What Cut Flower Is That?

The essential care and handling guide for cut flower professionals

Delwyn Thomas Bettina Gollnow

Australian Government
Rural Industries Research and Development Corporation

RURAL INDUSTRIES
Research & Development Corporation

Australian Government
Rural Industries Research and Development Corporation

What Cut Flower Is That?

The essential care and handling guide for cut flower professionals

Delwyn Thomas Bettina Gollnow

RURAL INDUSTRIES
Research & Development Corporation

ISBN 978-1-74254-572-1
ISSN: 1440-6845

Delwyn Thomas, Bettina Gollnow. What Cut Flower Is That? The essential care and handling guide for cut flower professionals (first edition). RIRDC, Canberra.

RIRDC Publication No. 13/079

The information contained in this publication is intended for general use to assist public knowledge and discussion and to help improve the development of sustainable regions. You must not rely on any information contained in this publication without taking specialist advice relevant to your particular circumstances.

While reasonable care has been taken in preparing this publication to ensure that the information is true and correct, the Commonwealth of Australia gives no assurance as to the accuracy of any information in this publication.

The Commonwealth of Australia, the Rural Industries Research and Development Corporation (RIRDC), the authors or contributors expressly disclaim, to the maximum extent permitted by law, all responsibility and liability to any person, arising directly or indirectly from any act or omission, or for any consequences of any such act or omission, made in reliance on the contents of this publication, whether or not caused by any negligence on the part of the Commonwealth of Australia, RIRDC, the authors or contributors.

The product trade names in this publication are supplied on the understanding that no preference between equivalent products is intended and that the inclusion of a product name does not imply endorsement by RIRDC over any equivalent product from another manufacturer.

Users are reminded of the need to follow safe work practice when applying any techniques described in this publication. This includes identifying, assessing and managing any occupational health and safety risks.

ALWAYS READ THE LABEL

Users of agricultural (or veterinary) chemical products must always read the label and any Permit, before using the product, and strictly comply with the directions on the label and the conditions of any Permit. Users are not absolved from compliance with the directions on the label or the conditions of the Permit by reason of any statement made or omitted to be made in this publication.

Some of the chemical use patterns quoted in this publication are approved under Permits issued by the Australian Pesticides and Veterinary Medicines Authority (APVMA) and in force at the time the publication was prepared. Persons wishing to use a chemical in a manner approved under Permit should obtain a copy of the relevant Permit from the APVMA and must read all the details, conditions and limitations relevant to that Permit, and must comply with the details, conditions and limitations prior to use.

The Commonwealth of Australia does not necessarily endorse the views in this publication.

Researcher contact details

Name: Delwyn Thomas
Horticulturist, floral designer, and floristry and horticulture teacher
Phone: 0414 678 840
Email: delwynthomas@iprimus.com.au, delwyn@flowersbydelwyn.com.au

Name: Ms Bettina Gollnow
Floricultural consultant and formerly Development Officer (Floriculture)
NSW DPI
Phone: 0458 270 291
Email: bettinagollnow@iprimus.com.au

In submitting this report, the researchers have agreed to RIRDC publishing this material in its edited form.

RIRDC contact details:

Rural Industries Research and Development Corporation
Level 2, 15 National Circuit
BARTON ACT 2600
PO Box 4776
KINGSTON ACT 2604

Phone: 02 6271 4100
Fax: 02 6271 4199
Email: rirdc@rirdc.gov.au
Web: http://www.rirdc.gov.au/

Published in November 2013

Available at https://rirdc.infoservices.com.au/items/13-079

Foreword

This manual has been developed as a learning resource and brings together both published and unpublished information, industry expertise and the authors' experience in the Australian floristry and flower industry. It provides practical information about selecting, purchasing, designing with and caring for fresh cut flowers and foliage in arrangements. It aims to be a training and education tool, as well as a purchasing tool. The audience for this manual comprises the more than 6000 florists operating in Australia, ranging from large supermarkets to floristry shops and small home-based businesses. In addition to the 32 registered training organisations throughout Australia that offer floristry training, there are many other floristry training colleges, community colleges and floral art groups located around Australia.

This practical "go to" manual covers all aspects of flower care including hygiene, flower solutions and foods, temperature management, hydration, and best practice to maximise vase life. Flower quality issues commonly encountered at florist level are discussed and strategies to avoid them are given. Handling of certain flower types requiring special care, such as orchids and roses, is discussed in detail.

Detailed profiles are presented for over 110 flowers and 30 foliage products. Many Australian and South African flowers and foliage available to Australian florists have been included, in recognition that there is increasing demand for these. Each profile covers the common and botanical names, seasonal availability, typical vase life, stem length and bunch size, colour range, buying tips, care and handling, and highlights any special considerations, design uses in floristry and advice to be passed on to customers.

Additionally, there is a section explaining plant names and another on weeds, in recognition that certain products used in floristry can pose a weed risk.

The project was funded from RIRDC Core Funds, which are provided by the Federal Government, and supporting industry funds were contributed through WildFlowers Australia Ltd. This manual was prepared and reviewed by 18 industry members of the floral supply chain. Many members of the Australian flower industry—florists, floristry teachers, growers, wholesalers, and researchers—have generously shared their technical knowledge and experience.

This publication, an addition to RIRDC's diverse range of over 2000 research publications, forms part of our Wildflowers and Native Plants R&D

program, which aims to improve the profitability, productivity and sustainability of the Australian industry.

Most of our publications are available for viewing, downloading or purchasing online through our website, www.rirdc.gov.au.

Craig Burns

Managing Director

Rural Industries Research and Development Corporation

Acknowledgments

Coordinating author: Bettina Gollnow

Edited and designed by Matthew Stevens, ScienceScape® Editing, Sydney

This publication includes information produced by RIRDC project PRJ000331 and previously published in the 32 Australian wildflower quality specifications and *Postharvest Handling of Australian Flowers from Australian Native Plants and Related* Species—*A Practical Manual*, 2nd edition, by John Faragher, Bettina Gollnow and Daryl Joyce (Nov. 2010). The manual is available at https://rirdc.infoservices.com.au/items/10-027. This project was supported by RIRDC, the NSW Department of Primary Industries and industry partners East Coast Wildflowers and Crooby Cottage Wildflowers. The members of the project team were Bettina Gollnow, Dr Ross Worrall, Dr John Faragher, Lowan Turton and Professor Daryl Joyce.

This publication was initiated as part of RIRDC project PRJ003913, Educating the Australian floral supply chain—Australian market development strategy, conducted by Lana Mitchell and supported and co-funded by WildFlowers Australia Ltd. PRJ003913 developed the first draft of the manual and gathered comments from industry reviewers.

The following growers and marketers are sincerely thanked for their contribution to the first draft: Craig Scott, of East Coast Wildflowers; Barrita Orchids, Barnes Flower Farm and Olivieri Flower Farm (Central Coast, NSW); Parry's Nursery, Bunyah NSW; Pinnacle Nursery, Wingham; Jan Hintze, Darwin; Nati and Sons, Sydney Flower Markets, Flemington.

The following industry members are thanked for reviewing the initial draft of this manual:

Paul Dalley, wildflower grower, Mountain Nursery, Grandiflora Growers, board member WFA

Dr Brian Freeman, formerly regional manager, Chrysal, and postharvest consultant

Bernie Gadd, florist and TAFE NSW teacher (Padstow)

Michelle Grant, florist, NSW

Nick Hutchison, foliage section, Cedar Hill/Premium Greens, Qld

Greg Lamont, horticultural consultant and member of RIRDC Wildflowers & Native Plants R&D Advisory Committee

Shauna Larsen, TAFE teacher (Brisbane), floral designer and demonstrator

Mark Pampling, TAFE NSW (Northern Institute) teacher, demonstrator, accredited floristry judge and industry consultant

Margie Paton, florist, NSW

Cecily Rogers, floristry teacher, TAFE NSW, and NSW Floral Art Association Inc.

Craig Scott, East Coast Wildflowers, grower and wholesaler, NSW

Daniel Stean, general manager, WAFEX—flower importers, exporters and growers, WA

Liz Toussaint, florist, ACT

Helen Tremain, former head teacher, floristry, TAFE NSW (Western Sydney Institute)

Una Woodhouse, former national sales manager, Ball Australia

Photographs were generously provided by Lowan Turton and Jonathan Lidbetter (NSW DPI); Dr Ross Worrall and Bettina Gollnow (formerly of NSW DPI); Dr Kevin Seaton, Nikki Poulish and the Department of Agriculture and Food WA; Leigh Brenton and Lyn Johnson, Joe Ekman, Di English, Dr John Faragher, Lawrie Greenup, Judy Horton, Wendy Houlahan, Heather McIntyre, Kasia Radke, Lorna Rose, Craig Scott, Anne Sefton, Matthew Stevens, Elwyn Swane, Del Thomas, the Teulon family; Ball Australia, Cedar Hill Corporate Group, Chrysal, Flora International, Grandiflora Nursery, Highsun Express, Lambley Nursery, Ramm Botanicals, Tinonee Orchids. (Many of the wildflower product photos are from the photo library developed by RIRDC PRJ000331, which produced the Australian wildflower quality specifications and postharvest manual.) Several photos are used under Creative Commons license. We thank the photographers for making their work publicly available.

Thank you to Penny Ruthberg for the drawings of rose buds on page 131 and Shaun Grant of Digital Hero for designing the symbols explained on page viii.

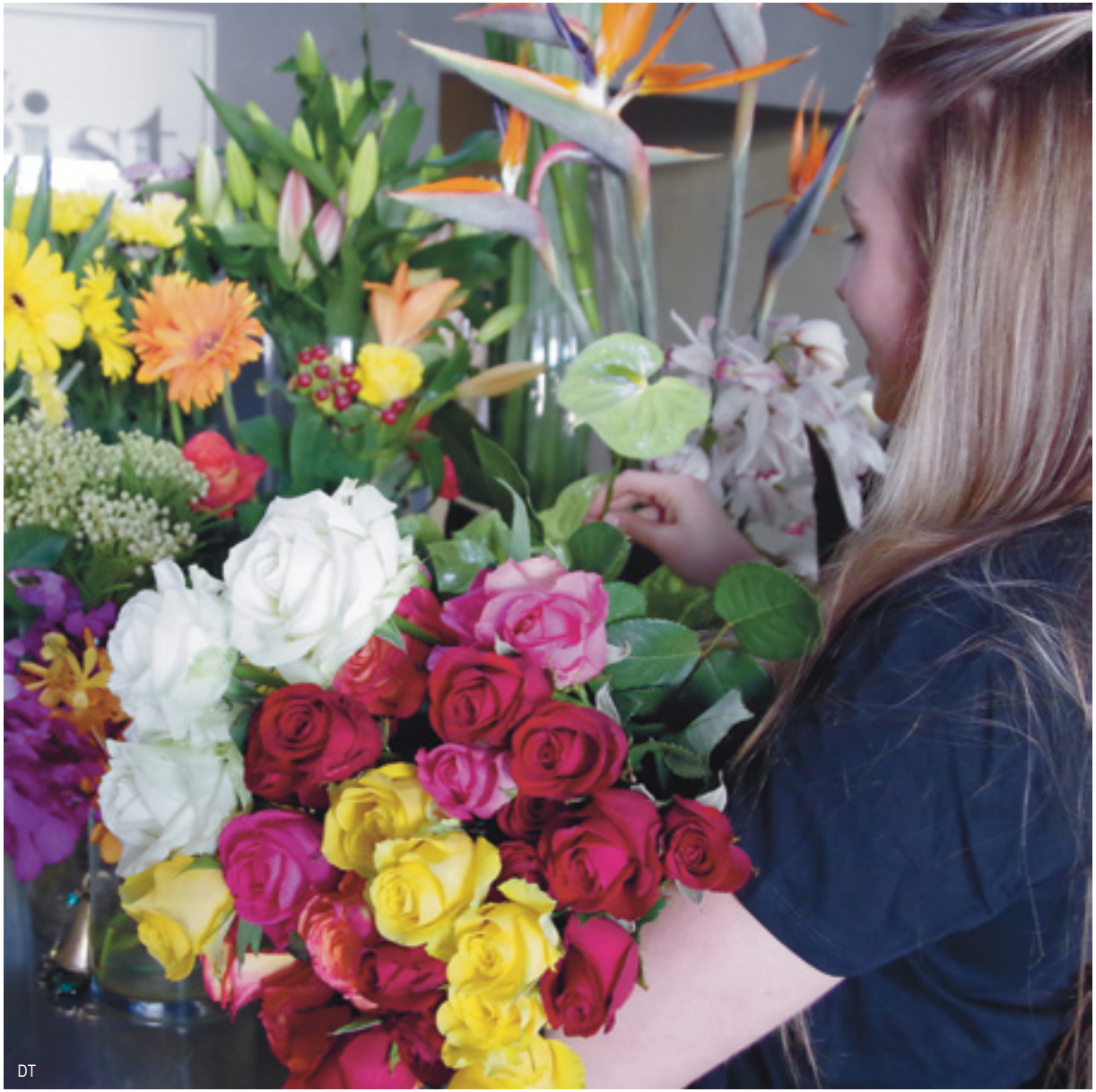
We especially thank Craig Scott for his generous support throughout the project and for providing important information and reviewing final drafts, and Greg Lamont for meticulously reviewing the final draft of the manual for horticultural accuracy and industry practice based on his extensive experience. We also sincerely thank Heather McIntyre for secretarial support, and our technical editor, Matthew Stevens, for his meticulous editing and help with photographs, as well as his design of the book.

Sincere thanks are also due to Alison Saunders, Senior Research Manager, New Rural Industries, Rural Industries Research and Development Corporation, for her tireless encouragement and enthusiastic support of this project.

We sincerely thank the industry associations shown opposite for their generous financial sponsorship of this project.

WILDFLOWERS
AUSTRALIA

FAQI
Flower Association
of Queensland Inc.


DT

About the authors

Delwyn Thomas is a floral designer, third generation flower grower and horticulturist with a lifetime of experience in the floriculture, nursery and floristry industries. Del has taught floristry and horticulture part time at TAFE for the last 22 years and continues to enjoy providing wedding flowers from her small business. She has gathered information for the manual from growers, wholesalers, postharvest experts and leading florists to ensure that this manual provides the most accurate and up-to-date information on all products. She contributes to various industry publications and loves to share her knowledge and passion for cut flowers and foliage, and believes it is a privilege to work with the world's most beautiful products.

Bettina Gollnow provided extension support to the commercial NSW cut flower industry as the Industry Development Officer (Floriculture) for the NSW Department of Primary Industries for over 18 years until her retirement in 2010. During that time, Bettina sought to bring industry members together through publications, regular industry events and a range of technical resources. She has completed two projects for RIRDC. The first developed the current industry R&D plan and reviewed the achievements of the previous Wildflower and Native Plants R&D plan. More recently, she led the project which developed the quality specifications for Australian wildflowers and the supporting postharvest manual. Bettina is currently working part time as the communications and extension manager for WildFlowers Australia Ltd, funded by RIRDC project PRJ006760.

Dr John Faragher has many years' experience in research, development and extension in the postharvest handling of flowers, fruit and vegetables. Until his retirement he worked and published on handling of Australian native, South African and traditional flowers, both in Australia and overseas.

Professor Daryl Joyce works in the School of Agriculture and Food Sciences at the University of Queensland and in the Supply Chain Innovation Team at the Queensland Department of Agriculture, Fisheries and Forestry. He has worked for over 20 years in horticulture research, teaching and extension in Australia, the USA and the UK. Daryl's research is concerned mostly with the biology of horticultural and native Australian plants. He has focused on the postharvest biology and technology of ornamental, fruit and vegetable products.

RIGHT WAY SERVICESKILLS AUSTRALIA TRAININGRESOURCE

This is an industry recognised Right Way Floristry training resource.

Linking to the SFL10 Floristry Training Package

This manual has been developed as a learning resource with the most up-to-date information available from leading industry specialists. It provides the core information that the learner and the practising florist need to be skilled in when choosing the flowers and foliage required to create and implement designs from the simplest to the most complex.

Not only does a florist require creative talent. To design and construct arrangements with fresh materials requires the ability to determine the best choice and purpose of the product to generate saleable styles, to excel in this very competitive industry and to create repeat business.

Understanding and implementing industry best practice and procedures is paramount to success in care and handling, storing and assembling fresh, perishable flowers. Having the knowledge and ability to apply this knowledge at the everyday level of point of sale will ensure maximum vase life to maximise sales.

This manual provides learners and florists reliable and easy access to the core knowledge on a broad range of popular, seasonal cut flower and foliage products. It advises on how to select the most suitable fresh product available to construct a broad range of designs, while maximising vase life, thus ensuring customer satisfaction with the sold product. It is an essential reference for students, business owners, qualified florists and anyone who handles fresh cut flowers.

This manual gives the learner, teacher and florist access to the underpinning knowledge in the care and handling, expected vase life, storage temperatures, ethylene sensitivity, availability, colour range, customer care and many more special characteristics listed for each and every floristry product listed.

The manual is relevant to every level of Floristry training (Certificates II, III and IV and the Diploma of Floristry Design). It is specifically linked to the following units of the SFL10 Floristry Training Package:

- Assemble floristry products
- Design floristry products
- Construct hand-tied floristry products
- Construct wired floristry products
- Construct floristry products with a base medium
- Design complex floristry products
- Construct complex floristry products

- Design and produce innovative floristry products
- Style and manage an event
- Source information on floristry products and services
- Recognise flower and plant materials
- Receive and store floristry stock
- Prepare and care for floristry stock
- Display and merchandise floristry products
- Sell floristry products
- Research, assess and develop a floristry product range
- Coordinate floristry products for a special occasion

Abbreviations

Units

°C	degrees Celsius
%	per cent
/	per
cm	centimetre
L	litre
m	metre
ppm	parts per million

Other abbreviations

AQIS	Australian Quarantine and Inspection Service
cv.	cultivar
cvv.	cultivars
DPI	Department of Primary Industries
IPM	integrated pest management
No.	number
PBR	Plant Breeders' Rights
pH	measure of acidity (<7) or alkalinity (>7)
®	registered trade name
RH	relative humidity
RIRDC	Rural Industries Research and Development Corporation
sp.	species (singular)
spp.	species (plural)
syn.	synonymous with
STS	silver thiosulphate
™	trade mark
Vol.	volume of written publication, journal etc.

Symbols

ⓟ	Plant Breeders' Rights—this symbol indicates cultivars protected under PBR legislation
	Single stem
	Onsell quickly
	Environmental weed
	Sold by weight or by volume

Contents

Introduction 1

Flowers need special care 3

What is a flower? 4

Avoiding disappointment 5

Signs of good quality 5

Signs of bad quality 5

Fresh is always best! 6

Flower and foliage maturity 7

Temperature 7

Cooling and cool rooms 8

Hydration (vase solutions and water uptake) 9

Maximising longevity or vase life 10

Hygiene 12

Care in handling 12

Floral foam 13

Advice to customers 13

Conditioning your flowers 14

Potential problems and how to avoid them 14

Air embolisms 14

Stem blockage 14

Uneven stem lengths 14

Grey mould 15

Ethylene 15

Geotropism 16

Leaf blackening 16

Short vase life 18

Imported flowers and pesticides 18

Recommended reading 18

Plant names 20

Watch out for weeds 20

How do florists contribute to the problem of weeds? 20

The most common environmental weeds used in floristry 21

Noxious weeds 21

Special care for orchids 22

Orchids in this manual 23

Tropical species in this manual 24

Special care for tropical species 24

Quick guide to seasonal flowers and foliage 25

Australian native flower products used in floristry 33

Australian native foliage products used in floristry 36

List of products with berries, cones and nuts 37

A–Z Listing of Cut Flowers	**38**
Agapanthus, Star of Bethlehem, Lily of the Nile	39
Ageratum	40
Allium, Drumsticks	41
Alstroemeria, Peruvian lily	42
Amaranthus, Love lies bleeding, Prince of Wales feather	43
Anemone, Poppy anemone	44
Anthurium, Flamingo	45
Aster, Easter daisy, Michaelmas daisy, China aster	46
Banksia	47
Belladonna lily, Amaryllis, Naked lady	49
Berzelia, Button bush	50
Blushing bride	51
Boronia	52
Bouvardia	53
Bracteantha, Helichrysum, Everlasting daisy, Paper daisy	54
Brunia	55
Calendula	56
Calla lily, Arum lily, Green Goddess lily	57
Candytuft	58
Carnation, Sweet William	59
Cattleya orchid	60
Celosia, Wheat Celosia, Cockscomb, Prince of Wales feather	61
Chincherinchee, Star of Bethlehem, Arab's eyes	62
Christmas bells	63
Christmas bush, NSW Christmas bush	64
Chrysanthemum, Sprays, Disbuds	65
Cornflower, Blue buttons	66
Cosmos	67
Cyclamen	68
Cymbidium orchid	69
Daffodil, Jonquil	70
Dahlia	71
Daphne	72
Delphinium, Larkspur	73
Dendrobium orchid, Singapore orchid	74
Echinacea, Purple coneflower	75
Erica, Heath	76
Eriostemon, Eastern waxflower	77
Eryngium, Sea holly	78
Eucalyptus, Flowering gum	79
Eucomis, Pineapple lily	80
Flannel flower	81
Frangipani	82
Freesia	83
Gardenia	84
Geleznowia, Yellow bells	85
Gerbera	86
Ginger	87
Gladioli	88
Gloriosa lily	89
Golden Morrison, Feather flowers	90
Grevillea	91
Gymea lily, Doryanthes, Giant lily	92
Gypsophila, Baby's breath, Gyp	93
Heliconia, Crab or Lobster claw, Parrot flowers	94

Helleborus, Lenten rose 95
Hyacinth 96
Hydrangea 97
Hypericum, Hypericum berries, St John's wort 98
Iris, Dutch iris 99
Kale, Ornamental kale, Ornamental cabbage 100
Kangaroo paw 101
Lavender, English lavender, French lavender 102
Leucadendron, Safari Red, Safari Sunset, Inca Gold 103
Leucospermum, Pincushions, Fire wheels 105
Liatris 106
Lilac 107
Lilium, Lily, Orientals, Regals, Novembers, Asiatics 108
Lily of the valley 110
Lisianthus 111
Lotus, Sacred lotus flowers, Lotus pods 112
Marigold, African marigold, Aztec marigold 113
Molucca balm, Irish green bells 114
Nerine, Guernsey lily 115
Nut top, Drumsticks, Cone flower 116
Oncidium orchid, Dancing lady orchid 117
Peony, Peony rose 118
Phalaenopsis, Moth orchid 119
Phylica, Featherhead 120
Pieris, Andromeda, Lily of the valley bush 121
Pineapple, Mini pineapple 122
Poppy, Iceland poppy 123
Protea 124
Ptilotus, Mulla mulla, Lamb's tail, Cotton bush 126
Qualup bells 127
Ranunculus 128
Riceflower, Sago bush 129
Rose 130
Scholtzia 133
Siam or Thai tulip 134
Slipper orchid 135
Snapdragon 136
Snowball tree, Guelder rose 137
Solidago, Solidaster 138
South Australian daisy, Hills daisy, Mountain daisy 139
Spider orchid 140
Statice, Limonium 141
Stephanotis 142
Stock 143
Strelitzia, Bird of paradise, Crane flower 144
Sunflower 145
Sweet pea 146
Tea tree 147
Thryptomene, Thryp 148
Tuberose 149
Tulip 150
Vanda or Aranda orchid, Mokara orchid 151
Violet, Sweet violet, Parma violet 152
Waratah 153
Wattle 154
Waxflower, Geraldton wax, Bud wax, Pearl flower 155
Zinnia 156

A–Z Listing of Cut Foliage **157**
Aspidistra, Cast iron plant 158
Camellia 159
Cherry laurel 160
Cordyline, Ti 161
Croton 162
Dingo fern 163
Doryanthes, Gymea lily, Giant lily leaves 164
Dracaena, Lucky plant, Happy plant, Marginata 165
Eucalyptus, Gum 166
Fatsia, Aralia 167
Flexi grass 168
Geebung 169
Goanna claw 170
Helleborus 171
Ivy 172
Koala fern, Fox tail 173
Leather fern, Leather leaf 174
Leucadendron 175
Lotus, Chinese lotus, Sacred lotus 176
Magnolia, 'Little Gem' 177
Monstera, Swiss cheese plant 178
Nandina, Sacred bamboo 179
North Queensland tropical foliage 180
Puzzle sticks 181
Rhapis palm, Lady palm 182
Sea star fern, Coral fern, Skeleton fern 183
Spear grass, Steel grass, Grass tree 184
Umbrella fern 185
Viburnum 186
Xanadu 187
Other foliage types 188
Explanation of terms **189**
Index **192**

Introduction

Del Thomas, Bettina Gollnow, John Faragher and Daryl Joyce

This manual aims to provide you with specific information about a broad range of flower products and a general knowledge of flower care and handling.

In the past several decades, the Australian flower industry has changed significantly. Established growers are expanding and investing in new hybrids and cultivars of cut flowers. Many products are grown in well designed, fully computerised, climate-controlled greenhouses with precision irrigation and fertiliser inputs. This technology allows extended seasonal availability and a wider range of cut flowers to be marketed. At the same time, there is a move towards more environmentally sound methods of growing, harvesting and packaging to ensure the wellbeing of both people and the environment. At the forefront of this is a move to hydroponic or soilless production, which requires less water during production and allows water to be recycled. More growers are implementing integrated pest management (IPM) practices to ensure minimal use of pesticides during flower production.

New flower products developed locally and overseas are readily available to Australian flower buyers. Many have been bred to produce larger flowers in a wider colour range with stronger and longer stems. Often they have been bred specifically for intensive greenhouse production, producing more flowers of higher quality per area of production. These advances, combined with other technical developments in flower production, have made it possible to produce many flower lines all year round or at least for key markets.

While our customers often lament the lack of fragrance in the new cultivars, especially in roses, this is an unintended side-effect of the breeders' quest for new colours or flower forms, bigger flowers or longer stems, or cultivars suited to intensive greenhouse production. There is still a comprehensive list of flowers with fragrances reminiscent of days gone by, and many aromatic foliage types can be added to arrangements.

In Australia we are fortunate to have an enormous range of wildflowers, native to both Australia and South Africa, produced by specialist growers for local and export markets. The Australian wildflower industry has developed from

a small industry reliant on wild-harvested products of variable quality into an industry largely based on cultivated plants, in some cases grown intensively in greenhouses or under shade in specially designed structures.

The vast range and diversity of flowers, foliage, stems, nuts and berries available to the Australian floral industry is the envy of floral artists from all around the world.

The availability of air transport and advances in better packaging mean flowers offered in Australian wholesale markets are sourced from all over Australia and increasingly from overseas. This availability, together with changes in the industry, means that florists and

This section includes technical information first published in *Postharvest Handling of Australian Flowers from Australian Native Plants and Related* Species—*A Practical Manual*, 2nd edition, by John Faragher, Bettina Gollnow and Daryl Joyce (Nov 2010). Available at: https://rirdc.infoservices.com.au/items/10-027

Sydney Flower Market, Australia's largest wholesale flower market.

buyers no longer have to rely on small local growers and the seasonal flowers that they can grow. However, many flower lines remain seasonal and are available only from specialist growers. Some are unsuited or uneconomical to produce in expensive greenhouses and are grown as field crops. Others require particular climatic conditions and are grown only in certain regions.

While flower growing remains a labour-intensive business, large-scale producers have significantly reduced the cost per stem of flowers that are widely traded. They can produce huge numbers of flowers under controlled conditions, at a quality and price at which the non-specialised nursery cannot compete. These large growers often specialise in only one or a few types of flowers, for example, orchids, roses or chrysanthemums.

Scientifically based research has provided greatly improved postharvest treatments, often tailored to specific flowers. These treatments, together with attention to keeping flowers cool throughout the supply chain, guarantee that the products arrive in optimum condition and have a long vase life. Some flowers continue to be sent directly from the grower to local markets. However, the chain of distribution for many flowers is much longer and may include shipping agents, exporters, importers, wholesalers and market agents. Any or all of these may each have held and handled the flowers before they reach the shop. Every step between the grower and the end customer affects the final quality longevity of the flowers and the price. Therefore, optimum care before, during and after harvest, tailored to the needs of the individual flower species, is critical to meeting the end consumer's expectations.

What environment the plants experience in the greenhouse or field is an important determinant of the quality and vase life of the flowers. How well the plants are managed before harvest can have a major impact. The issues include nutrition, water and management of pest and disease problems.

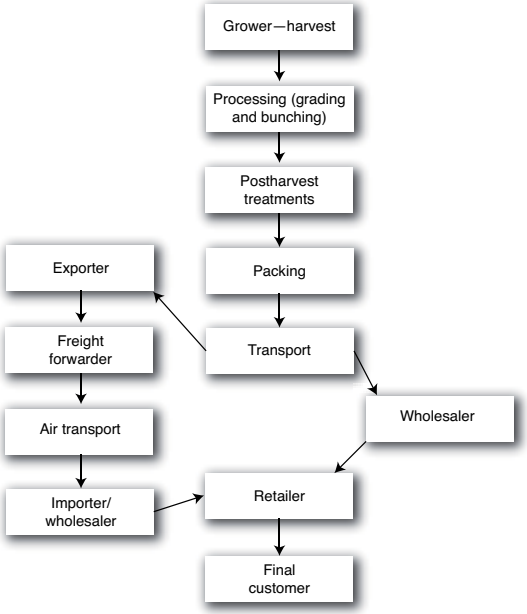
At harvest, more care is needed to ensure flowers are not cut too early (e.g. too tight) or too late (e.g. too open), are not damaged by pests or diseases, and receive the correct postharvest treatment and conditioning.

Correct postharvest solutions added to buckets immediately after harvest will improve water uptake, delay ageing and other facets of flower deterioration, and improve flower opening.

Regardless, if flowers are held for too long following harvest, they will all lose quality and vase life. None of these issues can be corrected, no matter how well the wholesaler or florist treats these flowers.

It is the role of postharvest care, including postharvest solutions, to enable each flower type to achieve its maximum vase life potential. Improved postharvest handling and vase solution technologies are,

From harvest to final customer.



Each flower has a maximum vase life potential predetermined by its genetics. Some species can achieve a long postharvest life of several weeks, while others may last only a few days. Some flowers, such as tulips and irises, open quickly once harvested and have a short vase life. The **postharvest life** is the total life of the flower from **harvest** to the end of **vase life**. It includes time at the grower, wholesaler, exporter and retailer. Thus it depends significantly on the conditions during the marketing chain. It is therefore difficult to compare postharvest life between different flowers and marketing chains unless the conditions during marketing are specified.

by and large, replacing less reliable and less consistent "home brews".

While the technology to maximise flower quality and postharvest life is available, a significant number of growers and flower handlers throughout the supply chain still need to embrace this more enthusiastically. Owing to the extended marketing systems for today's floral industry, temperature management, processing and handling practices that may have been adequate in the past are no longer effective. Outdated approaches often result in poor product quality caused by extended periods at too warm or too cold temperatures, water deficit stress or mechanical damage.

Local growers therefore have a number of advantages. They can benefit from the ability to quickly ship flowers in the correct solution over a short distance to market. This means that in some cases, flowers can be cut more open. In other cases, they can be transported with minimal damage. Moreover, the grower can also interact directly with the customer and may be able to supply small quantities of special products.

This is especially true for local rose and orchid growers. The vast majority of orchids sold in Australian markets are imported, and at some times of year large volumes of roses are imported to make up shortfalls in local production. Quarantine protocols administered by the Australian Quarantine and Inspection Service (AQIS) may require flowers imported from overseas to be treated with pesticides to prevent the introduction of serious pests or diseases. In addition, certain flowers are treated in a process called "devitalisation" to ensure that it is not possible to propagate new plants from their stems. These treatments, combined with the fact that imported flowers spend several days in transit dry without water, may adversely affect vase life and flower quality. As a result, there is increasing demand for locally grown product that can be delivered fresh, direct to the retailer.

For the florist, a thorough knowledge of how to handle and care for cut flowers from the moment of delivery simply means better, longer-lasting flowers. Your reputation for supplying fresh cut flowers depends on knowledge and understanding of the factors that lead to deterioration and loss of vase life. For the end consumer, fresher flowers with a longer vase life mean extra enjoyment. For the retail trade in general, this situation means extra profits and loyal customers. Best possible cut flower and foliage quality is vitally important, as flowers must compete with other goods and services for the lifestyle dollar.

Flowers need special care

Flowers are arguably the most beautiful living product in the world. People love to give and receive flowers. And what is the first reaction to a gift of flowers? A smile, of course!

The floristry industry is all about happy customers who perceive their flower purchase to be good value and appreciated. Return customers are the backbone of your business. Initially it may take some investigation, but it is vital to source reliable suppliers of good-quality product in order to be able to sell flowers in consistently excellent condition at the beginning of their vase life. Obviously, top-quality flowers and foliage will lead to greater customer goodwill, increased sales, reduced waste and costs, and increased profits.

Price reflects the costs of production. Growers need to achieve a reasonable profit margin in order to produce the best flowers that get to you in top condition. Top-quality flowers and foliage cost more money to grow, to harvest and to care for after harvest, including the application of specialist postharvest procedures. Growing new cultivars may be more expensive or risky than growing the old faithfuls. Shipping to market and delivering to your door costs money too. It is essential to build good relationships with growers and wholesalers on whom you can rely. These relationships work both ways, because feedback helps them to continue to improve their products, and you can consequently rely on a continuous supply of reliable, top-quality products.

What is a flower?

The definition of a flower depends on your perspective.

Commercial definition: For simplicity, the words "flower" and "stem" both refer to the whole commercial cut flowering product, including the stem, leaves, bracts, flowers and flower head. The commercial flowers of hydrangea or waratah, for example, include the stem, leaves, bracts and flower head made up of many individual flowers or florets. These different parts may develop and age differently after harvest. So in one case, leaf drop, wilting or discoloration can determine when quality is unacceptable. In another case, petal drop, wilting or discoloration may determine it.

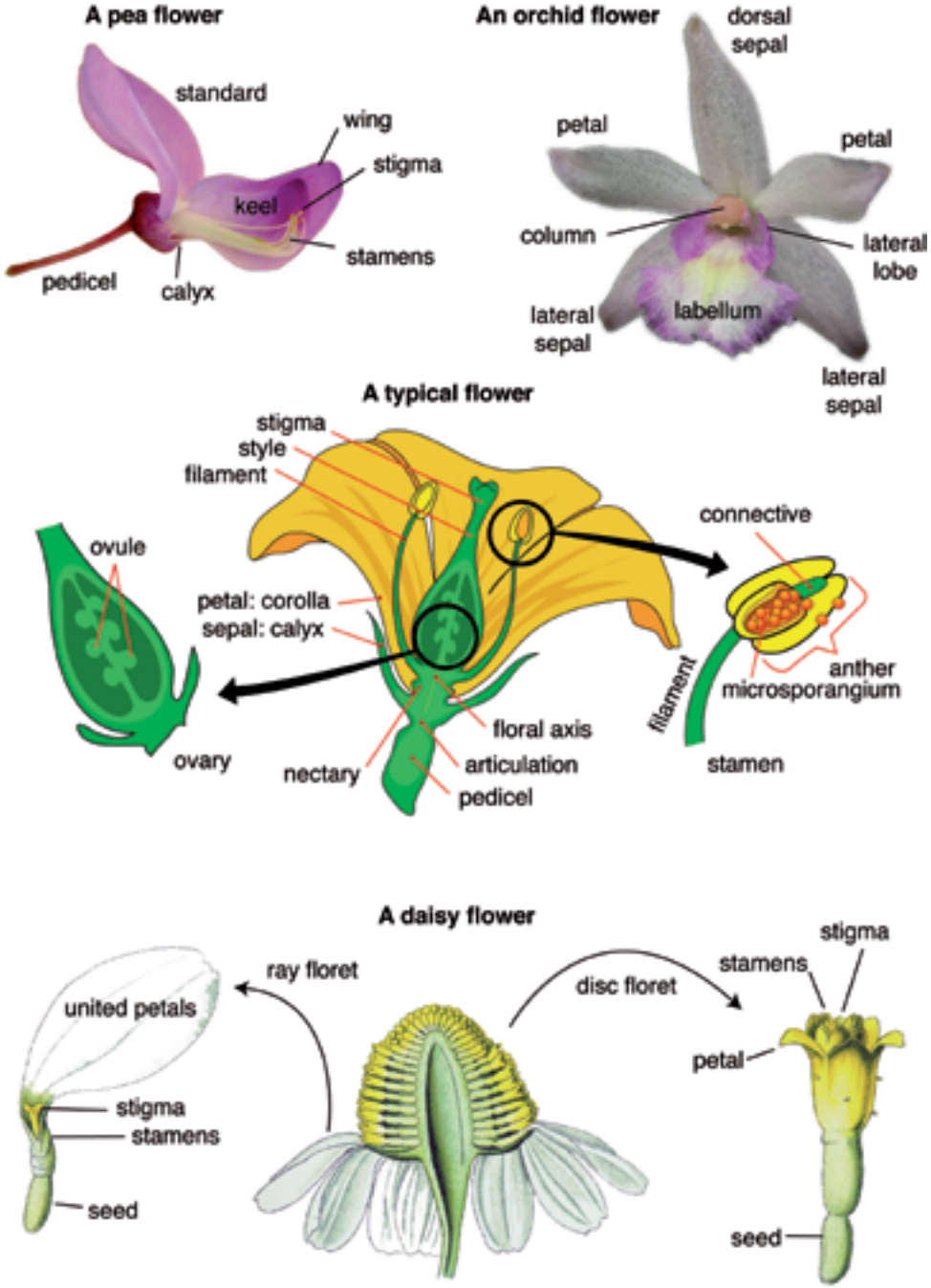
Botanical definition: The word "flower" is also used to mean the individual florets on a stem or in a flower head; for example, the individual flowers of *Limonium*, hydrangea and gypsophila within the flower head.

Flower head, or inflorescence: This term is used to describe compound flowers, which consist of many individual florets, often in a complex arrangement and often surrounded by bracts; for instance, *Banksia*, chrysanthemum, gerbera, *Grevillea*, hydrangea, *Protea* and *Telopea*. The individual florets

A waratah (*Telopea*) complex flower head (Proteaceae). b = bract, ped = pedicel, per = perianth, sti = stigma, sty = style

usually open sequentially over time. For maximum vase life, a flower head is ofter picked when only a few individual florets have opened or are starting to open.

A sunflower is a compound flower.



Avoiding disappointment

Avoiding disappointment is largely reliant on your ability to create a good relationship with your growers and wholesalers. You need to be able to rely on your supplier, but this may not be easy. Especially when operating a business in a regional area or at any distance from the wholesale markets, your business depends on a market agent or wholesaler who will buy and ship fresh flowers to your place of business.

Signs of good quality

Look for fresh and healthy foliage, buds and flowers; properly and evenly coloured individual flowers; absence of disease and insects; and straight stems, with little or ideally no bending between the stem and the flower head.

Signs of bad quality

Beware of deformed flowers or leaves, flowers that are too tight or too open, evidence of pests or diseases, live insects or active pathogen growth, shrivelled buds, wilted leaves or stems, yellowed or blackened leaves, and bent or physically damaged stems.

Improving flower life

Speed and care are of the essence. It's possible to extend flower life by several days if they are quickly processed and placed into a properly mixed conditioning solution as soon as they arrive (see "Conditioning your flowers" on page 14). Conversely, delaying processing may lead to increased water deficit stress and reduced quality and longevity. The grower should apply the right postharvest treatment for the species. With some flower crops (e.g. snapdragon, tulip, carnation), this pretreatment is essential to maximising vase life, and it is not possible to apply it once the flowers have left the farm and entered the distribution chain.

Recutting flower stems is a very important part of flower care since the stem tip may become blocked and incapable of transporting water up to the flower. Cutting 2–3 cm off the base of stems can increase the vase life of many flowers by up to 45% (Staby 1988).

"Clean and fresh" takes on new meaning with flowers. Your buckets, secateurs, knives, benches and other equipment used in processing must be sanitised. Bacterial counts rise rapidly in the holding solution unless buckets are cleaned with an antibacterial solution and the solution contains a properly mixed floral preservative. Keeping your work area clean and free of debris is very important. Diseased and dying flowers and foliage can release ethylene gas and look unsightly. Ethylene gas can hasten the deterioration of healthy flowers (see "Ethylene" on page 15).

The right postharvest care will ensure your customers get maximum enjoyment and value for money. This appreciation helps you to realise repeat sales. Importantly, it will significantly reduce wastage, allowing you to use more of the flowers and foliage bunches that arrive in your store and to throw out less.

Water quality has a direct effect on the longevity of your cut flowers. Clean water is essential. Look into your buckets and containers and ask yourself, "Does this look clean enough to drink?" If the answer is "No", then your flowers shouldn't be stood into it.

Clean buckets are essential.

Water characteristics vary considerably from one source to another and from one place to another. Water contains varying amounts of particles capable of blocking the water-conducting channels in the stem. Some chemical components can be toxic to your cut flowers. For example, fluoride levels safe for humans can cause yellowing of leaves and petal discoloration in some flower types, such as certain gerbera cultivars.

pH is a measure of acidity (low pH, 0–7) or alkalinity (high pH, 7–14). Once your holding solution is mixed with flower food or preservative, the recommended pH is 3.5–4.5, which is strongly acidic. Most flower foods are formulated to ensure that the pH of correctly diluted solution is in this range. Acidic solutions may move more readily up the stems than do neutral or alkaline solutions, and low pH inhibits the growth of bacteria in floral solutions. In addition, alkaline water may reduce the efficacy of flower food and preservative solution ingredients.

Test the water you use for your cut flowers frequently to check its purity and pH. In this regard, you could ask a pool shop or an accredited water testing company. A simple way to test whether the water is problematic for flowers is to divide a bunch, putting some stems into a number of vases with tap water and the rest into a number of vases with distilled

Flower sleeves protect flower stems.

water. If there is a difference in vase life between the two water types, then it is probably worth exploring the matter. A water testing company may be able to advise the best way to treat or filter the water to ensure the best vase life for your cut flowers.

Thirsty flowers may take up 75% to 80% of the solution in the first hour. **Ice cold** or **warm** water can help to rehydrate stems faster than water at room temperature. Hydration of cut stems takes time—at least 2 hours, ideally overnight (see "Conditioning your flowers" on page 14). Thereafter, stems should be recut and placed in fresh solution.

Use of a premixed commercial hydration solution is recommended to save time and money (see "Hydration (vase solutions and water uptake)" on page 9). Accurate measurement of amounts for mixing avoids waste. Stems will take up solution without difficulty if there is no stem end obstruction to water flow, such as air bubbles (called "embolisms") and plugging by bacteria, plant debris or dirt. Using the correct product at the right concentration ensures that the solution flows quickly up the stems, preventing stem blockage and minimising flower damage. Keep all solutions in cleaned containers free of bacteria.

Cold handling dramatically delays quality loss, water loss and death. Aim to hold your flowers in a cool room or refrigerated cabinet, unless they are tropical flowers, which may be damaged by temperatures below 15 °C, depending on the species (see "Temperature" on page 7 and "A–Z listing of cut flowers" for more information on individual species). As an example, cooling waxflower from 10 °C to 1 °C reduces its rate of ageing to a quarter.

Packaging such as flower sleeves, flower cards or cartons enables efficient transport, protects flowers physically and keeps flowers cool and protected against water loss.

Fresh is always best!

Flowers are highly perishable and must be handled with great care, including being stored at the recommended temperature and presented in the freshest condition.

It is never appropriate to include old flowers in an arrangement or bunch. Less scrupulous florists may save their old flower stocks for funeral arrangements or sell them off in discounted bunches. However, your customers always deserve the best. Moreover, if they don't get that best, then they won't come back. If you must sell aged flowers, then set up a separate stand, clearly labelled "old stock", and sell them at a much reduced price. This less than ideal practice may reduce some immediate financial loss, but

customers must always know the truth and in the end perceive value for money. Thus, they need to know specifically that they're getting short vase life in their purchase.

As a florist you are in the best position to guarantee your customers the best. You can provide better care for your flowers than supermarkets, which source their flowers from top-quality growers but often don't provide in-store care for their flowers. Your customers expect their purchase to be fresh and ready to be enjoyed for as long as possible. As a professional florist, your reputation is on the line, and your customers should not be disappointed because the flowers last only a few days, or start to droop the next day.

How do you as a florist know that the flowers you buy have been treated with the appropriate postharvest treatment? You must always ask.

Flower and foliage maturity

Flowers and foliage need to be harvested at the right stage of maturity for maximum quality and vase life. The optimum stage varies with the species. Flowers picked too tight or too immature may never open or may wilt. Flowers picked too open will have only a short vase life and may already be shedding parts. Get to know the ideal maturity stage for the flowers and foliage lines that you sell. If you notice any problems, then discuss them with your supplier.

Flowers delivered straight from the grower tend to be more open. Those that are shipped over longer distances may have been harvested when they are tighter, to make them easier to pack and less likely to be damaged. You may need to explain this to your customers—then they can look forward to enjoying the flowers opening in the vase.

