

Eucalyptus for Cut Foliage

Factsheet 2/20

INTRODUCTION

Eucalyptus originates from Australia and consists of over 500 different species many of which grow well in the South of Ireland. There is demand for Eucalypts with attractive grey, blue-grey and green foliage all year round and particularly during peak autumn, winter and spring months. The stems are used as 'fillers' in mixed flower bouquets supplying high street florists, an export market to specialist flower bouquet processing companies in the UK and Holland who in turn supply the major supermarkets and other retail outlets including an expanding mail order market. The first commercial plantings were made in Ireland in the early 90's and the current area stands at approximately 100 ha.



The favourable climate and soils of southern Ireland coupled with their ability to withstand very hard pruning make many of the Eucalypts ideal plants for cut foliage production. This factsheet has been prepared from the results of Teagasc trial work and recorded experiences of growers in the South of Ireland.

CHOOSING SUITABLE SPECIES FOR CUTTING

Many species suffer damage from extreme cold in winter, particularly sudden rapid drops in temperature following mild periods of weather or 'scorch' from persistent cold and dry easterly winds.

Eucalyptus species have the peculiarity of having a juvenile phase during which the leaves produced are strikingly different from those of the adult plant. Juvenile leaves are shorter and broader than the adult ones, sessile or short-staked and usually opposite in arrangement.

SPECIES

The main requirements of a species for cutting are:

- Attractive foliage colour and form.
- Ability to coppice with rapid annual branching.
- At least some resistance to low winter temperature.

Markets vary in their preference to particular species so it is important to thoroughly research the market before establishing a plantation.

The following species have performed well in Ireland.

Eucalyptus cinerea (Silver Dollar) – probably the most popular grey species. Small leaves and purple young stems. Immature leaves pink. Very hardy, coppices well. Medium to high yields.

Eucalyptus coccifera (Tasmanian Snow Gum) – juvenile leaves smell of peppermint. Glistening young shoots, willow like blue adult leaves. Very hardy and tolerates exposure.

Eucalyptus glaucescens (Tingiringi Gum) – small rounded leaves blue/white with a 'fruity' aroma. Young adult leaves glaucous or pink. Coppices well. Medium yields.

Eucalyptus gunnii (The Cider Gum) – leaves rounded, surface powdery blue-grey. Blue adult leaves. Hardy sources known. Coppices well. Popular and high yielding.

Eucalyptus pauciflora (Cabbage Gum/Snow Gum/Weeping Gum) – green or grey coloured type and there are a number of subspecies of which *niphophila* is best known. Semi-pendulous leaves with parallel veins. Both juvenile and adult foliage is marketable. Medium yields.

Eucalyptus perriniana (Spinning or Round Leaved Snow Gum) – rounded leaves, clasping the stem; foliage grey-green, stems white. Hardy sources known. Branches horizontally. Medium yield.

Eucalyptus parvula formally *parvifolia* (The small leaved gum) – highly popular small green rounded leaf type. Hardy seed sources known. Coppices well. High yielding.

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Eucalyptus pulverulenta (Silver Leaved Mountain Gum) – very glaucous juvenile leaves persisting often throughout the life of the tree. Recommended for milder districts. Medium yield. This is widely used for cut foliage in flower arrangements. Unusually, the juvenile foliage is kept through adulthood and the tree assumes a very scraggly appearance. It is not exceptionally hardy so only suited to mild areas. 'Baby blue' is a named smaller leaved variety of this species.

Eucalyptus moorei - narrow willow like leaves green in colour. High yielding.

Eucalyptus rubida (Candle Bark Gum) - red stemmed species. Tones of red/pink colour also in the leaves particularly evident in the new growth in spring and early summer. Medium yield.

Other species worthy of consideration include *E. subcrenulata* and *E. macarthurii*.



From top left to bottom right – *Eucalyptus pulverulenta*, *E. perenniana*, *E. parvula* and *E. moorei*.

SITE & SOIL SELECTION

The selection of the correct site has a significant bearing on the level of production.

