

Project number: 6397
Funding source: Teagasc

Date: January 2019
Project dates: Feb 2012 – Feb 2018

The screening, evaluation and management of a range of ornamental species for suitability as cut foliage.



Key external stakeholders:

Growers, Florists & Flower Processing Companies, Hardy Nursery Stock Industry.

Practical implications for stakeholders:

- The identification of innovative new plant material for use in the cut foliage trade is necessary to maintain and increase market share in a discerning and competitive market.

Main results:

- Using feedback from the trade buyers & processors, field trials and shelf life results, a number of species were chosen for further development and potential commercialisation for the commodity cut foliage market. Included are evergreen species *Brachyglottis* 'Drysdale', *Chamaecyparis lawsoniana* 'Yvonne', *C. lawsoniana* 'Pembury Blue', *Cryptomeria japonica* 'Barabits Gold', *Cupressus arizonica* 'Blue Ice', *Drimys lanceolata*, *Erica erigena* 'Maxima', *E. erigena* 'Superba', *Eucalyptus cinerea*, *E. subcrenulata*, *E. coccifera*, *E. niphophila*, *Hydrangea macrophylla* 'Magical Black Pearl', *Olearia macrodanta*, *Ozothamnus* 'Threave Seedling', *Photinia x fragerii* 'Vulcano', *Prostanthera* 'Badja Peak', *Prunus laurocerasus* 'Etna', *P. laurocerasus* 'Caucasica', *P. laurocerasus* 'Novita', *Weigela florida* 'Magical Shining Fantasy' & *W. florida* 'Magical Sunny Fantasy'.
- Berried species including amongst others *Hypericum androsaemum* 'Magical Pumpkin', *Symphiocarpus doorenbosii* 'Magical Charming Fantasy' and *Rosa* 'Magical Sensational Fantasy' proved highly popular amongst market buyers and performed well in the trial.
- Herbaceous perennials trialed included *Paeonia*, *Solidago*, *Eryngium* and *Sedum* with some cultivars showing value as both a cut flower and foliage filler.
- Market feedback on foliage products harvested from the field trials indicated that a number of species did have potential as new products in the market and also indicated that the domestic and export markets have different requirements. Feedback varied between agents. The range of comments was extremely useful, however, for discerning the potential of the species studied.
- Field trials indicated that the species evaluated tend to readily regenerate forming a good branching structure as the basis of later secondary growth and produce lateral growth and stem production quite quickly in response to pruning.
- Apical dominance is still evident in some of the species and pruning techniques or shoot selection may be required to enhance stem production.
- Damage from both pest and disease can potentially be of concern for foliage production from some of the selected species.
- While field trials showed that the species with most potential were generally quite vigorous and responded well to pruning for stem production, further detailed information to refine plant density, time of pruning, species specific pruning and nutrition requirements needs to be procured through further trialing so that detailed agronomy blue prints for commercialisation are produced.

Opportunity / Benefit:

The screening trials present options for current and future cut foliage growers to expand their offering to the flower processors and the floriculture trade. Innovative new species are sought after by florists, processors,

supermarkets and designers of floral products and the work has resulted in 'new' types with potential in the main markets. Some of the 'new' species highlighted in this report following the screening work have potential to be more financially rewarding to primary growers and industry stakeholders given their encouraging yield and quality characteristics.

Collaborating Institutions

Teagasc Kildalton College. Bord Bia Horticulture.

Teagasc project coordinator:

Andy Whelton

External collaborators:

Forest Produce Ltd.
Bord Bia

1. Project background:

Cut foliage describes the decorative branches cut from a wide variety of trees, shrubs and perennials for use in bouquets and other flower arrangements. Worldwide demand in developed countries is increasing and the prospects for continued expansion of the small Irish industry for export markets are very good. Twenty five growers currently export cut foliage worth over €6.5 million to flower processors & supermarket buyers in the Holland & UK where the EU foliage market is estimated to be worth up to €1.3 billion and the UK alone €200m (DEFRA, 2015). Production in Ireland is concentrated primarily in rural areas of Kerry & Wexford with smaller areas in Cork, Waterford, Dublin and Wicklow.