Do not accept cut foliage with soft tips. New growth should be hardened off before harvest so that it is rigid and will last well. Unhardened tips bruise easily, wilt quickly and are a waste of money. Wholesalers should note that florists are learning not to accept soft-tip foliage—it is better left on the plant until it matures.

Temperature

Cooling is the single most important factor in maintaining quality, followed by rapid handling and selling. Cooling flowers and them keeping them cool reduces ageing and water loss. Flowers generate their own heat through respiration, so holding them at a low temperature prolongs their life.

The correct holding temperature is critical. There is a direct relationship between temperature, rate of respiration and vase life. If flowers are held at 2–4 °C, ageing and water loss are less than 20% of what they are at 20 °C.

Ideal holding temperatures according to climatic origin of species.

Plant origin	Recommended temperature range	Examples
Temperate climate	0–2 °C	Roses, lilies, waxflower
Subtropical climate	5–8 °C	Christmas bush
Tropical climate	12–15 °C	most orchids, ginger, *Anthurium*

All flowers benefit from proper temperature control. This will delay their development for a time, therefore lengthening the useable vase life.

Temperature recommendations are somewhat problematic, since the ideal can vary from the commercially feasible. For instance, 0 °C is best for most temperate flowers. However, cold facilities may not be able to maintain a temperature this low, especially when frequently being opened (e.g. during the trading day). Also, they may not be able to safely maintain 0 °C without dropping below freezing and damaging the flowers, especially when closed for a relatively long period (e.g. overnight). Consequently, recommended temperatures are not necessarily the ideal temperatures.

In a retail florist business, the recommended commercial storage temperatures are:

- 2–4 °C for traditional flowers, foliage and wildflowers originating from temperate and subtropical climates; for example, roses, carnations, waxflower
- 12–15 °C for tropical flowers and foliage.

Some flowers, particularly those from tropical regions, are damaged by temperatures below 12–15 °C, depending on the species (chilling injury). For example, *Anthurium*, *Heliconia* and ginger flowers and some native foliage species from northern Queensland need to be held at 12–15 °C. For most florists, most of the time, this will mean holding these flowers at room, or shop, temperature. However, there are exceptions; for example, Christmas bush is best held at 6–8 °C, as it is reported to be sensitive to chilling injury at lower temperatures. And some red *Anigozanthos* (kangaroo paw) hybrids reportedly go dull when they are stored at 2 °C or less for a few days.

Chilling injury may show up only after flowers have been moved to warmer temperatures. In a short period of time, chilled leaves and petals can go clear,

= Onsell quickly

In the "A–Z listing of cut flowers", where you see "Cool storage: ✔ ", these flowers have a comparatively short life. For this reason, they need to be handled correctly throughout the entire supply chain. You should aim to buy such flowers with the aim of selling them on immediately, so that the consumer receives maximum enjoyment.

then brown, and finally die. For example, orchid flowers become transparent and then drop. If you suspect that your flowers are injured after holding at 2–4 °C, then try holding them at a higher temperature to see whether injury still develops.

If cold flowers are placed in warm air, water will condense on them. Condensation can stimulate fungal growth (e.g. *Botrytis*, or grey mould) and physiological leaf blackening of *Protea*. For this reason, it's important to avoid temperature changes around sensitive flowers.

Some flowers can be stored for a period at low temperatures without loss of vase life, while others cannot be stored at all and should be sold quickly. Get to know which flowers need to be marketed promptly.

Cooling and cool rooms

It is important that you have a cool room that is clean and well maintained. Cool rooms should have high humidity (95% RH) without excessive air movement. If air circulation over the flowers and foliage is rapid, then they will dry out (see "Humidity" paragraph opposite).

While many types of cool rooms are available, your choice should meet three major requirements:

- Reliable temperature control, with a minimum of variance. That is, make sure that the temperature does not drop too low below 0 °C and freeze the flowers.
- High relative humidity at 95% or more.
- Clean and relatively dry surfaces to avoid fungal problems—do not splash water around the walls and floors.

Within the cool room, it is vitally important to keep the temperature constant. Measure the temperature with an accurate thermometer sitting in a glass of water. The bulk provided by the water evens out short-term temperature fluctuations due to doors opening or fans coming on. It is wise to measure and record the temperature every day. Two alcohol-in-glass thermometers located in different corners at flower height are recommended. If a dial outside the cool room displays the

Cool rooms are essential to optimising postharvest life.

temperature, then check it against an accurate thermometer at least once a week.

Tropical flowers and a few other specific flower and foliage products are damaged by low temperatures, certainly those below 8 °C. Please note the individual care advice in the "A–Z listing of cut flowers" and the information in "Special care for tropical species".

Humidity is the presence of water vapour in the air. Relative humidity, or RH, is the amount of water vapour present in the air relative to the maximum amount the air can hold. High humidity is essential for most cut flowers and foliage. Cool rooms can be designed for high humidity. Ideally, aim for an RH of 95%. Many standard cool rooms run at less than 80% RH, which is suitable for cool drinks but not for flowers and foliage lines that lose water rapidly owing to their high surface areas relative to their low bulk. A humidifier added to the unit is not hugely expensive, nor are hygrometers to measure humidity, and both are easily fitted. Refrigeration without high humidity will dehydrate the flowers, particularly if the air movement in the unit is high. This shortens vase life, so it's false economy to keep flowers in a drinks fridge, which has drier air.

Ventilation. As a rule there should be a complete change of air in the cool room every hour. The air should be humid and cool and its flow should be gentle to avoid drying of flowers. Circulation of fresh cool air over and around the flowers will remove excess heat and prevent water from condensing.

Hydration (vase solutions and water uptake)

To ensure good water uptake, recut stems that have been dry for more than 30 minutes, or that have been in water for some days. The Society for American Florists' manual says that more than half of the possible life of a flower can be lost if the stem is not recut (Nell and Reid 2000). Recut stems by 2–3 cm and place them immediately into fresh solution. For most products, this is fresh clean water and flower food. For flowers and foliage lines for which flower foods are not known to offer an advantage, just use fresh clean water containing a registered biocide.

It is most important to minimise water stress, which happens when water loss through the leaves is greater than water uptake through the stem. Even after flowers have lost considerable water (e.g. during transportation or storage), they can be fully rehydrated using proper techniques.

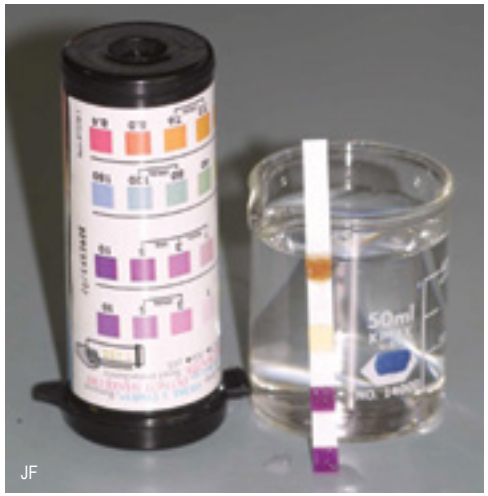
Clean water is vital. Does the solution in your flower buckets look clean enough to drink? If not, then don't put flowers into it. (Don't drink it either!) An average of 40% of the vase life is lost because flowers are held in dirty water.

Here are some helpful tips to help keep water clean:

- Keep stems clean. Wash dirty stems before they are placed in water and remove leaves that would be under water.
- Use plastic buckets, as metal may react with postharvest solutions.
- Clean buckets after each use with disinfectant such as bleach. Clean them both inside and outside, as stacked buckets will transfer dirt and bacteria from the outside to the inside.
- Use rainwater or mains water, but not dam or bore water. Add a registered biocide or commercial flower food. If your water is high in salt, it could damage the flowers. In this situation, you may wish to use deionised water.
- Woody native flowers (e.g. *Corymbia*, *Banksia*, *Protea* and *Grevillea*) need more water than many traditional blooms. Most wildflowers prefer deeper rather than shallower water. Deep water aids their hydration.

Water pH. Flower stems can take up acidic water faster than neutral or alkaline water. Adding citric acid at approximately 0.25 g/L will reduce the pH of neutral water to around pH 3.5–4.0. Check the pH with test strips from a pool shop, or use a specially formulated flower food to ensure the appropriate pH. **Caution:** adding citric acid when bleach is used will dissipate the chlorine and rapidly reduce the benefit of the bleach. Proprietary brands of postharvest solutions provide a reliable balance between acidifiers and biocides.

Test strips make it easy to check the pH of your flower solutions.



Maximising longevity or vase life

Plants store starch and sugars (collectively called carbohydrates) in stems, leaves and flowers. These stored foods are needed to sustain the cut flower after harvest, including to enable flowers picked in the bud stage to open. Feeding sugars to cut flowers by including them in the flower food can supplement the food reserves of the flower. This is common practice with traditional flower crops. However, sugar solutions are not always beneficial for native Australian or South African flowers, and thus must be used with care. Sugar can prevent flowers (particularly those with woody stems) from rehydrating properly, and high concentrations (more than 10 g/L) can cause excessive nectar production or make leaves dry out.

Some natives that do not appear to benefit from flower food are kangaroo paw, *Thryptomene*, Christmas bells and *Verticordia*.

Floral preservatives, or "flower food"

Floral preservatives provide a consistent means of maximising flower life and quality, provided they are correctly mixed in the right amount of high-quality water. They are designed to improve water uptake, delay ageing and deterioration and hence increase the vase life of flowers.

Although it is possible to make your own solution, commercial products which you dilute with fresh clean water are highly recommended as they provide an easy, accurate, well proven, economical treatment. It's usually a tiny amount of money to spend per stem to ensure longer-lasting flowers. Consider buying dosing equipment to dispense the right amount of concentrate every time (this can be purchased from suppliers listed on page 12).

A wide range of commercial products are available, from general-purpose solutions to special-purpose products such as bud-opening treatments, hormonal treatments, anti-ethylene treatments, hydrating solutions, those formulated for specific flowers and those for plants with woody stems. Different products are available for growers, wholesalers, florists, bouquet makers and consumers. Some suppliers are listed on page 12.

Hydrating solutions help the flower to take up water and may be particularly useful after flowers have been held or transported dry for some time. If flowers are dry, or are prone to drying out, after recutting the stems, it is worth putting them into a hydrating solution to improve water uptake. Suitable solutions include registered wetting agents, citric acid and proprietary formulations. Warm water (40 °C) and ice-cold water (0 °C) can also improve water uptake. Deep water, even 20 cm, improves water uptake by some flowers (e.g. *Leptospermum*, *Telopea*) compared with shallower water.

The biggest problem reported with flower food is that it's commonly used at the wrong concentration. In the USA, according to postharvest expert Dr George Staby, only 20% of retail florists used the right concentration. Using a solution that is too weak is worse than not using it at all, because it will have enough sugar for microbes to grow but not enough biocides to check this growth. Conversely, making it stronger than recommended may damage the flowers.

Dr Staby has a simple tip to ensure that flower food solutions are consistent—make up 5 L of flower food according to the directions, mix well and measure the pH using pH test strips. The pH should be the same every time you make up the solution. You can also buy test strips specifically to measure chlorine. Thus, if you use a chlorine-based solution, test it to make sure you have an effective concentration of 3–4 ppm of free chlorine.

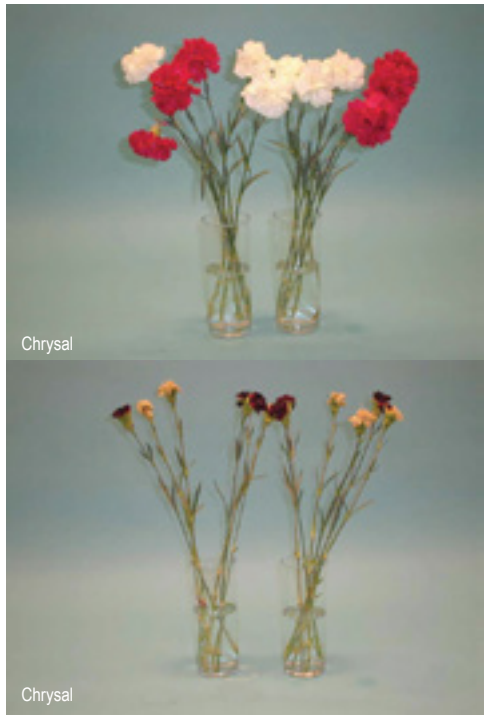
Carry out your own tests to work out which treatments are most economical for you and give the best results for your flowers. Take three vases with the same volume of water and the same product at the same stage of maturity. To the first, add fresh water only. To the second, add one brand of solution at the correct rate. To the third, add a different brand of solution, also at the correct rate. Observe the flowers over the vase life and record the results. To be sure of the relative treatment effects, it is best to replicate the trial at least three times over time or with additional vases at the one time. Vases can be as simple and cheap as clean glass jars or plastic drink containers.

Don't guess! You must know and be confident in your recommendations about the vase life your customers can expect from their purchases.

Avoid using metal containers unless they are thoroughly lined with plastic. Metals can interact with the flower food to shorten vase life and can be toxic to the flowers. In addition, the acidic solutions will damage the containers.

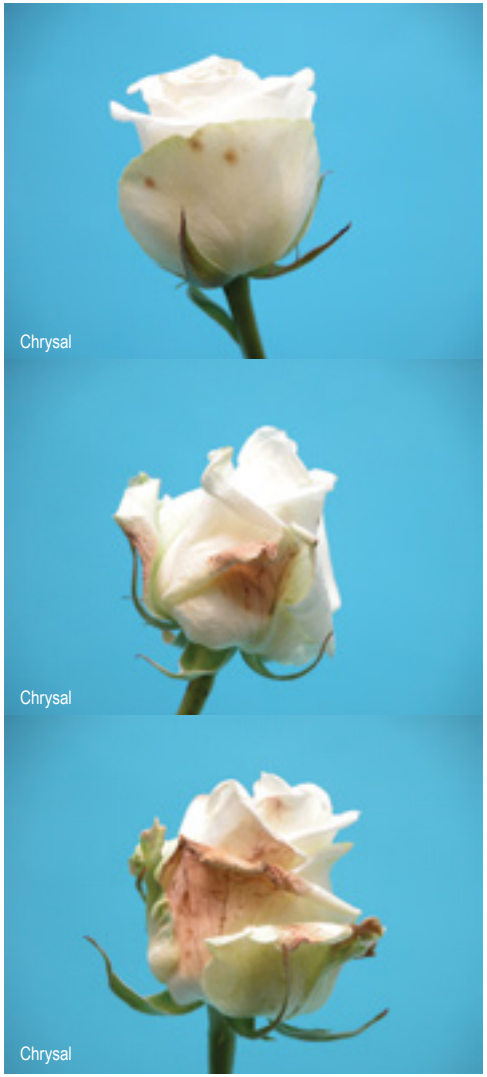
What's in the floral preservatives?

Commercial flower foods usually contain a biocide, sugar and possibly other compounds to improve water uptake. They provide a simple, convenient, accurate and often economical treatment for flowers at all stages of the handling chain.



Carnations are generally very sensitive to ethylene. The top photo shows flowers given an anti-ethylene treatment by the grower, while the bottom photos show the result if this treatment is not applied.

The top photo shows liliums treated with a Chrysal postharvest product developed to prevent premature leaf yellowing and stimulate bud opening, which prevents premature wilting of the flowers. This postharvest treatment is recommended for use by growers. The lower photo shows the poor postharvest result of using tap water only.



The photos to the left illustrate the progression of *Botrytis* (grey mould) infection over time, with small lesions on the petals enlarging to become large areas of damaged tissue. Under favourable conditions, *Botrytis* can develop quickly following harvest.

Biocides (also known as sanitisers or germicides) are needed to stop bacteria (and algae, yeasts and fungi) growing—otherwise the bacteria block the flower stem and prevent water uptake. Therefore, flower water should always contain a registered biocide or a commercial postharvest solution that contains a biocide.

Some brands of flower foods available in Australia and their suppliers are listed below. Contact the suppliers and ask about which products best suit your needs.

Remember, however, that no floral solution will improve inherently poor-quality flowers.

Suppliers

Chrysal flower preservative solutions, hydrating solutions, bud-opening solutions, flower food, dosing and measuring equipment, hand pumps. Products are available for growers, wholesalers, florists and consumers. Available in Australia at time of publication through:

- HE Koch and Co., Sydney: www.koch.com.au
- Apack Pty Ltd, Melbourne, Brisbane, Adelaide, Sydney: www.apack.net.au

Flourish cut flower food for florists and consumers. Available in Australia at time of publication through:

- Australian Flourish Pty Ltd, Melbourne: www.flourish.net.au

Smithers-Oasis and **Floralife** hydrating, storage and vase solutions, flower food, dosing and measuring equipment, hand pumps. Available in Australia through:

- Smithers-Oasis Australia, Quambatook, Victoria: soau.oasisfloral.com

Florissant flower preservatives and flower food sachets. Available in Australia at time of publication through:

- Roskam Young Plants Pty Ltd, Melbourne: www.roskam.com.au

Hygiene

The importance of hygiene in the floristry workplace is sometimes overlooked. Yet sparkling clean and sanitised working tools (for example knives, secateurs, buckets, tables, cool rooms) and clean work surfaces contribute to better flower quality and less waste.

For cleaning, use registered biocides **only**. Make sure you follow all safety directions in regard to health and safety when preparing, using and discarding bleach and other biocide solutions. Detergents do not always kill bacteria, and in some cases even allow them to thrive.

- Scrub buckets clean with a brush. If dirt won't budge, use a bleach rinse bath.
- **Always** place fresh flowers in clean buckets and containers if you want them to last.
- Always wash vases before use, as bacteria can and will grow in a dusty vase.
- Inspect your suppliers' buckets for an insight into how they value their product, as dirty buckets often represent a less professional attitude.
- Ensure that your flowers have been given the correct postharvest care right from the moment they are picked. Dirty buckets, ageing flowers, and discoloured and yellowing stems indicate poor postharvest care and an unprofessional approach. To test for bacteria, run your finger around the inside of a bucket. If it is slippery, this may indicate bacterial growth.
- Keep the cool room or flower fridge clean. Wash down regularly with a bleach solution diluted to recommended levels.
- When cleaning the cool room, turn off the fan and ensure that the blades are clean so as not to circulate bacteria or fungal spores that may have settled on them.
- Put all flower waste, including trimmings, into a closed bin and empty it often.

Care in handling

Care in handling is critical, so it is imperative to check new deliveries carefully. Unfortunately, bruising and mechanical damage to flowers may not show up for a day or two.

Poor handling means damaged goods and a reduction of your profit. Don't hesitate to speak with your supplier if regular mechanical damage on high-quality product is evident. Suppliers should be prepared to investigate their care and handling procedures.

Rotate your stock, using a code system if necessary (e.g. a different coloured stick in the bucket). Remember: your flowers may look great in the cool room after a week, but how long will they last for your customer?

Your product is being judged on its vase life and your professional approach to it. If the customer perceives it to be value for money, you can expect return business. Fresh high-quality flowers are your business—you must sell them at the beginning of their vase life to ensure customer satisfaction.

You should ensure that couriers adhere to correct handling procedures while delivering your product and that the delivery vehicle is air conditioned.

Some degree of wastage is a consequence of dealing in perishable goods—

check your level of wastage (or shrinkage) and cost this into your pricing structure to cover these losses.

Floral foam

Floral foam has revolutionised the way we arrange and deliver flower arrangements since it was introduced in 1954 by the Smithers-Oasis company. There are now numerous local and imported products.

Tips for best use:

- Soak floral foam in fresh water or floral solution changed daily—no amount of floral solution will kill the bacteria growing in days-old water.
- Soak with the label up—it is designed to soak this way.
- Never force the foam into the water to soak—this may cause air pockets to reject water.
- Never use the leftover soaking water to top up arrangements—it is charged with toxic chemicals.
- Never reuse floral foam.
- Remember that the floral foam dries from the top down. When arranging flowers into the foam, make certain the container is deep and large enough to hold enough water to maintain hydration of the foam and the flowers for more than a day.
- Insert stems firmly into the foam to ensure that the water is available to the stems. Some flowers use a lot of water, so arrangements must be topped up daily.
- When using flower foods, let the foam sink slowly into the solution.

Despite the benefits of floral foam for arranging and delivery, fresh cut flowers will last longer and stems will stay fresher without foam, arranged simply in a vase of water with floral preservative added. This makes it possible to see the water level—to top it up, change it regularly and recut stems. However, some flowers, such as tulips and gerberas, are not well suited to floral foam, as the stem bases deteriorate quickly and vase life is greatly diminished. Such flowers are best arranged in a vase.

Advice to customers

Always include one or more packets of flower food with your sales. You can also provide flower care instructions on a card, on the flower sleeve or on the flower food packet (see example on the right).

Flower care advice

Remove leaves that will be under water.

Add a sachet of flower food to a measured amount of water in a clean, deep vase. It is very important to use the correct dose to gain the best results. For example, a sachet for 1 litre of water should be used with exactly 1 litre. Both under-dosing and overdosing will give you poor results.

Cut 2 cm off the base of stems, straight across, with a sharp knife, scissors or secateurs. Arrange the flowers in the vase.

Display flowers out of hot, sunny or draughty places and away from ripening fruit.

Do not mist the flowers.

Keep the vase filled (or the floral foam soaked) with water containing a cut flower food. But note that for certain flowers, such as stock, China aster and kale, 2–3 days is about the limit that biocides in the flower food will stay effective. For such flowers, replace with fresh solution after this time.

If cut flower food is not used, recut the stems and renew the water every 2 to 3 days, especially if it becomes cloudy or discoloured.

Different flowers and foliage will age at different rates, so remove flowers and foliage from the arrangement when they reach the end of their vase life to keep it looking good.

If you have been advised that any of the flowers are ethylene sensitive, keep them away from fruit and vegetables, and remove any fallen blooms.

Conditioning your flowers

"Conditioning" is a term for how cut flowers are best handled to ensure they look their best and to maximise their longevity in bunches and arrangements.

Conditioning involves applying all the information described in detail above:

1 Carefully remove all the leaves from the bottom half to two-thirds of each stem. As a general rule, remove any foliage that will be below the water level to prevent it rotting in the water.

2 With only a few exceptions, most flowers and foliage products benefit from having the stems recut. By removing the lower 2–3 cm, you eliminate most stem blockage and restore good water uptake. Use a sharp knife or secateurs to avoid crushing the stems or leaving jagged edges that could encourage decay. There are varying views on whether the stem should be cut on an angle or straight across. Many authorities recommend an angled cut to increase the surface area that can take up water; others prefer a straight cut.

3 Put the prepared stems into a bucket of deep, clean water, preferably containing floral preservative or a biocide.

4 Make sure the flowers and foliage above the solution stay dry.

5 Leave the stems in a cool place for at least 2 hours, or ideally overnight. This ensures that the flowers are fully hydrated before they are brought back into a warmer environment.

It is a common misunderstanding that wildflowers can be held out of water. To ensure quality and a long vase life, the stems must be kept hydrated in water containing flower food, or at least a biocide.

Potential problems and how to avoid them

Most of these problems are easily avoided with the right care, saving you money and reputation. However, sometimes flowers can arrive that appear in perfect condition but deteriorate within a day. Sometimes this is because of long-term storage before purchase, but sometimes it is caused by a delayed reaction. Two examples are spray burn on gerberas and sunburn on lilies (especially Oriental lilies). These flowers can leave the farm showing no symptoms of damage, but the damage shows up the next day.

Air embolisms

Air embolisms result when small air bubbles are drawn into the stem at cutting or during dry handling and storage. They effectively block later flow of water up the stem, and so the flower wilts. You can remove embolisms by cutting off the lower 2–3 cm of the stem and placing the stems into fresh, clean water or solution that is refreshed frequently. Placing stems into acidic water (pH 3.4–4.5), using warm water (40 °C) and placing bunches into deep solution can help to reduce the occurrence of air embolisms. Although it has long been recommended to recut the stems under water as the best way to avoid air embolisms, this advice has not necessarily been supported by research (e.g. Nell et al. 2000). Cutting under water may in fact aid the entry of bacteria into the stems if the water and containers are not clean. It may be worth doing your own trials with specific flowers to compare the benefits of recutting in air with recutting under water to optimise their treatment in your shop.

Stem blockage

When plant cells are wounded by cutting, the plant naturally produces substances to seal the wound. These wound healing substances can block water flow. The process is called **physiological plugging**.

Further, poor hygiene may result in stem blockages due to bacterial growth, known as **bacterial plugging**. Bacteria and other microbes that plug stems may be present even in tap water, but are typically most abundant in vase, bucket and recutting water that is not replaced regularly, or in clean water that has been put into dirty containers. Ask your grower or wholesaler whether the product has been treated with postharvest solutions.

Uneven stem lengths

Ensure that all the cut stems in the bunch are the same length at the condition-

Avoid uneven and torn stem ends—aim to buy bunches with evenly cut stem ends and recut them to the same length at the conditioning stage.

ing stage—this makes it more likely that all the stems in the bunch will take up solution (having one or two stems shorter than the rest increases the risk that they will wilt). Having even stem end lengths in the vase or florist's foam is also important when you have completed the bunch or arrangement for your customer.

Grey mould

Botrytis cinerea, or grey mould, is a fungal disease affecting cut flowers. It may be present but unseen until specks or soft brown patches appear on the blooms. The common name refers to the grey fuzzy spore masses on the surface of heavily infected tissue. Ageing flowers are particularly susceptible.

In greenhouse or field plant production, several days of cool, humid, cloudy or rainy weather create an ideal environment for infection by *Botrytis*. This pathogen can establish in petals and leaves, depending on the plant species. Lesions show as irregular, enlarged, tan, water-soaked spots that eventually become soft and rotten and covered with grey fuzz. *Botrytis* will grow on dead or dying plant tissue anywhere conditions are favourable—in the greenhouse, in the field, in the packing shed, in the cool room or during shipping.

Sometimes flowers appear clean when they leave the farm, but they may already be infected; this situation is especially evident in roses. Condensation or temperature fluctuations during transport and storage cause the infection to progress, making flowers unsaleable by the time they reach the florist or end user (see rose photos page 11). There is no effective control at the florist's level. Infected flowers should be destroyed, and good hygiene is important. Discuss the problem with your supplier. However, for flowers intended to be used in bouquets and make-up work, such as stock, statice, lisianthus and China aster, removing sleeves after purchase is important in order to avoid the development of *Botytris* on flowers and foliage.

Ethylene

Ethylene gas is a natural plant hormone that speeds up the ageing process and thereby reduces the vase life of flowers sensitive to it. Some (but not all) flowers are damaged by ethylene. According to postharvest researcher Professor George Staby (2011), the negative effects of ethylene remain a huge issue in postharvest flowers, even though we can avoid it through the use of both anti-ethylene treatments and less-ethylene-sensitive cultivars.

Anti-ethylene treatments

Exposure to ethylene can be minimised or avoided, and the action of ethylene can be slowed or stopped by anti-ethylene treatments applied immediately after harvest by the grower.

Flowers and foliage produce ethylene, especially when they are ageing, decaying or under stress, including water stress, physical damage and infection with *Botrytis*.

Ethylene comes from both plant and non-plant sources, including:

- ripening fruit, including apples, avocados, bananas, kiwi fruit, mangoes, melons, papaw, pears, stone fruit and tomatoes
- diseased, deteriorating, rotting or burning plant material
- fumes from cars, gas forklifts, aeroplanes, floor cleaners and gas heaters
- cigarette smoke
- brick and plastic factories.

External ethylene in the air around the flowers can cause flower drop and early ageing in many flowers—see individual flower entries for their ethylene susceptibilities.

In sensitive flowers, ethylene exposure can cause:

- premature death
- flower and petal drop
- shrivelling of petals
- premature yellowing, distortion or dropping of leaves.

Sensitive flowers are damaged by exposure to as little as 0.01 ppm for more than a day, and to 1 ppm for 12–24

hours. Such levels have been measured in flower packing sheds, supermarkets, wholesale markets, distribution centres, trucks, fruit cold stores, and roadside stalls and displays.

Avoiding ethylene and ethylene damage

Ethylene damage is not reversible, but several things can be done to avoid exposure:

- Avoid exposure to external sources of ethylene, including ripe fruit, diseased and rotting flowers and engine exhausts. Don't store, transport, place or display sensitive flowers near ripening fruit.
- Maintain low temperatures—ethylene damage increases at higher temperatures. Low temperatures reduce ethylene production by flowers and reduce ethylene damage.
- Keep flowers in a well ventilated area, as a continuous change of air prevents the gas from accumulating in the environment.
- Avoid temperature fluctuations and condensation, ventilate packages and discard diseased flowers.
- Seek out less ethylene-sensitive alternatives or cultivars.
- Remove any damaged, dead or dying flowers from the bunch or arrangement, as they may affect the vase life of the other flowers.
- Avoid water dripping on the blooms and allow good ventilation by not crowding bunches into buckets.
- Handle flowers carefully at all times. Bruised and broken flowers, leaves and stems reduce product quality. Such wounding often causes ethylene to be produced, and can allow disease organisms to enter the wound.
- Do not scald, bash or crush stems. Any short-term benefit is outweighed by blockage of the water-conducting vessels caused by cell death. Bacteria invade the dead cells, compounding the problem, and the damaged stem releases ethylene.

For sensitive lines, growers must apply the anti-ethylene treatments after harvest—ensure that your flowers have been treated before purchase. Some growers helpfully provide this information on the flower sleeve or packaging—check with the grower. If your flowers show ethylene damage within a few days, report it back to the grower.

Aside from ventilation, there is no practical way to combat ethylene in the shop or home. However, exposure to ethylene can be minimised if the basic steps above are followed and there are no heavy smokers around.

Not all flowers, or cultivars of a particular flower, have been tested for their sensitivity to ethylene. Different authorities vary, and even disagree, in their assessment of sensitivity or whether treatment with anti-ethylene products will be effective or economic. This variation may in part be due to variable ethylene sensitivity among cultivars tested by different researchers.

Geotropism

Some flowers, including snapdragon, tulip, *Gladiolus*, lisianthus, calla lily and Gymea lily, respond to gravity and should be held upright, otherwise the stem will curve upwards.

Leaf blackening

Blackening of *Protea* leaves and bracts following harvest can be a major problem. The severity of this disorder varies between cultivars. Blackening can occur within 3–5 days of harvest and greatly reduces the visual appeal and vase life.

The exact mechanism of leaf blackening is still not fully understood, but it results from the cut stem drawing on the carbohydrate reserves in the leaves to supply sugar in order to complete the development of the flower head.

Careful postharvest handling will help reduce or prevent leaf blackening.

King protea with (below) and without (above) leaf blackening.

Common name	Ethylene sensitivity
Agapanthus	●●●
Ageratum	●
Allium	●●
Alstroemeria	●●
Anemone	●●●
Anthurium, Flamingo flower	●
Aranda, *Vanda* orchids	●●●
Aster, China aster	●
Baby's breath, *Gypsophila*	●●●
Boronia	○–●● Varies with sp. and cv.
Bouvardia	●●●
Calendula	●
Candytuft, *Iberis*	●●
Carnation, *Dianthus*	●●●
Cattleya orchids	●●
Celosia	○–●● Varies with sp. and cv.
Chincherinchee, Arab's eyes, *Ornithogalum*	●●●
Cornflower, *Centaurea*	●
Cyclamen	Variable, usually ●
Cymbidium orchids	Variable
Daffodil, *Narcissus*	●●
Delphinium	●●●
Dendrobium orchid	●●
Freesia	●●
Gardenia	●●
Gladioli, *Gladiolus*	●
Gloriosa lily	●●●
Golden Morrison, *Verticordia*	●● and variable
Grevillea	●●● and variable
Hydrangea	●●
Iris, Dutch iris	Variable
Lavender, *Lavandula*	Varies with sp. and cv.—may be high

Common name	Ethylene sensitivity
Leptospermum	●● and variable
Lilac, *Syringa vulgaris*	Varies with sp. and cv.—may be high
Lilium	●●–●●●
Lisianthus, *Eustoma*	● and variable
Marigold, *Tagetes*	Variable, usually ●●
Narcissus	●●
Nerine	Variable: ○–●●●
Oncidium orchid	●–●●
Phalaenopsis orchid	●●
Ranunculus	Variable
Rice flower, *Ozothamnus*	●
Rose	●–●● Variable depending on cv.
Scholtzia	Variable depending on cv.
Slipper orchid	●●●
Snapdragon, *Antirrhinum*	●●●
Snowball tree, *Viburnum opulus*	●
Solidaster, *Solidago*	●
Spider orchid, *Arachnis*	●●●
Statice, *Limonium*	●●● Variable depending on cv.
Stephanotis	●
Stock, *Matthiola*	●●
Sunflower, *Helianthus*	● to variable
Sweet pea, *Lathyrus*	●●●
Tea tree, *Leptospermum*	●●●
Thryptomene	●●●
Tuberose, *Polianthes*	●
Tulip	Variable
Vanda orchid	●●●
Verticordia	○–●●● Variable depending on cv.
Waratah, *Telopea*	●●●
Wattle, *Acacia*	●●● Variable depending on sp. and cv.
Waxflower, *Chamelaucium*	●●–●●● Variable depending on cv.

○ Not sensitive; ● slightly sensitive; ●● moderately sensitive; ●●● highly sensitive.

Some *Protea* are very prone to leaf blackening and should be sold quickly. Keeping cut stems under continuous bright light may also help reduce its incidence. Some postharvest products will reduce the incidence of leaf blackening. Depending on the arrangement, it may be worth removing the foliage entirely and adding foliage products to conceal the bare stems.

Short vase life

Some flowers have a vase life of 5 days or less, even under optimum handling. For this reason, they need to be handled optimally (e.g. handled quickly at the optimum temperature from harvest all the way through to the end consumer). As a florist, you should buy such flowers with the aim of selling them on immediately, so that the consumer receives maximum enjoyment from them. See also "= Onsell quickly" on page 8.

Imported flowers and pesticides

It is very important to recognise that imported flowers may have been sprayed or dipped in pesticides before export from their originating country. This may be a phytosanitary requirement to reduce the risk of importing exotic pests and diseases, or to lessen the chance of *Botrytis* spoiling the shipment. In some instances, however, the chemicals might not be registered for use (or considered safe) in Australia.

Owing to the increased volume of imported flowers and foliage on the Australian market, it is becoming more difficult to recognise which flowers are imported and even more difficult to know which have been treated with chemicals, either before shipping or on arrival. Where possible, ask your market agent about the origin of products and familiarise yourself with the range of imported products.

There is currently no testing of cut flowers, whether imported or locally grown, for pesticide residues. It may be a wise precaution to wear gloves when handling all flowers, and to wash hands before eating or drinking. This will also protect workers who are sensitive to the irritant or allergenic effects of some plant saps or fine hairs.

Studies comparing the vase life of fresh, locally grown roses with imported roses found that the longer marketing chain and postharvest fumigation and devitalisation treatments of imported roses may reduce their quality and vase life (Worrall et al. 2000). However, in practice, the quality of both local and imported flowers varies markedly because of the many variables in how they are handled.

Methyl bromide fumigation of imported roses (Worrall et al. 2000) could cause:

- shortened vase life—the combined effects of the fumigation itself and of holding the roses at higher than normal temperatures before, during and after fumigation
- inhibited bloom opening—fumigated roses may open to no more than 80% of their potential diameter
- petal damage—petals (especially outer ones) may appear burnt or dried out
- leaf damage—leaves may lose their glossy green appearance and become dull and dry looking; any pre-existing damage such as creasing may be greatly accentuated
- stem blackening, especially just below the flower.

Recommended reading

Chain of Life website: www.chainoflife.com

Chrysal International: www.chrysal.com

Faragher J, Gollnow B, Joyce D. 2010. Postharvest Handling of Australian Flowers from Australian Native Plants and Related Species, 2nd edition. RIRDC Publication 10/027. https://rirdc.infoservices.com.au/items/10-027

Gilbert V (editor). 2011. Foliage for Florists, 2nd ed. Society of Floristry Training Fund.


DT

Gollnow B, Wade N. 2002. Postharvest care of cut flowers. NSW DPI. www.dpi.nsw.gov.au/agriculture/horticulture/floriculture/postharvest/care

Jones R. 2001. Caring for Cut Flowers. Landlinks Press, Melbourne.

Maree J, van Wyk B-E. 2010. Cut Flowers of the World: a complete reference for growers and florists. Timber Press, Portland, Oregon, USA.

Milner G. 2009. Fresh Cut Flowers—an expert guide to selecting and caring for cut flowers. JoJo Publishing, Melbourne.

Nell TA, Reid MS. 2000. Flower and Plant Care, the 21st Century Approach. Society of American Florists, Alexandria, VA, USA.

http://www.safnow.org/?q=node/418 (see Care & Handling Manual and CD).

Nell TA, Suzuki A, Leonard R. 2000. Cutting technique and importance of water quality report. University of Florida with American Floral Endowment Support. Cited in www.chainoflife.com.

Reid MS. 2004. Cut flowers and greens. In Gross KC, Wang CY, Saltveit M, eds. Commercial Storage of Fruits, Vegetables and Florist and Nursery Crops. Agriculture Handbook 66. US Department of Agriculture, Washington, DC, USA: http://www..ars.usda.gov/hb66/148cutflowers.pdf

Rindels S 1993. Conditioning cut flowers. Horticulture and Home Pest News, Iowa State University. www.ipm.iastate.edu/ipm/hortnews/1993/8-11-1993/cut.html

Staby GL. 1988. The gift of money: re-cutting flower stems. Flower News 42(33):5. Cited in www.chainoflife.com.

Staby G. 2011. Flowers 2011—the Australian Flower Conference. 12–15 July, Brisbane.

Vaughan MJ 1988. The Complete Book of Flower Care. Timber Press, Portland, Oregon, USA.

Worrall R, Gollnow B, Wade N. 2000 Rose Flower Care for Professionals. NSW DPI. www.dpi.nsw.gov.au/aboutus/resources/bookshop/rose-flower-care.

Quality specifications are available for the following products. Please use the link in the "Web address" column to obtain each specification.

Pub No	Publication title	Botanical name	Web address
10/028	Flannel flower	*Actinotus* (Flannel flower)	https://rirdc.infoservices.com.au/items/10-028
10/029	Kangaroo paw	*Anigozanthos* 'Big Red'	https://rirdc.infoservices.com.au/items/10-029
10/030	Black kangaroo paw	*Macropidia* (Black kangaroo paw)	https://rirdc.infoservices.com.au/items/10-030
10/031	Baxter's Banksia	*Banksia baxteri*	https://rirdc.infoservices.com.au/items/10-031
10/032	Scarlet Banksia	*Banksia coccinea*	https://rirdc.infoservices.com.au/items/10-032
10/033	Hooker's Banksia	*Banksia hookeriana*	https://rirdc.infoservices.com.au/items/10-033
10/034	Menzies' Banksia	*Banksia menziesii*	https://rirdc.infoservices.com.au/items/10-034
10/035	Hinchinbrook Banksia	*Banksia plagiocarpa*	https://rirdc.infoservices.com.au/items/10-035
10/036	Berzelia	*Berzelia lanuginosa*	https://rirdc.infoservices.com.au/items/10-036
10/037	Boronia	*Boronia* 'Lipstick'	https://rirdc.infoservices.com.au/items/10-037
10/038	Christmas bush	*Ceratopetalum gummiferum* 'Albery's Red'	https://rirdc.infoservices.com.au/items/10-038
10/039	Waxflower	*Chamelaucium* 'Purple Pride'	https://rirdc.infoservices.com.au/items/10-039
10/040	Pearlflower	*Chamelaucium* 'Bridal Pearl'(Φ)	https://rirdc.infoservices.com.au/items/10-040
10/041	Eucalyptus flowers	*Corymbia* flowers (ficifolia hybrids)	https://rirdc.infoservices.com.au/items/10-041
10/042	Grevillea flowers	*Grevillea* 'Moonlight'	https://rirdc.infoservices.com.au/items/10-042
10/043	Leptospermum	*Leptospermum* 'Lavender Queen'	https://rirdc.infoservices.com.au/items/10-043
10/044	Leucadendron 'Jubilee Crown'	*Leucadendron* 'Jubilee Crown'	https://rirdc.infoservices.com.au/items/10-044
10/045	Safari Sunset	*Leucadendron* 'Safari Sunset'	https://rirdc.infoservices.com.au/items/10-045
10/046	Leucadendron 'Pisa'	*Leucadendron* 'Pisa'	https://rirdc.infoservices.com.au/items/10-046
10/047	Leucospermum 'High Gold'	*Leucospermum* 'High Gold'	https://rirdc.infoservices.com.au/items/10-047
10/048	Leucospermum 'Tango'	*Leucospermum* 'Tango'	https://rirdc.infoservices.com.au/items/10-048
10/049	Riceflower	*Ozothamnus*	https://rirdc.infoservices.com.au/items/10-049
10/050	King Protea	*Protea cynaroides*	https://rirdc.infoservices.com.au/items/10-050
10/051	Protea 'Pink Ice'	*Protea* 'Pink Ice'	https://rirdc.infoservices.com.au/items/10-051
10/052	Protea 'Grandicolor'	*Protea* 'Grandicolor'(Φ)	https://rirdc.infoservices.com.au/items/10-052
10/053	Honey protea	*Protea repens*	https://rirdc.infoservices.com.au/items/10-053
10/054	Blushing bride	*Serruria florida*	https://rirdc.infoservices.com.au/items/10-054
10/055	Scholtzia	*Scholtzia involucrata*	https://rirdc.infoservices.com.au/items/10-055
10/056	Waratah	*Telopea speciosissima*	https://rirdc.infoservices.com.au/items/10-056
10/057	Thryptomene	*Thryptomene calycina*	https://rirdc.infoservices.com.au/items/10-057
10/058	Christmas bells	*Blandfordia grandiflora*	https://rirdc.infoservices.com.au/items/10-058
10/059	Gymea lily	*Doryanthes excelsa*	https://rirdc.infoservices.com.au/items/10 059

Plant names

Have you ever wondered how it is that we name our plants? Most of us are not comfortable with Latin, have difficulty remembering and pronouncing it, and refer to our plants by their common names. The problem is that common names vary from place to place. Florists in particular are guilty of using abbreviated names or nicknames—for example, "alstro" for Alstroemeria, "cymbids" for Cymbidium orchids, or "ories" or "cassas" for oriental liliums. It is more professional to use botanical names where possible to avoid confusion and not intimidate the customer, who might have no idea what you are talking about.

Consumers are more confident shopping in a store where the staff know about the products they sell. You should have at least one expert on staff to answer questions, check information and share it with the customer and other staff. It is important to know at least the botanical names.

Professionalism = return customers. Customers love to be informed. Avoid using abbreviated names and jargon, as customers find this confusing and intimidating.

Create interest in a new products and new-season products by putting them on display in the store, work area or lunch room labelled with the common and botanical names and make it talking point.

All plant species have two names—a **genus** name, like our surname, and a **species** name, like our given name. Both are always written in italics; for example, *Hydrangea macrophylla*. The genus name **always** begins with a capital letter (*Hydrangea*), and the species name **always** begins with a lower-case letter (*macrophylla*).

Plants can sometimes have a third name. A selected plant form chosen for its particular attributes may be given a **cultivar** (abbreviated "cv.") name. Cultivars usually have to be propagated vegetatively—that is, by cutting, grafting, division, layering or tissue culture (cloning).

Hybrids are the result of cross-pollination between two different plants. Cross-pollination can be deliberate or may happen naturally. The seeds that result from the cross-pollination will give rise to a number of genetically different plants. The best are selected, and must thereafter be propagated vegetatively to maintain their specific attributes. These are also called cultivars (often, but inaccurately, called varieties); for example, *Hydrangea macrophylla* 'Hamburg'.

Plant breeding is a specialised profession and it may take many years of hybridisation and selection to produce a new cultivar. In recognition of the time and effort put into their creation, new cultivars can be registered under Plant Breeders' Rights (PBR) or trademarked, and can demand a higher price. Cultivars with PBR registration are identified with the ⍉ symbol, while those with a trademark have ™ after their name.

Watch out for weeds

Del Thomas

The term "weed" can mean different things to florists, farmers, gardeners and botanists. The definition of a weed used to be "a plant growing in the wrong place", but a more recent definition is "a plant that requires some form of action to reduce its effect on the economy, the environment, human health or amenity". Weeds cause many problems for farmers, ecosystems and governments.

Many weeds produce vast quantities of seeds, which are spread by wind, water, birds, mammals and humans. Weediness is not confined to non-native plants; even some Australian native plants, such as the Cootamundra wattle (*Acacia baileyana*), are considered serious weeds when grown outside their natural range.

The cost of weeds is estimated at many billions of dollars a year in control and in loss of productive land. Florists have a role to play in restricting the spread of weeds and thus reducing the burden on the community.

How do florists contribute to the problem of weeds?

The popularity of "interesting" plant parts in floral arrangements has encouraged the sale of a range of plant materials that may have been harvested from environmental or noxious weeds. In particular, you cannot be certain how a floral arrangement is disposed of—for example, if an arrangement containing weed seeds is dumped into the green bin, the seeds may survive the composting process and be spread. Similarly, plant parts may survive the home compost bin, or may be thrown over the fence to germinate or take root in natural bushland, ultimately costing someone money to remove.

