

# Woody Plants as Cut Flowers

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## ABSTRACT

The volume and range of cut foliage species used in the cut flower market has significantly increased with many of these species being woody garden plants. The aim of this project is to evaluate a range of new foliage species for the cut flower market by measuring yield and specification of stems produced. The species being evaluated have not been grown before in Northern Ireland and the information recorded will allow growers to assess their potential for adoption. Interim results for *Baccharis* Magical Star, *Bupleurum fruiticosum*, *Photinia* Red Robin, *Hypericum* Magical Sweetheart, , *Rosa* Magical Fantasy, *Salix purpurea*, *Salix caprea* Silverglow and *Symphoricarpos* are outlined. For example, *Hypericum* and *Symphoricarpos*, met the local wholesale market specification and yielded between 22 and 27 saleable stems per plant in year 2 and in year 3 respectively from planting.

## INTRODUCTION

### WHAT IS CUT FOLIAGE?

Many woody shrubs and trees and some flowering perennial plants produce attractive leaves, bark, stems, buds, berries, catkins or flowers that all lend themselves to use in floral arrangements. Cut foliage is normally field grown outside to give commercial yields. Volumes and prices of some foliage species traded in Holland are available in Statistiekboek 2006.

"Foliage stems" for marketing are on average cut to 60 - 70 cm in length and are usually sold in bunches of 10 stems. However, shorter stems can sometimes be used in table top decorations.

### WHY GROW FOLIAGE?

#### The Market Potential

Currently the UK cut flower, and indoor pot plant market is worth £2.2 billion (Flowers and Plants Association, 2007) and foliage is estimated to account for over 10% of the flower market. As the flower market has expanded demand for foliage has increased for use as the main display item in floral designs and in its traditional role as a 'filler' in flower bouquets. Up to 25-30% of flower bouquets now consist of foliage compared to 5%, 10 years ago.

#### Outlets for foliage

Florists are one of the main users of foliage which they normally purchase from local wholesalers or direct from growers. However any expansion in the market has occurred with retail multiples who have dedicated flower packers who source and design products for them. Retail multiples look for a regular supply of larger volumes at an agreed specification and fixed prices. Larger buyers are often seeking all year round material or season extension which can sometimes be achieved by regions with different climatic conditions.

## FOLIAGE TECHNOLOGY PROJECT AT GREENMOUNT CAMPUS

The main aim of the project is to evaluate and screen potential foliage crops which could be adopted by growers in Northern Ireland. A successful foliage crop has to have desirable leaf colour and texture, adequate vase life, relatively free from pests & diseases, and the ability to rejuvenate from cutting back.

### Selection of species that can be grown as ‘Cut Foliage’

At Greenmount Campus a selection of the more highly managed higher value foliages that have not been traditionally grown in the UK were evaluated. Some are named varieties and selections made especially to suit the foliage market e.g. longer stems. Some varieties are subject to plant variety rights.

### LIST OF VARIETIES FOR EVALUATION

Species and varieties	Feature
▪ <i>Aesculus hippocastanum</i>	Horse chestnut for spring buds
▪ <i>Baccharis</i> Magical Star	Buds and flowers in October
▪ <i>Bupleurum fruticosum</i>	‘Sea green’ coloured leaves
▪ <i>Forsythia</i> Golden Fantasy	Flowers on 1year old wood
▪ <i>Hydrangea</i> macr. Deutschland	Outdoor flower
▪ <i>Hypericum</i> Magical Sweetheart	Pink berries
▪ <i>Ilex verticillata</i> Magical Berry	Deciduous Holly
▪ <i>Photinia fraserii</i> Red Robin	Red leaves
▪ <i>Photinia fraserii</i> Curly Fantasy	Orange hue
▪ <i>Rosa</i> Magical Fantasy	Rose Hip
▪ <i>Salix tortuosa</i>	Twisted Willow
▪ <i>Salix purpurea</i>	Stems used in designs
▪ <i>Salix caprea</i> Silverglow	Furry buds
▪ <i>Symphoricarpos</i> M.Snowflake	White berries

4 varieties of Eucalyptus (*E. gunnii*, *E. parvifolia*, *E. perreniana* and *E. rubida*) were planted as a reference crop.

### Materials and Methods

The *Eucalyptus* and *Bupleurum* were seed raised and planted in July 2004. All the other species were planted as liners or bare root material between October and December 2004.

The soil was a medium loam with a high clay content. A soil sample was taken prior to planting and nutrients added according to ADAS recommendations for field grown nursery stock in July 2004 (Fertiliser Recommendations, MAFF Reference book 209). After the plants had established for one growing season top dressing was applied in spring, generally 50 kg/ha nitrogen applied as 12.10.18.

Woven polypropylene material was laid down on beds prior to planting to control weed growth. This was judged to be more cost effective in the long term than chemical control or mechanical weeding.

## PROJECT LAYOUT

18 species/varieties were planted in plots 10 m x 10 m with the area between the plots grassed down to allow space for management and observation. Planting was at wider spacing than recommended to allow more air movement between plants which can be important in reducing incidence of diseases spread in moist conditions such as downy mildew.

*Hypericum* was planted at 1 m spacing (10,000/ha); *Photinia* and *Hydrangea* were planted at 1.2 m spacing (6,950 per ha). All other species were planted at 1.5 m spacing (4,450/ha). Plant costs ranged from 50 p to £2.50 per plant plus transport costs from Holland depending on the species required.