Innovation in new products and keeping a close eye to the ever changing market place is vital as buyers and customers are constantly looking for new products to provide fill and uniformity to bouquets and floral arrangements displaying different textures, colours and scents for a discerning and competitive market. The unique climate of the south of Ireland with its mild moist summers and winters has the ability to grow many species which would otherwise be damaged in most of the rest of Northern Europe.

To that end, a trial of over 150 species of a wide variety of trees, shrubs & perennials were established on a one ha dedicated plot in Kildalton Horticultural College in 2012. There were three main objectives:

1. Establish contact with key players in the market and seek guidance and direction on trends.
2. Identify and visit sources of new material in Ireland, the UK & Europe.
3. Capture sample material and place in plots Kildalton College for technical and market evaluation.

As well as plant hardiness and susceptibility to weather conditions, species were technically evaluated for suitability for cut foliage by examining in detailed characteristics including leaf colour, leaf shape, leaf form, scent, volume/ unit area by strategic pruning, annual stem length, tree habit, spray formation and ability to readily regenerate after cutting back. Data on species susceptibility to pests and diseases was also gathered and base vase life of selected species.

A market evaluation of species was conducted with the support of leading florists, processing technologists and buyers of foliage from Ireland, the UK and Holland.

On completion of the project, species deemed to have commercial potential will be put forward for further trialing to complete detailed blueprints for commercial production.

2. Questions addressed by the project:

- What plant species were identified as being suitable candidates to commercialise in Ireland in the emerging cut foliage industry which meet market requirements and can be scaled up quickly?
- What are the key treatments to ensure rapid regeneration and economic viability?

3. The experimental studies:

Methodology

A series of discussions took place between the main foliage exporting company in Ireland and various plant experts and leading nurserymen on how species for testing should be selected and those eventually chosen. The criteria used were leaf colour, leaf shape, known potential stem length and productivity information to select species for investigation.

Propagation

Most of the plant material was purchased from the trade. It varied from 7-9 cm liner size to two litre containers.

Establishment of field trials

Kildalton College, Piltown, Co. Kilkenny was selected as the main site for species screening.

Trial Design and layout

The trial design was a randomised block design with three replicates of each species. Each replicate was made up of a minimum of 12 individual plants of each species. Row spacing was 2 meter with 0.75 to 1.2 meter in row spacing depending on species habit.

Site preparation, planting & maintenance

Standard agronomic practice was used in site preparation and all planting was carried out by hand. A production system using mypex mulch covered ridges and grass strips with minimal herbicide application was adopted to ensure low cost maintenance of the plantation.

Field trial management

Observations were taken every 6 months and recorded. Where appropriate, stem numbers and lengths were recorded. Observations of pest and disease incidence were noted.

In the second year, initial basic pruning trials were set up. Records were again made at regular intervals and details of pest and disease incidence noted.

Pruning

The aim of the pruning activities was to encourage branching at an early stage of growth and evaluate sustainability of species in terms of ability to annually regenerate.

Pruning was conducted to ensure the maximum number of stems or leaves were produced in the future. Pruning was conducted after the plants were well established and showing vigour – this mainly took place in the first spring following establishment – 8/9 months from planting. Most were cut back to a height of approximately 30-40cm from an original single of double stem.

Some species were not pruned as it was clear that they would not withstand harsh cutting back.

Some tip or summer pruning was carried out periodically during the second and third years to encourage further branching on some species.

Post harvest evaluation

Basic shelf life tests were conducted on plant species that showed potential for suitability as cut foliage from as early stage to establish longevity of quality following harvest.