If florists continue to use these plants for their decorative features, it is highly probable that legislation will be introduced and enforced to prevent this use. It is therefore preferable for florists to voluntarily discontinue the use of known weeds rather than to invite government to introduce legislation and heavy fines.

Noxious weeds

The term "noxious weed" has a specific legal meaning. A noxious weed is any plant that has been designated through legislation as illegal to grow. The category includes not just drug plants such as cannabis and opium poppy, but also weeds that cause serious economic or environmental harm, such as prickly pear cactus and alligator weed. Different species are defined differently in different jurisdictions. Make sure you know the noxious weeds in your area—you may be fined for selling and distributing parts of noxious weeds.

Most local councils employ an environmental weeds officer or inspector to manage local pest plants, and most have environmental and noxious weed lists on their web pages. Or go to www.weeds.org.au.

The most common environmental weeds used in floristry

The following species are the most hazardous to the natural environment. Some are noxious in some states (indicated here by ⊗), and are therefore illegal to keep.

⊗ **Arum lily** (*Zantedeschia aethiopica*) is a noxious weed in WA (with the exception that the blooms may be sold and used in floristry). It is also an environmental weed in most regions of Australia. Great care must be taken to ensure that these plants are not allowed to spread into waterways and damp places in native bushland.

⊗ **Asparagus "ferns"** are related to the edible asparagus. Despite their name, they are not ferns (they are flowering plants), though some species look ferny. Although the leafy stem parts used in floristry are not likely to propagate, the red berries are definitely risky. Species include *A. asparagoides* (bridal creeper), *A. setaceus* 'Pyramidalis' (flat-leaf asparagus), *A. densiflorus* 'Sprengeri' (Sprenger fern) and *A. virgatus* (Tiki fern). *Asparagus meyeri* (foxtail asparagus) and *A. densiflorus* 'Myriocladus' (Ming fern) are less invasive.

⊗ **Balloon vine** (*Cardiospermum grandiflorum*) is invading riverine rainforest remnants around Brisbane and remains uncontrolled in many areas of rich farmland.

⊗ **Broom** (*Cytisus scoparius* and *Genista* spp.)—most are environmental weeds.

⊗ ***Cotoneaster* and ⊗ *Pyracantha*** produce large numbers of brightly

Arum lilies in bushland.

coloured berries which birds distribute widely.

Cumbungi (*Typha angustifolia*) is a widespread water weed. Infestations interfere with water flow. The most attractive part—the flower head—contains thousands of tiny seeds which spread easily.

Dodder vine (*Cuscuta*) is a very decorative parasitic plant. (Native species are not deemed noxious.)

English ivy (*Hedera helix*) berries will germinate and naturalise in bushland.

Foxglove (*Digitalis purpurea*) is an environmental weed in parts of Victoria and Tasmania.

Horsetail (*Equisetum*) species are among the world's worst weeds. As well as being highly invasive, they are toxic to livestock. Once established they are very difficult to control. Horsetails are on the "alert" list of noxious weeds.

Mother of millions (*Bryophyllum*) is easily propagated from even a single leaf.

Pampas grass (*Cortaderia selloana*) is a serious weed in parts of Victoria, WA and SA. It is spread by the fine seeds that develop in the highly decorative flower heads.

Privet (*Ligustrum lucidum* and *L. sinensis*) produces vast amounts of small black berries. Privets are serious weeds of bushland.

Queen Anne's lace (*Ammi majus*) is a common roadside weed with a very poor vase life.

Ribbon plant (*Chlorophytum*) readily drops plantlets that will take root even in poor soils.

Scots heather (*Calluna vulgaris*) is an invasive weed. An adequate substitute is *Erica*.

Teasel (*Dipsacus*) is favoured for its decorative seed heads but it can crowd out other plants in bushland.

Willow (*Salix*)—only three species of willow are not deemed noxious weeds list; one is the pussy willow (*Salix caprea*). All other willows, including the tortured willow, are invasive.

Yarrow (*Achillea filipendula*) is a serious environmental weed in parts of SA.

Yellow ginger (*Hedychium gardnerianum*) is an environmental weed in many parts of NSW, Queensland and the NT. The flowers have a very poor vase life, although the leaves provide long-lasting foliage.

Wherever possible, use non-invasive alternatives. For example, stripped stems of star jasmine (*Trachelospermum jasminoides*) make an adequate substitute for dodder vine.

Special care for orchids

Orchids continue to be sought after as special exotic and romantic cut flowers. They belong to one of the largest plant families worldwide, and there are many thousands of hybrids. Orchid collectors from all corners of the globe will swap, beg, buy or trade and travel great distances to view, photograph, observe or secure diverse species and hybrids.

While many orchids are beautiful specimens as potted or garden plants, only a selected few have an acceptable vase life as cut flowers.

A large proportion of the cut flower orchids sold in the flower markets in Australia are imported from parts of tropical Asia. The majority are *Dendrobium* (commonly called Singapores), *Mokara* hybrids, *Vanda* (or *Aranda*; also called Singapores), *Vanda* hybrids, *Arachnis* (spider orchids) and *Oncidium* (dancing lady). Only a small quantity of these orchids are locally grown. These include *Cymbidium*, *Phalaenopsis* (moth) and *Paphiopedilum* (slipper), and the blue *Vanda coerulea*. Among the many assorted hybrids, intergeneric crosses and cultivars of *Cattleya* available, the cut flower forms are grown primarily in Australia in climate-controlled greenhouses. Recently there has been an increase in imported flowering orchid plants; these include a wide range of *Phalaenopsis* hybrids.

Imported orchids are checked and treated upon entry in Australia by AQIS to ensure that there are no pathogens or insects present.

With special care, orchids should have a vase life of 2 weeks or more. Most are ethylene sensitive and must be treated after harvest by the grower. Wilted blooms may be rehydrated by recutting stems and placing in warm or room-temperature water. Wilting caused by ethylene, however, cannot be reversed.

Growers and wholesalers could help customers enormously with improved labelling on printed protective flower sleeves showing the hybrid name and instructions on care and handling. This information could eliminate the current uncertainty and confusion, and would be especially helpful for rural and regional customers who order remotely and must rely on a trusted buyer. Often what these customers receive is not what they thought they ordered. This problem may be minimised with better communication and shared information.

Cymbidium orchids are *not* tropical flowers and naturally grow in a more temperate climate. In Australia, the flowering period is generally from late April–May to October–November. During the natural

Some high-value flowers are transported with their stems in tubes of water.

Orchids in this manual

Common name(s)	Botanical name
Cattleya orchid	*Cattleya* spp., hybrids and cvv.
Cymbidium orchid	*Cymbidium* hybrids and cvv.
Dendrobium orchid, Singapore orchid	*Dendrobium* hybrids and cvv.
Oncidium orchid, Dancing lady orchid	*Oncidium flexuosum*, syn. *O. crispum*
Phalaenopsis, Moth orchid	*Phalaenopsis* spp. and cvv.
Slipper orchid	*Paphiopedilum* hybrids and cvv.
Spider orchid	*Arachnis flos-aeris* hybrids and cvv.
Vanda or Aranda orchid, Mokara orchid, Singapore orchid	*Aranda* hybrids (*Vanda*, *Mokara*, *Aranthera* and *Arachnis* hybrids)

Correct temperature control and protection from sources of ethylene throughout the entire supply chain are the most important factors in caring for tropical and temperate orchids.

Not all orchids have the same storage requirements.

Cymbidium flowering season there is an excellent supply of large, intermediate and miniature blooms available in a vast array of colours and colour combinations. At times, *Cymbidium* orchids are available outside their natural season, either imported or locally grown in climate-controlled greenhouses. However, to date, the supply is not guaranteed. Check the availability of out-of-season blooms and colour range with your supplier.

Orchid blooms are typically bought with either a water vial attached or the stems wrapped in wet cotton wool. On arrival in the shop, the vial or wrapping should be removed, and the stems recut at an angle and placed in clean, potable, room-temperature water with cut flower food added.

Special care for tropical species

Species growing naturally in tropical climates are typically damaged by cold temperatures (less than 10 °C), which can cause chilling injury. Some examples are *Anthurium*, *Heliconia* and *Zingiber* (ginger) flowers. The commercial temperature recommendation for most tropical flowers and foliage is 12–15 °C. Some native foliage species from northern Queensland need to be held at 12–15 °C, and some Australian species also need to be held at warmer temperatures—for example, Christmas bush is best held at 6–8 °C.

Detailed studies of postharvest handling and storage temperatures have not been conducted for many of the wide range of tropical and subtropical species and cultivars. Therefore, the safe recommended range for holding such products is precautionary. Moreover, the growing environment, plant management practices and plant genetics all interact to determine the ideal postharvest temperature.

In a small floristry business it is often not practical to have two or more cool rooms. In this case, it is acceptable to store "tropicals" at room temperature, ideally with air conditioning (~22 °C). However, make sure that they are kept away from draughts and are kept hydrated.

Tropical species in this manual

Common name(s)	Botanical name
Anthurium, Flamingo	*Anthurium* spp.
Cordyline, Ti	*Cordyline fruticosa*
Croton	*Codiaeum variegatum*
Dracaena, Lucky plant, Happy plant	*Dracaena* spp.
Frangipani	*Plumeria rubra* var. *acutifolia*
Gingers	*Alpinia purpurata*, *Etlingera elatior*, *Zingiber zerumbet*
Gloriosa lily	*Gloriosa superba* 'Rothschildiana'
Heliconia, Crab or Lobster claw, Parrot flowers	*Heliconia* spp.
Lotus	*Nelumbo nucifera*
Mini pineapple	*Ananas* spp.
Monstera, Swiss cheese plant	*Monstera deliciosa*
Orchids	See "Special care for orchids" on page 22
Rhapis palm, Lady palm	*Rhapis excelsa*
Siam or Thai tulip	*Curcuma cordata*, *C. alismatifolia* and hybrids
Xanadu	*Philodendron* 'Xanadu'

Quick guide to seasonal flowers and foliage

Del Thomas

Product name	Flower or foliage colours	spring	summer	autumn	winter
Agapanthus—*Agapanthus* spp.	white, pale to violet-blue, blue/white		■		
Ageratum—*Ageratum houstonianum*	blue, red		■	■	
Allium, Drumsticks—*Allium* spp.	green/purple, green/burgundy, lilac, purple		■		
Alstroemeria, Peruvian lily—*Alstroemeria aurantiaca*	many bi-colours and shades, incl. white w. green tips, white, cream, yellow, bronze, orange, red, pinks, burgundy, mauve, purple	■	■	■	■
Amaranthus—*Amaranthus* spp.					
A. caudatus	burgundy red, green		■	■	
A. cruentus	orange-brown (pendulous)		■	■	
A. hypochondriacus	yellow, red, green		■	■	
Anemone—*Anemone* spp.	white, red, rose-pink to magenta, lavender to purple, blue (most have a black centre; some have a yellow-green centre)	■			■
Anthurium—*Anthurium* spp.	white, green-white, pink-white, orange; spathes may be red, rust-red, white/red, green/red or scarlet, and all have a yellow spadix; pale pink, white/pink edge, pink/green, rosy-pink with pink spadix; lilac-pink with a purple spadix; burgundy, purple with a purple spadix; green, pink/green, red/green, white/green, rust-red/green	■	■	■	■
A. scherzerianum	red spathe with orange spadix				
Aster					
Easter daisy, Michaelmas daisy—*Aster* spp.	white, lilac-blue		■	■	
greenhouse-grown product		■	■	■	■
China aster—*Callistephus chinensis*	yellow, apricot, scarlet, rose-red, pink, salmon-pink, soft pink, crimson, mauve, purple, blue		■	■	
greenhouse-grown product		■	■	■	■
Banksia—*Banksia* spp.	For full colour range see "Australian native flower and foliage products used in floristry" on page 33	▒	▒	▒	▒
Belladonna lily, Amaryllis—*Amaryllis belladonna*	white, pink		■	■	
Berzelia, Button bush—*Berzelia* spp.	green (as flower heads mature and the tiny florets open, they turn creamy-white)—some cultivars are green with a red blush; others have red waxy highlights underneath the flower balls	■			■

▒ = depending on species or cultivar

Product name	Flower or foliage colours	spring	summer	autumn	winter
Blushing bride—*Serruria florida*	white, pale pink, pale pink with a candy pink stripe	■		■	■
Boronia—Boronia spp.	white, lemon, yellow, pale to hot pink, blackish purple	■			■
B. megastigma	brown/yellow, yellow	■			■
Bouvardia—*Bouvardia* spp.					
B. humboldtii	white		■	■	
B. longiflora	white, scarlet, pink		■	■	
Bracteantha, Helichrysum, Everlasting daisy—*Xerochrysum bracteatum*, *Rhodanthe* spp.	white, cream, yellow, gold, orange, burgundy, pale to dark pinks	■		■	■
Brunia—*Brunia* spp.	green (buds)	■	■		
Calendula—*Calendula officinalis*	yellow, orange, bronze-orange	■			■
Calla lily, Arum lily—*Zantedeschia* spp.	white, cream, yellow, gold, orange, pink, burgundy, dark purple		■		
greenhouse-grown and imported product		■	■	■	■
Arum lily—*Zantedeschia aethiopica*	white (dwarf cvv.), cream	■			■
'Green Goddess'	cream/green	■			■
'Marshmallow'	pale to deep pink	■			■
Candytuft—*Iberis sempervirens*	white	■	■		
Carnation—*Dianthus* spp.					
Sim, Standard and Spray	pure white, cream, yellows, gold, orange, tangerine, apricot, reds, palest to deep rosy pink, magenta, mauve, purple, lime green, khaki; many bi-colours	■	■	■	■
D. chinensis	white, pink, blue-mauve, purple	■	■	■	■
Sweet William	whites, reds, cherry pink, burgundy and bi-colours	■	■	■	■
'Green Trick'	deep green brush-like flower	■	■	■	■
Cattleya orchid—*Cattleya* spp.	white/pink, white/yellow, pale to dark pinks, lilac to blue-purple, maroon/chocolate, cream/lime green	■		■	
Celosia—*Celosia* spp.					
C. argentea var. *plumosa* (feathery)	yellow, red		■	■	
C. cristata (cockscomb)	yellow, yellow-gold, orange, terracotta, red, pink,		■	■	
C. spicata (upright feathery)	white, lemon, orange, terracotta, hot pink, purple, green		■	■	

Product name	Flower or foliage colours	spring	summer	autumn	winter
Chincherinchee—*Ornithogalum* spp.					
O. arabicum	white with green centre; occasionally yellow and orange	■			
O. thyrsoides	white with black centre	■			
Christmas bells—*Blandfordia grandiflora*	orange-red with a yellow edge, yellow, red	■	■		
Christmas bush—*Ceratopetalum gummiferum*	rich red, pink or white (bracts)	■	■	■	
Chrysanthemum—*Chrysanthemum morifolium*	white with green, yellow or white centres; yellows with green-yellow centres; gold, reds, pinks, burgundy, lilac, purple, green	■	■	■	■
Cornflower—*Centaurea* spp.					
C. cyanus	blue, purple	■	■	■	
C. macrocephala	yellow	■	■	■	
Cosmos—*Cosmos bipinnatus*	pure white, yellow, gold, reds, chocolate brown, pink, magenta, lilac (all with a yellow centre)		■	■	
Cyclamen—*Cyclamen persicum*	pure white, red, pale to deep pink, lavender, purples	■		■	■
Cymbidium orchid—*Cymbidium* hybrids	pure white, cream, with pink, yellow or red throats; lemon and yellows, gold, apricots, browns, reds, pinks, crimson, burgundy, lilac, greens (some with spotting on petals and throat)—colours vary by season	■		■	■
Daffodil, Jonquil—*Narcissus* spp.	white, lemon, yellow, peach; combinations of white or yellow with orange or white centre	■			■
Dahlia—*Dahlia* hybrids	white, cream, yellows, from the palest pastel shades to vibrant reds and oranges, pink, mauve, purple (incl. bi-colours)		■	■	
Daphne—*Daphne odora*	red buds open to pinkish-white blooms				■
Delphinium, Larkspur—*Delphinium elatum*	white, yellow, pale to rose pink, pale to dark blue, mauve-purple (all have white or black centre)	■	■	■	
Dendrobium orchid—*Dendrobium* hybrids	pure white, blush to deep crimson-pink, lilac-purple, green; many bi-colours, incl. pink/white, lilac/white, purple/white, green/white, green with a purple throat; yellow, red/yellow and dark blue are dyed (be careful—water-soluble dye)	■	■	■	■
Echinacea, Purple coneflower—*Echinacea purpurea*	rosy-purple petals with bronze-brown cone		■		
Erica, Heath—*Erica* spp.	white, red, pink, green	■		■	■

Product name	Flower or foliage colours	spring	summer	autumn	winter
Eriostemon, Eastern waxflower—*Philotheca* spp.	white, pinks, mauve				
Eryngium, Sea holly—*Eryngium* spp.	blue with a slight silvery appearance surrounded by a lacy blue-purple calyx				
Eucalyptus, Flowering gum—*Corymbia ficifolia*	cream, orange, bright red to dark crimson, pink				
Eucomis, Pineapple lily—*Eucomis* spp.	green with white or purple florets				
Flannel flower—*Actinotus helianthi*	creamy white with green tips				
new selections & greenhouse product					
Frangipani—*Plumeria rubra*	white with a yellow centre, apricot with a yellow centre, pink with a yellow centre, burgundy (less common)				
Freesia—*Freesia ×hybrida*	white, yellow, orange-red, deep pink with a yellow centre, deep purple, purple-blue				
greenhouse product					
Gardenia—*Gardenia augusta*	white				
greenhouse product					
Geleznowia, Yellow bells—*Geleznowia verrucosa*	bright yellow				
Gerbera—*Gerbera jamesonii* (greenhouse product)	creamy white; white with black, green or yellow centre; yellows, gold, terracotta, orange, apricot, pumpkin, reds, pinks, magenta, burgundy, cream/green, lime/green, palest to deep and hot pinks, greens, burgundy-red, red, purple (almost every colour except blue); and bi-colours				
Ginger					
Beehive—*Zingiber zerumbet*	yellow-gold to coffee brown				
Red—*Alpinia purpurata*	red, shell pink, rose pink				
Shell or Torch—*Etlingera elatior*	red, light pink				
Gladioli—*Gladiolus* hybrids	white, yellows, apricot, gold, orange, reds, burgundy, rust red, pinks, crimson, purple-black, lilac-blue, purple/purple-black, lime green/cream-green				
Gloriosa lily—*Gloriosa superba* 'Rothschildiana'	vivid red or deep cerise petals with yellow and green waxy edges				
Golden Morrison, Feather flowers—*Verticordia* spp.	cream, red, yellow, orange, pink				

Product name	Flower or foliage colours	spring	summer	autumn	winter
Grevillea—*Grevillea* spp.	cream, yellow (greenish to gold), orange, red, pink, scarlet, pink/white				
Gymea lily—*Doryanthes excelsa*	red				
Gypsophila, Baby's breath—*Gypsophila paniculata*	white or white/palest blush pink; occasionally in short supply				
Heliconia, Crab or Lobster claw, Parrot flower—*Heliconia* spp.	yellow, orange, red, pink, maroon, purple, green and bi-colours				
Helleborus, Lenten rose—*Helleborus* spp.	white, double white, white turning green, burgundy/pink turning green with a green centre; some are spotted on the inside of the petals				
Hyacinth—*Hyacinthus orientalis*	white, cream, creamy yellow, pale to deep pink, blue, lilac, purple				
climate-controlled greenhouse product					
Hydrangea—*Hydrangea* spp.					
H. macrophylla	white (ageing to green), red, pale to deep pink, pale to dark blues, mauve-purple				
H. paniculata	white, ageing pink then green				
Hypericum, St John's wort—*Hypericum androsaemum*	cream, brown, orange-red, pink-red, yellow-green, green				
greenhouse product					
Iris, Dutch iris—*Iris hollandica*	white, yellow, blue, purple, all with a yellow throat				
Kale, Ornamental cabbage—*Brassica oleracea*	silver-green leaves with a purple, pink or cream heart				
Kangaroo paw					
Anigozanthos hybrids	yellows, yellow/green, oranges, reds, pinks, greenish-cream, green/red				
Macropidia spp.	black/green				
Lavender—*Lavandula* spp.					
English—*L. angustifolia*	blue-purple florets, grey sepals, purple flags on the top of the flower spike				
French—*L. dentata*	blue-purple florets, grey sepals, purple flags on the top of the flower spike				
Leucadendron, Safari Red, Safari Sunset, Inca Gold—*Leucadendron* hybrids	single and bi-colours of yellow, orange, red, pink, plum, green (colours depend on sp., cv. or hybrid)				
Leucospermum, Pincushions—*Leucospermum* spp.	yellow/orange, orange/red, yellow, red				

Product name	Flower or foliage colours	spring	summer	autumn	winter
Liatris—*Liatris spicata*	white (often in short supply), lilac-pink, purple		■	■	
imported product		■	■	■	■
Lilac—*Syringa vulgaris*	white, pink, mauve, purplish-red	■			
Lilium, Lily—*Lilium* hybrids					
LA, LO	cream, yellows, orange, orange/red, rust red, pinks, burgundy; some bi-colours; some with brush marks in the throat	■	■	■	■
Orientals	clear white, cream, yellow, palest to deep pink, burgundy; some with a spotted throat	■	■	■	■
Novembers	white with a soft, green throat and yellow anthers, white with a purple throat	■	■	■	■
Regals	white trumpet-shaped blooms with a pink-purple reverse	■	■	■	■
Lily of the Valley—*Convallaria majalis*	white, palest pink	■			
Lisianthus—*Eustoma* spp.	pure white, cream, yellow, pinks, carmine, burgundy, lilacs, lavender-blue, purple, lime green and many bi-colours of the above	■	■	■	■
Lotus—*Nelumbo nucifera*	white, reds, pinks; green pods		■	■	
Marigold—*Tagetes erecta*	yellow, orange		■	■	
Molucca balm, Irish green bells—*Moluccella laevis*	tiny white florets with green calyces		■	■	■
Nerine, Guernsey lily					
Nerine spp.	white, red-orange, red, pink, crimson		■	■	■
Lycoris spp.	similar to nerines with yellow or red petals			■	■
Nut top, Drumsticks—*Isopogon* spp.					
I. anemonifolius	cream, yellow, gold	■	■	■	■
Rose cone flower—*I. cuneatus*, *I. latifolius*	rose-pink to mauve	■	■		■
Oncidium, Dancing lady orchid—*Oncidium flexuosum*	yellow	■	■	■	■
Peony—*Paeonia lactiflora*	white with just a few pink petals in the centre, cream, pale pink to hot pink, red		■		
imported product				■	

Product name	Flower or foliage colours	spring	summer	autumn	winter
Phalaenopsis orchid, Moth orchid—*Phalaenopsis* spp.	white with purple/pink centre, white with green/yellow centre, rust-red, pink stripe, lilac-pink, lilac, mauve with yellow or purple centre, creamy lime green				
greenhouse product					
imported product	white				
Phylica, Featherhead—*Phylica* spp.	green and green-yellow				
Pieris, Andromeda—*Pieris* spp.	white, white with gold calyx, pinks				
Pineapple—*Ananas* spp.	orange-red, green				
Poppy, Iceland poppy—*Papaver nudicaule*	white, yellows, orange, reds, salmon, pinks				
Protea—*Protea* spp.	white, cream, red, pale to deep pink, green				
Ptilotus, Mulla mulla—*Ptilotus* spp.	lilac/silver, green/silver				
Qualup bells—*Pimelia physodes*	cream/green with a burgundy blush				
Ranunculus—*Ranunculus asiaticus*	white, lemon, yellow, apricot, orange, red, pale to deep pink				
'Festival'	unusual large green petals surrounded by other multi-coloured petals				
Riceflower, Sago bush—*Ozothamnus diosmifolius*	white, pink				
Rose—*Rosa* spp.	a vast range of colours and hues incl. bi-colours (no true blue or black)				
Scholtzia—*Scholtzia* spp.	white, pink				
Siam or Thai tulip—*Curcuma* spp.	white, orange, red, pinks, lilac-blue, purple				
Slipper orchid—*Paphiopedilum* hybrids	yellowy-green base with yellow, burgundy or brownish-red; many with spotted hoods				
Snapdragon—*Antirrhinum majus*	numerous single and bi-colours of white, cream, yellow, gold, apricot, peach, orange, dark red, pinks, crimson, burgundy, violet, purple/white				
greenhouse product					
Snowball tree, Guelder rose—*Viburnum opulus*	green buds whiten as they open				
Solidago, Solidaster—*Solidago canadensis*, ×*Solidaster luteus*	yellow				
SA daisy, Hills daisy—*Ixodia achillaeoides*	white				
Spider orchid—*Arachnis flos-aeris*	yellow, orange, gold, reds, bronze, crimson, burgundy; most with spots				

Product name	Flower or foliage colours	spring	summer	autumn	winter
Statice—*Limonium* spp.					
L. latifolium	off-white, mauve, pale blue	■	■	■	■
L. latifolium 'Emile'	pink, blue	■	■	■	■
L. sinuatum	white, cream, lemon yellow, orange, red, crimson, pinks, lilac, purple, blue	■	■	■	■
Stephanotis—*Stephanotis floribunda*	white		■		
Stock—*Matthiola incana*	white, cream, yellow, apricot, rose, salmon, dusty pink, crimson, lilac, purple	■		■	■
Strelitzia, Bird of paradise—*Strelitzia reginae*	orange or yellow petals with a blue tongue	■			■
Sunflower—*Helianthus annuus*	yellow with black centre; a lemon pollen-less cv.; two-tone rust		■	■	
greenhouse product		■	■	■	■
Sweet pea—*Lathyrus odoratus*	white, cream, creamy-yellow, apricot, pale to dark pink, salmon, burgundy-red, lilac, blue/purple	■			■
Tea tree—*Leptospermum* spp.	white, pale to deep pink, red, mauve-purple	■			
Thryptomene—*Thryptomene calycina*	white, pink	■		■	■
Tuberose—*Polianthes tuberosa*	white buds tinged with blush-pink		■	■	
Tulip—*Tulipa* spp.	white, cream, yellows, oranges, reds, pinks, lilac, mauve, purple, purple to almost black; bi-colours and doubles also available	■			■
forced culture		■		■	■
Vanda or Aranda orchid—*Aranda* hybrids	cream, lemon-yellow, gold, bronze-gold, orange, rust-red, clear red, dusty pink, hot pink, crimson-burgundy, lilac, purple, blue (from specialist growers); spotted combinations of green, brown and yellow	■	■	■	■
Violet—*Viola odorata*	blue-purple, purple				■
Waratah—*Telopea speciosissima*	white, cream, yellow, pinks, reds	■			
Wattle—*Acacia* spp.	cream, yellow	■			■
Waxflower, Geraldton wax, Pearlflower, Bud wax—*Chamelaucium* spp.	white, cream, lemon, red (only as bud wax), pinks, mauve-purple, pink/white, white/red; dyed blooms also available	■		■	■
Zinnia—*Zinnia* spp.	white, yellow, orange, red, pink, purple, green		■	■	

Australian native flower products used in floristry

Del Thomas and Bettina Gollnow

Product name	Flower or foliage colours	spring	summer	autumn	winter
Backhousia,* Lemon myrtle—*Backhousia citriodora*	cream, greenish	■	■	■	■
Banksia spp. (incl. former *Dryandra* spp.)					
B. attenuata	lime green		■		
B. baxteri	greenish yellow		■		
B. burdettii	apricot/orange		■		
B. coccinea	red/grey, yellow/grey	■		■	■
B. ericifolia	dark orange/rusty brown	■		■	■
B. formosa (was *D. formosa*)	orange/bronze, orange/gold	■			■
B. hookeriana	creamy pink to peach changing to golden orange as the flower matures	■		■	■
B. menziesii	deep burgundy-red to chocolate-brown, orange, pinks, apricot, bronze, yellow	■	■		
B. occidentalis	red		■	■	■
B. plagiocarpa	metallic grey/green, bluish grey, yellowish	■			■
B. praemorsa	yellow/burgundy, red	■			■
B. prionotes	cream, orange	■	■		■
B. robur	bluish/green, yellow/green			■	■
B. heliantha (was *D. quercifolia*)	rusty orange/yellow, yellow	■		■	■
Beaufortia*—*Beaufortia sparsa*	orange, red		■		
Billy buttons*—*Pycnosorus globosus* (was *Craspedia globosa*)	yellow	■	■		
dried		■	■	■	■
Boronia—*Boronia* spp.	white, lemon, yellow, pale to hot pink, blackish purple	■			■
B. megastigma	brown/yellow, yellow	■			■
Bracteantha, Helichrysum, Everlasting daisy—*Xerochrysum bracteatum*, *Rhodanthe* spp.	white, cream, yellow, gold, orange, burgundy, pale to dark pinks	■		■	■

Products marked * do not have an individual profile in the "A–Z listing of cut flowers". This chart includes a wider range of native products which may not be available from all suppliers. The seasons of product availability are a guide only, as product availability is affected by seasonal conditions and by the location of the flower farm. Please check with your supplier before committing to orders.

■ = depending on species or cultivar

Product name	Flower or foliage colours	spring	summer	autumn	winter
Christmas bells—*Blandfordia grandiflora*	orange-red with a yellow edge, yellow, red	■	■		
Christmas bush—*Ceratopetalum gummiferum*	rich red, white, pink (bracts)	■	■		
Cottonbush*—*Spyridium* (syn. *Cryptandra, Stenanthemum*)	cream, white	■			■
Eriostemon Eastern waxflower —*Philotheca* spp.	white, pinks, mauve	■			
Eucalyptus buds*—Eucalyptus spp.	silver/grey, yellow, green	■	■	■	■
E. kruseana	grey/white			■	
E. ×tetragona	silver/white	■		■	■
E. rhodantha	green	■			■
Fuchsia gum—*E. forrestiana*	bright red		■	■	
Eucalyptus flowers, Flowering gum—*Eucalyptus*, *Corymbia*		■	■	■	■
E. rhodantha	pink-red	■			■
Corymbia ficifolia	cream, orange, bright red to dark crimson, pink		■		
E. caesia 'Silver Princess'	pink/red	■			■
Four-winged mallee—*E. tetraptera*	red	■	■		■
E. woodwardii	lemon/yellow	■			■
Eucalyptus nuts*—*Eucalyptus* spp. and hybrids	silver, green, brown	■	■	■	■
Tetragona nuts—*E. ×tetragona*	silver/white	■		■	■
Flannel flower—*Actinotus helianthi* greenhouse-grown cvv. (limited vol.)	creamy white with green tips	■	■		■
Geleznowia, Yellow bells—*Geleznowia verrucosa*	bright yellow				■
Golden Morrison, Feather flowers—*Verticordia* spp.	cream, red, yellow, orange, pink	■	■		
Grevillea—*Grevillea* spp. and hybrids	cream, yellow (greenish to gold), orange, red, pink, scarlet, pink/white	■	■	■	■
Gymea lily—*Doryanthes excelsa*	red	■			■

Product name	Flower or foliage colours	spring	summer	autumn	winter
Hakea*—*Hakea* spp. and hybrids	pink, red, white	■	■		■
Kangaroo paw					
Anigozanthos hybrids	yellows, yellow/green, oranges, reds, pinks, greenish-cream, green/red	■	■	■	■
Macropidia spp.	black/green	■	■		■
Kunzea*—*Kunzea* spp.	pink, cream, gold	■	■		
Nut top, Drumsticks—*Isopogon* spp.					
I. anemonifolius	cream, yellow, gold	■	■	■	■
Rose cone flower—*I. cuneatus, I. latifolius*	rose-pink to mauve	■	■		■
Ptilotus, Mulla mulla—*Ptilotus* spp.	lilac/silver, green/silver	■	■		
Qualup bells—*Pimelia physodes*	cream/green with a burgundy blush	■	■		■
Riceflower, Sago bush—*Ozothamnus diosmifolius*	white, pink	■	■		■
Scholtzia—*Scholtzia* spp.	white, pink		■	■	
Smokebush*—*Conospermum* spp.	white, grey, grey/white	■	■	■	
SA daisy, Hills daisy—*Ixodia achillaeoides*	white		■	■	
Tea tree—*Leptospermum* spp.	white, pale to deep pink, red, mauve-purple	■	■		
Thryptomene—*Thryptomene calycina*	white, pink	■	■	■	■
Waratah—*Telopea speciosissima*	white, cream, yellow, pinks, reds	■	■		
Wattle—*Acacia* spp.	cream, yellow	■	■		■
Waxflower, Geraldton wax, Pearlflower, Bud wax—*Chamelaucium* spp.	white, cream, lemon, red (only as bud wax), pinks, mauve-purple, pink/white, white/red; dyed blooms also available	■	■	■	■

Australian native foliage products used in floristry

Product name	Flower or foliage colours	spring	summer	autumn	winter
After Dark* foliage—*Agonis flexuosa* 'After Dark'	dark maroon	■	■	■	■
Barker bush*—*Persoonia longifolia*	grey green	■		■	■
Deer antlers*—*Acacia aphylla*	grey/green	■			■
Dingo fern—*Baloskion* (*Restio*) *tetraphyllum*	green	■	■	■	■
Doryanthes, Gymea leaves—*Doryanthes excelsa*	green	■	■	■	■
Eucalyptus foliage, Gum foliage—*Eucalyptus* spp. and cvv.	green, silvery/grey, grey/green	■	■	■	■
E. cladocalyx EUC78 'Vintage Red'™	bright red, deep maroon/black, purple/grey	■	■	■	■
Emu grass*—*Podocarpus* spp.	silvery-green	■		■	■
Flexi grass—*Schoenus melanostachys*	green	■	■	■	■
Geebung—*Persoonia levis* (broadleaved)	green	■	■	■	■
Goanna claw—*Caustis recurvata*	black/green	■	■	■	■
Grevillea foliage*—*Grevillea* spp.	green, green/grey	■	■	■	■
Brown silky oak—*G. baileyana*	green with bronze reverse	■		■	■
Koala fern—*Caustis blakei*	green	■	■	■	■
Leather fern—*Rumohra adiantiformis*	green	■	■	■	■
Mountain moss*—*Lycopodium* spp.	green	■	■	■	■
Native holly* foliage—*Alchornea ilicifolia*	green		■		
Northern Queensland tropical foliage		■	■	■	■
Forest Lace—*Stenocarpus* 'Forest Lace'[Φ]	green	■		■	■
Atherton oak—*Athertonia diversifolia*	pale to dark green	■	■	■	■
Silky oak—*Lomatia fraxinifolia*	dark green	■	■	■	■
Puzzle sticks—*Lepironia articulata*	green	■	■	■	■
Saviour grass*, Pineapple grass—*Dasypogon bromeliifolius*	green	■	■	■	■

Product name	Flower or foliage colours	spring	summer	autumn	winter
Sea star fern—*Gleichenia dicarpa*	green	■	■	■	■
Speargrass, Grasstree—*Xanthorrhoea* spp.	green, greyish green	■	■	■	■
Tea tree—*Leptospermum* spp.	red, green	■			
Umbrella fern—*Sticherus flabellatus*	green	■	■	■	■
Wattle—*Acacia* spp. and cvv.	green, grey, purple	■	■	■	■
Woolly bush*—*Adenanthos sericeus*	grey green	■	■	■	■
Zigzag wattle*—*Acacia merinthophora*	green		■	■	■

List of products with berries, cones and nuts

Product name	Features
Banksia—*Banksia* spp.	cones/pods
Berzelia, Button bush—*Berzelia* spp.	green ball-shaped flower heads
Brunia—*Brunia* spp.	green ball-shaped flower heads
Echinacea, Purple coneflower—*Echinacea purpurea*	central cone with petals removed
Eucalyptus, Gum nuts—*Eucalyptus* spp.	buds, nuts
Hypericum berries, St John's wort—*Hypericum androsaemum*	berries/fruit
Leucadendron, Christmas cones—*Leucadendron* spp.	cones/pods
Lotus pods—*Nelumbo nucifera*	cones/pods
Nut top, Drumsticks, Cone flower—*Isopogon* spp.	cones/pods
Pineapple—*Ananas* spp.	berries/fruits
Rose hips—*Rosa* spp.	berries/fruits
Snowball tree, Guelder rose—*Viburnum opulus* (not sterile)	berries/fruits
Waxflower, Geraldton wax—*Chamelaucium* spp.	buds

A–Z Listing of Cut Flowers

Del Thomas and Bettina Gollnow

LT

This section lists 116 individual flower products, arranged alphabetically according to their common name. Each is described in the following format:

Common name(s)

Botanical name(s)

Availability: Typical season when flowers are available in Australia.

Typical vase life: In days.

Stem length: Typical stem lengths available on the Australian market.

Number of stems per bunch: Number of stems typically found in a market bunch. "1", sold by the stem; "variable", number varies by size and season; "kg", sold by weight.

Colour range: Typical colours available. "/" indicates a 2-tone flower (e.g. "red/white").

Buying tips: Advice on what to look for when purchasing and how to assess quality.

Care and handling: Advice on optimising quality and vase life after purchase.

Floral preservative: ✓ = use floral preservative; ✗ = don't use it.

Ethylene sensitivity: ✗ = not sensitive; ✓ = low sensitivity; ✓✓ = moderately sensitive; ✓✓✓ = highly sensitive. Otherwise, "unknown".

Cool storage: Usually 2–4 °C, except as marked. ✗ = don't store cold; "!" = onsell quickly, as cool storage time is limited (recommended for a short time to delay ageing, but because such products generally have a comparatively short vase life, you should aim to buy such products with the aim of selling them on *immediately*).

Special notes: Additional advice and information relevant specifically to this product

Design uses in floristry: Suggestions on how to use the product in floristry work.

For some large genera we have added "snapshots" of commonly available species to help you identify the various flowers, their colours and their seasonal availability.

Note: Images are not to scale.

Agapanthus, Star of Bethlehem, Lily of the Nile

Agapanthus orientalis, *A. africanus*, *A. praecox* hybrids and cvv.

Availability: Early to late summer

Typical vase life: 4–6 days opening, and a further 7–14 flowering

Stem length: Up to 1 m; miniature forms up to 50 cm

Number of stems per bunch: 10

Colour range: White; pale blue to violet-blue. A new hybrid called 'Queen Mum' is a bi-colour of blue and white.

Buying tips: Pick or buy when one-third of the flowers are open. Gently shake bunches and avoid those with flower drop.

Care and handling: Place in water ASAP. Frequent cutting of stem ends is recommended. Cut 1 cm off stems on a sharp angle and use floral preservative to prevent petal drop and to encourage the buds to open.

Floral preservative: ✓

Ethylene sensitivity: ✓✓✓

Cool storage: 2–4 °C

Special notes: After the flowers fade and the immature seeds have been symmetrically cut from the green heads they are quite decorative and may also be used in floral arrangements. Individual florets may be wired for wedding bouquets and accessories**.**

Agapanthus is an environmental weed. It has gained a bad reputation, mainly because plants are dumped into bushland by thoughtless gardeners and naturalise easily. As a valuable cut flower and useful garden plant, it can be grown providing care is taken to remove the seed heads before they mature to prevent further spread into bushland. Many improved, sterile forms are available from garden centres.

Design uses in floristry: Focal. The flower heads present as quite dominant on the end of a long stem but can be used in large floral displays and in modern designs in either floral foam or vases. The miniature forms are suitable for bunches and more delicate designs.

Ageratum

Ageratum houstonianum

Availability: Summer and autumn

Typical vase life: 5–6 days

Stem length: 30–40 cm

Number of stems per bunch: , variable

Colour range: Blue, red

Buying tips: Choose bunches with at least one-third of the florets open. Avoid bunches too tightly packed as they are susceptible to *Botrytis* and should be given good ventilation.

Care and handling: Relatively short vase life—do not hold in cold storage.

Floral preservative: ✓

Ethylene sensitivity: ✓

Cool storage: 2–4 °C

Special notes: Most often chosen for the pretty blue threadlike flowers. A dwarf form is used as a colourful border plant for the garden and is sold as potted colour. Not suitable for wiring. Toxic to grazing animals. It has escaped into local bushland and is outcompeting native species in the temperate zone of NSW and Queensland, so be sure to dispose of faded flowers carefully.

Design uses in floristry: Vase flower or for posies.

Allium, Drumsticks

Allium sphaerocephalon (drumsticks), *A. giganteum*, *A. christophii*, *A. schubertii*


CC Patrick Standish

Availability: Summer

Typical vase life: Up to 2 weeks

Stem length: Up to 2 m

Number of stems per bunch: or 5

Colour range: Green/purple, green/burgundy, lilac, purple

Buying tips: Buy when half of the blooms on the cluster have opened.

Care and handling: Recut stems and place into fresh solution. Handle carefully to avoid breaking off or damaging the large flower head.

Floral preservative: ✓

Ethylene sensitivity: ✓✓

Cool storage: 2–4 °C

Special notes: *Allium* are best arranged into a clean glass vase with fresh flower food so you can see the colour and depth of the water. These flowers are quite dramatic and sought after, but being a member of the onion and garlic family their smell can be quite overpowering as they age, and some people may find the smell unpleasant.

Design uses in floristry: Large focal flowers suitable for presentation bunches, large arrangements and vase displays.


Ayla87 via RGBstock.com

Alstroemeria, Peruvian lily

Alstroemeria aurantiaca

Availability: Year round

Typical vase life: Up to 21 days, during which time the buds will continue to open

Stem length: 30 cm–1 m (generally sold as long or short bunches)

Number of stems per bunch: 10

Colour range: Many bi-colours and shades of white, cream, yellow, bronze, orange, red, pinks, burgundy, mauve, purple

Buying tips: When the first bud on the stem has fully opened and the majority are showing colour. Premature yellowing of the leaves is common but can be delayed by the grower by pulsing the flowers with a specific *Alstroemeria* treatment. Check with your supplier. Choose bunches with fresh green leaves and strong straight stems.

Care and handling: Ask for bunches that have received anti-ethylene treatment. The leaves are quite delicate and will yellow and fade long before the flowers if not treated to delay yellowing. Do not buy if the leaves are yellow and the heads are damaged.

Floral preservative: ✓

Ethylene sensitivity: ✓✓

Cool storage: 2–4 °C

Special notes: When bought fresh, *Alstroemeria* have a good vase life, and therefore offer good value for the customer. Excellent for bunches and posies, mixed with other flowers or en masse to great effect. Not recommended for wired wedding bouquets as the delicate flowers are easily damaged, but they may be carefully included in hand-tied bouquets when the flowers are supported by other flowers or foliage.

Low-growing forms of multi-blooming, hardy plants are available as potted colour. The flowers of dwarf forms may also be picked for posies and vases.

Sensitive to fluoride—rainwater or deionised water is preferable. *Alstroemeria* may cause skin irritations for some people. The flower stems are soft and will break easily. When recutting stems, it is best to remove the whitish or blanched bottom portion of the stem to enhance solution uptake. Removing excess foliage may reduce vase life if sufficient flowers are not present to take up solution. Stems need hormonal treatment to maintain the green leaves—ensure that flowers have been treated by the grower with an anti-yellowing pulse.

Design uses in floristry: Transitional or supporting focal.

Advice for your customers: Wear gloves when handling if you have sensitive skin.

Amaranthus, Love lies bleeding, Prince of Wales feather

Amaranthus caudatus, *A. cruentus*, *A. hypochondriacus*

CC-BY-SA Père Igor

Amaranthus caudatus

Availability: Summer and autumn

Typical vase life: 1 week

Stem length: 50–80 cm

Number of stems per bunch: Variable

Colour range: *A. caudatus*, burgundy red, green; *A. cruentus*, orange-brown pendulous; *A. hypochondriacus*, yellow, red, green

Buying tips: Buy when at least three-quarters of the flowers on the spike are open and the flower spike is well formed. The florets will not continue to open after harvest. Avoid spikes where the tip has turned brown or is dried or hooked over.

Care and handling: Poor to medium vase life, so sell or arrange as soon as possible.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: Strip any traces of leaves as they are usually yellow, easily damaged and unattractive. Seed may drop and cause the surrounding area to be messy. May be confused with *Celosia*.

Design uses in floristry: Transitional. There are two distinctly different types and therefore uses in floristry. *A. caudatus* has long pendulous inflorescences to 50 cm and is used in various modern designs, including hand-tied bouquets and arrangements. *A. hypochondriacus* is more erect and feathery and is excellent as line material.

Amaranthus hypochondriacus

CC-BY-SA Karelj

Anemone, Poppy anemone

Anemone coronaria, *Anemone ×hybrida*

Availability: Mainly mid winter through spring

Typical vase life: 4–7 days

Stem length: 30 cm

Number of stems per bunch: Variable

Colour range: White, red, rose-pink to magenta, lavender to purple, blue (most have a black centre; some have a yellow-green centre)

Buying tips: Petals should have started to separate from the centre, but not have totally opened flat. Leaves should be glossy green. Avoid bunches with overly twisted stems.