The site must have a mild microclimate and be well sheltered from wind and salt sprays if near the coast. A south facing aspect is desirable but not essential. A site exposed to full sunlight is best. The site must be accessible.

Experience has shown the best soils tend to be the free draining mineral loam types although Eucalyptus will tolerate most soil types. A pH of neutral to slightly acid is preferred ie 5.5-6.5.

PLANT MATERIAL AND PROPAGATION

Plants can be obtained from specialist propagators in Ireland. Whilst trials are ongoing on improving methods of propagation including vegetative and micro-propagation, propagation by seed remains the most common method. If propagating from seed, it is important to be aware that seed of the hardy species from high altitudes usually has a period of dormancy before germination takes place. To break dormancy, ie. induce rapid even germination seed should be placed in distilled water in sealed containers and stored at 1.7°C in a domestic refrigerator for six to eight weeks before sowing. In some instances, seed may have been treated prior to purchase.

Seed is normally sown in a heated glasshouse or tunnel in February and soil temperatures of 15.5°C to 18.3°C are recommended. Seed are generally pricked out into small peat modules or into 7 cm rigid containers). This is done when the first pair of seedling leaves (above the cotyledons) has expanded and the second pair is showing. The lifting, separating and transplanting must be done carefully but quickly to avoid drying of the roots. Plants should be ready for planting in the field by mid-June. A plant size of 15 -25 cm is recommended for planting out in June/July Teagasc research has shown that by tip pruning the main leading shoot in April/ May a sturdier transplant resulted which did not need subsequent staking in the field. Ideal plant size 15-20 cm for planting out.

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Eucalyptus ready for field planting.

PLANT DENSITY

Young trees are generally planted on the flat or slightly raised beds or ridges following the standard cultivations of ploughing and rotovating.

Trees are generally planted in rows 1.5 m apart with plants 1.5m in the row giving an overall plant density of approximately 5000 trees per ha. In the south of Ireland, systems are adopted to facilitate tractor operations such as spraying and collection of harvested material.

WEED CONTROL

It is critical though that the field has first been cleared of perennial weeds by spraying off using *Glyphosate* (Roundup). It is very important to keep plantations free of weeds particularly in the first few years of establishment for the developing plant canopy smothers out all but perennial weeds.

The use of a non-woven mulch such as mypex/daltax on the planted row in conjunction with a mowed grass or cultivated strip between rows is recommended. Carefully chosen residual and selective contact herbicides can also be used. The choice of herbicides to maintain clean plantations depends on weed spectrum and while

some full and off label recommendations exist, choice is limited. Safety, legal and economic considerations dictate that herbicides must be used with great care both in following the manufacturer's recommendations regarding suitability, timing, rate and accuracy of application. Contact your adviser for the most suitable method of weed control for your site and up to date herbicide recommendations.

NUTRITION

Little is known on the nutritional requirements of the species and very little experimental work has been carried out on Eucalyptus when grown for foliage. It does appear that they do not require high levels of nutrients but a good balance of Phosphate, Potash and Magnesium is recommended and soil analysis is necessary to determine if the levels of nutrients are satisfactory prior to planting.

The species does benefit from topdressings applied in the spring. Responses occur if Nitrogen is added and it is recommended to apply up to 70 kg/ha nitrogen in the Spring. Foliar analysis during the growing season is a good way of pointing to any deficiencies that may occur. Contact your adviser for specific recommendations on nutrition of Eucalyptus.

PRUNING

By cutting back/pruning Eucalyptus, they can be grown in almost any form and kept to any desired size. The characteristic of apical dominance is strongly developed. The normal form of an un-pruned tree in the sapling stage is a single stem with a fast growing leading shoot and a narrow crown of branches. If the end of the leading shoot is damaged or pruned off, a side shoot will rapidly form the framework needed for a shrub, bush or standard tree by the usual pruning techniques.

