filler in flower bouquets, floral designs and sometimes as a scented bunch on it's own. There are 500-600 varieties of Eucalyptus native to Australia of which a limited number are hardy in the British Isles and are known as being suitable for cultivation in Northern Ireland. Varieties planted were *Eucalyptus 'parvifolia'* (which is now known as *parvula*), *gunni* and *rubida*. *Eucalyptus 'parvifolia'* is one of the more hardy commercial varieties. Other commercially known varieties are *Eucalyptus pulverulenta* 'Baby Blue' and *Eucalyptus glaucescens*. Different markets prefer different varieties. The range of Eucalyptus varieties available can be seen on the Sunflora website under products at www.sunfloragroup.com .

Plant source

Plants were raised from seed sourced from Chiltern Seeds. Seed was sown in seed trays in March under glass and pricked out into 9 cm liner pots and root trainer cell trays. The plants were planted out in July 2004 before the roots become lignified and root bound; otherwise roots become woody and the plant will not establish or anchor adequately.

Cultural and management techniques

Plants were planted as pot raised plants in July 2004 at a spacing of 1.5 m x 1.5 m giving 4,444 plants per ha. The cost of purchasing plants in 9cm pots would be approximately 75p each.

In the present trial woven polypropylene fabric was used as ground cover for weed control. Other forms of weed control could be polythene mulch or chemical weed control. The mulch cover was removed after 2 seasons as the foliage of the plants had covered the ground sufficient to suppress weed.

Soil Nutrition

Fertiliser was applied according to soil analysis as a base dressing before planting in 2004 to bring soil indices up to the level required for field grown nursery stock. This involved increasing the soil indices for Potassium and Phosphate to above index 3. Nitrogen was also added at equivalent to 50 kg per ha.

In spring 2006 the woven polypropylene cover was removed and a compound fertiliser containing NPK (12.11.18) at 30 g/m^2 was added as a top dressing The crop was again top dressed with the same compound fertiliser at 10 g/plant in August 2007, much later than expected because of the very dry spring.

Crop Pruning

The aim is to optimise yield of juvenile foliage by an appropriate pruning programme. New plantations should not normally be pruned until the end of second growing season to allow the trees to become well established. In our situation where growth was quite vigorous a very light pruning to 1.3 m at end of first full years growth (spring 2006) was given to help stabilise the trees. After the second year's growth in the spring of 2007 plants were pruned back to 1.2 m. Pruning back to this level helps develop a single or multiple frameworks of 2 to 3 main stems for future production purposes. More severe pruning can lead to higher losses. It is also important, particularly in the early years to leave as many weak side branches on this framework for photosynthetic purposes. In the interests of overall management strong side branches should be shortened by one-third in length.

Pruning was carried out in the March period each year to reduce the risk of low temperature winter damage to the plants.

Pest and Diseases

Eucalyptus are generally free of pests and diseases. There was a small outbreak of Psyllid, a sucking insect which causes distortion on the new growth, in 2006. A parasitic wasp *(Psyllaephagus)* is used as a predator and it is recommended to leave a row of Eucalyptus trees unpruned around the outside of plantation to harbour the beneficial wasps.

Post Harvest Treatment

The most important post harvest activity is to reduce contamination from bacteria and to keep the stems clean using clean secateurs. Stems should not be placed on the ground or unclean surfaces. Buckets and containers should be kept clean with a chlorine product.

Bunches were placed in buckets of water treated with Chrysal RVB clear and placed in a cold store at 3ºC.

Results

Plants established quickly and had put on 1m of growth before the first winter. This growth before winter is important in reducing damage from low temperature in winter. Yields of saleable stems per plant were recorded and are shown in table 1.

The main harvesting period was from October to Christmas. In mild winters harvesting may continue up to February or March. Some markets look for a 500 gram weighted bunch 60 - 80 cm overall which can include stems as short as 30cm to make up the weight and maximise returns.

However most markets prefer a bunch of 10 stems of 60+ cm. Each stem should be well balanced with some side branching. In harvesting we recorded stems longer than 50 cm. Excess leaves at the base of the stems are removed and bunches are bound securely with elastic bands.

The harvesting season started in October in our plots was finished at the end of December. Some plantations can yield up to the end of March provided there is no winter damage. Prices per stem can vary between less than 10 p per stem to 20 p per stem depending on what market is supplied and what volumes are involved.

Table 1 Yields of marketable stems per plant for Eucalpyptus 'parvifolia' from plants planted in Autumn 2004

Length of stem	50-60 cm	60-70 cm	70-80 cm	Total
2005	nil	8	25	33
2006	nil	nil	21	21
2007	13	6	3	22

Conclusions

Yield in 2005 was higher due to the large number of side branches which developed on the plant. By 2006 the competition for light with the 1.5 m spacing had resulted in less side branches. The majority of marketable stems were on the top of the plant. Harvesting to achieve branched stems of 60 cm and longer was quite time consuming due to the amount of stems which are unsuitable for market as they were too short.
On the evidence so far we would recommend wider spacing of 2 m between rows and 1.5 - 2 m in row

There is a lot of variability in foliage texture due to the plants being propagated from seed. This was especially evident in *Eucalyptus gunni*. Vegetative methods of propagation would be desirable but are not known to be viable at present. There may be variations in the quality and grading of seed from different sources.

At spacing of 1.5 m x 1.5 m total number of plants per ha is 4444. Thus total yield per ha is (taking 2006 figure) 21 stems x 4444 plants = 93,000 stems. Less 20% for pathways and wastage gives 74,000 stems/ha.

Pruning to 1.2 m high results in some strong upright shoots developing from this height which are difficult to reach when harvesting. Thus, investigations of different pruning regimes, for example, pruning lower to a height of 0.5 m are planned in 2008 plus evaluating at coppicing to ground level.

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