Care and handling: After conditioning, do not hold for more than 2 days. Flowers will close up when refrigerated. The flower heads will bend towards light, so ensure lighting is even. If they are bent, wrap them in wet paper and place in a cool dark spot in water.

Floral preservative: ✓

Ethylene sensitivity: ✓✓✓

Cool storage: 2–4 °C

Special notes: Very sensitive to ethylene. Not suitable for use in floral foam. Sometimes *Anemone* and *Ranunculus* are confused. *Ranunculus* are full-centred blooms with many petals. *Anemone* are open and flat and generally have a black centre.

Design uses in floristry: Transitional. Very popular for cottage-style posies destined for vases and hand-tied bouquets.

Advice for your customers: Do not place in a bunch or vase with *Narcissus* (daffodils, jonquils), as the vase life will be considerably shortened.

Anthurium, Flamingo

Anthurium andreanum, *A. scherzerianum* and hybrids

Availability: Year round from locally grown and imported production

Typical vase life: 14–20 days

Stem length: 20–60 cm

Number of stems per bunch: or by the box—the number per box depends on the size of the bloom; leaves are sold in bunches of 10 stems

Colour range: White, green-white, pink-white, orange; spathes (the large flat "petal") may be red, rust-red, white/red, green/red or scarlet, and all have a yellow spadix (the centre spike); pale pink, white/pink edge, pink/green, rosy-pink with pink spadix; lilac-pink with a purple spadix; burgundy, purple with a purple spadix; green, pink/green, red/green, white/green, rust-red/green; *A. scherzerianum*, red spathe with orange spadix.

Buying tips: The spadix should have more than one-third of the tip smooth. Florets open from the base of the spadix; therefore, florets already open should be no more than two-thirds of its length. The spathe should be smooth and undamaged. Avoid flowers with brown to black areas, as this indicates chilling injury.

Care and handling: Tropical care—hold at 12–20 °C. Flowers bruise very easily. Mist regularly. Recut stems on an angle with a sharp knife and place into clean water. To rehydrate wilted flowers, immerse the whole flower in room-temperature water for 10–30 minutes.

Floral preservative: ✗

Ethylene sensitivity: ✓

Cool storage: ✗

Special notes: The cut flowers have a vase life of up to 3 weeks when properly treated. The stems are susceptible to stem blockage, so be sure to cut with a clean sharp knife.

Never hold the blooms in cool storage. *Anthurium* are very sensitive to chilling injury, which shows as blackened edges on the spathe.

The leaves, flowers and potted plants are all significantly useful to florists. Flowers may be dipped in commercial fruit wax to extend vase life.

Design uses in floristry: Focal. Extensive design uses include tropical themes, modern or traditional, wedding bouquets and large corporate arrangements. The spathe varies in size from 5 to 25 cm wide. The leaves make excellent foliage, and flowering potted plants are available for indoor display.

Advice for your customers: Protect from cold draughts and direct heat.

Aster, Easter daisy, Michaelmas daisy

Aster spp., incl. *A. pilosus*, *A. ericoides*

Colour range: White, lilac-blue

Availability: The natural season for China asters is from summer to late autumn, but this has been extended to nearly year round from field and greenhouse production and with the introduction of new hybrids. Easter daisies are available in late summer and autumn, but the season can be extended year round by growing in greenhouses in which the daylength is artificially controlled.

Typical vase life: 6–10 days

Stem length: 30–60 cm depending on season and growing conditions

China aster

Callistephus chinensis

Number of stems per bunch: Variable

Buying tips: Buy when more than 30% of the flowers are open. The flowers must be open when picked. Check for clean, straight stems, without brown or dry flowers or yellow leaves.

Care and handling: Recut stems and remove bottom leaves, as flower food can damage the foliage. Remove plastic sleeves to avoid blackening of foliage.

Floral preservative: ✓

Ethylene sensitivity: ✓

Cool storage: 2–4 °C

Colour range: Yellow, apricot, scarlet, rose-red, pink, salmon-pink, soft pink, crimson, mauve, purple, blue

Special notes: Modern hybrids are available with stronger, longer stems and more compact flowers. These may also be less prone to leaf yellowing.

Design uses in floristry: Transitional and focal flowers, most suitable for mixed bunches and arrangements.

Banksia

Banksia spp. and cvv.

Banksia **'Giant Candles'**

Availability: The main flowering season is February to November, but some species, such as *B. baxteri*, flower over the summer (November–March). Immature flowers (called "cones") and the dried "nuts" of some banksias can also be used for floral arrangements. There are many species and cultivars of *Banksia* used in floristry. The major ones are listed below.

Typical vase life: 10–15 days

Stem length: 40–100 cm

Number of stems per bunch: or 3–5

Colour range: Cream to yellow, peach to pink, orange, red, rusty brown, metallic silver, green, depending on species

Buying tips: Buy when the flower head is firm to the touch (not soft) and before 20% of the florets have opened. Avoid flower heads on which half or more of the florets have opened (giving a brush like appearance), as these are getting overmature and unattractive, are more easily damaged during handling and transport, and may have abundant nectar.

Care and handling: Recut stems and place in water ASAP with added biocide. To date, banksias have not responded to floral preservatives. To increase water uptake, it may be worth holding stems in deep water (e.g. 20 cm). Do not mist.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: Banksias may come from commercially grown plants or wild-harvested material, which is more variable in flower form and quality. They need to be kept well hydrated as the flower heads and leaves become dull if allowed to dry out, and can't then easily be rehydrated. The immature flower heads (called "candles") of some banksias (e.g. *B. plagiocarpa*) can be used. The woody cones (fruits) of a number of banksias (e.g. *B. baxteri*) can also be used.

Design uses in floristry: Focal. May be integrated into a wide range of floral designs.

Advice for your customers: Recut stems, place into fresh clean water and change the water at least every second day. Banksias drink a lot of water.

Snapshots of major banksias

Banksia ashbyi: Large orange flower heads to 15 cm, and long, narrow serrated leaves. Available March–October.

Banksia attenuata: Long, slender yellow to lime-green candle-shaped flower heads, with long, narrow serrated leaves. Candles and nuts or cones can also be used. Available November–January.

Banksia baxteri (bird's nest banksia, Baxter's banksia): Greenish-yellow. The most desired shape is a compact flower head

Banksia hookeriana

on a thin, straight stem with fewer than 30% of individual florets open. The foliage adds drama—stiff green leaves and a deep zigzag edge. The nuts or cones are also very attractive. December–March.

Banksia burdettii: Apricot/orange flower heads similar to *B. hookeriana*, but slightly smaller. Aim to buy when fewer than 20% of individual florets are open, so the flower head has an apricot-orange ruff of florets open at the base. December–February.

Banksia coccinea (scarlet banksia): Red/grey; yellow flowers sometimes available. The most desired shape is a tall cylinder with fewer than 20% of individual florets

Banksia plagiocarpa

open and the rest still "looped". Available May–November.

Banksia ericifolia × *spinulosa* 'Giant Candles': Very large yellow/orange flower heads. Stems may be quite short. Foliage from the *B. ericifolia* parent is also commonly used in floristry. March–August.

Banksia hookeriana (Hooker's banksia, acorn banksia): Flower heads are very large (7–12 cm long). Aim to buy and sell when fewer than 20% of individual florets are open so most of the flower head is creamy pink to peach with a rich orange ruff of florets open at the base. Candles can also be used. April–Sept.

Banksia marginata: Flower head is candle shaped, 5–10 cm tall and yellow to bronze. Foliage is needle-like. Sept–Feb.

Banksia menziesii (firewood banksia, Menzies' banksia): Domed flower heads are 10–12 cm long. A range of colour variants exist—deep burgundy-red to chocolate-brown, orange, pinks, apricot, bronze, yellow. The nuts or cones are also used. February–September.

Banksia occidentalis: Cylindrical flower heads 12–15 cm tall, bright red and sometimes pinkish red. February–August.

Banksia plagiocarpa (Hinchinbrook banksia, silver banksia): Flowers are a striking metallic to bluish grey, or sometimes yellowish. Candles and cones or nuts can also be used. Very long vase life (up to 28 days). Attractive foliage covered with rusty red hairs. Reject stems with blemished and blotchy foliage. Nov–June.

Banksia praemorsa: Very long wine red

Banksia baxteri

Dryandra

flower heads (up to 35 cm). June–Nov.

Banksia prionotes: The large flower head is mostly cream with an orange ruff of florets open at the base. The common name comes from the acorn-like shape of the flower head. Candles can also be used. February–August.

Banksia sceptrum: A large, slender flower head, up to 20 cm long, in pale yellow to whitish tones. Aim to sell when most florets are still closed and a lemon ruff of florets is open at the base. Available October–November.

Banksia speciosa: A chunky, long, cream to pale yellow flower head. Cones can also be used. Available November–March.

Dryandra (now botanically reclassified as *Banksia*):

B. heliantha (*D. quercifolia*): Medium flower head of reddish-orange flowers surrounding a yellow centre; oak-shaped leaves. Available May–October.

B. formosa (*D. formosa*): Large, terminal,

Banksia menziesii

orange to bronze flower head, becoming orange to golden when open; narrow (fern-like) serrated leaves. Available May then September–December.

B. robur: Cylindrical flower spikes to 17 cm long are blue/green in bud and yellow /green when open. March–August.

B. victoriae: The woolly orange banksia. Cream florets with an orange ruff at the base, aim to sell the large tapered flower head with most florets still closed. Leaves are long and deeply toothed. Jan–Feb.

Belladonna lily, Amaryllis, Naked lady

Amaryllis belladonna

Availability: Summer to early autumn depending on climatic variation

Typical vase life: 7–10 days

Stem length: Up to 60 cm

Number of stems per bunch: 5

Colour range: White, pink

Buying tips: Best to buy when the buds are fully developed but not more than a couple are open. Avoid stems showing handling damage or brown markings.

Care and handling: Best held at room temperature.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: ✗

Special notes: Blooms are often sweetly scented. Some people are allergic to the sap, so wear gloves when handling. This is the true form of *Amaryllis*.

Design uses in floristry: Belladonna lilies have dominant flower heads and tubular stems with five or six large funnel-shaped flowers. While they combine well with other flowers, they are at their best arranged simply in a clean glass vase.

Berzelia, Button bush

Berzelia lanuginosa, *B. galpinii*, *B. woodsii* and cvv.

Availability: June to November, depending on cultivar and climate

Typical vase life: 14–21 days (green stage)

Stem length: 40–100 cm

Number of stems per bunch: 5–10

Colour range: Green (as flower heads mature and the tiny florets open, they turn creamy-white). Some cultivars are green with a red blush; others have red waxy highlights on the stems underneath the flower balls.

Buying tips: Buy when each individual flower head is the size of a pea, and is a fresh green without any browning.

Care and handling: Keep the fine foliage above the vase water.

Floral preservative: ✗

Ethylene sensitivity: Unknown

Cool storage: 2–4 °C

Special notes: Marketed in three stages: when the pea-shaped flower heads are 3–5 mm across; when the pea is fully expanded but still green; and when the little creamy white florets appear on the fully expanded heads. In the third stage, the balls become fluffy and creamy white—use them at this stage, but be aware they have a shorter vase life. *B. galpinii* has larger flower balls than *B. lanuginosa*.

Berzelia (often mistakenly called "Brazillea") and *Brunia* are closely related and often confused: *Berzelia* has pea-shaped flower heads; *Brunia* has larger, flatter (hemispherical) flower heads (and is also sold mainly at the green stage).

Design uses in floristry: Transition. *Berzelia* is most commonly sold at the green stage, when the pea-like spherical flower heads are still tightly closed. The lime-green is very complimentary to flowers of any colour. The soft conifer-like foliage may be used grouped or wired to enhance and physically support other products in a wide range of arrangements and designs, including wedding bouquets and accessories.

Blushing bride

Serruria florida hybrids and cvv. such as 'Sugar 'n' Spice', 'Pretty in Pink', 'Super Blush', 'Carmen'

Availability: May to October

Typical vase life: 14 days

Stem length: 30–60 cm

Number of stems per bunch: 5–10

Colour range: White; pale pink; pale pink with candy-pink stripe

Buying tips: Buy when the bracts are loosening and with the central fluffy flower mass just visible inside the blooms. Avoid stems indicating signs of *Botrytis*—for example, small pink spots on the bracts—as this will cause the stems to collapse. Avoid stems with yellow leaves, poor flowering stems and overmature flowers. Leaf blackening may indicate that stems have been submerged or have been stored for too long.

Care and handling: *Serruria* flowers dry out quickly and need to be handled gently. The pedicels (the little stem that holds each floret) are vulnerable to *Botrytis* infection, which causes them to collapse.

Floral preservative: ✓

Ethylene sensitivity: Unknown

Cool storage: 2–4 °C

Special notes: Perfect for winter and spring weddings and functions where the customer has requested wildflowers, they are beautiful (and cost effective) when arranged with other spring blooms such as paper daisies, flannel flowers and waxflowers. Does not seem to suffer from leaf blackening like *Protea* species do. However, leaves may turn black if submerged in buckets of solution or if held for too long.

Design uses in floristry: Single stems or as grouped focal flowers. Highly desirable and sought-after blooms while in season, and frequently presented in a wide range of design styles, from simple vase arrangements to grouped focal, in modern, contemporary and traditional arrangements. Perfect for hand-tied bouquets and appropriate for wired wedding bouquets and accessories.

Boronia

Boronia spp., incl. *B. megastigma*, *B. heterophylla* and cvv.

Availability: Late winter to spring depending on selection or species

Typical vase life: 5–6 days

Stem length: Usually 40–80 cm

Number of stems per bunch: Depends on length of stem and volume of blooms; typically 10

Colour range: White, lemon, yellow, pale to hot pink, blackish-purple; *B. megastigma*, brown/yellow and yellow

Buying tips: The majority of the florets should be open. Avoid bunches showing signs of wilting, dried petals or leaves, or leaf or petal drop. *Boronia* is very sensitive to drying out.

Care and handling: Short vase life, so use or sell quickly—holding in cool storage is not recommended. Handling should be kept to a minimum, as the florets drop easily. Mist frequently. If necessary to rehydrate, immerse the entire stem in water for up to 2 hours.

Floral preservative: ✓

Ethylene sensitivity: ✗–✓✓✓ (varies with sp. and cv., and not determined for all)

Cool storage: 2–4 °C

Special notes: *Boronia* has a distinctive, almost citrus scent. The essential oils extracted from brown boronia (*B. megastigma*) are used in the production of some perfumes.

Design uses in floristry: Transitional and highly to sweetly fragrant depending on the species. Versatile and suitable for wildflower posies, vases and mixed bunches.

Bouvardia

Bouvardia humboldtii, *B. longiflora*

Availability: Summer and autumn, but greenhouse-grown product is extending the natural season

Typical vase life: 6–12 days

Stem length: 50–70 cm

Number of stems per bunch: Variable

Colour range: *B. humboldtii*, white; *B. longiflora*, white, scarlet, pink

Buying tips: Buy when the first two or three florets have started to open on each stem and the buds are showing colour. Avoid bunches with yellowed foliage, which could indicate poor storage or poor plant nutrition.

Care and handling: Sell quickly. If unavoidable, hold for no more than 2 days. Handle with great care, as the petals bruise easily. *Bouvardia* is prone to water loss, so frequent cutting of stems and additional fresh flower food are necessary. Removal of the top bud and side shoots outside of the main inflorescence will encourage the other flowers to open. Ensure good ventilation to avoid *Botrytis* infection.

Floral preservative: ✓

Ethylene sensitivity: ✓✓✓

Cool storage: 2–4 °C

Special notes: The white *Bouvardia humboldtii* is very fragrant, *B. longiflora* less so. *Bouvardia* must be pretreated for ethylene sensitivity. Fresh flower food will protect from early wilting and helps prevent bacterial contamination of the stems.

Design uses in floristry: Transitional. *Bouvardia* is a very delicate flower used mainly for natural stem bunches, wedding bouquets and cottage-style posies.

Bracteantha, Helichrysum, Everlasting daisy, Straw flower, Paper daisy

Xerochrysum bracteatum (syn. *Bracteantha*), *Rhodanthe* spp. (syn. *Helipterum*)

Availability: Autumn to spring

Typical vase life: 10–14 days for fresh product; indefinitely when dried

Stem length: 40–50 cm

Number of stems per bunch: Variable

Colour range: White, cream, yellow, gold, orange, burgundy, pale to dark pinks

Buying tips: Look for clean, undamaged, open blooms on long, strong stems.

Care and handling: Best held at room temperature. Add flower food and change the water every 2–3 days. Do not store wet, as leaf blackening may occur. Remove plastic sleeves while product is in storage.

Floral preservative: ✓

Ethylene sensitivity: Unknown

Cool storage: ✗

Special notes: The modern range of hybrid *Xerochrysum* cut flowers include pale and bright colours with large flower heads on long stems. When the flowers are dried the brittle stems will snap. So remove the stem and insert a heavy-gauge wire up into the flower head for support.

Design uses in floristry: Transitional or grouped as a focal flower. Used as a fresh flower in bunches or wildflower arrangements, wedding bouquets and accessories. Also used as a dried flower, as the papery bracts will last indefinitely if protected from insect attack. To dry, hang bunches upside down in a cool, dry, well ventilated place. Dried product holds its colour well.

Rhodanthe

Xerochrysum

Brunia

Brunia nodiflora, B. albiflora

Availability: Summer

Typical vase life: 10–14 days

Stem length: 30–45 cm

Number of stems per bunch: 5–10

Colour range: Most commonly sold at green stage, when the ball shaped flower heads are still tightly closed. As the flower head matures, tiny white, inconspicuous florets open.

Buying tips: The flower heads should be well developed, free of pests and well coloured, with no browning. The stems are heavy and woody and may not be straight. Avoid bunches in which the fine conifer-like leaves are dry and darkened, as this indicates poor storage and old product.

Care and handling: Cool conditioning for up to 4 days is recommended to avoid browning. Hold stems in deep water with flower food added to prevent drying out. Dry storage is not recommended.

Floral preservative: ✓

Ethylene sensitivity: Unknown

Cool storage: 2–4 °C

Special notes: The rounded popcorn appearance of the flower heads and the scaly conifer-like stems are the main attractions of this plant. Flowering *Brunia* is less popular than in the green stage.

Berzelia (often wrongly called "Brazillea berry") and *Brunia* are closely related and often confused. *Berzelia* has pea-shaped flower heads; *Brunia* has larger, flatter (hemispherical) flower heads and is also sold mainly at the green stage.

Design uses in floristry: Transitional and foliage. Used in a similar way to *Berzelia*, although the heads and stems are much heavier. Suitable for bunching or for bowl arrangements with traditional, tropical and wildflowers, and has sculptural appeal in modern designs. The soft conifer-like foliage may be used grouped or wired to support a wide range of designs, including wedding bouquets and accessories.

Calendula

Calendula officinalis

CC-BY-SA Renardeau

Availability: Winter to early spring

Typical vase life: 5–7 days

Stem length: 30–40 cm

Number of stems per bunch: Variable

Colour range: Yellow, orange, bronze-orange

Buying tips: Flowers should be open, with the ray florets not shedding pollen. Look for dark green, clean, undamaged foliage. Where possible, the stems must be straight and sturdy, as they break or bend easily. Orange blotches may indicate the presence of *Calendula* rust.

Care and handling: Wrap stems in paper to keep straight. Use flower food in fresh clean water. If the flowers are wilted, recut stems and stand them for 1–2 hours in a hydrating solution at room temperature.

Floral preservative: ✓

Ethylene sensitivity: ✓

Cool storage: 2–4 °C

Special notes: *Calendula* was very popular in the early to mid 1900s. It was called Mary's Gold and was placed by the statues of the Virgin Mary. It is very significant in Indian culture, and in Australia is popular for use at Indian weddings.

Design uses in floristry: Focal bunching flowers.

Ball

Calla lily

Zantedeschia spp. and cvv., incl. *Z. rehmannii*, *Z. elliottiana*

Calla lily

Availability: Calla, naturally summer flowering but varies with greenhouse-grown and imported product year round; *Arum*, winter and spring

Typical vase life: 10–15 days (*Arum* to 20 days)

Stem length: Calla, 20–50 cm; *Arum*, 60–100 cm

Number of stems per bunch: 5–10 depending on availability and market price

Colour range: Calla, white, cream, yellow, gold, orange, pink, burgundy, dark purple; Dwarf *Arum*, white; 'Green Goddess' *Arum*, cream, green; 'Marshmallow' arum, pale to deep pink

Buying tips: Buy when the spathe (the large flat "petal") is half opened (bud stage) and the spadix (the centre spike) is cream and fresh, not yellow. When the inflorescence is aged, the spadix yellows and becomes fluffy. Pick when the buds are unfurled at least 5 cm and they will continue to open; if picked too early, they may not open. Avoid any stems that feel slimy—this is likely to be due to the bacterial disease *Erwinia*, which leads to rapid stem collapse.

Care and handling: Check the level of water frequently, as these flowers use a lot of water.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: Available in a multitude of shades and colours. As they can be used in virtually any flower arranging style to create a striking, sophisticated look, it is not surprising they have become the flower of choice for interior designers and event planners.

Availability varies; the natural season for calla lilies is summer, but the plants are susceptible to the bacterial disease *Erwinia* in humid climates. Hence, flowering bulbs are often grown in heated greenhouses out of season. As it is imported at various times of the year, check with your supplier before committing to having calla lily available for orders.

The spathe on the 'Green Goddess' may be up to 20 cm long. Freshly picked stems of 'Green Goddess' will last in a vase up to 4 weeks even after the spadix has withered.

Be careful of the bleeding sap on fresh-picked stems—place stems immediately in water, taking care not to get the sap on clothing, as it will stain and is extremely difficult to remove. The stem end will seal over when left in water overnight. Alternatively, the sap can be squeezed out or sealed with cold glue to ensure the stems will not bleed further.

The flowers are phototropic and so may turn towards the light. Not ideal for arranging in floral foam because the stems are thick, and stem collapse is common in foam.

Arum lilies appear on weed lists Australia wide and are listed as noxious in WA, but their popularity as a cut flower continues. They are no longer permitted to be grown in WA, but are permitted to be sold as a cut flower.

Design uses in floristry: Focal. May be elegantly featured in simple vase arrangements and a vast array of modern and contemporary designs, hand-tied and wired bouquets, or modern and traditional vase-style arrangements. In contemporary floristry they are unsurpassed for their long vase life, classic style and low maintenance, and are more likely to be sought after by younger generations and by cultural groups who consider them lucky. (*Arum* lilies were once popular as a funeral flower.)

Advice for your customers: Calla lilies do not like to be placed into deep water. Place them instead in clean water containing a commercial biocide.

Arum lily, Green Goddess lily

Z. aethiopica, *Z. aethiopica* 'Green Goddess'

Arum lily

Candytuft

Iberis sempervirens

Availability: Spring and summer

Typical vase life: 5–6 days

Stem length: Up to 40 cm

Number of stems per bunch: Variable

Colour range: White (purple and pink are available for garden bed displays)

Buying tips: Buy or pick when the flowers are more than half open.

Care and handling: Short vase life, so arrange or sell as quickly as possible—cool storage is not recommended.

Floral preservative: ✓

Ethylene sensitivity: ✓✓

Cool storage: ✗

Special notes: Also sold as potted colour. Not suitable for wiring.

Design uses in floristry: Transitional. Candytuft are beautiful, old-fashioned flowers suitable for cottage-style posies, nosegays and small vase arrangements.

Carnation (Sim, Standard, Spray), Sweet William, 'Green Trick'

Dianthus caryophyllus, *D. barbatus*, *D. chinensis*, *D.* 'Amazon'

Availability: Year round from greenhouse and field production and imports

Typical vase life: 8–20 days, depending on cultivar

Stem length: Varies according to cultivar—Sim and Spray carnations up to 80 cm; Sweet William 40–50 cm

Number of stems per bunch: 10

Colour range: *D. caryophyllus* (Sim, Standard and Spray), pure white, cream, yellows, gold, orange, tangerine, apricot, reds, palest to deep rosy-pink, magenta, mauve, purple, lime-green, khaki; many bi-colours; *D. chinensis* (Chinnies), white, pink, blue-mauve, purple; *D. barbatus* (Sweet William), whites, reds, cherry pink, burgundy and bi-colours; 'Green Trick', deep-green brush-like flower

Buying tips: Buy when more than half to fully open. Avoid bunches with brown tips or markings, as these are signs of fungal disease. Also avoid bunches with tight buds less than half open, as these rarely open within the period of vase life. Avoid bunches with leaf spots, rust or mildew on leaves or stems.

Care and handling: Handle carefully to avoid snapping the brittle stems. Carnations are very sensitive to ethylene, so ensure purchase from a supplier who will guarantee that the product has been treated with an anti-ethylene agent. If bunches have been stored dry, recut stems, removing the lower 2–3 cm, and place in a hydrating solution for several hours at room temperature. Cut stems at an angle, remove leaves that will sit under water and add flower food.

Floral preservative: ✓

Ethylene sensitivity: ✓✓✓

Cool storage: 2–4 °C

Special notes: Carnations are long-lasting traditional blooms and represent good value. Genetically modified violet carnations (*D. caryophyllus* cvv. Moondust and Moonshadow) are now available. Some cultivars have an attractive clove-like scent. Numerous cultivars are sold as potted colour. Flowering plants may be displayed indoors for 2–3 weeks. New colours in the range of Sim carnations include lime-greens and brilliant, almost fluorescent orange and pink. The introduction of the white form of *D. barbatus* (sometimes called 'Gypsy') is wonderful for bunching and bowl arrangements, and the new 'Green Trick' is a very modern addition to the range (although not always readily available, as it is grown by selected licensed growers).

Design uses in floristry: Focal and transitional. Very versatile flowers suitable for use in a vast array of designs for bunching, bowls and posies; wedding and sympathy designs. The individual flowers may be wired in all but *D. barbatus*.

Sweet William

Cattleya orchid

Cattleya spp., hybrids and cvv.


DT

Availability: Spring and autumn are the main flowering times, but they *may* be available outside these times from climate-controlled production

Typical vase life: 5 days

Stem length: Up to 25 cm. Single or multiple blooms appear on one stem. Blooms range in size from 4 to 15 cm depending on the parentage of the hybrid

Number of stems per bunch:

Colour range: White/pink, white/yellow, pale to dark pinks, lilac to blue-purple, maroon/chocolate, cream/lime-green; the colour of the throat varies with the hybrid.

Buying tips: Buy when the flowers are fully open. Keep blooms hydrated. Float wilted or flaccid blooms for an hour or more in tepid or room-temperature water to rehydrate.

Care and handling: See "Special care for orchids" on page 22.

Floral preservative: ✓

Ethylene sensitivity: ✓✓

Cool storage: ✗ Chilling sensitive

Special notes: Considered the queen of orchids. Some hybrids are highly perfumed; others give off puffs of fragrance at certain times of the day. There are a vast number of hybrids and variations in colour and size. Talk to your grower or supplier to ensure availability for special occasions or for special requests.


CC-BY-SA Kenpei

Design uses in floristry: Focal flowers, especially for corsage and wedding bouquets. Potted plants are available for short-term indoor display (3–5 weeks).

Advice for your customers: See "Special care for orchids" on page 22.

Celosia, Wheat Celosia, Cockscomb, Prince of Wales feather

Celosia cristata, *C. spicata*, *C. argentea* var. *plumosa*


Ball

Availability: Summer to very early autumn

Typical vase life: 7–12 days

Stem length: 30–70 cm

Number of stems per bunch: Variable

Colour range: *C. argentea* var. *plumosa* (feathery type), yellow, red; *C. cristata* (cockscomb type), yellow, yellow-gold, orange, terracotta, red, pink; *C. spicata* (upright feathery type), white, lemon, orange, terracotta, hot-pink, purple, green

Buying tips: Choose flower heads that are fully developed. Look for vibrant colour and good depth of green in the leaves. Avoid any bunches that are browning or damaged, as *Botrytis* will develop very quickly.

Care and handling: The leaves wilt before the flowers, so remove the leaves and place the stems into a low-percentage sugar solution. STS-treated product has been shown to last longer than untreated product. Change the solution frequently or make sure a good germicide is used, whether in the fresh flower food or by itself. Cool storage is recommended only for very short periods. Good ventilation and airflow is essential, because the flower heads, stems and leaves are susceptible to *Botrytis*.

Floral preservative: ✓

Ethylene sensitivity: ✗–✓✓ (varies with sp. and cv.)

Cool storage: 2–4 °C

Special notes: Buy and use immediately—long-term storage is not recommended. Also available as potted colour for short-term indoor or outdoor displays.

Design uses in floristry: Focal and transitional. *Celosia* has a variety of uses but is most popular for bunches. *C. cristata* is doubly useful as a focal flower. Sometimes confused with *Amaranthus.*


Ball

Chincherinchee, Star of Bethlehem, Arab's eyes

Ornithogalum thyrsoides, O. arabicum


Ramm

Availability: Late spring

Typical vase life: 14–21 days

Stem length: 30–60 cm

Number of stems per bunch: 10

Colour range: *O. arabicum*, white with green centre, occasionally yellow and orange, *O. thyrsoides*, white with black centre

Buying tips: Buy when one-third or more of the lower florets are open.

Care and handling: Place in clean water with preservative. Flowers are geotropic, so store upright rather than placing horizontally. Will also bend towards light, so keep in uniform lighting, or wrap in heavy paper to store upright in darkness.

Floral preservative: ✓

Ethylene sensitivity: ✓✓✓

Cool storage: 2–4 °C

Special notes: Sought after when in season for the excellent vase life, long strong stems and striking white blooms with a black or green centre. Especially beautiful mixed with other spring flowers, or in hand-tied wedding bouquets, bunches and vases. The flowers will continue to open. Two new selections will very soon find their way onto the marketplace as potted colour—a yellow form called 'Gugu' and an orange form called 'Jabu'. Originally from South Africa, where they are known as "tjienkerientjee". All parts of the flower are poisonous.

Design uses in floristry: Transitional, line and focal. Perfect for hand-tied bunches and bouquets.

Advice for your customers: Flower food is not necessary.


LR

Christmas bells

Blandfordia grandiflora


LT

Availability: October to January

Typical vase life: 12 days

Stem length: 30–70 cm

Number of stems per bunch: 5

Colour range: Typically orange-red with a yellow edge, yellow, red. In some forms, up to half the bell may be yellow.

Buying tips: Buy when at least one bell is fully open. *Blandfordia* is a protected plant and must have a license tag attached at purchase. Avoid blooms that are damaged or malformed.

Care and handling: Use sleeves or wrap bunches to minimise mechanical damage or drying out of flowers. Once fully open, bells are more easily damaged.

Floral preservative: ✗

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: Like many other Australian plants, *Blandfordia* are unique—their almost perfect tubular, bell-shaped flowers in yellow and red (sometimes just red) are perfect for Christmas sales. They may be cultivated or harvested under license from natural stands. They are a sought-after export product. As they are not easy to propagate or grow, there are relatively few commercial growers. Expect to pay a premium price for high-quality blooms.

Design uses in floristry: Focal.


LT


L&L

Christmas bush, NSW Christmas bush

Ceratopetalum gummiferum

Availability: Mid October to January; main demand is before Christmas

Typical vase life: 7–14 days

Stem length: 30–90+ cm

Number of stems per bunch: Variable

Colour range: Rich red, pink or white bracts

Buying tips: Red product is the most common and sought after. Look for fresh stems with a high density of red bracts and not much visible foliage. Avoid stems with wilted shoot tips or many white flowers.

Care and handling: Check water frequently, as they use a lot. Misting is also recommended.

Floral preservative: ✓

Ethylene sensitivity: ✓✓✓

Appears to be susceptible to ethylene only at very high concentrations, so treatment with anti-ethylene products is usually not necessary. Avoid transporting or storing with fruit, as sensitivity at low to moderate levels of ethylene is not known.

Cool storage: 5–8 °C

Special notes: The red bracts are preceded by insignificant creamy white flowers in spring. Christmas bush foliage may be used in floral displays. White and pink forms are also available in limited supply. Cultivated Christmas bush is generally of much higher quality, with a longer vase life, than wild-harvested stems.

Design uses in floristry: Transitional. The woody stems hold dense red bracts and are in demand for Christmas bunches and arrangements.

Chrysanthemum, Sprays, Disbuds, Spiders, Buttons, Daisy, Santini

Chrysanthemum morifolium (syn. *Dendranthema grandiflorum*)

Availability: Year round from local and imported product

Typical vase life: 10–20 days

Stem length: 50–80 cm

Number of stems per bunch: 10

Colour range: White with green, yellow or white centres; yellows with green-yellow centres, gold, reds, pinks, burgundy, lilac, purple, green (any colour but blue)

Buying tips: For spray chrysanthemums, check that at least five flowers per stem are fully open. For disbuds, the central petals should form a tuft. Petals should be free of brown blemishes. Avoid bunches with yellow leaves, as the leaves age before the flowers.

Care and handling: May be stored dry for up to 2 weeks by the grower or wholesaler. Chrysanthemums require high humidity, low temperature and good air circulation. Foliage will yellow and die well before the flowers. Remove foliage below water level. Stems are prone to blockage, so recut frequently and place in fresh water with flower food added.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: Field-grown chrysanthemums were traditionally available during their natural flowering season for Mother's Day in Australia. Commercial greenhouse technology permits year-round production of a vast range of cultivars, with excellent vase life and colour range.

Chrysanthemums naturally form a panicle-shaped inflorescence. Some cultivar have been developed to be disbudded to produce a single large flower known as a disbud. Santinis are specially bred miniature chrysanthemums in a full range of colours and forms.

Chrysanthemums are photoperiodic and require a consolidated period of darkness before floral development can begin. The natural flowering season is autumn, but commercially they are grown in greenhouses under controlled lighting and temperature to ensure year-round availability.

Design uses in floristry: Transitional and focal. Chrysanthemums are versatile flowers and are suitable for a vast range of designs, from small posies to large formal arrangements, and may be wired for corsages and bouquets. Extensively featured in gift bunches and sympathy designs.

Advice for your customers: With a potential vase life of 2 to 3 weeks, it is worth recutting the stems, changing the water and adding a measured dosage of flower food every few days. Remove the leaves when they become unsightly, as the flowers will last considerably longer.

Cornflower, Blue buttons

Centaurea cyanus, *C. macrocephala*

Availability: Late spring to mid summer (August to December)

Typical vase life: 5–8 days

Stem length: 40–50 cm

Number of stems per bunch: Variable

Colour range: *C. cyanus*, blue, purple; *C. macrocephala*, yellow

Buying tips: Buy when flowers are half to fully open but before the pollen is evident.

Care and handling: Keep flowers well hydrated at all times. Short vase life, so sell as soon as possible.

Floral preservative: ✓

Ethylene sensitivity: ✓

Cool storage: 2–4 °C

Special notes: One of the few true blue flowers. White, red and rose-pink cultivars are available for gardeners, but the double blue is most commonly available for florists.

Design uses in floristry: Transitional. Cornflowers may be arranged with other spring and summer flowers for wedding posies and cottage-garden-style bunches.

Cosmos

Cosmos bipinnatus

Availability: Summer to early autumn

Typical vase life: 4–5 days

Stem length: 40–50 cm

Number of stems per bunch: Variable

Colour range: Pure white, yellow, gold, reds, chocolate-brown, pink, magenta, lilac, all with a yellow centre

Buying tips: The petals should be starting to open up but not yet be lying flat.

Care and handling: Short vase life, so sell quickly—do not hold in cool storage.

Floral preservative: ✓

Ethylene sensitivity: ✗ (may vary between cvv. from ✗ to ✓)

Cool storage: 2–4 °C

Special notes: A popular bunching product. Chocolate cosmos (*Cosmos atrosanguineus*) has deep maroon-crimson flowers with a slight chocolate scent.

Design uses in floristry: Focal–transitional. Not suitable for wedding designs. Most suited to simple vase arrangements.

Cyclamen

Cyclamen persicum

Availability: April to September with some variations due to greenhouse production

Typical vase life: 5 days (flowers); 12–14 days (foliage); with good care, plants bought early in the season will flower indoors for up to 3 months

Stem length: 5–15 cm (flowers and leaves)

Number of stems per bunch: 10

Colour range: Pure white, red, pale to deep pink, lavender, purples

Buying tips: Flowers and foliage are usually available only by special order from growers. Buy potted plants when there is visible colour in the buds and when there are a healthy number of buds, showing that the plant will produce a good number of future flowers, and abundant, healthy green foliage.

Care and handling: These are cold-climate plants. If held in a warm room for extensive periods, the leaves will become yellowed and weak and the flowers will become sparse and weak. Place in a cold place (even put potted plants outdoors) at night.

Floral preservative: ✓

Ethylene sensitivity: ✓ (but variable)

Cool storage: 2–4 °C

Special notes: The petals may be ruffled or frilled. The green leaves have silvery, marbled or zoned patterns. Potted plants should be watered carefully so as not to rot the corms, preferably from the base. Regularly groom plants by removing any spent flowers and any yellow or damaged leaves.

Design uses in floristry: Flowers, foliage and potted plants. Flowers are suitable for wedding bouquets, especially mixed with other flowers. The leaves may be wired and are often used as a collar to surround posies or hand-tied bouquets.

Advice for your customers: Keep the plants inside for short periods only—they are most suited to patios or covered verandas. Cyclamens need cold temperatures to stay healthy and continue blooming.

Cymbidium orchid

Cymbidium hybrids and cvv.

Availability: Autumn to winter to mid spring; imported blooms may extend availability

Typical vase life: 2–4 weeks if kept well hydrated

Stem length: 40–60 cm, with individual blooms 5–7 cm; mini, 40–50 cm, with individual blooms 3–5 cm

Number of stems per bunch: or

Colour range: Pure white, cream with pink, yellow or red throats, lemon and yellows, gold, apricots, browns, reds, pinks, crimson, burgundy, lilac, greens (some with spotting on petals and throat); colours vary within the season.

Buying tips: Buy when at least two flowers per spike are open, or when individual flowers are fully open. Older or pollinated blooms may have a darkened throat. Look for clean, undamaged blooms.

Care and handling: Not tropical. Usually shipped with a water vial (tube) at the end of the stem. Remove the vial, recut and place into fresh water as soon as possible, preferably with added flower food. Chilling injury or ethylene damage appears as translucent or dried patches on petals and sepals or as darkening of the lip and column. Wilted blooms may be rehydrated by recutting stems and placing in warm or room-temperature water. However, wilting caused by ethylene damage cannot be reversed.

Floral preservative: ✓

Ethylene sensitivity: Variable

Cool storage: 2–4 °C

Special notes: Not all colours are available all through the season; availability varies within hybrids. The colour of the throat also varies with hybrid, and some forms have spots on the petals. Available in mini, standard and large blooms, and vary in flowering rate. Flowering season varies from early to mid season to late.

Sold as single blooms or flowering spikes with as many as 15 blooms per spike.

Potted plants are priced according to the number of flowering spikes on the plant. It is not unusual (and is very desirable) to have five or more flowering stems. Blooms will continue to open and will flower for 6 to 8 weeks in a warm, well lit position indoors or outdoors on a protected patio. Heavy flowering stems may need a stake for support; place this with care so as not to spoil the display or damage unopened buds. After flowering, place in a shady position outdoors during summer. Put the plants in a warm position in autumn to encourage reflowering the following year.

Design uses in floristry: Focal; supporting focal. Arranged singly or on the flowering spike, in a vast array of small and large arrangements. Glass vases are most suited as it is easy to view the water level and top up as required. Individual blooms may be wired for wedding bouquets and accessories, on their own or mixed with traditional and wildflowers, in modern, traditional and contemporary designs. Ideal for corporate arrangements as vase life is very good.

Advice for your customers: Recut stems ends and place into clean water in a clean container with flower food added. Do not display near fruit and vegetables, in full sun or in draughts. Keep flowers cool. See "Special care for orchids" on page 22.

Daffodil (e.g. 'Erlicheer'), Jonquil (e.g. 'Paper White')

Narcissus spp., hybrids and cvv.

Availability: Winter and spring

Typical vase life: 4–6 days

Stem length: 30–45 cm

Number of stems per bunch: 10

Colour range: White, lemon-yellow, peach; combinations of white or yellow with orange or white centre

Buying tips: Buy when buds are tight but with some colour and form showing.

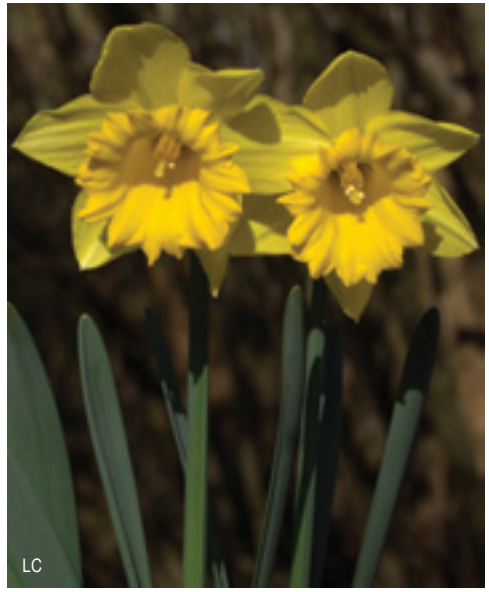
Care and handling: To promote flower opening, recut stems and place in clean water with flower food.

Floral preservative: ✓

Ethylene sensitivity: ✓✓

Cool storage: 2–4 °C

Special notes: Cut stems exude sap that can be detrimental to other flowers; therefore, store separately in water for about 6 hours before mixing with other flowers. Do not recut again when arranging without floral foam, or you will have to wait another 6 hours. However, if the flower food solution has a good germicide, the sap may not be harmful to other flowers. Also available as potted flowering plants, which are suitable for use as short-term indoor or outdoor display. *Narcissus* are geotropic (stems bend in response to gravity), so store upright in uniform light. Most *Narcissus* have a delicate to strong fragrance, which some people may find overpowering.



Design uses in floristry: Focal–transitional. Daffodils and jonquils are suitable for cottage-style posies, bunches and simple vase arrangements.

Dahlia

Dahlia hybrids; varieties include single, anemone, collarette, peony, pom pom, decorative and cactus-style blooms


DT

Availability: Summer to autumn

Typical vase life: 5–8 days

Stem length: Up to 60 cm; the heads of some cultivars can be large (up to 25 cm across) and heavy and are not well supported by the stems

Number of stems per bunch: 10 or variable

Colour range: White, cream, yellows; from the palest pastel shades to vibrant reds and oranges; pink, mauve, purple (including bi-colours)

Buying tips: The flowers do not ship well over long distances, so locally grown product is highly recommended. Best bought when the blooms are more than half open. Do not buy if the lower petals are brown, wilted or dropping. Check leaves for powdery mildew.

Care and handling: Must be kept well hydrated throughout the supply chain. Short vase life—prolonged cool storage is not recommended.

Floral preservative: ✓

Ethylene sensitivity: ✗ (✓ for some cvv.)

Cool storage: 2–4 °C

Special notes: While there are a wide range of colours and styles available, most dahlias available as cut flowers have smaller heads and are of the "cactus" or "pom pom" varieties. When available, these work well in a wide range of styles,


DT

including low table- and candelabra-style arrangements. Dahlias are also beautiful in sympathy arrangements.

Cut stems at an angle with sharp secateurs or a knife to ensure uptake of water. Use the appropriate flower food. Do not scald.

Design uses in floristry: Focal. Very large dahlia blooms are best displayed in a large, low float bowl. Arrangements must be kept well hydrated—top up the water daily, as they tend to use a lot of water.

Advice for your customers: Be careful when handling the large, heavy heads of dahlias, as they are easily broken from the stem.

Daphne

Daphne odora

Availability: Winter

Typical vase life: 3–5 days

Stem length: 15 cm

Number of stems per bunch: Variable

Colour range: Red buds open to pinkish white blooms.

Buying tips: Buy when the flowers are just opening.

Care and handling: Very short vase life, so do not hold in cool storage. Daphne flowers are sought after for their fragrance. If the flowers have lost their fragrance and are partly closed, they are probably past their best.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: ✗

Special notes: Highly prized for the superb and distinctive fragrance. Handle carefully. Best picked fresh and arranged in a vase immediately. White forms are available.

Design uses in floristry: Transitional and popular for fragrant posies and low glass vase arrangements.

Advice for your customers: Daphne flowers have a short vase life, which may be slightly improved by adding flower food to the water. Enjoy their special fragrance while they last!

Delphinium, Larkspur

Delphinium elatum and cvv.

Availability: Spring, summer, autumn, depending on hybrid

Typical vase life: 8–12 days

Stem length: Flowers appear in a 20–50-cm spike at the end of a 70–100-cm stem. The butterfly-type delphinium is multi-branched and has shorter stems

Number of stems per bunch: Depends on hybrid, time of year, length and size of stem

Colour range: White, yellow, pale to rose-pink, pale to dark blue, mauve-purples; all with white or black centre

Buying tips: Highly ethylene sensitive, so only ever buy flowers when you can be confident that the grower has applied an anti-ethylene treatment. Choose bunches with at least a third of the lower flowers on the spike open. Look for strong stems without damage and with straight tips. Avoid stems with petal drop, as this indicates ethylene damage.