The Eucalyptus plants were pruned to a height of 1.3 m. *Hydrangea* was not given any pruning. *Ilex verticillata*, the deciduous holly, was given a special pruning regime as berries are borne on 2 year old wood. The remainder of the species were pruned to 15 - 25 cm each Spring.

A regular spray programme (4 to 5 sprays per year) to control pests such as aphids and diseases such as mildew is required according to the species of foliage and their susceptibility.

## RESULTS

From the 18 species planted the interim results of 8 are presented below.

### *Hypericum* Magical Sweetheart

This is a pink berried *Hypericum* planted in October 2004. Plants cost £1.00 each plus transport. During Spring, the plants were cut back to 15 cm. In addition to a Spring top dressing, Magnesium Sulphate at 1 kg in 100 litres was applied as *Hypericum* has a high demand for magnesium when the berries are forming. This variety is rust resistant but rust susceptible varieties will require regular spraying.

Table 1. Yields of marketable stems for *Hypericum* Magical Sweetheart per plant

Length of stem	50-60cm	60-70cm	70-80cm	Total
2005	nil	nil	nil	
2006	16	6	nil	22
2007	6	10	11	27

Stems of *Hypericum* were harvested over a period of 3 weeks from the last week in July to 3<sup>rd</sup> week in August and met the specification of the wholesaler. A range of varieties are required as the market desires 3 - 4 colours of berry including red, black and green. The 70 - 80 cm stem is termed a 'Spray' *Hypericum* i.e. main branch plus 3 - 4 side stems which is regarded as a premium product and has a guide price per stem of approximately 35 p to the local wholesale market. The 60 - 70 cm branches with side stems average 20 - 25 pence per stem wholesale. Actual prices will vary according to the market being supplied and volumes available. The shorter 50 - 60 cm stems can sometimes be used by florists for example in table top designs.

### ***Bupleurum Fruiticosum***

*Bupleurum* is mentioned as a plant of interest to flower arrangers but it is not sufficiently hardy for our inland site which can experience up to -6°C in winter. Approximately 30% of the plants were lost which is unacceptably high and cannot be regarded as a commercial variety under local conditions. It may do better in mild coastal areas. The stems have a short harvesting period when they are sufficiently firm. Some buyers did like the pale green colour of the stems.

### ***Salix Purpurea***

This willow produced large numbers of long thin stems understood to be suitable for specialist design work. Local buyers were not interested in this variety and hence it has been dropped from the trial.

### ***Baccharis Magical Star***

Although still to be accepted by the markets, *Baccharis* produces a large number of quite woody stems which bear white flower buds opening in October – November. The yield in 2006 from a 2004 planting was 45 stems per plant of 60 cm and longer. Stems were sold to a local florist for use in floral designs.

### ***Symphoricarpos Magical Snowflake (Snowberry)***

*Symphoricarpos* produced stems with the characteristic white berries. Harvesting began when up to one third of the berries have formed. If left too late, some berries can turn brown. In 2006 the yield was 27 stems per plant of 60 cm and longer and in 2007 the yield was 23 stems.

### ***Rosa Magical Fantasy***

This variety is grown for the rose hips which are used in Autumn floral designs. This is an early harvesting variety with the hips maturing in September. From a 2004 planting, an average of 20 stems (40 – 70 cm) per plant were harvested in 2007. This variety has thorns but florists and buyers prefer thornless varieties. Presently, thornless varieties which mature later in the Autumn are being evaluated.

### ***Salix caprea Silver Glow or Pussy Willow***

*Salix caprea* Silver Glow has white catkins on a black coloured stem. As well as pruning back to 20-30 cm in March this plant has to be pruned to 1.2 m in June time to encourage re-growth of stems 60-120 cm long. We did not do this in 2006 and the resulting growth was too vigorous and stems produced were too large and not uniform. Small numbers of stems were produced in 2005 which met buyer specifications. This plant is harvested in March and stems can be used in designs or sometimes as filler or feature in seasonal flower bouquets.

### ***Photinia Red Robin***

Niche item sold for red coloured leaves which should be harvested when growth has firmed during summer and autumn. Eight stems per plant were produced in 2006 from crop established from liners in 2004. Crop established from 2 litre air pruned plants in 2004

produced 20 stems per plant in 2006. The crop was sprayed a number of times against aphids and other sucking insects to prevent leaf distortion.

## **Discussion**

Interim results show that 2 seasons growth is required from establishment to produce a significant yield of saleable stems which is comparable with experience by growers in Holland.

As we would expect weed control with woven polypropylene was good at a cost of £ 0.33 per m<sup>2</sup>. It was observed that a mulch material did help to conserve moisture in dry periods. However, applying a fertiliser top dressing to plants is difficult with a mulch in place. Fertiliser has to be placed under the mulch and is often slow to wash into the soil as the mulch acts as a barrier to rainfall penetration.

Our crops in 2007 exhibited some nutritional deficiencies as we did not apply sufficient top dressing earlier in the spring. This emphasises the necessity to apply adequate fertiliser around the plants to compensate for the removal at harvesting of a substantial part of the plant.

The results of our study also showed that foliage crops can be categorised into 2 main groups:

1. low input, extensive commodity foliage e.g. *Eucalyptus*
2. high input, intensive niche foliage, e.g. *Ilex Verticillata*

The second group requires more management and will tend to be grown in smaller areas.

## **Grower adoption**

There was no cut foliage crops produced in NI when we started in 2002. Now we have 8 growers with a total area of approximately 18 acres. The new growers have planted small trial areas to test the local market and evaluate the economics of production.

## **Literature Cited**

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