It is critical to prune the species when growing for foliage purposes for the following reason:

- Eucalyptus foliage form changes from 'juvenile' in the young seedlings where the leaves are often rounded to 'adult' where the leaves are often willow like in shape. Plants kept juvenile usually have more attractive leaf shapes and colors. It is the juvenile foliage which is demanded by the trade and for this reason plants have to be pruned annually.
- Plantations grown for foliage are managed as

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a pollarded or coppiced crop. Such pruning is undertaken at the end of a harvest season, usually late February or March and certainly no later than mid April before the onset of significant new growth.

- Open center trees about 1m high on a short leg should be aimed at – this is referred to as pollarding. Harder pruning to a short leg of 30 cm (coppicing or stooling) can also be carried out but Teagasc trials showed that pollarding resulted in higher yielding crops.
- The removal of dominant shoots by tip pruning in the mid-summer period inducing lateral branching also contributed to increased yield.



Annual pollarding of *Eucalyptus parvula* in March (top) with coppice re-growth on *Eucalyptus glaucescens* in June (below).

PESTS & DISEASES

In Ireland, Psyllid (*Ctenarytaina eucalypti*) and an exotic leaf beetle pest, *Paropsisterna selmani* pose a risk to commercial Eucalyptus crops whether for foliage. Psyllids (both adults and nymphs) can become established on the bloom of tender glaucous juvenile foliage where they surround themselves with a woolly excretion which is a mixture of honeydew and cast skins. Young trees or coppice regrowth is at most risk and they can render the foliage unmarketable. Whilst insecticidal sprays can be used to control infestations of both damaging pests, bio-control methods have been the feature of recent experimental work. A parasitic wasp (*Psyllaephagus pilosus*) has been introduced under licence to control Psyllid where the female wasp parasitizes the Eucalyptus psyllid exclusively. In the case of the leaf beetle, the parasitic wasp *Enoggera nassau* has been tested with success and its introduction into commercial plantations is the next step in ensuring a sustainable control strategy in the future. Careful monitoring and management of biological control agents is vital to their successful performance in outdoor crops.



Psyllid infestation of Eucalyptus shoot tips.

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Silver Leaf Disease (*Chondrostereum purpureum*) attacks the plants through pruning wounds: symptoms show as silvering in the foliage and brown staining of infected stem tissue – infected branches and dead trees should be removed and burnt. Summer tipping reduces the subsequent area open to attack as fewer large pruning cuts are made.

Oedema which is thought to be a physiological disorder can be a serious problem on Eucalyptus species in some seasons. It occurs when plant roots take up water faster than it can be used by the plant or transpired through the leaf cells causing them to rupture. The rupturing takes the form of raised corky lumps on the undersides of leaves. The problem can be worse on heavy soils in a very mild growing season.

HARVESTING AND PROCESSING

Most Eucalyptus is harvested during the months October through to April. All harvesting is done using a hand held secateurs. Stems should be carefully selected for quality of leaf and shoot balance. Well furnished sprays up to 60 cm long with stems pencil thickness are ideal. Whilst grading and bunching can be carried out in the field, some growers prefer to rough cut and grade and pack in the processing shed. Depending on specification, stems are processed either by number (bunched in 10's) or by weight (200- 400 gram bunches). Bunched stems are stood in water overnight and kept cool prior to packing in buckets and then transported on Danish trolley's.

POST - HARVEST TREATMENT

It has been common practice for the past number of years to treat the stems harvested in the early part of the season (Sept/Oct) with a post harvest preservative in order to maintain quality and subsequent freshness of the foliage. The most common pre-treatment used is Chrysal RVB clear which is placed in the containers for 48 hours immediately following harvest and prior to boxing for transport.

COSTS AND RETURNS

Eucalyptus can be harvested from the second year onwards. Full economic yield depends on species and is not reached until the third year when average yields of 100,000 stems per ha can be achieved. The crop continues to yield for a further 12 years if managed correctly.

Returns depend on market outlet. While a small but rewarding local market exists, over 90% of Irish foliage is exported. From an initial investment of €6000 per ha, a gross margin of €8000 per ha (net €2000/ha) is achievable annually from the third year onwards.



Grading and bunching stems of Eucalyptus.