Care and handling: Place in water ASAP. Recutting stems and the addition flower food to the water will reduce petal drop and encourage buds to open.

Floral preservative:	✓
Ethylene sensitivity:	✓✓✓
Cool storage:	2–4 °C

Special notes: Use a flower food that contains a bactericide to prevent stems going slimy and reducing vase life. Store stems upright to prevent the tips bending towards the light.

Design uses in floristry: Line, colour and light fragrance. Column-type delphiniums have longer, stronger stems and are perfect where height or length of stem is required in an arrangement. Butterfly-style delphiniums have shorter stems and more open flowers. The individual florets are perfect for wiring into wedding bouquets and accessories, especially if blue to purple accents are requested.

Dendrobium orchid, Singapore orchid

Dendrobium hybrids and cvv.

Availability: Imported all year round from various parts of Asia and domestically available periodically from Darwin

Typical vase life: Up to 3 weeks

Stem length: 20–30 cm

Number of stems per bunch: 5 or 10 (specify on your order)

Colour range: Pure white, blush to deep crimson pink, lilac-purples, green; many bi-colours, including pink/white, lilac/white, purple/white, green/white, green/purple throat; yellow, red/yellow, dark blue are dyed (be careful, as the dye is water soluble).

Buying tips: Buy when the majority of the flowers on the stem have already opened and only the top one-third are still in bud. Once cut, the buds may open but do not reach full size. Look for flowers that are undamaged in transit. Ethylene-damaged blooms will appear translucent or dry. Hold bunches up—if florets drop there could be ethylene or cold damage. Cold damage will also show as brown spots on the buds. Watch for slimy stems; if the outer skin is easily removed, stems have been stored too long in the water.

Care and handling: See "Special care for orchids" on page 22. Chilling sensitive—hold at 12–15 °C.

Floral preservative: ✓

Ethylene sensitivity: ✓✓

Cool storage: ✗

Special notes: Ensure you buy fresh product that has not been held in cool storage at any stage of the supply chain. *Dendrobium* orchids are an excellent choice for wedding bouquets and accessories year round, especially in summer.

Design uses in floristry: Focal or transitional. *Dendrobium* orchids are incredibly versatile and are suitable for all types of traditional and modern-style arrangements, sympathy designs, bouquets etc. The individual blooms and stems may be wired.

Advice for your customers: See "Special care for orchids" on page 22.

Echinacea, Purple coneflower

Echinacea purpurea

Availability: Summer

Typical vase life: 5–7 days with "petals" attached; indefinite when sold as a coneflower with petals removed

Stem length: 50–60 cm

Number of stems per bunch: Variable

Colour range: Rosy-purple petals surrounding a bronze-brown cone

Buying tips: Buy when the flowers are fully open and the petals have flexed back, or look for straight stems with fully developed cones with good colour.

Care and handling: Short vase life, so sell or use immediately.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: The colourful petals may shrivel up after about 5 days; simply remove them and reveal the cone, which will then have a good to very good vase life in modern-style arrangements and bunches, and may be dried. *Echinacea* species are significant in herbal medicine.

Design uses in floristry: Focal and transitional.

Erica, Heath

Erica spp., incl. *E. cerinthoides*, *E. baccans*, *E. sessiliflora*

Availability: Mainly winter and spring; *E. sessiliflora*, autumn to spring

Typical vase life: 7–10 days

Stem length: 40–50 cm

Number of stems per bunch: Variable

Colour range: White, red, pink, green

Buying tips: Look for fresh leaves and well hydrated blooms. Buy when at least half the flowers are open.

Care and handling: Leaves and flowers dry out easily or often drop prematurely. Remove bottom leaves, recut stems and place into fresh flower food solution.

Floral preservative: ✓

Ethylene sensitivity: Unknown

Cool storage: 2–4 °C

Special notes: Susceptible to drying out, so keep flowers well hydrated. May be used as a substitute where heather is requested—true heather (*Calluna vulgaris*) is a declared noxious weed in many parts of Australia. Most cultivated species of *Erica* originate from South Africa.

Design uses in floristry: Transitional. Suitable for vases and arranged into floral foam. May be wired for wedding designs.

Eriostemon, Eastern waxflower

Philotheca myoporoides, *Philotheca* spp., syn. *Eriostemon australasius*

Availability: Spring

Typical vase life: 10–14 days

Stem length: 50–60 cm

Number of stems per bunch: Variable

Colour range: White, white/blush pink, pink, mauve

Buying tips: Leaves should be glossy green with no sign of insect damage. Choose bunches with buds just showing colour and opening down the stem. Avoid bunches with flowers dropping and flowers that appear dry or shrivelled.

Care and handling: Short to medium vase life, so sell as quickly as possible—prolonged cool storage is not recommended.

Floral preservative: ✓

Ethylene sensitivity: Unknown

Cool storage: 2–4 °C

Special notes: The stems have a pungent citrus-like fragrance.

Design uses in floristry: Transitional. Suitable for bunches and for vase and bowl arrangements.

Eryngium, Sea holly

Eryngium spp., incl. *E. planum*, *E. maritimum*, *E. giganteum*, *E. alpinum*

Availability: Summer and autumn

Typical vase life: 7–14 days

Stem length: Up to 60 cm

Number of stems per bunch: 10

Colour range: Blue globe-like flowers with a slight metallic silver appearance, surrounded by a lacy blue-purple calyx

Buying tips: Look for fresh silver/blue, well formed heads without any brown spotting or any dried, sunburnt calyces. Avoid bunches with yellow leaves or semi-dried stems. Overnight cooling can enhance the flower colour.

Care and handling: Handle with care. While the leaves look and feel spiky, they are not thorny.

Floral preservative: ✓

Ethylene sensitivity: ✗

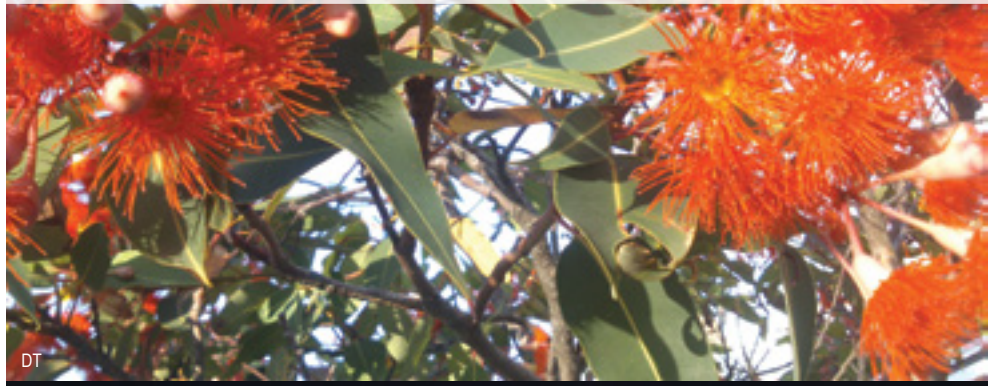
Cool storage: 2–4 °C

Special notes: Available in different forms, from the small, 2 cm globes of *E. planum* and *E. alpinum* to the large, 6 cm globes of *E. giganteum*. Look for the cultivar 'Blue Glitter', with deeper blue flowers and longer stems. Sea holly is native to Europe, although you may find it being sold as a "wildflower".

Design uses in floristry: Transitional and focal. The colour adds interest to arrangements and hand-tied bunches. Grouped blooms may be used as focal flowers. May be dried.

Eucalyptus, Flowering gum

Corymbia ficifolia 'Summer Beauty', 'Summer Red', 'Dwarf Orange', 'Summer Glory', 'Summer Snow; syn. *Eucalyptus ficifolia*


DT


LT

Availability: Late November to February; there may be limited flushes throughout the year

Typical vase life: Up to 5 days

Stem length: 45–90 cm

Number of stems per bunch: 2–5 depending on length of stem and volume of buds or blooms

Colour range: Cream, orange, bright red to dark crimson, pink; the prominent yellow of the stamens provides a brilliant contrast.

Buying tips: Choose bunches with full buds just showing colour and with the caps lifting on approx. 30% of the buds. The flowers are easily damaged, so handle carefully.

Care and handling: Prolonged cold storage is not recommended. The stems must be hydrated and kept cool at all times, otherwise they will open very quickly and may shatter and drop the colourful stamens. Short vase life, so use or sell as soon as possible.

Floral preservative: ✓ (water with added registered biocide)

Ethylene sensitivity: Unknown

Cool storage: 2–4 °C

Special notes: The foliage and gumnuts have a very good vase life, but the flowers have a short vase life.


LT

Design uses in floristry: Focal flowers and gumnuts. *Corymbia* flowers have a short vase life and are used mainly for vibrant short-term displays for functions and in sympathy designs, where these unique flowers make a colourful statement.

Advice for your customers: Advise customers of the short vase life and give them a sachet of cut flower food to take home. Keep stems as cool as possible.

Eucomis, Pineapple lily

Eucomis comosa, E. autumnalis

Availability: Mainly summer and autumn

Typical vase life: 10–14 days; up to 6 weeks when the little seed heads have formed up the stem

Stem length: Up to 60 cm

Number of stems per bunch: 5

Colour range: Green with white or purple florets

Buying tips: Buy when the lower one-third of the florets on the spike have opened. Look for straight, unblemished stems.

Care and handling: In water, the buds will continue to open. Recut stems frequently to encourage opening of the florets, and use flower food with a bactericide to keep the water clean. The heads are very heavy, so supporting the stems during transport and storage to avoid bruising and damage is necessary. Do not hold for more than 5 days in cool storage.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: Long vase life with a delicate sweet perfume.

Design uses in floristry: Line and focal. Remove the white part of the stem to aid water uptake. Best arranged in fresh water vases as the stem ends are thick and require frequent recutting and changing of the water to maximise vase life. Green flowers are very popular, as they mix well with other flowers of almost any shade.

Advice for your customers: Support the stems well during transport. Recut with a clean, sharp knife or secateurs, and place into a clean vase of water with flower food added.

Flannel flower

Actinotus helianthi


RW

Availability: Late winter to early summer, peaking in spring, but new and improved selections and greenhouse production have extended the availability to almost year round

Typical vase life: 14–21 days

Stem length: 30–70 cm

Number of stems per bunch: , variable, typically 5–15

Colour range: Creamy white with grey-green tips on the petals

Buying tips: Buy when at least one flower on the stem has partially to fully opened. Avoid tight buds, as they may droop if stems are too immature. The centre of the flower should be light green. Avoid flowers with light brown centres, as they are over mature.

Care and handling: Recut stems and place in fresh clean water with a registered biocide added.

Floral preservative: ✗

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: Flannel flowers mix beautifully with traditional flowers for soft, romantic, modern or vintage-style wedding bouquets and are a beautiful addition to wildflower bouquets.

Prolonged exposure may cause allergic reactions in some sensitive people owing to the fine hairs on the flowers and leaves.

Most flannel flowers marketed today come from commercially grown plants. In the past they were largely harvested from plants in the wild, which varied greatly in flower form, stem length and quality. Improved selections provide longer stems with larger flower heads. Do not pick flannel flowers from the bush, as they are a protected species.

Design uses in floristry: Transitional–focal. Beautiful for grouping into arrangements, in vases and in posies. May be fine-wired for wedding bouquets, boutonnières, corsages etc. Use where Australian native flowers are requested.


DT

Frangipani

Plumeria rubra var. *acutifolia*

Availability: Year round in the tropics; summer to early autumn in the temperate zone

Typical vase life: 2–3 days

Stem length: 2.5 cm; often sold stemless

Number of stems per bunch:

Colour range: White/yellow centre, pink/yellow centre, apricot/yellow centre, burgundy (less common)

Buying tips: Buy loose, by the box, or preferably picked fresh. Store blooms covered with damp tissue paper, then enclose the box in a plastic bag to avoid loss of moisture. Check that flowers are not bruised and turning black. Avoid flowers more than a day old.

Care and handling: Frangipanis are tropical flowers. See "Special care for tropical species" on page 24. Spray lightly with a fine mist of water and an anti-transpirant product such as WiltNot™, DroughtShield™ or Envy.

Floral preservative: ✗

Ethylene sensitivity: Unknown

Cool storage: ✗

Design uses in floristry: Focal flowers for bouquets. Rarely used on their own stems—commonly, single frangipani blooms are wired for wedding bouquets and accessories and placed on tables for a function, arranged down the aisle and pinned into the hair.

Special notes: The flowers emit a heady scent. Place the fresh-picked blooms in a mild saltwater solution to help prevent them from turning brown. Best picked in the early morning when the dew is still on them.

Frangipani stems exude a sticky milky sap that is poisonous to both humans and animals—avoid any contact with your eyes when handling blooms.

Be prepared to buy at least 50% more than you may need in order to cull damaged blooms. If a posy bouquet is requested and minimal frangipani is available, you can construct a posy of lisianthus or carnation heads, and then thread the wired frangipani through the posy, allowing each bloom its own space. A head of *Hydrangea* will also beautifully support and feature the blooms in the same way with less fuss.

Advice for your customers: Pick fresh blooms, preferably on the day you want to use them, store them in a cool place and be prepared to cull any damaged blooms before your event. Spray blooms with an antitranspirant product such as Yates WiltNot.

Freesia

Freesia ×hybrida

Availability: The natural flowering season is winter to early spring, but greenhouse-grown freesias are available almost year round—commercial growers chill the corms and raise flowers to meet seasonal market demand

Typical vase life: 7–10 days

Stem length: 30–60 cm

Number of stems per bunch: 10, but can be variable, especially with greenhouse-grown product

Colour range: White, yellow, orange-red, deep pink with yellow centre, deep purple, purple-blue

Buying tips: Buy when at least one bud on the spike has opened or is about to open. Avoid tight green buds, as they may not open. A premium freesia stem should have at least five healthy buds.

Care and handling: Cold storage for more than 2–3 days may diminish vase life and fragrance. Recut 2–3 cm off stems, and strip any leaves that will be under water, as they will rot quickly. Clean rainwater or filtered water is preferable, as freesias are sensitive to the fluoride in tap water, which results in leaf burning, smaller flowers and the failure of smaller buds to open.

Floral preservative: ✓

Ethylene sensitivity: ✓✓

Cool storage: 2–4 °C

Special notes: In season, field-grown blooms have a strong sweet perfume, but the fragrance of freesias grown out of season is often very light. The highly fragrant single freesia is a roadside weed in some regions of NSW, Victoria, WA and SA.

If purchasing to fill special orders, be sure to allow enough time from purchase for the blooms to open. Tight green buds bought on a winter Wednesday morning may not open by Friday or Saturday, while a late spring purchase of the same freesias given the same time frame and placed in a warm room would be just perfect. To greatly assist the opening of even the tightest of buds, add an extra tablespoon of sugar per litre of made-up floral preservative and store at room temperature.

Design uses in floristry: Transitional. May be incorporated in a wide range of floral designs, sympathy tributes, bunches, hand-held bouquets and posies. May be wired for wedding bouquets and accessories. Double and single blooms are available. Wired trail and posy bouquets look wonderful with fresh heads of freesias incorporated into the design, their green buds fashioned into the trail and the frame, adding style and movement. Freesias mix well with an extensive range of other flowers and provide an economical addition to bouquets.

Gardenia

Gardenia augusta and cvv. e.g. 'Florida', 'Professor Pucci'


DT

Availability: Late spring to early autumn; more prolific in summer; occasionally available from greenhouse production at other times of the year

Typical vase life: 3–5 days

Stem length: 10–20 cm

Number of stems per bunch: 5

Colour range: White

Buying tips: Buy when buds are unfurling or are freshly unfurled and the centre is tight. Avoid any with cream centres or browning petals.

Care and handling: May be transported in bunches if the stems are long enough ('Professor Pucci') or in an airtight plastic container (small blooms of 'Florida'). Some growers sell them prepacked in a box. On receipt, if the stems are too short for buckets, place the stems through a suspended frame of chicken wire or similar over a shallow tray of water. Handle with great care, and avoid touching the petals, as the flowers bruise easily.

Floral preservative: ✓

Ethylene sensitivity: ✓✓

Cool storage: 2–4 °C

Special notes: 'Florida' has small blooms approx. 3–4 cm across and generally has short stems 5–10 cm long. 'Professor Pucci' has larger blooms 5–7 cm across and longer stems of 15–25 cm long. 'Magnifica' also has large creamy blooms and longer stems, but they age and yellow more rapidly than 'Professor Pucci'. As vase life is short, gardenias are used for special occasions, sold or arranged immediately, and are not stored.

Design uses in floristry: Focal. Wonderfully fragrant and popular for short-term displays, especially during Christmas and New Year.

Advice for your customers: Best picked and arranged fresh from the garden or from a reliable source. Keep stems cool and keep handling to an absolute minimum.

Geleznowia, Yellow bells

Geleznowia verrucosa


DT

Availability: July to August

Typical vase life: 10 days

Stem length: 30–60 cm

Number of stems per bunch: 8–10

Colour range: Bright yellow; smaller blooms age from yellow to red.

Buying tips: Flowers should have bright yellow petals and fresh yellow pollen and appear bright and turgid. Avoid bunches with browning on bracts and leaf tips.

Care and handling: Best sold quickly. Keep flowers hydrated at all times.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: Yellow bells have a succulent appearance, with small, cup-shaped, golden yellow flowers at the ends of each branch. A darker yellow-orange form is also available. Leaves are small and olive-green and completely cover the branches.

Harvested primarily from wild stands in WA, though more recent breakthroughs in propagation methods have allowed some selections to be cultivated. Also grown as a potted plant.

Design uses in floristry: Transitional. Suitable for bunching and bowls. May be wired into wedding designs. The masses of little bright yellow blooms hold well and are a fine addition to any winter design.


KS


CC-BY-SA Casliber

Gerbera

Gerbera jamesonii hybrids and cvv.

Availability: The natural flowering season is spring to summer, but cut-flower gerberas are grown year round in commercial climate-controlled greenhouses

Typical vase life: 7–12 days

Stem length: 40–80 cm

Number of stems per bunch: 5–10

Colour range: Creamy white; white with black, green or yellow centre; yellows, gold, terracotta, orange, apricot, pumpkin, reds, pinks, magenta, burgundy, cream/green, lime/green; palest to deep and hot pinks, greens, burgundy-red, red, purple (almost every colour except blue); and bi-colours

Buying tips: Buy when outer petals are fully expanded but before pollen is shed—blooms do not continue to open after they are picked. Sensitive to unhygienic conditions, so buy with care.

Care and handling: Place in fresh, clean, preferably tank or filtered water, as gerberas dislike fluoride. Place stems in water less than 10 cm deep to avoid deterioration of the outer stem surface. Use a standard flower food. Good hygiene is essential to prevent stem blockage and *Botrytis* infection.

Careful packaging and handling are very important, as the stems are hollow and easily broken and the petals bruise easily. Gerbera stems are prone to bacterial blockages, which cause the stem to bend and the flower to wilt, so changing the water and recutting frequently are essential for maximum vase life.

Floral preservative: ✗

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: May be support-wired to hold the flower head high and straight. When gerberas are arranged in floral foam, the vase life is diminished, as the stem ends tend to rot. Some cultivars and hybrids are sensitive to fluoride in the water, and the damage shows as blueing of cerise and purple cultivars. Avoid using support wires if possible, or avoid wires that will remain below water level, as this can contaminate the water.

Design uses in floristry: Focal. Gerberas are classified by the size of bloom as mini or standard, with some variations in both. Best used in fresh water vase arrangements for maximum vase life. The heads can be as small as 7 cm (mini) or up to 12 cm across. Minis have smaller heads but higher yields and better vase life.

Advice for your customers: Flower food is essential to maximise vase life. Change the water every second day and add fresh flower food at the correct dilution. Gerberas do not like to be placed in deep water, as the furry stem rots quickly—the water should be just deep enough to prevent the vase tipping over.

Ginger, incl. Red ginger, Shell or Torch ginger, Beehive ginger

Alpinia purpurata, *Etlingera elatior*, *Zingiber zerumbet*

Availability: Year round depending on the hybrid

Typical vase life: 10–21 days

Stem length: 35–100 cm

Number of stems per bunch: or

Colour range: *Alpinia* (red ginger), red, shell pink, rose pink; *Etlingera* (shell or torch ginger), light pink, red; *Zingiber* (beehive), yellow-gold to coffee-brown

Buying tips: Choose glossy, undamaged stems, free of any blackening on the bracts; avoid flower clusters with true flowers protruding, though these may easily be removed.

Care and handling: Gingers are tropical flowers. Chilling sensitive. See "Special care for tropical species" on page 24. Flower food will help keep the water clean but is unlikely to prolong the life of the flower. To rehydrate wilted blooms, soak the whole stem and flower in room-temperature water.

Floral preservative: ✓ (fresh water with added biocide)

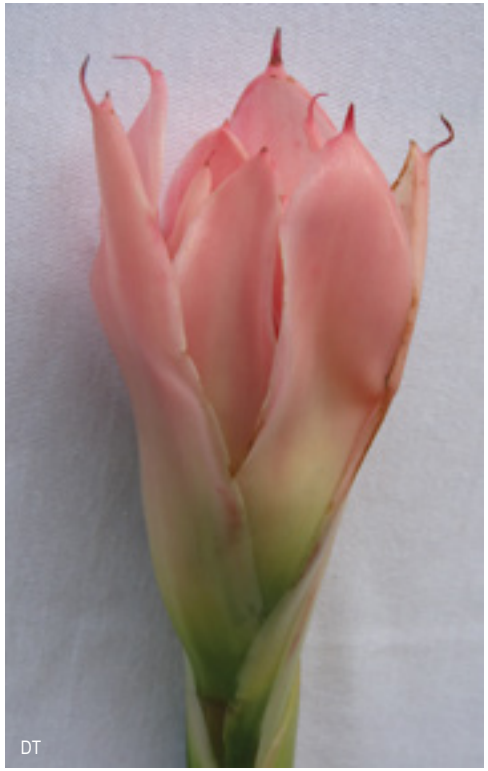
Ethylene sensitivity: ✗

Cool storage: ✗

Special notes: Beehive gingers have a very pungent but pleasant ginger smell. Store stems upright to avoid geotropic responses.

Design uses in floristry: Focal flowers for tropical, contemporary and modern-style arrangements and hand-tied bouquets. Also suitable for corporate arrangements, as the vase life is quite good, but best suited for fresh water vase arrangements in this situation. If floral foam is used, cut the stem ends into a V shape to secure the stems without breaking up the foam.

Advice for your customers: Display out of direct sunlight in a warm position away from draughts.



Gladioli

Gladiolus hybrids

Availability: Year round, though the full colour range may not be available at all times; the popular white forms are generally available year round

Typical vase life: 7–10 days

Stem length: Up to 120 cm

Number of stems per bunch: 10

Colour range: White, yellows, apricot, gold, orange, reds, burgundy, rust-red, pinks, crimson, purple-black, lilac-blue, purple/purple-black, lime-green/cream to green. All colours except true blue; not all colours are available in all seasons.

Buying tips: Buy in bud stage with one to five of the lower buds showing colour and unfurling, and at least two leaves remaining on the stem. Look for straight, strong stems without damage, and avoid stems showing orange rust spots on the leaves.

Care and handling: Lower temperatures may cause cold damage. Although gladioli have low sensitivity to ethylene, STS improves flower opening, therefore extending vase life. Gladioli are sensitive to fluoride in tap water—tank or filtered water with added flower food is recommended.

Floral preservative: ✓

Ethylene sensitivity: ✓

Cool storage: 2–4 °C

Special notes: Flowers of some hybrids are lightly fragrant. Flower forms vary, including orchid-like, tulip-like, ruffled and fringed. Gladioli are strongly geotropic and must be transported upright to avoid stem curvature.

Design uses in floristry: Line and focal flowers. Especially popular where height or length is desired in an arrangement. Universally used in large pedestal or vase arrangements and casket sprays for sympathy designs. Single flowers may be wired into wedding bouquets and accessories.

Before the development of modern greenhouse technology and year-round production of roses, the petals of open gladiolus were often used to create a "gladirose". These were created by experienced, deft-fingered florists during the winter and spring when garden roses were dormant. This technique is called "Malmaison" or "Melia".

Gloriosa lily

Gloriosa superba 'Rothschildiana'


LR

Availability: Summer and autumn

Typical vase life: 4–5 days

Stem length: Either 20 cm with no leaves or up to 60 cm with multiple flower heads

Number of stems per bunch: Variable

Colour range: Vivid red or deep cerise pink petals with yellow and green waxy edges; more recent selections include yellow, green, lemon.

Buying tips: Buy when at least one flower on the stem is fully opened. The leaves should be deep, dark green and undamaged. Sold in short bunches of single flowers or on the branch with at least one flower open and several buds. Avoid stems with brown markings, as this may indicate cold damage.

Care and handling: Do not hold below 12 °C. Mist frequently. If stems are limp, place in room-temperature or tepid water for a few minutes.

Floral preservative: ✓

Ethylene sensitivity: ✓✓✓

Cool storage: ✗

Special notes: 'Rothschildiana' is selected for its superior cut flower features. Common *G. superba* has escaped into bushland and has become a serious weed in some coastal regions of Australia, especially in the Noosa National Park. Do not dispose of these flowers into green waste—put them in the rubbish bin. See "Watch out for weeds" on page 20 for more information.

Not a true *Lilium*. All parts of the plant are poisonous.

Design uses in floristry: Focal. The petals are recurved, like the true tiger lily (*Lilium tigrinum*).


WH

Golden Morrison, Feather flowers

Verticordia plumosa, *V. nitens*, *V. serrata*, *V. brownii*, *V. grandis*

Availability: *V. brownii*, late spring to early summer; *V. grandis*, summer; *V. nitens*, late spring to early summer; *V. plumosa*, late spring to early summer; *V. serrata*, spring

Typical vase life: 1–19 days, depending on species and cultivar

Stem length: 30 cm+, but mostly 50–60 cm

Number of stems per bunch: 5–15 depending on length and thickness of stems

Colour range: *V. brownii*, cream; *V. grandis*, red; *V. nitens*, orange, yellow; *V. plumosa*, pink; *V. serrata*, yellow; not all colours may be available at any one time within the season.

Buying tips: Buy when more than 50% of the flowers are open; the buds will open following harvest. *Verticordia* are mostly wild-harvested in WA. Avoid stems with overmature flowers, large gaps between the flowers along the stem, or stems showing insect damage or fungal infection. Ensure that ethylene-sensitive cultivars have been given anti-ethylene treatment by the grower.

Care and handling: Recut stems and place in clean water in clean containers with an added biocide. Sell as soon as possible. Do not expose to full sun, draughts, exhaust fumes or high temperatures.

Floral preservative: ✗

Ethylene sensitivity: ✓✓ (varies between sp. and cvv.)

Cool storage: 2–4 °C

Special notes: May be dried, but colours fade and stems become brittle.

Design uses in floristry: Supporting focal–transitional. Australian native or wildflower bunches and contemporary or traditional-style arrangements.

Grevillea

Grevillea spp. and hybrids, incl. many cvv. with terminal flowers such as 'Moonlight', 'Majestic', 'Honey Gem'

Availability: Various forms are available almost all year, but the season is primarily November to May. Ask your grower which colours are currently available.

Typical vase life: 3–7 days

Stem length: Mostly 50–60 cm, but up to 90 cm

Number of stems per bunch: 3–6

Colour range: Cream, yellow, gold, orange-red to scarlet-red, salmon-pink/cream

Buying tips: Buy when 10% to 50% of the styles of the florets are looping out from the head. Avoid damaged and wilted flowers. Ensure that flowers are free of insect and disease damage.

Care and handling: Recut stems and place in clean water in clean containers with an added biocide. Without correct handling, and if bought too open, *Grevillea* flowers generally have a short vase life, so prolonged cool storage is not recommended.

Floral preservative: ✓

Ethylene sensitivity: ✓✓✓ and variable

Cool storage: 2–4 °C

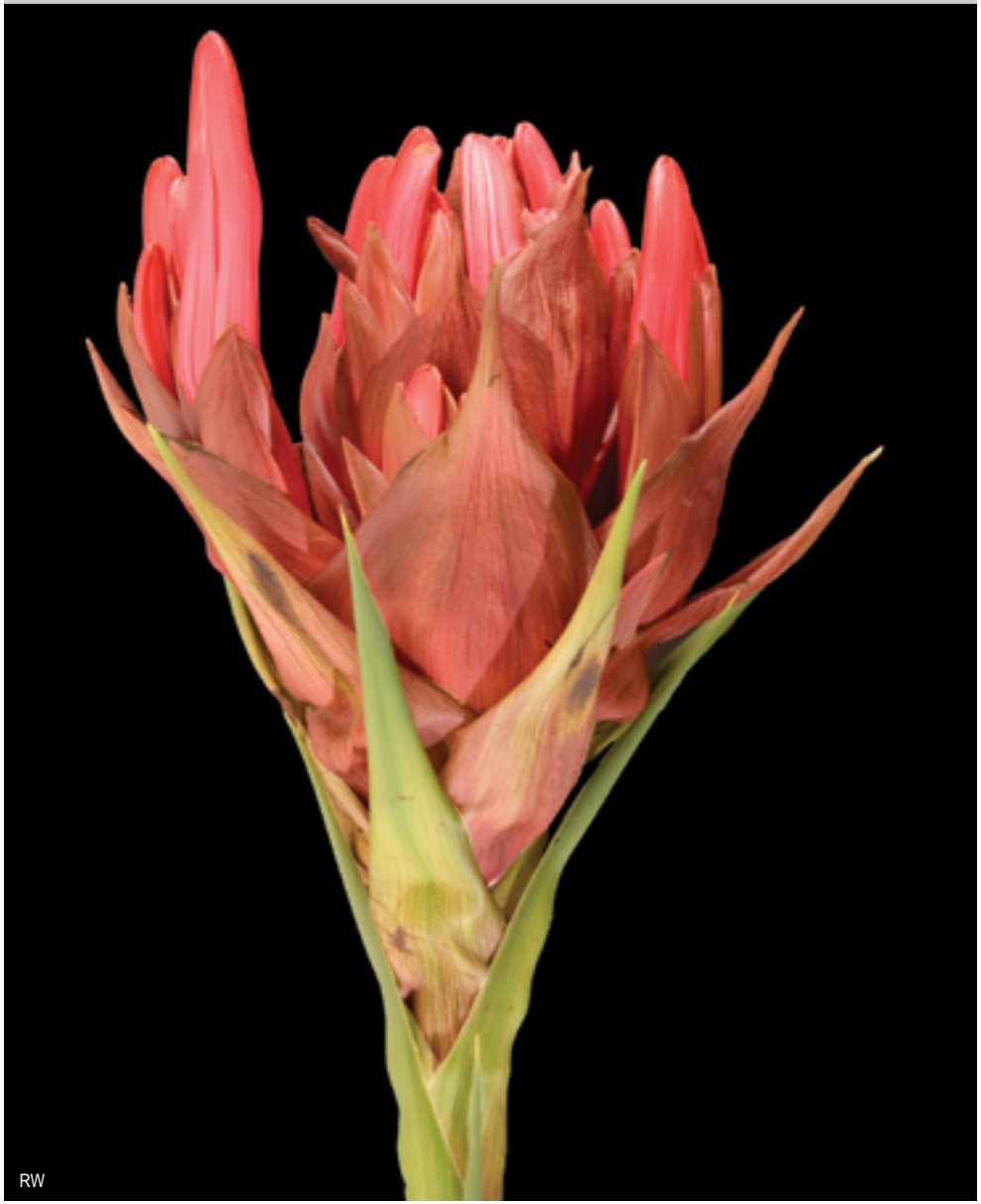
Special notes: There are a number of superb *Grevillea* foliage types with good vase life, especially *G. baileyana*, which has large lobed leaves with a silver-bronze underside. See "A–Z listing of cut foliage" for more information.

Keep the flowers and foliage hydrated at all times, as they dry out very quickly. Some people are allergic to *Grevillea* flowers and foliage and suffer skin rashes and irritation.

Design uses in floristry: Transitional or line flower. Suitable for short-term displays and often combined with other wildflowers in commemorational or sympathy designs. Vase life is improved when arranged into fresh water rather than floral foam.

Gymea lily, Doryanthes, Giant lily

Doryanthes excelsa



Availability: Winter to spring for flowers

Typical vase life: 2–3 weeks

Stem length: 60–200 cm

Number of stems per bunch:

Colour range: Vibrant red

Buying tips: The red flowers should be well formed but not yet split open (this makes them easier to transport without damage). They will continue to open after harvest. Avoid deformed or damaged blooms and choose flowers with minimal bract browning.

Care and handling: Owing to their size, the flower heads are best transported lying down, with the heads cushioned and supported to prevent damaged. To ensure you can transport it without causing damage, buy the flower when it is at the spear stage or when the individual flowers are swelling and have not yet split open. The large flower head is easily bruised. The open flowers produce abundant nectar and pollen. After transport, recut the stem and place into a bucket of clean water with a biocide added.

Floral preservative: ✗

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: The large (40–50 cm) red flower heads (inflorescence) are borne on strong stems of up to 3 m long. *Doryanthes* is a protected plant in NSW and a license is required for growing and wild-harvesting the flowers. Flower stems must be tagged.

Apart from the sensational impact the flower spikes create when used in simple designs, the individual florets may be wired into wedding bouquets or separated out and used as low placements in various designs. The vibrant green pollen on the anthers should be removed, as it will stain fabric.

Design uses in floristry: Line and form. Suitable for huge arrangements, especially in hotel foyers.

(Note: foliage is also used extensively—see "A–Z listing of cut foliage".)

Gypsophila, Baby's breath, Gyp

Gypsophila paniculata

Availability: Year round, with peak production in summer

Typical vase life: 2 days while opening; 7–10 days once open

Stem length: 50–70 cm

Number of stems per bunch: Variable

Colour range: Cream, white, occasionally palest blush pink

Buying tips: Buy when two-thirds of the florets on the branch are fully open. Do not buy if any of the florets are brown, as this indicates aged blooms. Avoid bunches with a high percentage of immature blooms, as these may not open. Buy only from growers who have treated stems with an anti-ethylene solution and a sugar and biocide pulse. *Botrytis* can be a serious problem, so inspect bunches carefully before purchasing.

Care and handling: Stems are prone to bacterial and fungal diseases, so avoid packing stems and bunches tightly together, and remove the protective plastic sleeve to ensure good air flow. A high level of humidity will promote flower opening.

Floral preservative: ✓

Ethylene sensitivity: ✓✓✓

Cool storage: 2–4 °C

Special notes: Extensive breeding and hybridisation has produced the modern *Gypsophila*. A number of recent cultivars and selections are available, including 'Million Stars', which has masses of smaller florets. Its popularity comes and goes according to the fashions of the day, but it is very popular with many customers of all age groups.

A bud-opening solution may be used for stems bought with fewer than 30% flowers open. Opening of buds can be assisted by adding 1 tablespoon of sugar per litre of flower food.

May be dried by hanging bunches upside down in a warm, dry environment.

Exposure to ethylene causes wilting of open flowers and sleepiness of opening buds.

Design uses in floristry: Transitional. Wonderful when used on its own en masse in vases and bouquets. A valuable addition to rose bunches and any floral design where a delicate, feminine look is desired.

Advice for your customers: Stems are very sensitive to water stress, so keep them hydrated at all times. Remove any leaves that will sit below the water level, and change the water frequently. Add flower food to the water. Very sensitive to intense sunlight—flowers will brown and shrivel easily if exposed to heat and direct sun.

Heliconia, Crab or Lobster claw, Parrot flowers

Heliconia spp., incl. *H. bihai*, *H. caribbea*, *H. collinsiana*, *H. chartacea*, *H. psittacorum*, *H. rostrata*

Availability: Year round

Typical vase life: 10 days to 2 weeks

Stem length: 10–100+ cm

Number of stems per bunch: or 5, depending on cultivar

Colour range: Yellow, orange, red, pink, maroon, purple, green and bi-colours

Buying tips: Blooms may easily be damaged in transit. Check for blooms with brown-black marks, as this may indicate chilling injury.

Care and handling: Handle carefully to avoid bruising flowers. See "Special care for tropical species" on page 24. Best stored at 12–15 °C—lower temperatures will cause damage. Recut stems and place in clean water immediately. Preservatives generally have little effect. Mist frequently.

Floral preservative: ✗

Ethylene sensitivity: ✗

Cool storage: ✗

Special notes: Bracts do not open further once the stem has been cut.

The largest is *H. caribbea*, with flower heads from 10 to 50 cm across.

The most familiar species, the crab claw, is *H. bihai*: the flower head stands 10–15 cm high. Sold in bunches of 5. The leaves may last well if picked mature.

The parrot flower, *H. psittacorum*, has upright flower heads that stand 10–15 cm long. All colours except blue. The leaves do not last well in floral foam.

The most common pendulous forms are *H. caribbea*, *H. collinsiana*, *H. rostrata* and *H. chartacea*. The *H. chartacea* "Sexy" cultivars are 'Sexy Pink' (a pretty pink with lime-green tips), 'Meena' (yellow) and 'Marissa' (crimson). These are usually sold singly.

Grown mainly in the NT and northern Queensland. Closely related to bananas and are therefore a prohibited import for biosecurity reasons.

Design uses in floristry: Suitable for a myriad of modern designs, including bouquets, bunches (depending on their size) and spectacular tropical-style arrangements.

Advice for your customers: Recut stems, carefully place into a vase of clean water and place in a warm position indoors away from draughts and full sun.

Helleborus, Lenten rose

Helleborus spp. and hybrids, incl. *H. niger*

Availability: Winter to early spring

Typical vase life: 4–5 days

Stem length: Flowers 30–45 cm; leaves 30–40 cm

Number of stems per bunch: 10

Colour range: White, white turning green, burgundy/pink turning green with a green centre; spotted on the inside of the petals; single and double forms

Buying tips: For best vase life, pick or buy when the green seed pods have started to form in the centre of the blooms. Do not buy soft, wilted blooms.

Care and handling: Recut stems, place in clean water in clean containers with added flower food and a biocide and keep stems cool. Short vase life, so sell or use immediately—do not hold in cool storage. If necessary to rehydrate, immerse in room-temperature water for up to 2 hours.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: There are various old and new *Helleborus* selections available that arise from species that readily hybridise with each other—so much so that identification is often difficult. Scalding the stems does not provide any vase life advantage. The blooms and buds may be carefully support-wired for wedding

bouquets and accessories. Vase life tests may be required to verify longevity.

Design uses in floristry: Transitional flowers. Suitable for posies, though may need support. Not suited for use in floral foam unless in a sympathy tribute for short-term use. Valuable for a range of floral designs.

Hyacinth

Hyacinthus orientalis and hybrids

Availability: Natural flowering season is winter to spring, but climate-controlled greenhouse production extends flowering into autumn

Typical vase life: 7–10 days

Stem length: Up to 30 cm

Number of stems per bunch: 4 or 5

Colour range: White, cream, creamy-yellow, pale to deep pink, blue, lilac, purple

Buying tips: Buy when the lower petals have coloured and are opening. The stems should be strong, and the stems and leaves should be deep green—yellowing may indicate poor nutrition or long-term storage.

Care and handling: Prolonged storage may result in cold damage and will reduce fragrance. Do not mist.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: A mass of small, bell-shaped, perfumed flowers make up the flower spike, which opens from the base upwards. The individual flowers may be wired for a wide range of designs for wedding bouquets and accessories and for religious ceremonies.

Where possible, leave the heavy white bulb in place and do not recut the stems—cut stems will continue to elongate and may become top heavy if not supported properly. The fleshy stem may be internally supported with a bamboo skewer or green heavy-gauge wire for a short-term effect, although this will reduce the vase life. Be sure to make a hole in the floral foam before inserting the stem. For maximum vase life, arrange in a vase of fresh water with added flower food formulated for bulbs.

Also available as potted colour for short-term indoor and outdoor displays. Display in a cool area with adequate natural light.

Design uses in floristry: Focal. Hyacinths may be incorporated in many traditional and contemporary designs. Mostly sought after because of the sweet fragrance.

Hydrangea

Hydrangea macrophylla, *H. paniculata*, *H. arborescens*

Availability: Summer to early autumn

Typical vase life: 7–15 days (longer if picked mature and conditioned well)

Stem length: Mostly 50–60 cm, but up to 100 cm; shorter bunches with smaller flower heads may be available early or late in the season

Number of stems per bunch: 5

Colour range: *H. macrophylla*, white (which ages to green), red, pale to deep pinks, pale to dark blues, mauve-purple; *H. paniculata*, white, ageing to pink and then green; *H. arborescens*, white-green

Buying tips: The colourful part of the flower is actually a bract; the flowers are the little tiny florets in the centre of the bract. For best vase life, 75% or more of these must be open before picking and the overall flower head must feel firm to touch.

Care and handling: Should be picked in the coolest part of the day. If left out of water for even a few minutes, the stems must be recut immediately and placed into buckets of water containing preservative solution. The heads and stems may be rehydrated by covering and soaking in water for at least 6 hours, or even overnight. However, oedema may result if left in water too long.

Hydrangeas are moderately sensitive to ethylene, and the florets may shatter if exposed too long. Check with your supplier that the flowers have been treated after harvest. Do not bash, scald or damage the stems, as bacteria will proliferate, causing internal ethylene damage and reduced vase life.

Floral preservative: ✓

Ethylene sensitivity: ✓✓

Cool storage: 2–4 °C

Special notes: Vase life is reduced in floral foam. Though hydrangeas may once have been considered old fashioned, they have gained new popularity as a versatile flower, suitable for large and small arrangements, bunches, alone or mixed with other flowers. Mature heads can provide beautiful support for mixed flowers in hand-held bouquets. Make sure the heads are mature and well hydrated or they will wilt and quickly spoil the design.

H. paniculata has white flowers ageing to pink then green. At this stage of maturity they may be picked, arranged in a vase and then simply allowed to dry. Take care when handling the stems, as they snap easily below the large, heavy head.

Mature hydrangea heads may be dried, left standing in a vase or hung upside down and allowed to dry naturally. Also available as flowering potted plants.

Design uses in floristry: Focal and supporting focal. Arranged simply in a large vase, alone or with other summer blooms. *H. macrophylla* plants will produce a number of non-flowering ("blind") stems up to 90 cm long which may be picked in early to late autumn. When hardened off they may be used in large floral displays with a vase life of 7–10 days.

Advice for your customers: Recut 2–3 cm of the stem. Hydrangeas wilt easily and use a lot of water, so to maximise vase life, check water levels daily, recut stems every other day and place into fresh solution.

Hypericum, Hypericum berries, St John's wort

Hypericum androsaemum and hybrids


DT

Availability: Natural seasons are summer and autumn, though growers can extend the season by growing plants under lights

Typical vase life: 10–14 days

Stem length: Up to 60 cm

Number of stems per bunch: 10

Colour range: Cream, brown, orange-red, pink-red, yellow-green, green

Buying tips: Buy when the berries are plump, colourful and undamaged. The brown stems and green leaves should be of good colour and not showing insect damage or fungal disease.

Care and handling: Must be kept hydrated at all times.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: The leaves tend to dry and fade before the berries, so it is a good idea to remove all, or all but a few of the top leaves. A spray of *Hypericum* berries adds design interest, and combines well with roses, carnations, calla lilies and wildflowers. The berries are also an ideal addition to autumn- and Christmas-themed wreaths and arrangements.

Hypericum perforatum is a noxious weed, so its cultivation is illegal. *Hypericum grandifolium* is used in herbal preparations. Neither produces ornamental berries, so neither is useful in floristry.

Design uses in floristry: Supporting focal and transitional. Perfect for adding colour and texture to bouquets and arrangements for any occasion.


DT

Iris, Dutch iris

Iris hollandica

Availability: Natural flowering season is spring, but commercial iris growers chill the bulbs and can produce flowers from autumn to late spring. Summer production may come from Tasmania, but vase life in hot weather is poor.

Typical vase life: 3–7 days

Stem length: 45–60 cm

Number of stems per bunch: 10

Colour range: White, yellow, blue, purple; all with a yellow throat

Buying tips: Buy when 1–2 cm of the colour is visible on the buds emerging from the green sheath. Avoid buying if the outer sheath of the flower bud is dry, or spots are evident on foliage.

Care and handling: Specialist growers and wholesalers may hold iris in dry storage for 1–2 weeks at 0 °C; flowers will open rapidly once rehydrated. Bud opening can be delayed for 5–7 days by keeping at 2–5 °C in water. To open buds, recut 2–3 cm off the white section of the stem and place in clean room-temperature water with flower food added. Frequent recutting is needed. To keep stems straight, store bunches wrapped upright in butcher's paper.

Floral preservative: ✓

Ethylene sensitivity: ✓ (varies with cv.)

Cool storage: 2–4 °C

Special notes: The blue Dutch iris is one of the few true blue flowers available to florists. If bought fresh they will last for a week, but unfortunately it is often difficult to know how long they have been held in the supply chain, and they may open and fade within 2 to 3 days. Iris are at their best when simply arranged in a glass vase. The vase life may be shortened when the flowers are arranged in floral foam.