This consisted of placing cut stems in water in cool conditions (8C) for 48 hours and then into ambient temperature (12C-14C) which simulated conditions that foliage is subjected to following harvest and dispatch. Stems were assessed for quality in terms of leaf freshness and colour over a period of 3 weeks from set up date.

Market assessment

Critically, an evaluation of the acceptability of the new products by the trade and the response from market was the determining factor as to whether further work takes place on a species. The market evaluation was an integral part of this task and involved bringing some of the main cut foliage/flower buyers from UK and Holland to participate in the evaluation process – these included personnel from the leading supermarkets such as Tesco, ASDA, Morrisons and key processors such as Intergreen Holland, Flamingo Flowers Ltd and Flower World UK. In addition, Irelands leading florists represented the florist sector on the assessment panel. Comments and suggestions made by these people on various species were noted. Samples of stems from guard plants were taken regularly for observation and comment from customers.

4. Main results:

- Using feedback from the trade buyers & processors, field trials and shelf life results, a number of species were chosen for further development and potential commercialisation for the commodity cut foliage market. Included are evergreen species *Brachyglottis* 'Drysdale', *Chamaecyparis lawsoniana* 'Yvonne', *C. lawsoniana* 'Pembury Blue', *Cryptomeria japonica* 'Barabits Gold', *Cupressus arizonica* 'Blue Ice', *Drimys lanceolata*, *Erica erigena* 'Maxima', *E. erigena* 'Superba', *Eucalyptus cinerea*, *E. subcrenulata*, *E. coccifera*, *E. niphophila*, *Hydrangea macrophylla* 'Magical Black Pearl', *Olearia*

macrodanta, *Ozothamnus* 'Threave Seedling', *Photinia x fragerii* 'Vulcano', *Prostanthera* 'Badja Peak', *Prunus laurocerasus* 'Etna', *P. laurocerasus* 'Caucasica', *P. laurocerasus* 'Novita', *Weigela florida* 'Magical Shining Fantasy' & *W. florida* 'Magical Sunny Fantasy'.

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- Market feedback on foliage products harvested from the field trials indicated that a number of species did have potential as new products in the market and also indicated that the domestic and export markets have different requirements. Feedback varied between agents. The range of comments was extremely useful, however, for discerning the potential of the species studied.
- Field trials indicated that the species evaluated tend to readily regenerate forming a good branching structure as the basis of later secondary growth and produce lateral growth and stem production quite quickly in response to pruning.
- Apical dominance is still evident in some of the species and pruning techniques or shoot selection may be required to enhance stem production.
- Damage from both pest and disease can potentially be of concern for foliage production from some of the selected species.
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5. Opportunity/Benefit:

The screening trials present options for current and future cut foliage growers to expand their offering to the flower processors and the floriculture trade. Innovative new species are sought after by processors, supermarkets and designers of floral products and the work has resulted in the identification of 'new' types with potential in the key markets. Some of the 'new' species highlighted in this report following the screening work have potential to be more financially rewarding to primary growers and industry stakeholders given the encouraging yield data collated and quality characteristics displayed.

6. Dissemination:

A number of fact sheets and technical notes have been produced following the screening programme and are available to growers and those in the floriculture industry. The work has featured in a number of Teagasc knowledge transfer field events for growers and industry stakeholders in Kildalton College in past three years.

Main publications:

A number of fact sheets and technical notes have been produced following the screening programme and are available to growers and the industry via the Teagasc website: <https://www.teagasc.ie/crops/horticulture/cut-foliage/publications/>

Whelton, A. (2015) *Innovative plants for cut foliage*. T Research 10 (3).

Whelton, A. (2015) *Agronomy blueprints for cut foliage production*. T Research 10 (3).

Flanagan, D. and Whelton, A. *A cut above*. Hort Connected. Autumn/Winter 2016.

Whelton, A. *Cultivating cuttings*. Hort Connected. Summer 2016.

Whelton, A. *Full Colour*. Hort Connected. Autumn/Winter 2018.

7. Compiled by: Andy Whelton