

## Eucalyptus as a Cut Foliage Crop

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Single stem, 1-year-old specimens of *Eucalyptus gunnii* were planted in four treatments of single, double, triple, and quadruple rows at a spacing of 1.75 m between plants, both between and within rows (densities of 1937, 2431, 2657, and 2787 plants ha<sup>-1</sup>). In each year of the experiment foliage was harvested from autumn until early spring. Length, weight, and form of foliage, whether juvenile, adult or discard, was noted. The plants were then coppiced. The cumulative weight per treatment was measured. There was no significant difference between treatments or in the treatment/year interaction. The mean weight of material harvested per plant planted in consecutive years was 0.58, 1.92, 1.07, 1.02, 1.07, and 1.43 kg and is within the range reported from England and Germany (0.5 kg to 3.0 kg per plant). The percentage of juvenile foliage harvested in each consecutive year was 19.9%, 28%, 68.6%, 76.6%, 73.6%, and 66.8% and this indicates the effect of severe pruning on the production such foliage.

### INTRODUCTION

The term "cut foliage" describes the material, generally evergreen, which is used to create lines and as a filler in floral decorations. In recent years the cut foliage content of floral decorations has increased from 5% to 30%. For the producer, species grown as cut foliage must be fast growing, attract few pests and diseases and regenerate after the yearly harvest, while the florist requires material with attractive leaves, pliable foliage, and which is long lasting in water. *Eucalyptus*, the Australian genus of some 600 species of trees, is well represented in Irish plant collections and is cultivated for cut foliage purposes in the Alpes Maritime, France; Imperia and Liguria, Italy; and Cornwall, England. Prompted by the success of this genus, and the increased demand for cut foliage, experiments to develop a production system for *Eucalyptus* cut foliage were established at Belfield, University College Dublin in 1990. This paper describes the effects of planting configuration on the yield of marketable cut foliage.

### MATERIALS AND METHODS

In April 1990, single-stem, 1-year-old *Eucalyptus gunnii* were planted on single (1 × 8 + 1 × 8), double (2 × 8), triple (3 × 5 + 1), and quadruple (4 × 4) rows at a spacing of 1.75 m between plants, both between and within rows. The four treatments with 16 plants in each were replicated five times and represented densities of 1937, 2431, 2657, and 2787 plants per hectare respectively. Each year between autumn and spring stems longer than 50 cm and greater than 20 g were harvested and a record taken of the plant number, length, and weight of each stem and the form of foliage, whether adult (narrow, alternate leaves); juvenile (round,

opposite leaves); or discard (damaged or woody portions of stems). The plants were then coppiced to 10 cm in 1991, to ground level in 1992, 1993, and 1994 and to 5 to 10 cm with short shoots remaining on the plant in 1995 and 1996. Throughout the experiment the ground has been maintained weed free. There was some infestation of psyllid suckers (*Ctenarytainia eucalypti*) but apart from the first season the pest population did not warrant an application of insecticide.

## RESULTS

The cumulative yield weight per treatment, after 6 years, was 5.77, 7.57, 7.94, and 7.14 kg respectively, for 1-row through 4-row (Table 1). There was no significant difference between treatments or in the treatment/year interaction. The mean weight in consecutive years per plant planted was 0.58, 1.92, 1.07, 1.02, 1.07, and 1.43 kg.

**Table 1.** Mean annual weight (kg) of stems/plant planted of *Eucalyptus gunnii*.

Treatment	1991	1992	1993	1994	1995	1996	Cum. yield	Cum. yield t ha <sup>-1</sup>
1-row	0.56	1.65	0.86	0.79	0.85	1.06	5.77	11.70
2-row	0.64	1.91	1.26	1.08	1.12	1.56	7.57	18.40
3-row	0.62	2.20	1.30	1.16	1.12	1.54	7.94	21.09
4-row	0.51	1.95	0.86	1.07	1.19	1.56	7.14	19.89
Mean	0.58	1.92	1.07	1.02	1.07	1.43		
Level of signif.	NS	NS	NS	NS	NS	NS		

The percentage of juvenile foliage which had been increasing from 19.9% in 1990-91 to 76.6% in 1993-94 decreased in 1995-96 to 66.8% (Table 2).

**Table 2.** Juvenile, adult and discard stems (percent of total harvest) of *Eucalyptus gunnii* over 6 years.

Year	Juvenile (%)	Adult (%)	Discard (%)
1990-91	19.9	80.0	0.1
1991-92	28.0	41.5	30.5
1992-93	68.6	6.2	25.0
1993-94	76.6	5.8	17.4
1994-95	73.6	6.8	19.4
1995-96	66.8	12.4	20.7
Total	58.6	19.2	22.0

## DISCUSSION

The yields achieved in these experiments fall within the range reported from Germany (Maync, 1985) and England (Pollock, 1982), between 0.5 kg and 3 kg per plant. Indications are that the trial plants may not have attained their maximum yield. The pruning regime has a major impact on yield, both in terms of the weight of stems and the number of juvenile stems. Italian producers prune to a pollarded system, and with the exception of 3 or 4 main stems, all side shoots and foliage are removed in April. From this experiment, it appears that when the plants are severely coppiced to ground level, juvenile foliage (the form preferred by the market) rather than adult foliage is produced. However some plant losses occurred, possibly due to severe pruning of the plants, poor soil conditions in certain areas of the site, and the genetic variation within the plants themselves.

## CONCLUSIONS

At a plant spacing of 1.75 m, planting configuration had little effect on the yield of cut foliage. Some individual specimens in the experiment produced particularly good quality cut foliage each year and these genotypes are now being propagated clonally in vitro.

## LITERATURE CITED

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