Do not combine with *Narcissus* (daffodils and jonquils) unless the *Narcissus* are conditioned prior and separately in water for more than 6 hours. *Narcissus* exude a sap that is very harmful to other flowers, including iris.

Design uses in floristry: Line and focal. Iris are suited for bowl arrangements, bunches and presentation bouquets. If they are chosen for line use in an arrangement, leave enough space for the blooms to fully open. Not recommended for wedding bouquets, as the flowers damage and break easily.

Advice for your customers: Provide the consumer with a sachet of flower food for bulbs and recommend changing the water every few days.

Kale, Ornamental kale, Ornamental cabbage

Brassica oleracea

Availability: Autumn to winter

Typical vase life: 10–14 days

Stem length: 40–60 cm

Number of stems per bunch: ❀ or 5

Colour range: Silver-green leaves with purple, pink or cream heart

Buying tips: Look for straight stems and undamaged heads with a well formed and compact centre and showing bright colour. Avoid product with signs of yellowing.

Care and handling: As these are cabbages, it is necessary to recut the stems and change the water frequently with the addition of flower food to avoid the development of a strong cabbage smell.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: Edible. Superior hybrids especially designed for the florists' trade produce long stems and good colours. Short-stemmed cultivars are available as potted colour for short-term indoor or outdoor displays. Remove any yellow or damaged leaves from below the head.

Design uses in floristry: Focal. Popular as a colourful focal element in small- and large-scale arrangements. Long-stemmed kale may also be used in bunches.

Advice for your customers: Recut stems and remove any leaves that will sit below the water level, use flower food and change the water regularly.

Kangaroo paw

Anigozanthos hybrids, *Macropidia* spp. and hybrids

Availability: With different species and cultivars flowering at various times of the year, kangaroo paws are available virtually year round. Most are grown as field crops, but selected cultivars are grown in greenhouses (in limited volumes at times). Ask your wildflower supplier for seasonal availability or volume for special orders or colours.

Typical vase life: 10–15 days (*Macropidia* 7–21 days)

Stem length: 40–100 cm, depending on cultivar

Number of stems per bunch: 5–10

Colour range: *Anigozanthos*, yellows, yellow/green, oranges, reds, pinks, greenish-cream, green/red; *Macropidia*, black/green

Buying tips: Buy when the first one or two florets in each inflorescence are open and the flowers are not faded. The top buds should be plump, not dried or shrivelled. Avoid stems with tight buds and soft tips, as stems may droop if they are too immature when picked.

Care and handling: Prolonged cool storage will reduce vase life. Keep hydrated at all times. Frequent recutting is needed.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: Will not last well out of water. If incorporating into a wedding or funeral tribute, be sure to support the stems with other flowers.

Prolonged exposure can cause allergic reactions in sensitive people due to the fine hairs on the flowers and leaves.

Design uses in floristry: Line and transition. Appropriate in practically any design style. Use wherever an Australian native flower is requested.

Macropidia

Lavender, English lavender, French lavender

Lavandula spp. and hybrids, incl. *L. dentata*, *L. angustifolia* and various interspecific hybrids


LR

Availability: English lavender, summer only; French lavender, winter, spring, summer, or most of the year in some climatic zones

Typical vase life: French lavender, 10 days or more; stems may be left standing to dry in the container; English lavender, 10–20 days; will dry well if bunches are hung in a well ventilated area

Stem length: French lavender, 20–35 cm; English lavender, 50–60 cm

Number of stems per bunch: Variable

Colour range: Blue to purple florets, grey sepals, purple "flags" on the top of the flower spike

Buying tips: Choose bunches with the majority of the flowers on the spike open. French lavender should be picked when the flags are deep purple and unfurled. Avoid bunches with dried florets, as these are overmature.

Care and handling: Prolonged cool storage will diminish the fragrance.

Floral preservative: ✓

Ethylene sensitivity: ✓ (varies with sp. and cv.)

Cool storage: 2–4 °C

Special notes: French lavender is the most commonly grown for cut flowers. Used mainly in posies and hand-tied bouquets and in arrangements of various design styles. English lavender is used fresh in bunches and posies and also dries very well. The dried florets are used for various products, including sachets and potpourri, keeping their fragrance.

Flowers and foliage are strongly aromatic. Lavender bunches will darken the water in the buckets overnight, so while this is a freshness indicator for most other cut flowers, it is not necessarily so with lavender. It is important to smell and inspect the stems for freshness.

Hybrids grown for their oil for perfume or disinfectant qualities are quite different from those grown for cut flowers—the cut flower cultivars have a camphor scent, whereas the perfume cultivars have a Lavandin scent.

In extensive areas of Victoria and SA, *Lavandula stoechas* is a serious environmental weed, but this is *not* the florist's lavender.

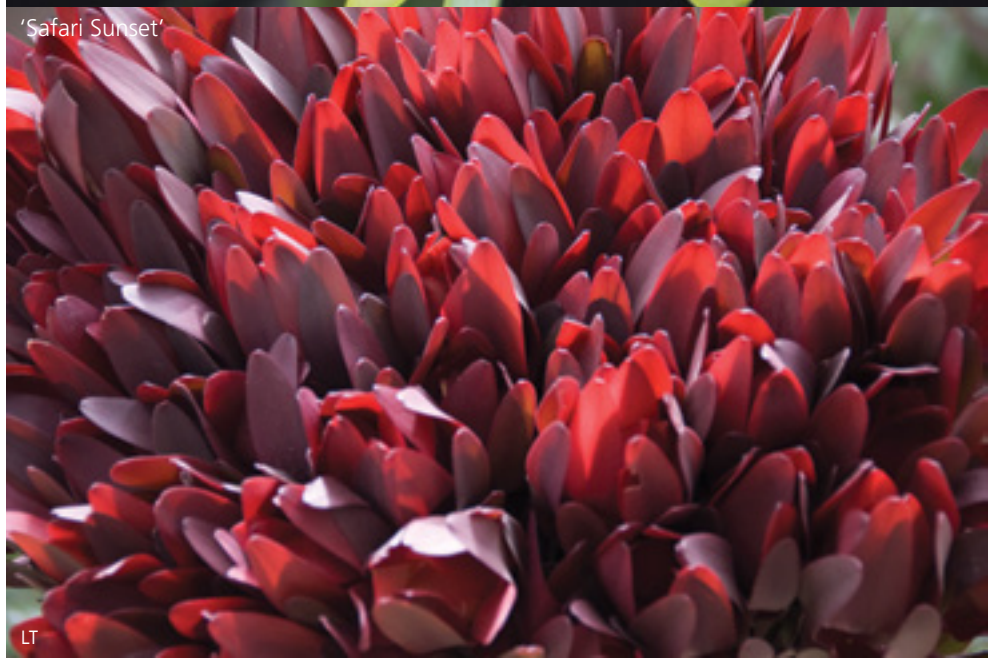
Design uses in floristry: Supporting focal and transitional.


DT

Leucadendron, Safari Red, Safari Sunset, Inca Gold, Pisa,

Leucadendron spp., hybrids and cvv., incl. *L. comosum*, *L. coniferum*, *L. discolor*, *L. floridum*, *L. laureolum*, *L. macowanii*,


LT


'Safari Sunset'
LT

Availability: Generally year round, depending on species, cultivar or hybrid

Typical vase life: 10–20 days

Stem length: 40–90 cm, depending on species and cultivar

Number of stems per bunch: 5–10

Colour range: Single and bi-colours of yellow, orange, red, pink, plum, green (colours depend on hybrid)

Buying tips: Avoid product with dull or dried-out bracts or leaves or with brown tips on the leaves or bracts. Avoid product with obvious insect damage.

Care and handling: Can be held for up to 4 days dry, or 1 week in water. Stems need to be neatly cut, not crushed. Use flower food.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: The "petals" are actually modified leaves, hence the long vase life. Available as single or multiple flowering stems, depending on species and cultivar.

When picked at a more mature stage, the central cone is a more conspicuous feature.

Design uses in floristry: Line and transitional. Extensive use in bunches, bowls and hand-tied bouquets, either singly or mixed with traditional or other wildflowers. Also suitable for wildflower and tradi-


LT

Above 'Gold Strike'; below 'Jubilee Crown'.


LT

… Christmas cones

… *L. orientale*, *L. salicifolium*, *L. salignum*, *L. xanthocomus*

tional wedding bouquets and accessories. They may also be wired. Long-stemmed cultivars are perfect for use as line material in tall arrangements and in sympathy designs.

Advice for your customers: Discard other flower types in the same vase when they reach the end of their vase life, as the *Leucadendron* will generally hold considerably longer.

Snapshots of major Leucadendrons

There are many hybrids and cvv. available—consult your supplier for details of the latest selections.

Leucadendron 'Pisa': Multi-branched stems with silvery green leaves, each terminating in a flower head featuring yellow to lime-yellow bracts. Available August–November.

Leucadendron 'Safari Sunset': Long upright stem with dark green leaves and large wine-red goblet-shaped flower head at the tip. As the flower head matures late in the season, the central large woody cone becomes more prominent. Available February–December.

Leucadendron 'Jubilee Crown': Multi-branched stems densely covered with narrow green leaves, with a strawberry pink to red round cone. Available August–December.

'Pisa'.

'Jubilee Crown'.

'Pisa' at cone stage.

Leucospermum, Pincushions, Fire wheels

Leucospermum spp. and cvv., incl. *L. glabrum* × *L. lineare*, *L. patersonii* × *L. cordifolium*


RW


LT

Availability: July–August to December

Typical vase life: Up to 18 days

Stem length: 40–90 cm

Number of stems per bunch: 7 or 5

Colour range: Yellow/orange, orange/red, yellow, red

Buying tips: Buy when 30% to 75% of the pins (styles) are curved out (but not pointing straight up). Avoid stems with more than 1 flower head.

Care and handling: Handle with care to avoid breaking off the pins.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: The heads snap easily from the stem, so take care in handling.

Design uses in floristry: Focal. Suitable for a wide range of wildflower designs. The dazzling colours complement and enhance many traditional and tropical floral designs.

Left 'Tango'; below 'High Gold'.


RW

Liatris

Liatris spicata

Availability: Mainly summer and autumn; imported blooms extend the season

Typical vase life: 7–10 days

Stem length: 60–80 cm

Number of stems per bunch: 10

Colour range: White, lilac-pink, purple

Buying tips: As *Liatris* florets open from the top downwards, buy when only the top florets have opened. The entire stem should be firm to the touch. Avoid bunches in which the lower leaves have blackened.

Care and handling: Open bunches and arrange stems loosely to avoid the lower leaves from going mouldy. Change water frequently, as *Liatris* will discolour and foul the water. Maintain good air circulation and low temperatures, as they are very susceptible to *Botrytis*.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: Remove bottom leaves, since they can rapidly deteriorate if held under water. Recut stems and place into a fresh flower food solution. The sugar in flower food is very important in opening up more flowers per stem and thereby doubling the life of the entire inflorescence. Leaf blackening due to heat damage can be a problem, as *Liatris* is very susceptible to heat damage during transport owing to its high respiration rate. Chilled transport is essential in order to avoid this problem.

Design uses in floristry: Line. As the stems are slender, they are perfect for incorporating into arrangements in floral foam. Used for colour, height and line. The blooms open from the top down and are thus perfect for colourful mixed bunches. Suitable for use in parallel and naturalistic-style designs.

Lilac

Syringa vulgaris

Availability: Early to mid spring

Typical vase life: 5–7 days

Stem length: 50–60 cm, but may be shorter at the beginning or end of the season

Number of stems per bunch: Variable

Colour range: White, pink, mauve, purplish-red

Buying tips: Buy when the flowers have started to open. A strong fragrance is a sign of freshness. Avoid bunches with marked or brown florets and those that drop florets when gently shaken. Do not crush stems. Cut at an angle with clean secateurs or a sharp knife.

Care and handling: Short vase life, so sell or arrange as quickly as possible. Keep stems hydrated at all times during the supply chain. Do not store dry.

Floral preservative: ✓

Ethylene sensitivity: Varies with sp. and cv.

Cool storage: 2–4 °C

Special notes: Lilac is a fabulously fragrant spring flower, suitable for vase arrangements, hand-tied bunches and wedding bouquets, providing other flowers or foliage are used for support and the stems are kept well hydrated.

Flower food is recommended to extend and maximise vase life; it is best to strip all the leaves except those nearest the flower head, as this will assist solution uptake.

Design uses in floristry: Transitional–focal.

Advice for your customers: Supply a sachet or two of flower food to ensure maximum vase life. Advise customers to recut stems, place in a clean vase of water with the flower food, and display away from fruit and vegetables.

Lilium, Lily, Orientals, Regals, Novembers, Asiatics

Lilium hybrids and cultivars, incl. *L. longiflorum* × Asiatic (LA) hybrids, *L. longiflorum* × Oriental (LO) hybrids

Lilium longiflorum is known as the Trumpet, November or Christmas *Lilium*; and *Lilium regale* is known as the Regal *Lilium*.

Availability: Grown year round in climate-controlled greenhouses

Typical vase life: 10–14 days (more for some Oriental hybrids), during which time flowers will continue to open

Stem length: 60–100 cm depending on hybrid, growing conditions and season

Number of stems per bunch: 5

Colour range: LAs and Asiatics, cream, yellows, orange, orange/red, rust-red, pinks, burgundy; some bi-colours; some with brush marks in the throat; Orientals, clear white, cream, yellow, palest to deep dark pink, burgundy; some with a spotted throat and some a full deep rich colour; new colours are being introduced each year; Novembers, white with a very pale soft green throat and yellow anthers, white with a purple throat; Regals, white trumpet-shaped blooms with a pink-purple reverse.

Buying tips: Buy in bud stage, with the majority of buds showing some colour. Bright green, undamaged leaves indicate freshness. Buy early and allow time for the blooms to open. Avoid bunches with broken buds and crushed leaves indicating rough handling. Always buy sleeved liliums. Avoid flowers with yellow leaves, which may indicate excessive storage.

Liliums, like any other flower, are prone to variations in supply.

Care and handling: Avoid holding for a prolonged periods as buds may not open or may open damaged and opaque. Flowers and buds bruise easily. Liliums tend to use a lot of water, so make sure you recut the stems and top up every day and then replace the water every few days. Use clean fresh water in clean containers with flower food added. If bought in tight green bud in warm weather, allow at least 4 or 5 days for the first two or three blooms to open. In cold weather, allow at least a week for Oriental buds to open.

Floral preservative: ✓

Ethylene sensitivity: ✓✓–✓✓✓ (variable)

Cool storage: 2–4 °C

Special notes: Not all "lilies" are true lilies (genus *Lilium*). True lilies grow from underground bulbs.

Orientals come in pinks, reds and whites. They have large, highly perfumed flowers. The leaves are larger than in the Asiatic hybrids. Cultivars include 'Nova Zembla' (white), 'Sorbonne' (pink) and La Mancha (red). Large up-facing buds are preferred.

LAs are hybrids between *L. longiflorum* and Asiatics. Most have a slight perfume,

and the colour range is similar to that of the parents. The stems are long and strong. When in bud it is easy to distinguish LAs and Asiatics from the Orientals as they have smaller mid-green leaves. LAs have virtually replaced the Asiatics, as they are quicker to flower, are more cold tolerant for the grower and have more attractive foliage.

L. longiflorum (Christmas or November liliums) have one to five long, tubular-shaped blooms in the inflorescence, for example 'White Heaven' and 'White Elegance'.

LOs are hybrids between *L. longiflorum* and Orientals. Most new hybrids are upward facing and have a slight perfume. They come in white, pink, burgundy and bi-colours of these.

OTs are hybrids between Orientals and trumpet liliums. This is reportedly the most exciting direction of breeding, bringing new colours into Oriental liliums. Available in white, pink, yellow, burgundy and bi-colours, for example 'Robina' (pink) and 'Belladonna' (yellow).

NB: *Lilium formosana* is an invasive weed, not to be confused with other lilies.

Remove the anthers before the pollen matures (becomes fluffy), especially from Orientals and November liliums, as the pollen stains fabric, and the stain is very difficult to remove. If the pollen has started to develop, catch it in a tissue; failure to remove it will devalue the bloom by staining it, rendering it unsaleable. The pollen will not wash off the petals; to remove it, wrap some sticky tape around your fingers and very carefully dab the pollen.

Design uses in floristry: Focal. Asiatics and LAs are most suited to bunching and arrangements, though are not considered suitable for wedding bouquets, as the petals break and bruise easily.

Orientals and *L. longiflorum*: A wide range of uses, including bunches, vase and bowl arrangements and bouquets. May be wired for wedding designs, though considerably more reliable when arranged into a posy holder in warm to hot weather.

LAs and Asiatics: Growers have almost completely replaced Asiatics with the hybrid LAs, which have larger blooms and stronger petals in a very similar colour range.

Advice for your customers: All parts of *Lilium* plants are extremely toxic to cats. Lily poisoning causes acute kidney failure and death (ingestion of less than one leaf can be fatal). Remove anthers as the flowers open, to avoid staining. Pollen on clothing or other fabric can be removed with sticky tape; never rub with water.


DT


WH


DT

Lily of the valley

Convallaria majalis

Availability: Spring briefly (late September to mid October)

Typical vase life: 4–6 days

Stem length: 20–25 cm

Number of stems per bunch: 10

Colour range: White, palest pink

Buying tips: Buy when the first bell has lost its deep green colour and is white. If the terminal flower is deep green, the flowers have been harvested too early and may fail to open.

Care and handling: Short vase life, so cold storage is not recommended for more than a day or two. Likely to be ethylene sensitive, but unknown at this time. To be safe, buy flowers that have been treated with an anti-ethylene product.

Floral preservative: ✓

Ethylene sensitivity: Unknown

Cool storage: 2–4 °C

Special notes: This is a much sought after and special traditional flower, especially for wedding bouquets and accessories. Flowers have a pleasant light fragrance. Will wilt quickly if exposed to heat or poor air circulation. Must be kept hydrated throughout the supply chain. Use the recommended dose of flower food in clean water.

Design uses in floristry: Transitional.

Advice for your customers: Flowers will not last well if they are exposed to heat. Recut the stems and place in clean water in clean vases in a cool place with adequate ventilation.

Lisianthus

Eustoma grandiflorum, *E. russellianum* hybrids and cvv.

Availability: Year round, though may be scarce in winter and early spring

Typical vase life: 7–14 days

Stem length: 40–60 cm; 10–15 cm sometimes available

Number of stems per bunch: Variable

Colour range: Pure white, cream, yellow, pinks, carmine, burgundy, lilacs, lavender-blue, purple, lime-green and many bi-colours of the above

Buying tips: At least two or three flowers on the stem should be open, with some buds starting to show colour. Tight buds will fail to open. The leaves should be plump and fresh. Avoid bunches with slimy stems and yellow lower leaves.

Care and handling: Recut the stems frequently and place in fresh water with flower food. Remove any aged lower flowers. The flowers, leaves and stems are all susceptible to *Botrytis*, so arrange stems loosely for good air circulation. Protect from high humidity and from water dripping on the blooms. Lisianthus is ethylene sensitive, though symptoms may take a few days to develop.

Floral preservative: ✓

Ethylene sensitivity: ✓ (variable)

Cool storage: 2–4 °C

Special notes: Improved, selected forms were introduced in the early 1980s and have since become indispensable to

florists. Miniature varieties such as the Rosita series have many petals and have the appearance of a rose. Available as flowering pot plants for both indoor and outdoor decoration. Display in a cool partially shaded area. Do not allow the flowering plants to dry out.

Design uses in floristry: Transitional and focal. Available in single, semi-double or double blooms. May be used across the vast array of floral designs for every occasion. Performs well in wired wedding bouquets and accessories and will compliment a wide range of wildflowers, especially flannel flowers.

Advice for your customers: Display in a clean container with flower food added to the water. Another solution that reportedly works well is 50% carbonated water (i.e. soda water + water).

Lotus, Sacred lotus flowers, Lotus pods

Nelumbo nucifera

Availability: Summer

Typical vase life: Flowers, 4–5 days; pods, indefinitely

Stem length: 100+ cm

Number of stems per bunch: 10

Colour range: White, pinks, reds; green pods (a new form is available with a hint of pink)

Buying tips: Buy flower buds that are just starting to open. Buy the fresh pods when they are an even green without blemish, uniform in size and firm to touch.

Care and handling: Tropical care—do not place in cool storage. Handle flowers carefully, as they are delicate and must be transported in water. The long stems require support during transport and are best wrapped for support; the pods will easily snap below the large seed head if not handled carefully.

Floral preservative: ✓

Ethylene sensitivity: ✗ (believed to be low)

Cool storage: ✗

Special notes: The short-lived flowers are popular for their simple style. The pods are often set at an angle to the stem, are brittle and will break easily. The flowers, leaves and seeds are all edible. Traditionally used for Buddhist and Hindu ceremonies. There are single and double forms.

Design uses in floristry: Focal flowers and pods. The lime-green pods are a favourite with floral designers and are arranged with traditional, tropical and wildflowers. Also popular for hand-tied bunches, grouped low or standing tall in modern and tropical-style arrangements of small, medium or large proportions. The pods are often incorporated into hand-tied and wired wedding bouquets, and they work especially well with tropical flowers, especially white *Phalaenopsis* orchids.

Advice for your customers: The flowers and the large green pods use a lot of water. Recut the stems and place in a clean vase of water with flower food added.

Marigold, African marigold, Aztec marigold

Tagetes erecta hybrids

Availability: Summer

Typical vase life: 7 days

Stem length: 60–80 cm

Number of stems per bunch: Variable

Colour range: Yellow, orange

Buying tips: Buy when the flowers are more than 75% open.

Care and handling: Use preservative. Buy bunches with fully open flowers and fresh green leaves.

Floral preservative: ✓

Ethylene sensitivity: ✓✓ (variable)

Cool storage: 2–4 °C

Special notes: This annual flower is often considered to be old fashioned, but it does have an important place in floristry as a relatively inexpensive bunching flower. Look out for these in the market and buy for inexpensive display material with eye-catching and intense winter colour. The flower petals are edible and are often added to salads—take care to buy flowers grown for edible uses rather than using flowers produced for the cut flower market.

Significant in Nepal, where marigold garlands are used in almost every household, especially during the Tihar festival.

Design uses in floristry: Transitional–focal. Mainly sold in simple bunches. Also available as flowering potted plants.

Advice for your customers: Strip leaves that will be under water and place in a clean vase with flower food added. Avoid use in floral foam, as the stems are thick and irregular. Display potted plants in bright light.

Molucca balm, Irish green bells

Moluccella laevis

Availability: Summer and autumn

Typical vase life: 8–10 days

Stem length: 50–80 cm

Number of stems per bunch: Variable

Colour range: Tiny white florets with green calyces

Buying tips: Buy when the majority of the bells are open.

Care and handling: Place in clean water with flower food added. Recut stems frequently to prevent the spike tip drooping. The leaves are usually removed before marketing. The stems have very small spines that may cause skin irritations.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: The leaves emit a strong odour when crushed. Reportedly may aggravate asthmatic symptoms. The stems are phototropic and will bend towards the light, so wrap bunches in paper to keep the stems straight.

Design uses in floristry: Line and form. The long green stems are excellent when used to create line, space and form and will tone well with flowers of any colour.

Nerine, Guernsey lily

Nerine bowdenii, N. sarniensis

Availability: Late summer to autumn

Typical vase life: 10–14 days

Stem length: 40–50 cm

Number of stems per bunch: 10

Colour range: White, red-orange, pink, crimson

Buying tips: Buy when the oldest flower is partially to fully open. Tight buds will not open.

Care and handling: Low temperatures may retard flower development. Keep stems well hydrated throughout the supply chain.

Floral preservative: ✓

Ethylene sensitivity: ✗–✓✓✓ (variable depending on sp. and cv.)

Cool storage: 2–4 °C

Special notes: Nerines are bright, colourful and economical. The flower head is made up of 6 to 12 florets that naturally look twisted. *Lycoris* spp. are very similar and are often sold as "nerines", but they have wider petals, 4 or 5 flowers per stem, long, slightly curved stamens, and yellow or red petals.

Flower food added to the water will assist bud opening. Remove the dried brown sheath that protected the buds while they were forming.

Design uses in floristry: Focal or transitional. May be used in almost every facet of floristry—in hand-tied bunches, bowls, wedding bouquets and accessories. Grouped or single stems can be arranged on their own or mixed with other traditional flowers.

Nut top, Drumsticks, Cone flower

Isopogon anemonifolius, *I. cuneatus*, *I. latifolius* and cvv.

CC-BY-SA Doug Beckers

Availability: Winter to summer depending on spp. and cvv.

Typical vase life: 10–14 days

Stem length: 50–60 cm

Number of stems per bunch: Variable

Colour range: *I. anemonifolius*, creamy-yellow, grey; *I. cuneatus*, *I. latifolius*, rose-pink to mauve

Buying tips: Buy when the long, thin florets at the base of the flower head are starting to extend. The whorl at the base of the cone should be starting to open. Avoid heads with webbing or damaged leaves and stems.

Care and handling: Keep well hydrated.

Floral preservative: ✓

Ethylene sensitivity: Unknown

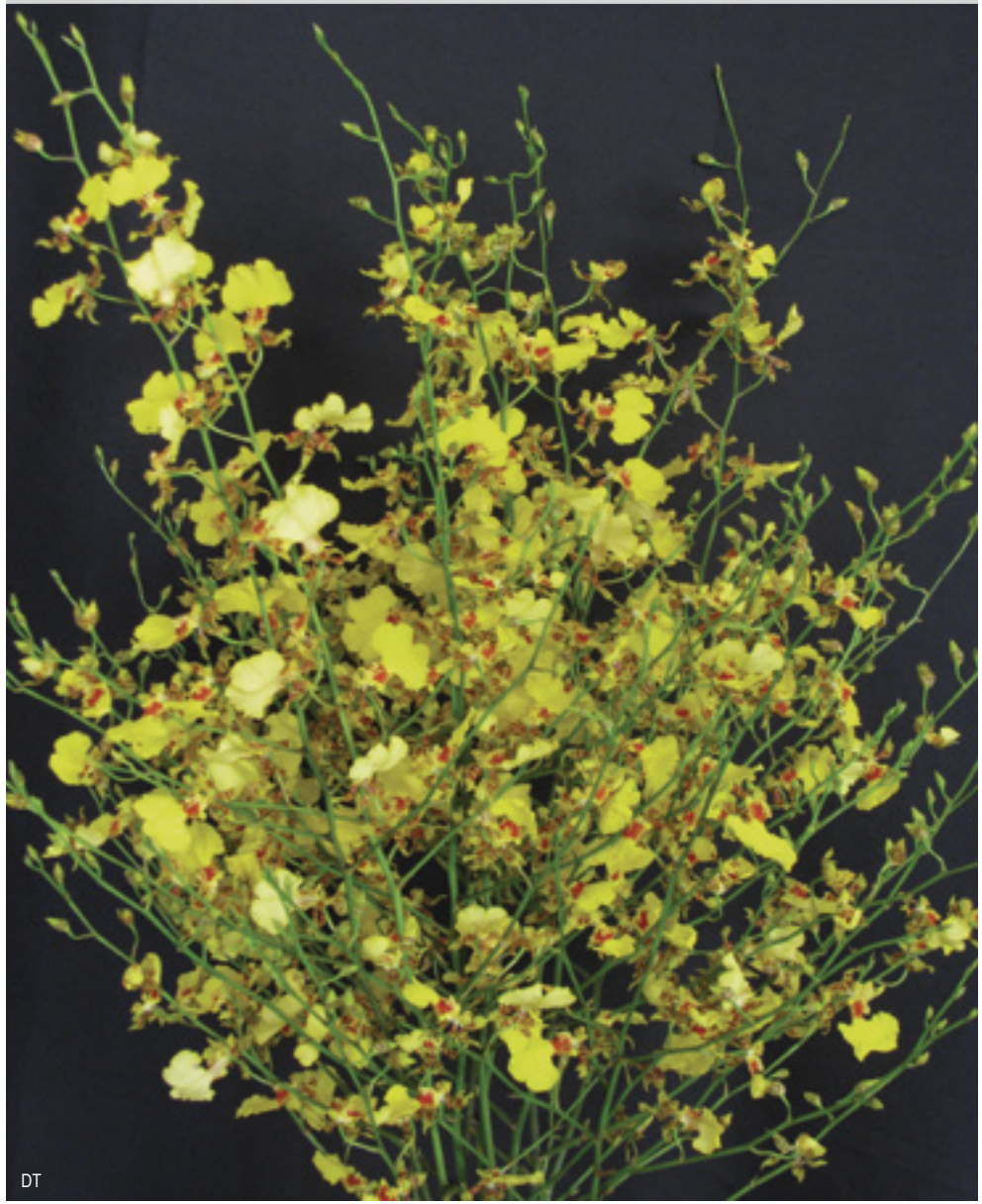
Cool storage: 2–4 °C

Special notes: Nut top is commonly wild harvested, so quality may vary. New cultivars of cone flowers available from plant nurseries may offer a broader range of cultivated product.

Design uses in floristry: Transitional and foliage with a good vase life.

Oncidium orchid, Dancing lady orchid

Oncidium flexuosum, syn. *O. crispum*



Availability: Year round (imported blooms); also available as locally grown potted plants

Typical vase life: 7–10 days (stems of potted orchids last 14–30 days)

Stem length: 60 cm

Number of stems per bunch: 5

Colour range: Yellow

Buying tips: Buy when most of the flowers on the spray have already opened. Check that bunches are not developing *Botrytis*. Shake bunches to make sure blooms are not dropping (shattering), which indicates ethylene damage. Purchase only from suppliers who treat flowers with an anti-ethylene compound.

Care and handling: See "Special care for orchids" on page 22. Chilling sensitive—hold at 12–15 °C.

Floral preservative: ✓

Ethylene sensitivity: ✓–✓✓

Cool storage: ✗

Special notes: The flower lip resembles a crinoline, with the top part of the flower resembling the body of a tiny dancer. Look for the exciting new brown-burgundy 'Cherry Baby' cultivars. Potted *Oncidium* also include brown flower shades.

Susceptible to *Botrytis* infection. Do not store in the plastic sleeve—remove the sleeve and allow the air to circulate around the blooms.

Design uses in floristry: Transitional.

Advice for your customers: See "Special care for orchids" on page 22.

Peony, Peony rose

Paeonia lactiflora hybrids and cvv.


WH

Availability: November to December; imports from the Northern Hemisphere extend the season to April and May

Typical vase life: 5–7 days

Stem length: Up to 50 cm

Number of stems per bunch: 5

Colour range: White with just a few dark pink petals in the centre; cream, pale pink to hot pink, red, salmon, deep burgundy

Buying tips: Buy plump buds with the petals unfurling and clearly showing colour. Flowers more than 50% open are more prone to handling damage. Peonies are very delicate but will last about 5 days with minimal handling. Check that the stems and leaves are clean and unblemished. Imported blooms are shipped dry and will open quickly when recut and placed in water.

Care and handling: Place in clean water with flower food added to encourage opening. Susceptible to *Botrytis*. Short vase life, so sell quickly.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: Lightly scented. Highly prized for their great beauty. Australian-grown peonies are usually available from the first week in November to mid December, but availability can vary by up to 2 weeks either way. Don't promise supply until the season has started. Imported blooms are available in April and May, but check with your supplier.

Design uses in floristry: Focal. Bunching, bowls, hand-tied bouquets. Peonies are not a rose but they do resemble the full, multi-petalled-style heritage roses and are popular for natural-stem, hand-tied wedding bouquets. Heritage-style and David Austin roses, when in season, are a great substitute to achieve the full open rose look for wedding bouquets.

Advice for your customers: Arrange into a sparkling clean vase of water with flower food added to ensure continuing opening of the buds.


AS

Phalaenopsis, Moth orchid

Phalaenopsis spp. and cvv.


DT

Availability: The natural season is spring, but climate-controlled greenhouse product is generally available year round, and white blooms are imported year round

Typical vase life: 7–10 days

Stem length: 40–60 cm

Number of stems per bunch: 1 in vials or up to 10 blooms on the stem

Colour range: White with purple/pink centre, white with green/yellow centre, rust-red, pink stripe, lilac-pink, lilac, mauve with yellow or purple centre, creamy lime-green

Buying tips: Buy when the flowers are open.

Care and handling: See "Special care for orchids" on page 22. These flowers bruise easily and respond to frequent recutting, misting and changing of water. The addition of floral preservative will help keep the moisture level high and avoid flower drop. Wilted blooms may be floated for 1–2 hours in a shallow bowl or bath to rehydrate. Chilling injury and ethylene damage appear as translucent or dried patches on petals and sepals. Avoid damaging the pollen cap, as this will speed up the wilting process.

Floral preservative: ✓

Ethylene sensitivity: ✓✓

Cool storage: ✗

Special notes: Handle with great care, as the blooms mark very easily. When wiring into wedding bouquets, pack the stem ends with moist cotton wool tips before wrapping in white Parafilm® florist's tape. Support each bloom with three very small support-wired ivy leaves reversed to the back of the bloom; fold a covered wire between the centre throat and the petals to create a "stem"; then wrap all the wires neatly together with florists' stem wrap. You can use a diluted spray of antitranspirant to protect the blooms from moisture loss in the finished bouquets. Carefully enclose the bouquet completely in a large plastic bag and place in a cool part of the house until the bride is ready to carry it.

Also sold as potted plants.

Design uses in floristry: Focal. May be arranged on their stems in modern-style arrangements. Beautiful wired into wedding bouquets, corsages and posies either on their stems or singly.

Advice for your customers: See "Special care for orchids" on page 22.

Phylica, Featherhead

Phylica spp.

Availability: Foliage in winter, flowers in spring

Typical vase life: 10–14 days

Stem length: 30–50 cm

Number of stems per bunch: Variable

Colour range: Green, green-yellow

Buying tips: Look for clean, undamaged, insect-free foliage. Avoid branches with any brown tips or brown leaves.

Care and handling: Keep foliage cool and well hydrated throughout the entire supply chain.

Floral preservative: ✓

Ethylene sensitivity: Unknown

Cool storage: 2–4 °C

Special notes: A distinctive South African wildflower with yellow-green needle-like foliage that encircles the spring flower heads.

Design uses in floristry: Transitional–focal, bunches, arrangements. Will blend well with other wildflowers or traditional flowers.

Pieris, Andromeda, Lily of the valley bush

Pieris japonica, P. forrestii hybrids and cvv.

Availability: Late winter to mid spring

Typical vase life: 7 days

Stem length: 25–40 cm depending on cv.

Number of stems per bunch: Variable

Colour range: White, white with gold calyx, pinks

Buying tips: Buy when the flowers are 80% to 100% open. Avoid blooms that are dropping or turning brown, as this indicates aged blooms.

Care and handling: Use flower food.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: The stems may be as short as 15 cm on *P. japonica* cultivars. *P. japonica* is a small to medium evergreen bush, and the pink or white flowers appear along pendulous stems. *P. formosa* is a large evergreen bush, and the white flowers appearing along the stems are less pendulous than *P. japonica*.

Design uses in floristry: Transitional. Suitable for wiring into bridal designs or in hand-tied bouquets. The naked buds form on the bush as early as April, but don't be fooled into thinking they will open early—they lie there until winter or spring. The buds are a beautiful addition to a bouquet or wedding design if you can pick them early.

Pineapple, Mini pineapple

Ananas comosus, *A. bracteatus*

Availability: Summer and autumn

Typical vase life: 21–28 days

Stem length: Up to 30 cm

Number of stems per bunch:

Colour range: Orange-red, green

Buying tips: Choose undamaged fruit (as for an edible pineapple).

Care and handling: Tropical care—hold at 12–15 °C.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: ✗

Special notes: *Ananas* are quite spiky. Although they are ethylene resistant, they do give off ethylene, so consider this when placing with ethylene-sensitive flowers. *Ananas* is a member of the bromeliad family.

Design uses in floristry: Focal. Used as a feature in contemporary and tropical-style designs. Long-stemmed specimens may be used in bunches. They have an excellent vase life and are a superb focal adjunct for corporate arrangements.

Advice for your customers: Not edible. See "Special care for tropical species" on page 24.

Poppy, Iceland poppy

Papaver nudicaule

Availability: Late winter to spring

Typical vase life: 3–5 days

Stem length: Up to 50 cm

Number of stems per bunch: Variable

Colour range: White, yellows, orange, reds, salmon, pinks

Buying tips: Buy when the hooded calyx has just split to reveal the colour of the petals inside.

Care and handling: Short vase life and thin stems, so sell quickly—cool storage is not recommended. Geotropic—keep upright or ship flat to avoid the stems bending.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: Do not mix with jonquils and daffodils unless those flowers have been conditioned in flower food for at least 6 hours. Do not scald, as this will damage the stem and encourage bacterial growth, allowing the stems to decay quickly. Burning stem ends will reduce their ability to take up solutions. Both were once the preferred postharvest treatment, but both methods are counterproductive. Use of a rehydrating solution is preferable.

Design uses in floristry: Simple, singular flowers, recommended for simple vase arrangements or in mixed spring posies. Not suited for arranging in floral foam or in bridal bouquets.

Protea, King Protea, Queen Protea, Mini king Protea, Pink Ice,

Protea spp., hybrids and cvv.


LT

Above 'Pink Ice'; below King Protea.


RW

incl. *P. cynaroides* (e.g. King and 'Mini King'); *P.* 'Grandicolor'$^{\Phi}$; *P. neriifolia* (e.g. 'Frosted Fire'), *P. neriifolia* × *P. susannae* 'Pink Ice'; hybrids such as 'Candy', 'Christine', 'Kurrajong Rose', 'Possum Magic'; *P. repens* and selections (e.g. 'Honeyglow', 'Ruby Blush') and hybrids (e.g. 'Clark's Red'); *P. magnifica*

Availability: *P. cynaroides*, most of the year, with a peak in July–December; *P.* 'Grandicolor', autumn (March–May) and spring (August–November); *P. magnifica*, September–November; *P. neriifolia*, *P.* 'Pink Ice' (*P. neriifolia* × *P. susannae*), February–August depending on location; *P. repens*, January–July.

Typical vase life: Up to 2 weeks, then may be dried

Stem length: 40–80 cm (*P. cynaroides* up to 100 cm)

Number of stems per bunch: or 5

Colour range: White, cream, red, pale to deep pink, green

Buying tips: Look for straight, strong stems. The flower head must be fully formed and at mature size with undamaged bracts opening evenly to reveal the central dome. The flower size should be proportional to the length of the stem. Reject stems with prominent ugly stubs below the flower head, where bypass growth was removed too late.

Avoid overmature, deformed, dull or poorly coloured flower heads. Avoid stems with leaf blackening, leaf yellowing or spotting, insect or disease damage, or live insects.

Care and handling: Special care is needed to avoid leaf blackening (see below). Frequent recutting of stems, frequent changes of water and the addition of flower food are recommended. *P. repens* and other species known to be prone to leaf blackening are not suitable to be held in cool storage and must be sold quickly. It is a myth that proteas (and wildflowers in general) may be held out of water without loss of vase life—good hydration throughout the supply chain is essential.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: Proteas originate from South Africa and are often mistaken for Australian natives, perhaps because they are members of the Proteaceae family—as are *Grevillea*, *Telopea* (waratah), *Hakea* and *Banksia*, to name a few.

Protea species and cultivars make up a significant proportion of the range of high-quality wildflowers grown for local and export markets.

The exact mechanism of leaf blackening is not yet fully understood, but it results from the cut stem drawing on the carbohydrate reserves in the leaves to supply sugar in order to complete the development of the flower head. It occurs more quickly in warmer climates and in proteas stored at warm temperatures and under low light. Holding flowers at 2–4 °C may help reduce its incidence, as will keeping cut stems under continuous bright light.

... Honey Protea

Protea repens

More information on leaf blackening is available in *Postharvest Handling of Australian Flowers from Australian Native Plants and Related Species, A Practical Manual*, 2nd edition (https://rirdc.infoservices.com.au/items/10-027).

Design uses in floristry: Focal. Proteas have large dominant heads and heavy woody stems, so take care to provide form and balance in any arrangement or bunch. Often used in presentation and hand-tied bunches; in modern, contemporary and traditional-style arrangements; and in a vast array of design styles. The individual leaves of king proteas are beautiful for backing posies and layering in arrangements.

Snapshots of some major Proteas

There are many hybrids and cultivars available—consult your supplier for details of the latest selections.

King protea (*Protea cynaroides*): Huge flower head consisting of many florets crowded together on the central dome surrounded by several tiers of velvety bracts. Many forms and cvv., including smaller flower heads. Large, rounded, bright green leaves.

'Grandicolor'(ℓ): Very large flower heads (9–10 cm tall) consisting of a soft central mass of raspberry to rusty-pink flowers surrounded by tiers of large, pale green bracts edged with deep pink to maroon hairs. The outer bracts are green flushed with peach.

Queen protea (*P. magnifica*): Large pink flower heads.

'Pink Ice' (*Protea neriifolia* × *P. susannae*): Flower head of many florets (buff-coloured with burgundy tips) crowded on the central dome and surrounded by silvery pink bracts. Available February–August. 'Pink Ice' can be very prone to leaf blackening. 'Green Ice' has cream to green flower heads; 'Red Ice' has red flower heads.

Repens (*Protea repens*): Funnel- to V-shaped flower head with a central mass of soft fluffy florets which form a brush-like centre as they open, surrounded by multiple tiers of sticky bracts. Greenish white and cream to pink and red, depending on cv. *Protea repens* can be very prone to leaf blackening.

King Protea

Ptilotus, Mulla mulla, Lamb's tail, Cotton bush

Ptilotus exaltatus, *P. nobilis*, *P. obovatus*

Availability: Spring

Typical vase life: 10–14 days

Stem length: 40–50 cm

Number of stems per bunch: Variable

Colour range: Lilac/silver, purple, green

Buying tips: Best bought when the first 20% to 30% of basal florets are opening and showing colour. Avoid stems with more than 30% of florets open, as the heads don't last as long and will shed florets.

Care and handling: Keep stems well hydrated. Do not allow the flower heads to get wet, as this may increase the risk of fungal infection.

Floral preservative: ✓

Ethylene sensitivity: Unknown

Cool storage: 2–4 °C

Special notes: Also grown and sold as a flowering potted plant. The flowers may be dried. *Ptilotus* flowers have a pleasant and delicate perfume.

Design uses in floristry: Transitional. Suitable for grouping into hand-tied bunches and arrangements.

Advice for your customers: As a precaution, avoid exposure to ethylene, for example, from ripening fruit and car exhaust fumes. Recut stems and place into clean water in clean containers with flower food added. Hairs from the flowers may cause irritation.

Qualup bells

Pimelia physodes

Availability: April to August

Typical vase life: 10–12 days

Stem length: 40–50 cm

Number of stems per bunch: 5

Colour range: Green with burgundy blush

Buying tips: The bell-shaped flower heads should be clustered at the top of the stem, and the pollen should be fresh and yellow. The bells should be at least 4 cm across, and free of damage, browning, insects and disease. Susceptible to *Botrytis*.

Care and handling: Recut stems and place in clean water with flower food added. Longer term storage is not recommended.

Floral preservative: ✗

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: Native to WA. They are unique in both shape and colour.

Design uses in floristry: Focal and transitional. Suitable for hand-tied bunches and vase arrangements. Combine well with a wide range of traditional and other wildflowers.

Ranunculus

Ranunculus asiaticus

Availability: Late winter to early spring

Typical vase life: Up to 7 days

Stem length: 25–50 cm

Number of stems per bunch: Variable

Colour range: White, lemon, yellow, apricot, orange, red, pale to deep pink; the new Festival series has unusual large green petals, surrounded by multi-coloured petals.

Buying tips: Buy when the flowers have started to open but before the petals have separated from the centre.

Care and handling: Place in water immediately. If limp, recut stems and place in water with flower food added. Place in a cool spot, firmly wrapped in paper until rehydrated and sturdy.

Floral preservative: ✓

Ethylene sensitivity: ✓ (variable)

Cool storage: 2–4 °C

Special notes: In season for a relatively short time. Short vase life, so sell quickly. The stems are commonly naturally bent and hollow and they break easily, so careful handling is important.

Design uses in floristry: Transitional–focal. Suitable for vase arrangements and hand-tied natural-stem bouquets. In wedding designs, mix with other spring flowers or foliage to add physical support.

Riceflower, Sago bush

Ozothamnus diosmifolius (syn. *Helichrysum diosmifolium*)

Availability: Mid July to mid December

Typical vase life: 7–14 days

Stem length: 60–70 cm

Number of stems per bunch: 10

Colour range: White, pink

Buying tips: Select stems with at least 50% of the flowers already open. Check that the flowers, stems and leaves are of good colour without any blackening, which could indicate damage due to poor handling.

Care and handling: Incorrectly harvested riceflower can be disappointing—flower stems cut too early can wilt; if cut too late, the head can shatter or fall apart. Become familiar with the correct stage for maximum vase life—when the most developed flower cluster (corymb) on the stem is fully expanded, and half of the small buds (capitula) at its centre have reached full size (about the size of a match head) and are plump. Handle carefully and "loosely" to avoid bruising, which can lead to leaf and stem blackening.

Floral preservative: ✓

Ethylene sensitivity: ✓

Cool storage: 2–4 °C

Special notes: Although riceflower is plentiful in many bush locations, buy cultivated product harvested from superior selections with proven vase life. The oils in the stems and foliage of riceflower cause skin and respiratory allergies in some people.

Design uses in floristry: Transitional. Perfect for bunching, wildflower designs, and small or large bouquets and arrangements.

Rose

Rosa spp. and cvv.

DT

Throughout history, roses have played an important part in religion, art, fashion, legend and myth. The rose and its oil have been used to flavour food, wine and honey, for medicinal purposes and as perfume. By far, though, the most prominent use in modern times is for the ritual of marriage and the sheer joy they bring to any occasion.

Roses are the most popular and best known cut flower in the world. They can be arranged into traditional, classic or modern designs, singly or en masse, in one colour, mixed colours or in combination with other flowers.

Most modern roses are grown in climate-controlled greenhouses to ensure year-round availability in an extensive range of colours (except true blue and black). Australian growers are continually sourcing new and improved hybrids from the world's leading plant breeders to bring you the very latest in fashion colours.

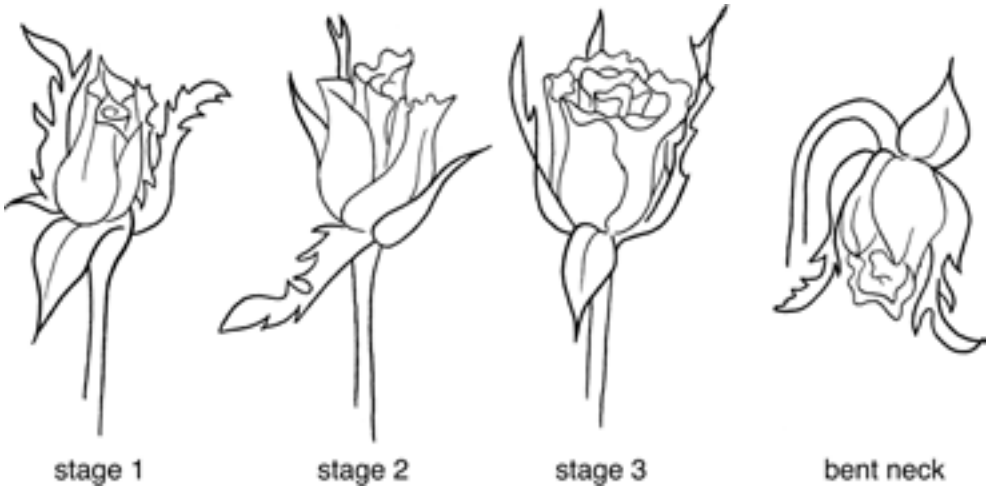
The modern rose plant is strong, hardy and bred to resist disease. There are many forms with various shapes and sizes of blooms. Bush roses are the most popular—stems 30 to 90 cm long are picked with two or three petals open on the bud, though some cultivars produce longer stems while others only ever produce shorter stems. Miniature and spray roses are also available in an extensive range of colours.

While imported blooms are available year round, premium, fresh, locally grown product may have a longer vase life and better-quality foliage, with blooms opening fully from bud stage.

Roses should be picked at the right stage to ensure they have the potential to achieve a long vase life. The optimum stage of opening varies with the cultivar and the time of year. Roses picked too tight in bud (stage 1) will not open and are more prone to "bent neck" (see diagram opposite). Winter-grown roses are usually picked a little more open (stage 3) than summer-grown roses.

Conditioning roses as recommended is very important. Roses that have been out of water for any length of time are prone to air embolisms (small bubbles of air trapped in the stem that block the flow of solution). Roses that wilt within 2–3 hours of being placed into solution generally have an air embolism. Recutting the stems and following the other advice on conditioning is therefore critical for roses.

Avoid damaging the stem, as this reduces vase life by allowing the entry of bacteria—so carefully strip lower leaves that will be submerged in solution and resist the temptation to remove the thorns using harsh metal strippers, which damage the bark.



Stage 1 = bud too closed and immature, unsuited to most uses. Stage 2 = earliest stage for picking, especially for roses to be shipped long distances and for roses harvested during the warmer months. Stage 3 = ideal stage for winter-grown roses, roses for local sales, and for florists to use. Bent neck results when roses are too tight in bud (too immature) when picked.

David Austin roses

Field roses

Roses grown outdoors are called "field roses". These roses flower from mid spring to late autumn and, depending on the cultivar, will produce large, sometimes fragrant blooms. Field- or garden-grown roses are prone to the vagaries of the weather, and one cannot completely depend on their availability at all times, even within the flowering season. In addition, roses go through numerous flushes of growth, which in turn produce flushes of blooms.

If you love the look of heritage-style blooms, ask for "David Austin" roses. They are the full, peony-style blooms, often with short to medium stems (25–50 cm long); most have perfume, the fragrance varying from sweet to musk. David Austin is a famous rose breeder in the UK who has produced a huge range of hybrid roses with many of the charming characteristics of old-fashioned heritage roses. Only some of these new hybrids are suitable as cut flowers, and they may have a short vase life when picked. Currently four cultivars of David Austin roses are grown in Australia (under licence to Grandiflora Nurseries in Victoria) for floristry. Numerous other David Austin roses and other heritage-style cultivars with similar attributes are also available, including imports for florists.

Heritage roses are primarily field grown, and the typical season is mid October to late autumn, though some are imported to extend the season. When ordering, especially for weddings, consult with your supplier and agree to a second choice of greenhouse-grown roses, just in case of inclement weather or other factors beyond the grower's control.

- Roses need special treatment to last as a cut flower. Upon receipt, cut the stems and rehydrate them in the protective sleeve for the first 4–5 hours. Hydrate in cool or room-temperature water (10–20 °C). It is essential to use water treated with the recommended dose of floral preservative (flower food). Using an incorrect dose may be ineffective or even harmful. Following the recommendations under "Conditioning (hydrating) your flowers" makes the roses perform better and last longer!
- Never scald roses. It injures the stem tissues, which release ethylene, and provides easy access for bacteria, ultimately shortening the vase life.
- Roses must be conditioned by the grower after picking and held at 2–4 °C.
- All buckets, vases and tools used to cut and rehydrate roses must be clinically clean and bacteria free.
- New and improved floral preservatives made specifically for roses are available from Chrysal, Floralife or Florissant, and vase life tests have proven their effectiveness.
- Maintaining the proper temperature, air flow and humidity in your cool room is critical to extending vase life of roses.

❀ Roses are susceptible to *Botrytis*.

Ref: Worrall R, Gollnow B, Wade N. 2000. Rose flower care for professionals. NSW DPI: http://www.dpi.nsw.gov.au/aboutus/resources/bookshop/rose-flower-care

Availability: Year round for greenhouse cultivars; October to April for field roses, including heritage and David Austin cultivars. Roses have seasonal highs and lows in availability, and quantities may vary as each cultivar reaches its peak flowering time.

Typical vase life: 5–20 days depending on quality and cultivar or selection

Stem length: 30–100 cm

Number of stems per bunch: 10 (various growers pack in 12s; some imported product is packed in 20s)

Colour range: A vast range of colours and hues, including bi-colours (but no true blue or black roses)

Buying tips: Check the flower quality and ensure that the buds are turgid and undamaged (damage is usually caused by rough handling). Soft petals indicate that the flowers may have been held too long, which severely reduces the expected vase life. Check that there are no brown spots on the lower outside base of the buds, which are signs of *Botrytis* (see rose photos page 11).

Care and handling: Keep flowers and foliage dry to reduce risk of *Botrytis*. Place in clean containers in clean water with added flower food (essential throughout the supply chain for maximum vase life). Recut stems with a sharp knife or secateurs frequently to ensure a continuous supply of water to the flower head.

Poor handling can result in damage to and browning of the petals. Peeling back petals to remove the damage is not recommended as it will change the shape and size of the rose bud, often rendering it unsaleable. Only some cultivars are ethylene sensitive (apparent as petal drop).

Floral preservative: ✓

Ethylene sensitivity: ✓–✓✓ (variable depending on cv.)

Cool storage: 2–4 °C

Special notes: Garden roses are often different from florists' roses, and not all garden roses are suitable as cut roses.

"Bent neck" can be the result of poor nutrition, being held in cold storage too long, premature harvesting or excessive water loss. Buy bunches with strong stems with the stem width in proportion to length. If the stem isn't strong enough to hold the bud without bending when held upright, paying a premium price for those long stems is poor economy.

It is essential to establish with your grower or supplier that their roses have received the correct postharvest treatment and conditioning.

Mini and spray roses are available in virtually a full colour range to complement the small, medium and larger hybrid tea roses. Breeders from all over the world continue to introduce new roses each year, so there are literally thousands of hybrids and cultivars available. Growers are regularly required to replace plants with new hybrids to stay up to date with the latest fashion.

Larger rose growers often produce a colour catalogue (printed or on their website), which is a valuable tool when you are ordering for special events. Note that some colours are difficult to reproduce accurately, and colour variations may exist. Greenhouse roses may have variations of shade due to different light intensities and cold or overcast weather.

Design uses in floristry: Roses are a universal flower, used in almost every imaginable floral design.

Advice for your customers: Roses use a lot of water, so ensure that the water level in the vase is at least 75%.

Scholtzia

Scholtzia involucrata, *S. oligandra*, *S. spathulata*

Availability: November to February

Typical vase life: 7–12 days

Stem length: 50–70 cm

Number of stems per bunch:

Colour range: Pink, white

Buying tips: Buy bunches with more than 40% of flowers open along the stems. Avoid bunches with flowers dropping, yellow stems, leaves missing at the tips, sparsely flowering stems and overmature flowers.

Care and handling: Recut stems and place into fresh water with added biocide.

Floral preservative: ✓

Ethylene sensitivity: ✗ (*S. involucrata*), ✓ (variable in other spp.)

Cool storage: 2–4 °C

Special notes: Do not mist. *Scholtzia* is filler substitute for waxflower and *Thryptomene*, being available at the end of their seasons and having similar postharvest handling requirements. The length of the flower cluster and flower colour vary between selections.

Design uses in floristry: Transitional. Suitable for bunching and grouped in arrangements of any size and dimension. May be wired as single stems or small bunches for wedding bouquets and accessories.

Siam or Thai tulip

Curcuma cordata, *C. alismatifolia* and hybrids


DT

Availability: Summer to early autumn

Typical vase life: 6–10 days

Stem length: 35–60 cm depending on species or hybrid

Number of stems per bunch: 5

Colour range: White, orange, red, pinks, lilac-blue, purple

Buying tips: Look for strong stems with well coloured bracts without any damage or discoloration on the flower spikes. The florets hidden among the bracts should have begun to emerge. Some cultivars have a natural brown coloration on the pointed tips of the petals. This is normal and does not affect their vase life.

Care and handling: Tropical care. Chilling sensitive—hold at 12–15 °C.

Floral preservative: ✓

Ethylene sensitivity: Unknown

Cool storage: ✗

Special notes: Native to Thailand, Laos, Myanmar (Burma) and Cambodia. Members of the ginger family (Zingiberaceae). The hooded bracts at the top of the flowering stems resemble a tulip but they are not related to true tulips and must be cared for as tropical flowers.

Selected forms are also available as potted plants, which are popular for indoor decoration. Place in a well lit area away from draughts throughout the flowering period.

Design uses in floristry: Focal or transitional.


DT


DT


DT

Slipper orchid

Paphiopedilum hybrids and cvv.


LR

Availability: Late autumn to winter

Typical vase life: 10–20 days

Stem length: Up to 25 cm

Number of stems per bunch: or

Colour range: Yellowy-green base with yellow, burgundy or brownish-red, many with spotted hoods

Buying tips: Buy when the flowers are open. These are autumn–winter orchids and do not need tropical care, but the throat or tendrils may begin to dry out in low humidity.

Care and handling: Remove the water vial, cut the base of the stem and place in fresh water. Frequent misting will help maintain high humidity.

Floral preservative: ✓

Ethylene sensitivity: ✓✓✓

Cool storage: ✗

Special notes: Both locally grown and imported, but not generally available in large quantities. If you need to buy for a special occasion, be sure to order ahead. There are numerous exciting new hybrids available with blooms in a range of burgundy-red/browns and green/yellows. In eastern states, the more common green and yellow slipper orchid begins to flower in May and will continue to flower for up to 2 months. May be bought as a potted plant, which will flower each year and bring many years of pleasure, especially


TO

if allowed to rest in a shady spot during summer.

Design uses in floristry: Focal. Also sold as a flowering potted plant for indoor decoration. Wonderful for modern designs featuring the unusual shaped blooms. Suitable for wired and modern-style autumn wedding bouquets; the smaller orchid blooms may be featured in corsages or boutonnières.

Advice for your customers: See "Special care for orchids" on page 22.

Snapdragon

Antirrhinum majus hybrids and cvv.


DT

Availability: The natural season is winter to spring, but new hybrids and greenhouse product are available almost year round

Typical vase life: 7–10 days

Stem length: Up to 120 cm

Number of stems per bunch: Variable

Colour range: Numerous single and bi-colours of white, cream, yellow, gold, apricot, peach, orange, dark red, pinks, crimson, burgundy, violet, purple/white

Buying tips: Select strong, straight stems with strong flower spikes and at least one-third of the flowers open. Shake bunches to check that there is no flower drop (a sign of ethylene damage). Snapdragons produce ethylene, which will lead to flower drop, so check with your supplier that bunches have received anti-ethylene treatment.

Care and handling: Remove sleeve from flowers, recut and place in flower food. Flower food and anti-ethylene treatment prolong vase life significantly. Keep stems upright to prevent stem bending, which is not reversible. Wrap bunches in paper and stand them upright to avoid stem curvature. Frequent recutting of stems is required. Carefully remove 3–5 cm of the tip of the stem to promote flower opening. Avoid removing too many leaves, as this may stimulate premature flower drop.


Ball

Floral preservative: ✓

Ethylene sensitivity: ✓✓✓

Cool storage: 2–4 °C

Special notes: An old favourite. Available as potted colour. Cut the stems with a sharp knife or secateurs into a V before inserting into floral foam.

Design uses in floristry: Line.

Advice for your customers: Recut 2–3 cm off the end of the stems. Add flower food to clean water and display in bright light so that the stems do not bend.

Snowball tree, Guelder rose

Viburnum opulus

Availability: Spring

Typical vase life: 3–5 days

Stem length: Up to 50 cm

Number of stems per bunch:

Colour range: Green buds that whiten as they open

Buying tips: Buy when more that 50% of the flowers are open. Avoid stems with overmature flowers or bruised and damaged blooms.

Care and handling: Recut the woody stems with sharp secateurs or a knife, but do not crush them. Condition as described under "Conditioning (hydrating) your flowers", but sell or use in displays as soon as possible.

Floral preservative: ✓

Ethylene sensitivity: ✓

Cool storage: 2–4 °C

Special notes: Short vase life. The common form of the snowball tree is a sterile cultivar called 'Sterile', but in cold regions the fertile form will produce cranberry-like berries in February–March. There are numerous species of *Viburnum*, but only a few produce flowers suitable for cutting: *V. tinus* has beautiful bronze buds that open to tiny white flowering umbels; *V. burkwoodii* is a beautifully fragrant form with small flowers and a medium vase life.

Design uses in floristry: Large, globe-shaped, white/green flowering heads resemble a hydrangea.

Advice for your customers: Check water level daily, as these flowers use a lot of water.

Solidago, Solidaster

Solidago canadensis, ×*Solidaster luteus*

Availability: Autumn and winter

Typical vase life: 5–7 days

Stem length: 50–60 cm

Number of stems per bunch: Variable

Colour range: Yellow

Buying tips: Buy when at least half of the small yellow flowers are open. The stems and leaves should be deep green and preferably not yellowing. Check with your supplier to ensure flowers have been pulsed in an anti-ethylene treatment.

Care and handling: Recut stems and place into fresh water with flower food added.

Floral preservative: ✓

Ethylene sensitivity: ✓

Cool storage: 2–4 °C

Special notes: Wild *Solidago canadensis* (goldenrod) poses a threat as an environmental weed in many coastal regions of NSW.

Design uses in floristry: A popular transition flower, *Solidaster* combines well with a wide range of flowers in strong and soft colours. Suitable for bunches, hand-tied bouquets, and small and large arrangements.

South Australian daisy, Hills daisy, Mountain daisy

Ixodia achillaeoides ssp. *alata*

Availability: Mainly December to February

Typical vase life: 10–11 days (longer for some cultivars)

Stem length: 40–50 cm

Number of stems per bunch: 10

Colour range: White

Buying tips: Avoid stems with over-mature flowers (centres raised and purple, grey or brown rather than yellow). Check for signs of insects and diseases (look out for signs of *Botrytis*).

Care and handling: Recut stems and place in clean water containing a registered biocide. Handle gently, as damage will cause stems and leaves to go black. Maintain good hygiene, high humidity and air circulation.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: Especially suitable where native flowers or wildflowers are requested for fresh and dried flower arrangements and hand-tied bunches. Wild harvested from natural stands, but commercial production is increasing from improved cultivated selections. Also available as a flowering potted plant.

Design uses in floristry: Transitional. May be dried.

Spider orchid

Arachnis flos-aeris hybrids and cvv.

Availability: Year round; imported from tropical Asia

Typical vase life: 10–14 days

Stem length: 50–60 cm

Number of stems per bunch: 5

Colour range: Yellow, orange, gold, reds, bronze, crimson, burgundy; most with spots

Buying tips: Buy when fully opened, as buds will not reach full size after cutting. Avoid damaged flowers. Check that the lower flowers are not dropping, and avoid flowers with a slightly dried, transparent appearance, which indicates chilling or ethylene injury.

Care and handling: See "Special care for orchids" on page 22. Chilling sensitive—hold at 12–15 °C.

Floral preservative: ✓

Ethylene sensitivity: ✓✓✓

Cool storage: ✗

Special notes: Flowers are fragrant with a musky scent.

Design uses in floristry: Focal or transitional. The long, strong stems and vibrant colours are recommended for a wide range of design styles—tropical, traditional, modern and contemporary. Structured and hand-tied designs and may be wired for bridal bouquets and accessories. Perfect for tall arrangements. The strong, sturdy, branching stems work well in vase and floral foam arrangements. The individual flowers may be wired. Red spider orchids look superb with red roses, especially in wedding bouquets and accessories.

Advice for your customers: Tropical care. See "Special care for orchids" on page 22.

Statice, Limonium, Misty or Fairy statice, 'Emile'

Limonium spp., incl. *L. sinuatum*, *L. latifolium* hybrids

Availability: Year round

Typical vase life: 7–14 days; may be dried

Stem length: 40–70 cm

Number of stems per bunch: Variable

Colour range: *L. latifolium* 'Emile', pink, blue; *L. latifolium* hybrids, off-white, mauve, pale blue; *L. sinuatum*, white, cream, lemon-yellow, orange, red, crimson, pinks, lilac, purple, blue

Buying tips: Choose bunches with more than half of the tiny florets open. Avoid bunches with a bad smell. Verify that the stems that are under water are green and fresh and free of *Botrytis*.

Care and handling: Do not leave bunches out of water—it is very important to keep statice hydrated throughout the supply chain, especially the Fairy or Misty hybrids. Leaf and stem yellowing and *Botrytis* infection are common problems. Whenever possible, remove the sleeve and separate stems to minimise *Botrytis* and leaf deterioration.

Floral preservative: ✓

Ethylene sensitivity: ✓✓✓ (variable depending on cv.)

Cool storage: 2–4 °C

Special notes: Often considered old fashioned, statice remains a favourite because of the brilliant colour range, good vase life and affordability in a wide range of flower designs. Statice was historically grown as a field crop, but new hybrids grown year round in greenhouses produce higher-quality, longer and more disease-resistant stems with dense flower heads. 'Emile' is an improved cultivar with more density of colour in the individual florets than Fairy statices. Most of the fairy-type statice (*L. latifolium* hybrids) have a strong smell that some customers (and florists) find unappealing. All cultivars may be dried—hang bunches upside down in a well ventilated area.

Design uses in floristry: Transitional. Great for bunches and bouquets. Suitable for small to large arrangements in either fresh water vases or floral foam. Misty or Fairy statice is suitable for cascading.

'Emile' misty statice

Stephanotis

Stephanotis floribunda (syn. *Marsdenia floribunda*)

Availability: Summer

Typical vase life: 4–5 days

Stem length: Often sold stemless or picked in clusters

Number of stems per bunch:

Colour range: White

Buying tips: Buy when one or two flowers per cluster are open.

Care and handling: Best kept in a humid environment. Individual blooms are shipped in an air-filled plastic bag or in plastic food containers. Leave them like this until ready to use them, but do not refrigerate below 6 °C, as they are cold sensitive. Misting with water may cause brown spots on petals. Handle with care to avoid bruising.

Floral preservative: ✓

Ethylene sensitivity: ✓

Cool storage: ✗

Special notes: *Stephanotis* is a climbing to twining plant. The pure white, waxy, tubular flowers appear in clusters of blooms along the stem and are highly fragrant.

Picked on the trailing stems, this pure white tubular flower is sought after when in season for summer weddings. Blooms may be rehydrated by carefully sitting the short stems in room-temperature water for a few hours before wiring.

Also sold as summer-flowering potted plants, and often used for decorative short-term displays indoors or in a protected warm place outdoors.

Design uses in floristry: Transitional.

Advice for your customers: If the trailing stems are in an arrangement, treat as you would the rest of the arrangement. If keeping the blooms on their stems, put the stem end in clean water with flower food added, preferably suspended through a frame over the water. Keep in a cool place away from draughts.

Stock

Matthiola incana and hybrids

Availability: Autumn, winter, spring

Typical vase life: 5–7 days

Stem length: 40–90 cm

Number of stems per bunch: 5

Colour range: White, cream, yellow, apricot, rose, salmon, dusty pink, crimson, lilac, purple

Buying tips: Choose bunches with at least two-thirds of the lower flowers open. A good-quality stem should display 15–20 cm of florets along the spike. A sweet fragrance is a good sign of freshness. Buy only the freshest product and sell-on quickly. Avoid bunches with broken tips.

Care and handling: Cut the stems above the woody base with sharp secateurs or a knife. Do not scald or pound stems, as this may cause blockage. To avoid smelly water in buckets and vases, add a biocide (bleach) to the water for at least the first hour, and then transfer stems to solution containing flower food at the correct dose.

Floral preservative: ✓

Ethylene sensitivity: ✓✓

Cool storage: 2–4 °C

Special notes: Loved for their spicy clove-like scent. Frequent recutting of the stems, the addition of flower food and the removal of foliage below water level will extend the vase life. Stock is a member of the cabbage family (Brassicaceae), so it is not surprising that the water will smell after a few days without correct handling.

Recut stems with a sharp knife on a 45° angle before inserting into floral foam; thick stems may be given a sharp cut downwards either side at the base to avoid damage to the foam. Be sure to insert stems well into the foam for support and to allow uptake of water.

The stems are strongly geotropic, so wrap them in paper and stand them upright in the bucket to avoid stem curvature and help protect the brittle tips.

Design uses in floristry: Line and focal. The colour, strength and length of the stems and the beautiful fragrance give stock a special role in presentation bunches and in large church and foyer arrangements. The individual florets may be wired for bridal bouquets and accessories.

Advice for your customers: Recut stems, remove any leaves that will sit below water level, add flower food and change the water every 2 days to achieve maximum vase life and avoid smelly water.

Strelitzia, Bird of paradise, Crane flower

Strelitzia reginae

Availability: Winter to spring

Typical vase life: 7–14 days

Stem length: 60–120 cm

Number of stems per bunch: or 5

Colour range: The flower head is composed of a green/purple boat-shaped bract holding up to five flowers that emerge one at a time with either bright orange or yellow petals, one of which is modified into a blue "tongue", giving a parrot-like effect.

Buying tips: Buy when the first flower is fully open. Avoid flowers with brown-black marks, as this may demonstrate chilling injury. Make sure the flower heads are dry at the time of purchase, or postharvest diseases may develop.

Care and handling: Tropical care. Good air circulation is needed to avoid rot. Flowers drop and damage easily. Frequent recutting of stems is recommended. The nectar that exudes from the bract needs to be wiped off.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: ✗

Special notes: Exotic looking. Though not tropical flowers, they do complement a tropical or modern-style design of any proportion and mix very well with a wide range of traditional and wildflowers. The leaves are large, 30–200 cm long and 10–20 cm broad, similar to a banana leaf in appearance but with a longer petiole; they make excellent, long-lasting foliage and may be used vertically or horizontally. The smooth stems may also be used to create interest in a modern design. *S. juncea* has very narrow leaves on stems to 180 cm long.

Design uses in floristry: Focal and line. The large white flowers of *Strelitzia nicolai* look spectacular in a glass vase, simply arranged, or for low placement in large hotel foyer arrangements. For a more colourful display, the bracts may be released by carefully sliding a finger inside the sheath and lifting them up and out.

Advice for your customers: Recut stems and place in clean water in a large container with flower food added. Remove other flowers and foliage as they die, as the *Strelitzia* will often outlast them.

Sunflower

Helianthus annuus


CC

Availability: The natural season is summer to autumn, but greenhouse production extends the flowering season to almost year round

Typical vase life: 7–10 days

Stem length: 50–120 cm

Number of stems per bunch: 5

Colour range: Yellow with black centre; lemon pollen-less; two-tone rust

Buying tips: Buy when the flowers are half to fully open. Look for strong, straight, undamaged stems.

Care and handling: Strip the lower leaves as they wilt and dry first. Do not store or ship dry at any stage during the supply chain. Stems are prone to air embolisms, so recutting stems is very important. Place into fresh water with the correct dose of flower food.

Floral preservative: ✓

Ethylene sensitivity: ✓ (varies with cv.)

Cool storage: 2–4 °C

Special notes: Most new cultivars are pollen free.

Design uses in floristry: Focal. Also available as potted colour. Can be wrapped decoratively as a single flower or used in large floral displays. Especially popular for rustic-style bunches and contemporary arrangements.


DT

Sweet pea

Lathyrus odoratus

Availability: Winter to spring; greenhouse-grown product may extend the season

Typical vase life: 5–7 days

Stem length: 20–40 cm

Number of stems per bunch: Variable

Colour range: White, cream, creamy-yellow, apricot, pale to dark pink, salmon, burgundy-red, lilac, blue/purple

Buying tips: Buy when the top two or three buds are fully coloured and partly open. A strong fragrance is a good sign of freshness; however, sweet peas grown out of season have minimal fragrance. Gently shake bunches and avoid those with flower drop (a sign of ethylene damage). Purchase only from suppliers who can guarantee that flowers have been pulsed in an anti-ethylene compound.

Care and handling: Handle carefully to avoid breakage. Do not wet the flowers. Take care when separating, as the tendrils become entangled. Short vase life, so sell as soon as possible.

Floral preservative: ✓

Ethylene sensitivity: ✓✓✓

Cool storage: 2–4 °C

Special notes: This is a sweetly fragrant, traditional, old-fashioned but ever popular flower most suited to posies, bouquets and vase arrangements. Sweet peas combine beautifully with a variety of spring flowers (e.g. hyacinths, lavender and freesias).

Flower food and anti-ethylene treatments significantly increase vase life. Check with your supplier that the flowers have been given an anti-ethylene treatment.

Design uses in floristry: Supporting focal and transitional.

Tea tree

Leptospermum spp. and hybrids

Availability: Spring

Typical vase life: 7–10 days

Stem length: 50–60 cm

Number of stems per bunch: 5–10

Colour range: White, pale to deep pink, mauve-purple

Buying tips: Buy when 60% to 70% of flowers are open, as buds do not tend to open once cut. Avoid those with unopened or closed buds. Gently shake bunches and avoid those with petal and leaf drop (a sign of ethylene damage or drying out).

Care and handling: Hold under high humidity and avoid too much air movement over the flowers (which may lead to shrivelling of the petals). Hold in deep solutions (20 cm) to keep hydrated.

Floral preservative: ✓

Ethylene sensitivity: ✓✓✓ (varies w. cv.)

Cool storage: 2–4 °C

Special notes: An economical transitional flower/foliage, typically used in traditional and wildflower bunches. Look for the new, improved cultivars with larger flowers and new colours.

Stems must be kept hydrated or leaf drop will occur. Anti-ethylene treatment by the grower is recommended, though ethylene sensitivity varies with cultivar.

Design uses in floristry: Transitional.

Thryptomene, Thryp

Thryptomene calycina

Availability: May to September

Typical vase life: 7–14 days

Stem length: 50–80 cm

Number of stems per bunch: 10–15

Colour range: White, pink

Buying tips: Buy when 50% to 80% of the flowers are open. Avoid bunches showing signs of leaf or petal drop (a sign of ethylene damage or overheating during transport), or evidence of insect or disease damage. Look for long, arching stems densely covered with flowers. Sleeved bunches offer better protection against damage and drying out.

Care and handling: Similar postharvest handling requirements to waxflower. Sensitive to drying out, so must be kept well hydrated throughout the marketing chain. Preservative is essential in order to open buds and maintain flowering. May be misted.

Floral preservative: ✓

Ethylene sensitivity: ✓✓✓

Cool storage: 2–4 °C

Special notes: Stems must be kept hydrated and cool, as product dries out very quickly. Anti-ethylene treatment by the grower is recommended. Look out for new selections with rich, dense flowers in deep pink colours.

A popular garden shrub related to *T. calycina*, called *Thryptomene saxicola* 'Payne's hybrid', is not grown much as a commercial cut flower, but nevertheless makes a good cut flower**.**

Design uses in floristry: Transition. The flowering stems are commonly used for bunching or low placements in arrangements with traditional and wildflowers.

Advice for your customers: These flowers will benefit from misting.

Tuberose

Polianthes tuberosa


DT

Availability: Late summer to autumn

Typical vase life: 10–14 days

Stem length: 60–80 cm

Number of stems per bunch: 5

Colour range: Waxy, creamy-white tubular flowers with a pink blush on the outer petals; most selections have double flowers, though single blooms are sometimes available.

Buying tips: Buy when 70% to 80% of the lower florets are just open. Good fragrance is a sign of freshness. Avoid stems with withering blooms, as this may indicate over-mature flowers or prolonged cool storage. Pulsing pretreatment in a flower food containing 20% sucrose has been found to significantly improve vase life and flower opening, and overcomes the effect of cool storage (which may result in flowers failing to open).

Care and handling: Floral preservative (containing sugar) is essential to ensure opening of the buds and optimum vase life. Tuberoses are very ethylene sensitive, so remove all dying florets, as these produce ethylene and will affect the remainder of the blooms.

Floral preservative: ✓

Ethylene sensitivity: ✓

Cool storage: 2–4 °C

Special notes: Removal of the buds at the tip is said to speed opening of the flowers and to prevent stem curvature. Tuberose is grown for the perfume industry as a middle note. It is thought to be a native of Mexico and is a prominent plant in Indian culture and mythology.

Some people find the gardenia-like fragrance overpowering, so be aware of this when incorporating into arrangements to be placed close to seated people.

Design uses in floristry: Line flowers. May be incorporated in a wide range of floral designs. The individual blooms may be wired for wedding bouquets and accessories.

Advice for your customers: Remove the lower florets as they wilt, as they will accelerate the ageing of the other blooms.

Tulip

Tulipa spp., hybrids and cvv.

Availability: The natural season is late winter to spring, but tulips grown out of season are available during autumn, winter and spring

Typical vase life: 3–8 days depending on time of year, stage of harvest and cultivar

Stem length: 30–50 cm

Number of stems per bunch: 10

Colour range: White, cream, yellows, oranges, reds, pinks, lilac, mauve, purple, purple-black; bi-colours and doubles also available

Buying tips: Buy when buds are clearly showing colour—as a rule, the upper half should be coloured, the rest green. Tulips not showing colour may fail to open. The stems must be strong enough to hold the flower head upright, and leaves must be a glossy green. Do not buy tulips with yellow leaves—this is a sign of poor postharvest treatment, long-term storage or lack of nutrition.

Care and handling: Keep flowers cool at all times throughout the supply chain. Keep flowers upright and leave sleeves on during conditioning to prevent stem bending. Remove as much of the white section of the stem as feasible to ensure water uptake. After conditioning, wrap bunches in paper to hold them upright and place them in water in a cool dark spot until needed.

Flower food solutions have not been found to be better than plain water with added biocide for improving vase life. However, specific products to maximise tulip vase life and quality have been developed for use at grower or florist level. Sometimes tulip stems collapse and turn mushy. This is called "stem topple" and is caused by a calcium deficiency brought about by cloudy growing conditions; the yellow 'Strong Gold' is susceptible to this condition.

Floral preservative: ✗

Ethylene sensitivity: ✓ (variable)

Cool storage: 2–4 °C

Special notes: Tulips will bend towards light, so ensure even lighting .Cut stems continue to grow, and may lengthen by up to 15 cm from the time they are picked to the end of the vase life. This can spoil their placement in an arrangement. Do not pierce a support wire into the flower head, as the bloom will simply outgrow it within a day or two. Flower foods available in sachets formulated specifically for tulips are effective in preventing this elongation and also maintain leaf quality (reducing yellowing).

Beware of tulips cold-stored for too long—they may look great in the cool room, but when brought into warm air they will quickly blow open and collapse.

Do not combine tulips with *Narcissus* (daffodils and jonquils) unless the *Narcissus* have been cut and held separately in water for at least 6 hours—the *Narcissus* exude a gel from the cut ends that is toxic to tulips.

Design uses in floristry: Focal. Tulips are at their best when placed in a glass vase and allowed to follow their natural form, or when wound inside a large glass vase with the stem ends in water. For special occasions, if the buds are green at the time of purchase and barely showing colour, buy fresh product 3 to 4 days in advance to allow them time to fully open. If customers prefer a formal upright look, they can shorten elongating stems by recutting.

Advice for your customers: Tulips will bend towards light, so place them so they receive even lighting. Recut stems and place in clean water in a clean vase with flower food added. Check the water level daily, as tulips use a lot of water.

Vanda or Aranda orchid, Mokara orchid, Singapore orchid

Aranda hybrids (*Vanda*, *Mokara*, *Aranthera*, *Arachnis* hybrids)

Availability: Year round

Typical vase life: 5–14 days

Stem length: 40–50 cm

Number of stems per bunch: 5 or 10

Colour range: Cream, lemon-yellow, gold, bronze-gold, orange, rust-red, clear red, dusty pink, hot pink, crimson-burgundy, lilac, purple, blue (from specialist orchid growers); spotted combinations of green, brown and yellow

Buying tips: Buy when the flowers are already open; flowers may continue to open but will not reach full size. Avoid bunches with lower flowers damaged, dropping or looking opaque and wilted (which indicate exposure to ethylene or low storage temperatures).

Care and handling: Remove vials or cotton wool sachets, recut stems and place into fresh solution. See "Special care for orchids" on page 22. Chilling sensitive—hold at 12–15 °C.

Floral preservative: ✓

Ethylene sensitivity: ✓✓✓

Cool storage: ✗

Special notes: The true blue hybrid *Vanda* orchid (*V. coerulea* or *V. rothschildiana*) is available from Australian specialist orchid growers. There are about 80 *Vanda* species, native to China, the Himalayas, Indonesia and northern Australia. *Aranda* hybrids are popular as cut flowers but are

generally being replaced by the imported *Mokara* hybrids, which have larger, more solid, colourful blooms.

The common name of "Singapore orchids" applied to the vast majority of these hybrids and cultivars is quite incorrect. Singapore orchids are *Dendrobium* hybrids. Misnaming can lead to confusion when ordering and when dealing with customers.

Design uses in floristry: Focal or transitional. The brilliant solid colours are suitable for a multitude of design options, mixed with wildflowers, or arranged in upright group placements in modern, tropical and contemporary designs. Recommended for wiring into wedding bouquets and accessories and for hand-tied designs.

Advice for your customers: See "Special care for orchids" on page 22.

Violet, Sweet violet, Parma violet

Viola odorata

Availability: Winter

Typical vase life: 5 days

Stem length: 10–15 cm

Number of stems per bunch: usually 50

Colour range: Blue-purple, purple

Buying tips: Buy when the flowers are open and highly fragrant. Avoid flowers with curling petals, as they may be reaching the end of their vase life.

Care and handling: Very short vase life. Arrange or sell without delay. Use flower food to maximise vase life.

Floral preservative: ✓

Ethylene sensitivity: Unknown

Cool storage: 2–4 °C

Special notes: These delicate and fragrant flowers and are seen in the markets for a limited time, as the flowering season is short. Stems will be of varying lengths. Picking the blooms may seem laborious; however, the sweet fragrance and rich colour are unlike any other and well worth the effort.

Design uses in floristry: Posy flower. Traditionally the flowers are bunched bloom to bloom, surrounded by a ring of undamaged, rich green leaves picked from the violet plants. Special violet vases are available, but any small vase is suitable, as long as the various lengths of stem dangle in the water.

Advice for your customers: The bunched flowers may be immersed in room-temperature water for an hour to rehydrate.

Waratah

Telopea speciosissima and cvv.

Cultivars incl. ‘Brimstone Blush’, ‘Cardinal’, ‘Fire and Brimstone’, ‘Fire and Ice’, ‘Green Bracts’, ‘Mirragon’, ‘Olympic Flame’, ‘Red Centre’, ‘Shade of Pale’, ‘Songlines’, ‘Sunflare’, ‘Wirrimbirra White’

Availability: Late August to late October depending on cultivar, growing location and season

Typical vase life: 7–14 days

Stem length: 60–100 cm

Number of stems per bunch: or 3–5

Colour range: White, cream-yellow, reds, pinks

Buying tips: Choose well coloured, fully formed flower heads with 5% to 25% of the florets open (equivalent to two rings of florets). Avoid damaged, misshapen blooms with browning on the bracts. Avoid red flowers with a bluish tinge, which may indicate ethylene damage or ageing. The leaves must be bright green and crisp in appearance.

Care and handling: Recut stems and place into fresh water containing a registered biocide. Don’t add sugar or use flower foods containing sugar, because it stimulates nectar production, which can be unattractive in arrangements, attracts ants and favours *Botrytis*.

Waratahs are ethylene sensitive, but anti-ethylene treatments have not been found to be effective. Keep flowers hydrated at all times throughout the supply chain, as one of the most common causes of poor vase life is drying out of the blooms.

Floral preservative: ✗

Ethylene sensitivity: ✓✓✓

Cool storage: 2–4 °C

Special notes: Very large, dominant, striking inflorescences on long stems, waratahs are the NSW State flower. An increasing range of *Telopea* selections and hybrids such as ‘Shady Lady’, with small or no bracts, are available in a variety of forms and shades of pink, red, white and a deep creamy yellow. Generally, cultivars and hybrids have superior vase life characteristics to flowers harvested from seedling-raised plants.

Design uses in floristry: Focal flowers. May be arranged on their own with high-quality foliage or with traditional flowers and wildflowers.

Wattle

Acacia spp.

Availability: Winter to spring, though various species flower throughout the year

Typical vase life: 3–5 days

Stem length: 40–50 cm

Number of stems per bunch: Variable

Colour range: Cream, yellow

Buying tips: Buy when more than 25% of the flowers on a stem are open. Avoid bunches with browning on flowers, bunches with soft tips and dried-out product. Look for supple branches that are not too woody, as woodiness may inhibit water uptake.

Care and handling: Keep in water at all times, as wattle flowers and foliage are very sensitive to drying out. Use a deep hydrating solution. Sell quickly.

Floral preservative: ✓

Ethylene sensitivity: ✗–✓✓✓ (varies with sp.)

Cool storage: 2–4 °C

Special notes: The flowers are short lived. Keep flowers cool until ready to sell, to reduce the risk of drying out. Recommended for commemorative wreaths and arrangements that will be viewed for 1–2 days only and therefore do not require a long vase life. Especially used for Remembrance Day, Australia Day and other national celebratory days.

The foliage of selected species such as *Acacia baileyana* and *A. baileyana* 'Purpurea' has a good vase life.

Design uses in floristry: Transitional, commemorative. Provided the tips are hardened off, the foliage and buds of various species can be very decorative and useful as transitional product for short-term displays, such as sympathy tributes.

Waxflower, Geraldton wax, Bud wax, Pearl flower (waxflower hybrids)

Chamelaucium uncinatum, *C. megalopetalum* × *C. uncinatum* hybrids

Availability: Autumn to late spring depending on spp. and cvv.

Typical vase life: 7–12 days (longer for Pearl flowers)

Stem length: 50–80 cm

Number of stems per bunch: 5–10

Colour range: White, cream, red, pinks, mauve-purple; dyed blooms are also available.

Buying tips: Choose bunches with the majority of the flowers open. Avoid bunches whose leaves and flowers drop when gently shaken. Avoid stems with sparse flower masses or with flowers that have closed up, because vase life will be reduced.

Care and handling: Recut stems and check water level frequently, as waxflowers use a lot of water. Keep flowers hydrated at all times to avoid flower and leaf drop. Most waxflowers are sensitive to ethylene, which causes flower drop, rendering the product unsaleable, so buy product only if the grower has provided anti-ethylene treatment, and sell or use as soon as possible.

Floral preservative: ✓

Ethylene sensitivity: ✓✓–✓✓✓ (variable depending on cv.)

Cool storage: 2–4 °C

Special notes: Pearl hybrids have larger flowers. Some selections are sold in bud stage as "bud wax" for their attractive yellow, red and red-brown buds. Some cultivars are successfully dyed yellow or orange (and even blue!) to extend the colour range. Not all hybrids are available for the duration of the season. There is an ever-increasing range of new cultivars available—please check with your supplier.

Design uses in floristry: Transitional and in grouped placements. Beautiful for hand-tied bunches and arrangements of any size, style and dimension. May be used in any design where small, delicate flowers are desired. May also be wired in small bunches or on small stems for wedding bouquets and accessories.

Zinnia

Zinnia elegans, Z. angustifolia

Availability: Summer to autumn

Typical vase life: 5–8 days

Stem length: 50–60 cm

Number of stems per bunch: 10

Colour range: White, yellow, orange, red, pink, purple, green

Buying tips: Buy when the flowers have fully opened. Avoid those with aged pollen centres. Look for clean, well hydrated, disease-free leaves.

Care and handling: Using flower foods can greatly extend vase life, but trials may be needed to fine-tune both the product and the dose—leaf damage has been reported if the solution is made too strong or too weak, or if the wrong brand of flower food is used. Short vase life, so sell or use immediately.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: Originally from Mexico, zinnias have been grown since the 1820s. Popular annual flowers available in a myriad of bright colours. Blooms 3–12 cm across. Do not scald stems.

Design uses in floristry: Focal–transitional. Use in bunches rather than in floral foam.

A–Z Listing of Cut Foliage

Del Thomas and Bettina Gollnow

This section lists 30 foliage products, arranged alphabetically according to their common name. Each is described in the following format:

Common name(s)

Botanical name(s)

Availability: Typical season when foliage is available in Australia.

Typical vase life: In days.

Stem length: Typical stem lengths available on the Australian market.

Number of stems per bunch: Number of stems typically found in a market bunch. "" , sold by the stem; "variable", number varies by size and season; "", sold by weight.

Colour range: Typical colours available.

Buying tips: Advice on what to look for when purchasing and how to assess quality.

Care and handling: Advice on optimising quality and vase life after purchase.

Floral preservative: ✓ = use floral preservative; ✗ = don't use it.

Ethylene sensitivity: ✗ = not sensitive; ✓ = low sensitivity; ✓✓ = moderately sensitive; ✓✓✓ = highly sensitive. Otherwise, "unknown".

Cool storage: Usually 2–4 °C, except as marked. ✗ = don't store cold; "" = onsell quickly, as cool storage time is limited (recommended for a short time to delay ageing, but because such products generally have a comparatively short vase life, you should aim to buy such products with the aim of selling them on *immediately*).

Special notes: Additional advice and information relevant specifically to this product

Design uses in floristry: Suggestions on how to use the product in floristry work.

Note: Images are not to scale.

Aspidistra, Cast iron plant

Aspidistra elatior and cvv.

Availability: Year round, though possibly scarce in winter

Typical vase life: 14–21 days

Stem length: Up to 50 cm with leaf blades 30–45 cm

Number of stems per bunch: 10

Colour range: Dark green (*A. elatior* 'Variegata' with cream stripes also available)

Buying tips: Look for dark green, unblemished, insect-free leaves. Avoid leaves with yellowing or a dull appearance, as this may indicate aged product.

Care and handling: Chilling sensitive—hold at 12–15 °C in fresh clean water.

Floral preservative: ✗

Ethylene sensitivity: Unknown

Cool storage: ✗

Special notes: *Aspidistra* is called the cast iron plant for the good reason that it is very hardy. It has a very good vase life and is an excellent, hardy plant tolerating low light conditions indoors.

Design uses in floristry: Contemporary, modern and traditional; wedding, funeral and corporate designs. The leaves appear to be slower to contaminate the water than many others, and hence are suitable for wrapping around the stems of an arrangement to conceal them when a glass vase is used.

Camellia

Camellia japonica, *C. sasanqua*

Availability: Year round, except in spring, when new growth appears and is too soft to use for wiring and as supporting foliage

Typical vase life: Up to 3 weeks

Stem length: Up to 60 cm, though typically 40–50 cm

Number of stems per bunch:

Colour range: Shiny, dark green leaves

Buying tips: Check for clean, undamaged, rich dark green leaves.

Care and handling: Foliage does not require cooling, though cooling is not detrimental. Avoid crushing the leaves when placing in buckets, as every undamaged leaf is useful. Hold in fresh clean water.

Floral preservative: ✗

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: Because of its versatility, *C. japonica* is one of the most sought after foliage types available to florists. If you have a garden that provides semi-shade, this is one plant you should consider growing in order to create a reliable supply of foliage.

Camellia flowers are short lived and need to be placed in water ASAP. Misting is also required.

Design uses in floristry: *C. japonica* is the preferred foliage for structure and focal support, especially for wedding bouquets, accessories and arrangements, and is almost irreplaceable for its versatility. *C. sasanqua* has smaller leaves and is more commonly used for corsages, bunching and bowl arrangements.

Cherry laurel

Prunus laurocerasus

Availability: February to October

Typical vase life: 10–14 days

Stem length: 40–70 cm

Number of stems per bunch:

Colour range: Glossy green leaves with a paler reverse; stems green to brown

Buying tips: Available in long and short bunches. Look for clean, hardened-off, undamaged foliage with good colour. Avoid product that has been harvested from insect-damaged, wild-grown, weedy trees. Avoid stems with soft tips, as they will wilt and damage easily.

Care and handling: Hold in fresh clean water.

Floral preservative: ✗

Ethylene sensitivity: Unknown

Cool storage: 2–4 °C

Special notes: Not to be confused with the aromatic foliage of *Lauris nobilis*, the sweet bay, or bay leaf, renowned for its use in cooking.

From the genus *Prunus*, which includes cherries, plums and apricots. Be warned: the black berries of the cherry laurel are poisonous—do *not* ingest.

Cherry laurel is an environmental weed in some sensitive environments of Victoria, parts of NSW (including the Blue Mountains and Comboyne Plateau) and Tasmania.

Design uses in floristry: Single leaves for laurel wreaths for Anzac Day and Remembrance Day and traditional sporting events. The longer stems are very useful for tall placement in large arrangements. Use the short stems for bunches and basing a range of designs, including sympathy and wedding arrangements. This valuable foliage has a wide range of uses, including rolling or pinning for modern and traditional designs.

Cordyline, Ti

Cordyline fruticosa (syn. *C. terminalis*) and cvv.

Availability: Year round from local and imported product

Typical vase life: 10–20 days

Leaf length: Up to 60 cm, and 8–10 cm wide

Number of stems per bunch: 10

Colour range: Often, though not always, brightly coloured. There are many cultivars and forms. The most popular are dark green with bright pink edges, variegated red/pink, variegated green/cream and pink/brown.

Buying tips: Look for clean, undamaged leaves. Avoid leaves with brown markings, which may indicate cold damage or aged product. Stems held too long will appear slimy and darkened.

Care and handling: Tropical care. Chilling sensitive—hold at 12–15 °C in fresh clean water.

Floral preservative: ✓

Ethylene sensitivity: Unknown

Cool storage: ✗

Special notes: There is considerable variation in the size and colours of the leaf blade.

Design uses in floristry: Grouped for contemporary designs. Folded for bouquets and arrangements. Valuable for colour blocking in large and small designs.

Croton

Codiaeum variegatum

CC Nooks

Availability: Year round from local and imported product

Typical vase life: 10–14 days

Stem length: Up to 30 cm

Number of stems per bunch: 10

Colour range: Red, green, orange, red or yellow variegations

Buying tips: Look for clean, undamaged leaves. Avoid leaves with brown markings, which could indicate damage from cold storage or aged product.

Care and handling: Chilling sensitive—hold at 12–15 °C in fresh clean water.

Floral preservative: ✓

Ethylene sensitivity: ✓ (varies with selection)

Cool storage: ✗

Special notes: Sold as bunches of cut leaves. Also sold as a colourful potted plant for indoor decoration in temperate zones. Handle with care: the milky sap from cut stems may trigger skin allergies in some people.

Design uses in floristry: Suited for contemporary, modern and textured designs.

Dingo fern

Baloskion tetraphyllum (syn. *Restio tetraphyllus*)


Cedar

Availability: Year round

Typical vase life: 7–10 days

Stem length: 70–80 cm

Number of stems per bunch: 10

Colour range: Green; stems with chestnut to red-brown sheaths

Buying tips: Look for clean, undamaged foliage. Avoid bunches with broken stems and dry foliage.

Care and handling: Keep foliage hydrated throughout the entire supply chain. Keep the sleeve pulled up over the bunch to avoid drying out. Recut stems and hold in fresh clean water.

Floral preservative: ✗

Ethylene sensitivity: Unknown

Cool storage: 5–8 °C (based on research by Cedar Hill Flowers and Foliage)

Special notes: Generally more economical than koala fern (cheaper to buy).

Design uses in floristry: Vibrant transition foliage similar to koala fern, with large tufts of fluffy, feather-like foliage spaced evenly along its straight stem. Adds interesting texture to hand-tied designs, textured linear designs, wedding bouquets, boutonnières and corsages.

Doryanthes, Gymea lily, Giant lily leaves

Doryanthes excelsa

Cedar

Availability: Year round

Typical vase life: 2–3 weeks

Leaf length: Generally marketed in three lengths:

Short (minis): up to 60 cm
Regular: 60–140 cm
Tall: 100–200 cm

Number of leaves per bunch: 5–7

Colour range: Green

Buying tips: Choose crisp, medium to dark green leaves. Avoid leaves with discoloration, blemishes or curling. Avoid dull or wilted leaves.

Care and handling: Do not pack tightly, to avoid crushing and heat build-up. Hold in fresh clean water.

Floral preservative: ✗

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: The leaves are available in a range of lengths of up to 2 m, and have a strong midrib which causes the leaf to stand straight and tall in large arrangements. The midrib may be carefully cut away to make the leaf more pliable for use in contemporary designs or for wrapping containers, braiding, curling etc. Trimmed tips do not oxidise and brown, and may be retrimmed when the tip starts to deteriorate.

Design uses in floristry: Line and form. The leaves are useful for height and various design elements, including backing and focal foliage.

Dracaena, Lucky plant, Happy plant, Marginata

Dracaena spp. and hybrids

There are many species and hybrids valued as cut foliage, including *D. fragrans* 'Massangeana', *D. deremensis* and *D. deremensis* 'Janet Craig', *D. marginata* and *D. marginata* 'Tricolor'.

Availability: Year round

Typical vase life: 7–10 days

Stem length: 20–45 cm; stem tips (top of stem with cluster of leaves at tip) to 50 cm

Number of stems per bunch: 5 or 10

Colour range: *D. fragrans*, green or green with a yellow stripe; *D. deremensis*, green or green with a white border; *D. marginata*, green with a red edge; 'Tricolor', pink, white and green stripes. There many other variations of leaf colour.

Buying tips: Look for clean, undamaged leaves and tips.

Care and handling: Tropical care—hold at 12–15 °C. Keep leaves hydrated throughout the entire supply chain. Recut stems and hold in fresh clean water.

Floral preservative: ✓

Ethylene sensitivity: ✓–✓✓ (unknown for some cvv.)

Cool storage: ✗

Special notes: Happy plant and *D. deremensis* leaves are sold in bunches of single leaves. *D. marginata* and 'Tricolour' are sold as tips. *D. sanderiana* is marketed as the Chinese "Lucky Bamboo" (although unrelated to bamboo and not native to Asia); it is propagated from short cuttings, usually in water.

All of the dracaenas listed are superb indoor plants, universally used in home and commercial indoor plant displays.

Design uses in floristry: Single leaves. May be used for colour and form, including rolling, pinning and colour blocking**.** Tips are used for colour focal and transition.

Eucalyptus, Gum

incl. Silver dollar gum, Argyle apple (E. cinerea), Gumnuts (E. globulus), Cider gum (E. gunnii), Baby blue gum (E. pulverulenta), Tetragona nuts, Tetra nuts (E. tetragona)

Eucalyptus spp.

incl. *E. cinerea*, *E. erythrocorys*, *E. globulus*, *E. gunnii*, *E. kruseana*, *E. macrocarpa*, *E. pachyphylla*, *E. polyanthemos*, *E. pterocarpa*, *E. pulverulenta*, *E.* ×*tetragona*, *E. tetraptera*, *E. woodwardii*, *E. youngiana*

For *Corymbia ficifolia* (syn. *Eucalyptus ficifolia*) see "Flowering gum" in the "A–Z listing of cut flowers".

Availability: Year round, with differing peak seasons for different species

Typical vase life: 10–20 days

Stem length: Up to 60 cm, usually branching

Number of stems per bunch:

Colour range: Green, silver, grey, silver-blue to blue-green

Buying tips: Choose bunches with clean, undamaged, insect-free foliage. Avoid bunches with soft tips and lack of uniformity in colour and quality. Darkened slimy stems may indicate that the product has been stored too long.

Care and handling: Preservative is optional, though it may help keep the vase water clean. Hold in fresh clean water.

Floral preservative: ✓

Ethylene sensitivity: *E. gunnii* ✗; others unknown

Cool storage: 2–4 °C

Special notes: Expect good vase life from foliage and gumnuts, provided the product is hardened off at the time of purchase. Soft tips must be removed, as they will wilt, possibly turn brown and spoil the design.

There are huge variations in leaf shapes and sizes in *Eucalyptus* foliage, from long, green sickle shapes to small globular (rounded) shapes.

Eucalyptus foliage may be wild harvested, but the quality will be variable. When possible, choose cultivated product with hardened-off tips and uniform leaf shape, size and colour.

Design uses in floristry: Attractive and popular textural foliage for an endless array of modern and contemporary designs. The silver-grey colours enhance a wide range of both traditional and wildflowers. Gumnuts are suitable for a multitude of design styles, including bunches, bowl arrangements and wiring.

Fatsia, Aralia

Fatsia japonica (syn. *Aralia japonica*)


DT

Availability: Year round, though may be scarce in winter to spring

Typical vase life: 7–10 days

Stem length: 15–40 cm; leaf blade 15–50 cm wide depending on growing conditions and time of year

Number of stems per bunch: 10

Colour range: Dark green

Buying tips: Look for clean, undamaged, hardened-off, rich green leaves. Immature leaves have a poor vase life and will dry and wilt in a very short time.

Care and handling: May be held at 12–15 °C for no more than 3 days. Hold in fresh clean water.


DT

Floral preservative: ✓

Ethylene sensitivity: ✓✓

Cool storage: ✗

Special notes: Although this leaf looks tropical, it isn't. It needs some shade protection to maintain good leaf colour. The individual leaves have long (15–40 cm), reasonably self-supporting stalks, unlike many other types of broad leaves used in floristry. Underrated and underused.

Design uses in floristry: Grouping and layering in contemporary designs; large pedestal arrangements. Small and medium-sized leaves are suitable for surrounding hand-tied posies or bouquets. May also be used as an evergreen, decorative potted plant, suitable for outdoor or indoor displays.

Flexi grass

Schoenus melanostachys

Availability: Year round

Typical vase life: 7–10 days

Stem length: 70–100 cm

Number of stems per bunch: 50

Colour range: Deep green

Buying tips: Look for clean, green stems. Avoid broken and yellowing stems.

Care and handling: Hold in fresh clean water.

Floral preservative: ✗

Ethylene sensitivity: Unknown

Cool storage: 5–8 °C (based on research by Cedar Hill Flowers and Foliage)

Special notes: This exceptionally flexible grass-like sedge can be bent or twisted into many amazing forms without breaking or snapping. It is far superior for design purposes to dodder, which is a serious weed.

Design uses in floristry: Extremely versatile. Can be used to add depth, height and dimension to modern-style hand-tied bunches, arrangements and wedding bouquets.

Geebung

Persoonia levis (broad-leaved geebung), *P. linearis* (narrow-leaved geebung)

Availability: Year round

Typical vase life: 14 days

Stem length: 50–60 cm

Number of stems per bunch:

Colour range: Mid green (the tiny cream and yellow flowers are not important in floristry)

Buying tips: Check for clean, undamaged, insect-free foliage. Ensure that the depth of leaf colour is good.

Care and handling: Hold in fresh clean water.

Floral preservative: ✗

Ethylene sensitivity: Unknown

Cool storage: 2–4 °C

Special notes: An economical foliage, usually available in large quantities for peak sales periods, for example, Christmas. Wild-harvested by licensed pickers.

Design uses in floristry: The long branching stems are excellent for bunching and transition uses.

Goanna claw

Caustis recurvata


Cedar

Availability: Year round

Typical vase life: 10–14 days

Stem length: 60–80 cm

Number of stems per bunch: Variable

Colour range: Bright green with brown

Buying tips: Look for clean, fresh, undamaged, insect-free foliage.

Care and handling: Recut stems and hold in fresh clean water with added biocide or flower food. Holding in deep water improves hydration.

Floral preservative: ✓

Ethylene sensitivity: Unknown

Cool storage: 5–8 °C (based on research by Cedar Hill Flowers and Foliage)

Special notes: This foliage has long, straight stems covered in black/green claw-like curls.

Design uses in floristry: Ideal for hand-tied bunches. Excellent transition foliage for arrangements. A charming design addition to any bouquet. The stems may be cut down into sections without any loss of character for small arrangements or bunching; every part of the stem and leaf is useable.


Cedar

Helleborus

Helleborus spp. and hybrids, incl. *H. niger*

Availability: Winter to early spring

Typical vase life: 5–7 days

Stem length: 30–40 cm

Number of stems per bunch: 10

Colour range: Green

Buying tips: The leaves must be unblemished, dark green and leathery to the touch.

Care and handling: Recut stems, place in fresh clean water in clean containers with an added biocide, and keep leaves cool. Short vase life, so sell or use immediately—do not hold in cool storage. Place in clean water with flower food added. If necessary to rehydrate, immerse in room-temperature water for up to 2 h.

Floral preservative: ✓

Ethylene sensitivity: ✗

Cool storage: 2–4 °C

Special notes: There are various old and new *Helleborus* selections available that arise from species that readily hybridise with each other—so much so that identification is often difficult. Scalding the stems does not provide any vase life advantage. The mature leaves have a slightly sharp, serrated edge that may cause a short-term skin irritation.

Design uses in floristry: The leaves are valuable for a range of floral designs. Most commonly used as base foliage. Not suited for use in floral foam unless for brief use. Vase life tests may be required.

Ivy, English ivy, Ivy trails, Needlepoint ivy, Bush ivy, Ivy leaves

Hedera helix, *H. canariensis*


DT

Availability: Almost year round, but good product is scarce in spring

Typical vase life: 10–14 days

Stem length: Variable, to more than 100 cm

Number of stems per bunch: 10 or

Colour range: Dark green or variegated green/yellow, green/white, marbled or patterned

Buying tips: Look for clean, undamaged trails, and hardened-off tips and leaves.

Care and handling: Hold in fresh clean water.

Floral preservative: ✓

Ethylene sensitivity: ✓

Cool storage: 2–4 °C

Special notes: The palmate leaves vary in size from 3 to 15 cm across, depending on the species or cultivar. Large single leaves of *H. canariensis* are sometimes sold in bunches of 10. Confined to a large pot or hanging basket and carefully managed, *Hedera* plants may provide a regular supply of leaves suitable for wiring. Uncultivated or garden-harvested ivy may be damaged and dirty.

Hedera helix and other *Hedera* spp. are serious weeds in many parts of Australia. However, their uses in floristry are distinctive, and a suitable replacement for trailing stems and wired leaves with the same qualities has not yet been identified.

Commonly grown on a trellis or over a fence, the trailing stems are harvested from the juvenile form. The adult form is shrubby and produces berries which may be spread by birds, other animals and people. Do not include ivy with mature berries in any arrangement, as this risks spreading weeds. See "Watch out for weeds" on page 20.

Design uses in floristry: Flowing, trailing lines in wedding bouquets and arrangements and cascading pedestal designs. May be formed into a ring for a decorative addition to, or base for, a hand-tied natural-stem posy or for a table decoration. The individual leaves are suitable to wire for boutonnières, corsages, bouquets, cake decorations etc.

Koala fern, Fox tail

Caustis blakei


Cedar

Availability: Year round, with peak in autumn to winter

Typical vase life: 7–10 days

Stem length: 60–80 cm

Number of stems per bunch: 10

Colour range: Fine green leaflets with brown leaf sheath

Buying tips: Look for clean, unblemished product with a fresh green appearance. Avoid product that looks yellow or dry or that is dropping leaflets.

Care and handling: Hold in fresh clean water.

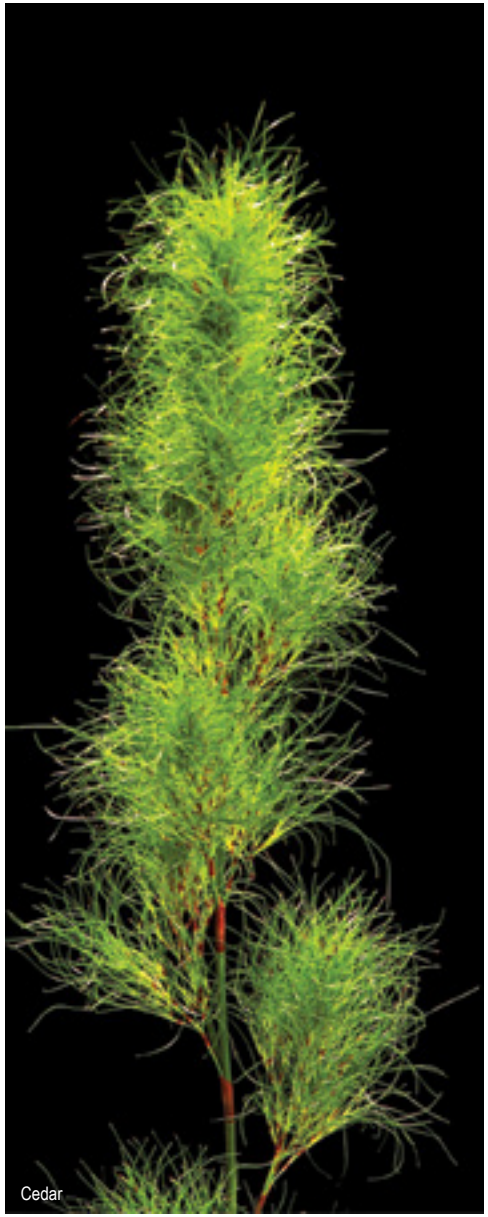
Floral preservative: ✓

Ethylene sensitivity: Unknown

Cool storage: 5–8 °C (based on research by Cedar Hill Flowers and Foliage)

Special notes: Foliage arranged as green feather-like tufts along the stem. The stems may be cut down into sections without any loss of character for small arrangements or bunches—every part of the stem and leaf can be used.

Design uses in floristry: Transitional foliage ideal for textured designs; uses are similar to dingo fern. Tufts on stem can be cut off for boutonnières or used like moss as a pot or container covering.


Cedar

Leather fern, Leather leaf

Rumohra adiantiformis

Availability: Year round from Australian-grown product

Typical vase life: 7–10 days

Stem length: 30–60 cm

Number of stems per bunch: 10

Colour range: Shiny, dark green

Buying tips: Look for strong, glossy green, undamaged fronds without curling tips. Do not accept bunches of pale, drying leaves as they may have been picked too early or held too long.

Care and handling: Must be kept hydrated throughout the supply chain. Use or sell as quickly as possible. Recut stems and hold in fresh clean water.

Floral preservative: ✓

Ethylene sensitivity: ✓

Cool storage: 2–4 °C

Special notes: Should be harvested when the leaf is deep, glossy green and well hardened off. Immature leaves will quickly wilt and dry. The mature fronds may have brown, dust-producing sori (reproductive clusters) on the underside of the leaflets.

Design uses in floristry: Greening of wreath bases, large and small arrangements, recessing, wiring, collars around bunches. Very versatile and economical foliage. Every part of the leaf can be used.

Leucadendron

Leucadendron argenteum

Availability: March to November

Typical vase life: 14–21 days

Stem length: 50–70 cm

Number of stems per bunch: Variable

Colour range: Velvety silver-grey

Buying tips: Look for clean, undamaged, insect-free foliage.

Care and handling: Recut stems and hold in fresh solution with added preservative.

Floral preservative: ✓

Ethylene sensitivity: Unknown

Cool storage: 2–4 °C

Special notes: Attractive soft, silky leaves. The silvery sheen is due to the dense cover of soft silvery hairs on both surfaces.

Design uses in floristry: Suitable for corporate designs, hand-tied bunches and a wide range of designs. Equally effective and valuable for use with traditional and wildflowers; textured, hand-tied bunches and arrangements. The individual leaves may be layered and rolled for exciting design elements.

Lotus pods and leaves, Chinese lotus, Sacred lotus

Nelumbo nucifera


CC Takomabibelot

Availability: Year round for dry pods, late summer for fresh pods. Dried leaves are available from Asian supermarkets year round.

Typical vase life: 7–10 days green, then will dry

Stem length: Fresh pods, 100–200 cm; dried pods, 40–50 cm

Number of stems per bunch: or

Colour range: Green, brown (dried)

Buying tips: For fresh product, look for clean green pods without brown patches. The stems are long and often angular—look for straight, strong stems.

Care and handling: Tropical care—hold at 12–15 °C in fresh clean water.

Floral preservative: ✓

Ethylene sensitivity: ✓

Cool storage: ✗

Special notes: The flowers, seeds, young leaves and rhizomes are all edible and variously symbolic in Asian cultures. The petals are sometimes used for garnish, while the large leaves are used as a wrap for food.

Both the leaves and the pods dry well, though the leaves fade somewhat and the pods turns brown. The pods resemble the rose on a watering can; the dimples hold small seeds, which may be released when the pods are dry. Leaves are sold in packs and are available from Asian grocery stores. Dampen and leave in a cool place to soften before use.

Design uses in floristry: Lotus pods are available in various sizes from 7 to 12 cm across and are sought after to add interest in modern designs, arrangements, hand-tied bouquets etc.


DT

Magnolia, 'Little Gem'

Magnolia grandiflora, 'Little Gem', 'Exmouth', 'Teddy Bear'

Availability: Year round, though may be scarce in late spring to early summer

Typical vase life: 14–20 days

Stem length: 50–70 cm

Number of stems per bunch:

Colour range: Rich green leaves with a gold-brown velvety underside

Buying tips: Look for clean, undamaged, insect-free foliage showing good colour and hardened-off leaves. If leaves are not hardened off they will damage easily during shipping and handling.

Care and handling: Hold in fresh clean water.

Floral preservative: ✗

Ethylene sensitivity: ✓

Cool storage: 2–4 °C

Special notes: Excellent foliage with a good vase life. Evergreen magnolia foliage is sought after and now commonly available in the flower markets. The brown-gold reverse of the leaf somewhat limits the range of colours of flowers and other elements that combine well with this foliage. Plain green forms are available, though these are seldom seen in the flower market.

Design uses in floristry: Suitable for use where large foliage materials are preferred, especially mixed with proteas, liliums and any large, dominant flower in modern and contemporary bunches and arrangements. 'Little Gem' and 'Teddy Bear' have smaller leaves than plain *M. grandiflora* or 'Exmouth'.

Monstera, Swiss cheese plant

Monstera deliciosa

Availability: Year round

Typical vase life: 10–15 days

Stem length: 20–90 cm; mini leaves, 15–20 cm across; medium leaves, 25–35 cm across; large leaves, 70–80 cm across

Number of stems per bunch: 5 or 10

Colour range: Green

Buying tips: Look for clean, undamaged leaves. Avoid leaves that are yellowing or brown, as this usually indicates poor storage or being held too long.

Care and handling: Tropical care—hold at 12–15 °C. Place in fresh clean water immediately.

Floral preservative: ✓

Ethylene sensitivity: ✓✓

Cool storage: ✗

Special notes: Handle with care—harmful if eaten, and the sap from a fresh-picked stem is a skin and eye irritant. Usually misnamed "monsterio".

Design uses in floristry: Placement of basal leaves to emphasise size and structure in large-scale and pedestal arrangements. Smaller leaves may be used as a collar surround for hand-tied bunches in modern designer floristry and for modern formal linear designs. The *Monstera* leaves in their numerous sizes and forms are a staple in modern designs.

Nandina, Sacred bamboo

Nandina domestica 'Pygmaea'

Availability: Autumn to winter

Typical vase life: 14–21 days

Stem length: 35–55 cm

Number of stems per bunch:

Colour range: Green with autumn tonings of orange, red, burgundy, yellow

Buying tips: Choose product with strong autumn colours and avoid branches with dry, damaged leaves. May be available earlier in summer as green foliage; check that the tips are hardened off, otherwise wilting will occur.

Care and handling: Hold in fresh clean water.

Floral preservative: ✗

Ethylene sensitivity: Unknown

Cool storage: 2–4 °C

Special notes: Very hardy foliage with very good vase life. A number of selections are available, providing the colour range above. A common misconception is that *Nandina* is a bamboo, which it isn't.

Design uses in floristry: Foliage. Suitable for use in floral foam arrangements, vases, bunching etc. May be used as full stems or stripped and used as individual leaves. The autumn-colour leaves may be wired individually or in groups for colour accent in bouquets. The autumn-hued foliage is useful for soft effects in arrangements.

North Queensland tropical foliage

including Forest Lace, Forest Gem, Atherton oak, White oak, Findlay's silver oak

Stenocarpus 'Forest Lace'(Φ), *Athertonia diversifolia*, *Grevillea baileyana* (white oak or Findley's oak), *Lomatia fraxinifolia* (silky oak)

Availability: Autumn to spring

Typical vase life: 'Forest Lace', up to 35 days; *A. diversifolia*, 27–35 days; *G. baileyana*, 18–35 days; *L. fraxinifolia*, 20–34 days

Stem length: Varies depending on species ('Forest Lace', 60–70 cm)

Number of stems per bunch: Variable

Colour range: 'Forest Lace', shiny, mid to dark green lacy leaves; *Athertonia*, deeply lobed, shiny, pale to dark green leaves; *G. baileyana*, dark green with a soft golden-brown underside; *Lomatia*, bipinnate, shiny, dark green leaves

Buying tips: Look for clean, green, undamaged, insect-free leaves with no signs of blackening, wilting or soft tips. Stems must be relatively straight and well covered with foliage, and not spoiled by removal of leaves.

Care and handling: *Athertonia* and *Lomatia* must be handled gently, as they are easily bruised. Tropical care—hold at 12–15 °C at a high RH in fresh clean water.

Floral preservative: ✗

Ethylene sensitivity: ✗

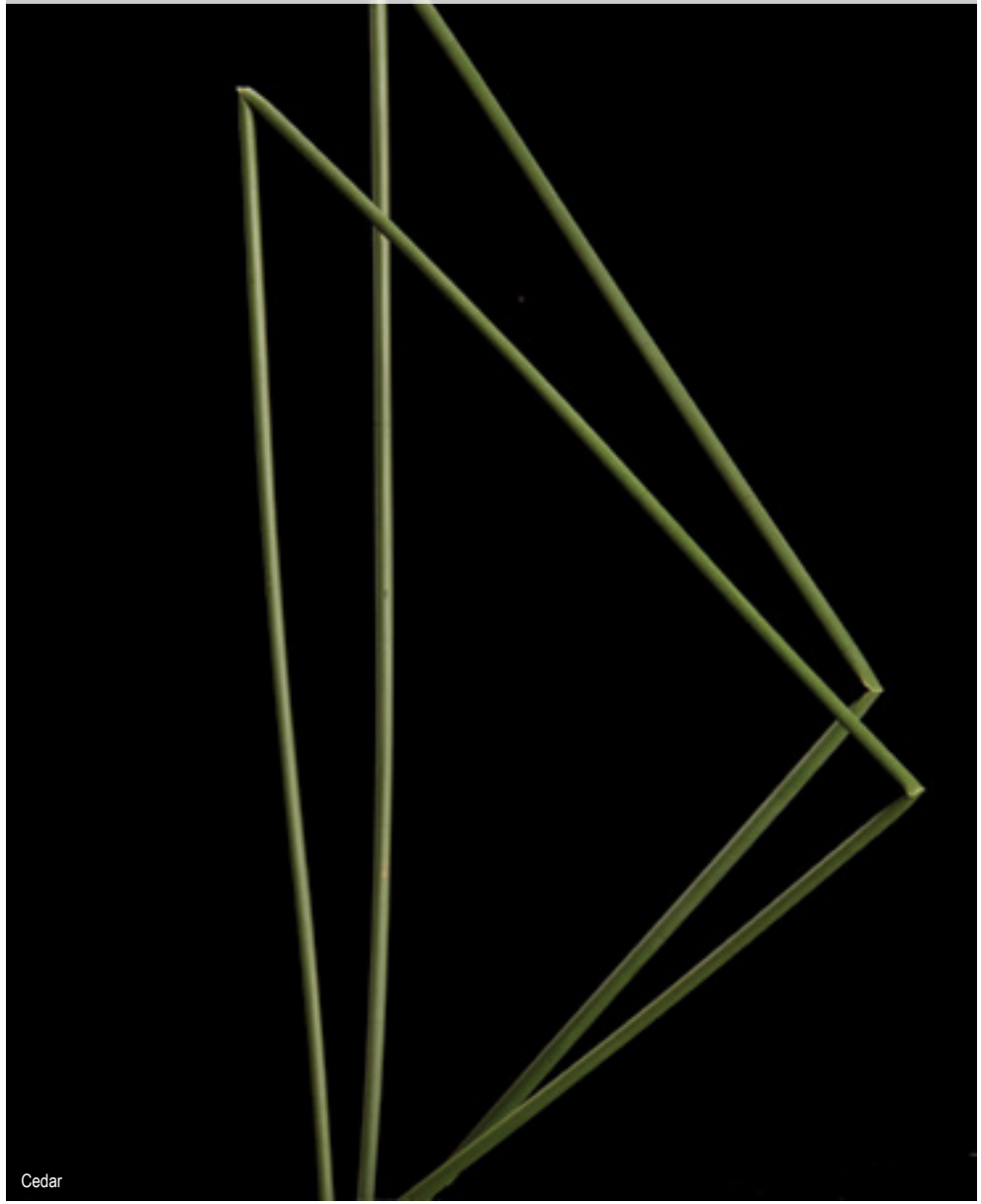
Cool storage: ✗

Special notes: All have a long vase life but supply may be limited, with 'Forest Lace' more commonly available than the others. 'Forest Lace', relatively new to the market, is very robust, despite its soft, lacy appearance.

Design uses in floristry: 'Forest Lace' is very versatile—the long branched stems are excellent for large arrangements and the individual leaves may be wired for wedding bouquets and accessories. *Athertonia* and *Lomatia* leaves are suitable as backing greenery or as feature foliage in table arrangements. *G. baileyana* can be used as filler or feature foliage, and individual leaves can be curled to display the green top side and golden brown underside. *G. baileyana* leaves sometimes curl and dry out for no reason.

Puzzle sticks

Lepironia articulata


Cedar

Availability: Year round

Typical vase life: 7–10 days

Stem length: Up to 80 cm

Number of stems per bunch: 10

Colour range: Smokey blue-green

Buying tips: Avoid dull, greying stems.

Care and handling: Hold in fresh clean water.

Floral preservative: ✗

Ethylene sensitivity: ✗

Cool storage: 5–8 °C (based on research by Cedar Hill Flowers and Foliage)

Special notes: Puzzle sticks have hollow, cylindrical stems with basal sheathing scales. Easily bent and twisted into angular shapes. Has the added bonus of springing back into its original straight shape if a mistake is made.

Design uses in floristry: Puzzle sticks will add interest, height, depth and dimension to a bunch or arrangement. Perfect for use in asymmetrical designs.


Cedar

Rhapis palm, Lady palm

Rhapis excelsa

Availability: Year round

Typical vase life: 7–10 days

Stem length: 20–30 cm

Number of stems per bunch: 10

Colour range: Shiny, dark green

Buying tips: Look for deep green, well hydrated leaves. Avoid dry leaves, which may indicate they have been stored too long, stored at low temperatures or held out of water.

Care and handling: Tropical care—hold at 12–15 °C. Recut stems and hold in fresh clean water. Keep leaves hydrated at all times.

Floral preservative: ✓

Ethylene sensitivity: ✓

Cool storage: ✗

Special notes: Often misspelt as "Raphis". The *Rhapis* palm is an excellent, low-light-tolerant plant used extensively around the world in interior plantscapes.

Design uses in floristry: Used extensively and highly recommended for large modern pedestal arrangements, corporate designs and hand-tied bunches.

Sea star fern, Coral fern, Skeleton fern

Gleichenia dicarpa


Cedar


DT

Availability: Year round

Typical vase life: 7–10 days

Stem length: 30–40 cm; frond 30 cm+

Number of stems per bunch: 10

Colour range: Deep green

Buying tips: Look for fully opened, undamaged fronds. Avoid curled tips, dry fronds and fronds with spores.

Care and handling: To help keep fresh, keep sleeve pulled up over the bunch and hold in fresh clean water.

Floral preservative: ✗

Ethylene sensitivity: Unknown

Cool storage: 5–8 °C (based on research by Cedar Hill Flowers and Foliage)

Special notes: Slender, dark, wiry, open fern fronds on fan-forked branches; strong brown stem; light delicate spray fern.

Design uses in floristry: Used prominently in modern designs for exciting form and texture, sheltering, wedding bouquets and accessories. A wonderful base for hand-tied bunch designs. Can also be used dry (will dry green). Dried sea star fern lends itself to being spray-painted for festive and colour-enhanced designs.

Spear grass, Steel grass, Grass tree

Xanthorrhoea spp.

Cedar

Availability: Year round

Typical vase life: Up to 30 days

Stem length: 80–150 cm

Number of stems per bunch: Variable

Colour range: Silver-green, green

Buying tips: Look for undamaged, insect-free bunches.

Care and handling: Hold in fresh clean water. Take care to avoid breaking individual leaves.

Floral preservative: ✗

Ethylene sensitivity: Unknown

Cool storage: 5–8 °C (based on research by Cedar Hill Flowers and Foliage)

Special notes: A very economical product. Handle very carefully—most forms have sharp leaf edges, so not recommended for wedding bouquet designs; use flexi grass instead.

Design uses in floristry: Linear emphasis in hand-tied bunches or arrangements. May be curved or bent to alter form, but may also break easily. Also recommended for threading with small blooms such as hyacinths, or with beads or berries, to create interest.

Umbrella fern

Sticherus flabellatus

Cedar

Availability: Year round

Typical vase life: 7–10 days

Stem length: 30–40 cm

Number of stems per bunch: 10

Colour range: Medium to dark green

Buying tips: Look for clean, undamaged product with good colour. Avoid if fronds appear dry.

Care and handling: Hold in fresh clean water. Use or sell quickly to maximise vase life. Keep in sleeves and spray with water to keep moist until ready to use.

Floral preservative: ✓

Ethylene sensitivity: Unknown

Cool storage: 5–8 °C (based on research by Cedar Hill Flowers and Foliage)

Special notes: Unique to Australia. Fronds on a single stem 30–40 cm across. The fronds appear soft but are strong. Generally harvested under license from wild stands in NSW and Queensland for domestic and export markets.

Design uses in floristry: May be used in the full leaf or in sections for layering, sheltering and recessing into modern-style arrangements. Exciting form to use in bunches and wedding designs. Very economical and useful for textured designs.

Viburnum

Viburnum odoratissimum, 'Awabuki'

Availability: Year round, with peak during summer and autumn

Typical vase life: 10–14 days

Stem length: Up to 70 cm

Number of stems per bunch:

Colour range: *V. odoratissimum*, mid green; 'Awabuki', dark glossy green

Buying tips: Look for strong, green branching stems with clean, undamaged leaves. Avoid product with soft, green foliage. Insist on product with hardened-off foliage. Product with soft, pinkish-brown tips is not recommended, as it will damage easily, and in most instances the tips will need to be pinched out. Top leaves can turn very pale during the coldest months in some parts of Australia, so avoid these.

Care and handling: Condition for at least 24 hours to rehydrate the stems and strengthen the foliage (especially the tips). May be held for up to 5 days without loss of vase life, but the water must be changed every 2 to 3 days. Recut stems and hold in fresh clean water.

Floral preservative: ✓

Ethylene sensitivity: Unknown

Cool storage: 2–4 °C

Special notes: The *V. odoratissimum* has dull to semi-glossy, mid green, slightly aromatic foliage on a green/brown stem. 'Awabuki' has dark, glossy green foliage on a green/brown woody stem. This shrub has insignificant white flowers, sometimes followed by bunches of bright red berries in December–January in warm temperate climates, which are useful for Christmas arrangements. Other cultivars with large leaves, including 'Emerald Lustre', may be useful as single leaves for basing and pinning, but note that 'Emerald Lustre' is more prone to wilting of the leaf tip.

Design uses in floristry: Basing for small and large arrangements; bunching.

Xanadu

Philodendron 'Xanadu'

Availability: Year round

Typical vase life: 10–14 days

Stem length: 20–50 cm; leaf blade 20–40 cm across

Number of stems per bunch: 10

Colour range: Dark green with a faint bluish blush and red-brown stems

Buying tips: Look for dark, glossy green leaves without insect or handling damage. Leaves must be hardened off.

Care and handling: Tropical care—hold at 12–15 °C in fresh clean water.

Floral preservative: ✓

Ethylene sensitivity: Unknown

Cool storage: ✗

Special notes: There are up to 900 species of *Philodendron*. 'Xanadu' is the most popular cultivar in the domestic market. Also sold as hardy potted plants suitable for a well lit position indoors away from direct sun, or on a balcony.

Be very careful when cutting leaves from the plant, as the sap will stain clothing and surfaces. Once the stem ends are placed into water, they appear to seal over.

Design uses in floristry: Modern and contemporary designs, linear and layered arrangements and bouquets. Used to create interesting shape and form.

Other foliage types

See comments on foliage under the cut flower entry

Above *Hosta plantaginea*; right *Lomandra longifolia*.

Acacia—see Wattle
Anthurium—see Anthurium
Ceratopetalum—see Christmas bush
Cyclamen—see Cyclamen
Grevillea—see Grevillea
Hosta (not covered in this manual)
Hydrangea—see Hydrangea
Leptospermum—see Tea tree
Lomandra (not covered in this manual)
Protea cynaroides—see Protea
Strelitzia—see Strelitzia

Explanation of terms

Abscission: Separation of one plant part from another, e.g. when a leaf, petal or flower drops off the stem.

Anther: The pollen-bearing upper part of the **stamen**, usually held at the tip of a long slender filament. Anthers are removed from some flowers (e.g. *Lilium*, *Doryanthes*) before sale, as the pollen can stain.

Biocide (or germicide or sanitiser): A substance that kills germs, such as bacteria, algae, yeasts and fungi. Biocides can also damage other organisms, including humans.

Bract: A leaf-like structure, usually below a flower head, sometimes brightly coloured, e.g. in *Hydrangea*, *Helleborus*, *Protea*, *Leucadendron* and *Telopea*.

Bypass growth: Growth of a lower side shoot past the flower, e.g. in roses, *Banksia* and *Protea*. This is unsightly and undesirable and often wilts after harvest. (Not to be confused with grow-through.)

Calibrate: To check the accuracy of an instrument against a standard. For example, a thermometer is calibrated by holding it in ice water, which is known to have a temperature of 0 °C.

Calyx (plural calyces): The outermost part of the flower, usually consisting of **sepals** or a calyx tube.

Chilling injury: Some flowers and foliage, particularly those from tropical regions, are damaged by cold temperatures above 0 °C. The symptoms of chilling injury are often brown or black discoloration.

Condense: The transformation of a gas or vapour to a liquid (or solid). Water droplets form on cold surfaces as the water vapour in the air cools as it comes in contact with the surfaces. Droplets of water will condense on cold flowers or bottles taken from a cold room or refrigerator into room-temperature air.

Conditioning: Treatment of cut flowers to ensure they look their best and to maximise their longevity. Encompasses trimming leaves and stem ends, cooling and hydration treatment.

Cultivar: A cultivated **variety**. Cultivars are distinguished by characters that are significant for their horticultural use (e.g. flower colour). These characters are retained in propagation.

Dangerous goods: Substances or articles that, because of their physical, chemical or toxic properties, present an immediate hazard to people, property or the environment. Types of substances classified as dangerous goods include explosives, flammable liquids and gases, corrosives, chemically reactive substances and toxic substances.

Disinfestation: The killing or removal of pests (insects, spiders, mites etc.) from flowers. In this book the term is used for postharvest insecticide treatments applied as dips or fumigants.

Devitalisation: Treatment of cut flower stems with a chemical to ensure that it is not possible to propagate new plants from them.

Embolism: A blockage that develops in a stem when small air bubbles are drawn into it at cutting or during dry storage. Embolisms block the flow of water up the stem, and the flower wilts.

Ethylene: A natural gas produced by plants and by other processes, such as burning gases and fuels. It is a natural ripening, ageing and defence hormone produced by fruits and flowers. It can cause flower and leaf drop and premature flower ageing.

Family: A group of related plant genera (plural of **genus**). For example, the Proteaceae family includes the genera *Grevillea*, *Protea* and *Telopea*.

Floret: An individual small flower, usually one of many in an **inflorescence**.

Flower: For simplicity in this book, the words "flower" and "stem" refer to the whole commercial cut flowering product, including the stem, leaves, **bracts**, flowers and **flower head** (made up of individual flowers or florets). For example, the commercial flower of *Telopea speciosissima* (waratah) includes stem, leaves, bracts and a **flower head** of **florets** (individual flowers). The different parts of a commercial cut flower may develop and age differently after harvest, so in one case changes in the leaves (drop, wilting or discoloration) can determine when quality is unacceptable, but in another case, changes in the petals determine it.

The word "flower" is also used in its botanical meaning of the individual reproductive unit on a stem or in a flower head; e.g. the individual flowers of *Chamelaucium* on a stem or the individual **florets** of *Telopea* within the **flower head**. To avoid ambiguity, we use the term "individual flower" or "floret".

Flower food: Commercial flower preservatives that are made for use in vases and buckets by retailers and consumers. They usually contain a **biocide**, sometimes sugar and possibly other compounds such as **wetting agents**.

Flower head (or inflorescence): Used here to describe compound flowers, which consist of many individual **florets**,

Adapted from 'Explanation of terms' first published in *Postharvest Handling of Australian Flowers from Australian native Plants and Related* Species—*A Practical Manual,* 2nd ed, by John Faragher, Bettina Gollnow and Daryl Joyce, 2010.

often in a complex arrangement and often surrounded by **bracts**. Examples include *Acacia*, *Banksia*, *Grevillea*, *Helichrysum*, *Ozothamnus*, *Protea* and *Telopea*. The individual flowers usually open sequentially over time. For maximum vase life, the flower head is often picked when only a few individual flowers have opened or are starting to open.

Foliage: A general term for stems with leaves but without flowers.

Forced-air cooling: Cold air is forced past flowers at faster than normal rates to cool product quickly. A fan pulls cold air through cartons stacked to allow air movement through them.

Genus (plural genera): A group of closely related species. The genus *Anigozanthos* has several species, including *Anigozanthos rufus* and *Anigozanthos viridis*. *Dianthus caryophyllus* (Sim carnation) is very different from *Dianthus barbatus* (sweet William)

Geotropic: Directional growth in response to gravity. Flower stems will bend upward when they are laid horizontally. Such stems must be kept vertical. Store stems upright and wrapped in paper in the cool room. Some anti-ethylene products may reduce stem bending.

Hazardous substances: Substances that can have an adverse effect on health. Examples include poisons, skin or eye irritants and carcinogens.

Hybrid: A plant type that results from cross-fertilisation of different parents. The plant is propagated vegetatively to keep the desirable characteristics.

Humidity: See **Relative humidity**

Hydrating solution: A flower preservative solution used to increase water uptake by flowers. Citric acid, **wetting agents** and some commercial solutions are used as hydrating solutions.

Inflorescence: See **Flower head**

Leaf blackening: In some cut flowers the leaves become unacceptably black after harvest. This is common in some Protea species, in which it is probably caused by the withdrawal of sugar from the leaves to the flowers. It sometimes occurs in *Ozothamnus diosmifolius* or in *Liatris* if they've been held at high temperatures or if it's been raining during harvest; in Ixodia that have been damaged; and in *Backhousia myrtifolia*. It sometimes occurs as a result of chilling injury.

Oedema: Swelling caused by the uptake of too much water.

Passive cooling: Cooling of flowers placed in a cool room and left to cool. The alternative is **forced-air cooling**, in which cold air is forced over or through the flowers. When the word "cooling" is used alone in this book it means passive cooling.

Pedicel: The stalk of a single flower.

Petiole: The stalk of a leaf.

pH: A measure of the acidity or alkalinity of solutions. Pure water has a pH of 7, acid is below 7 and alkali is above 7.

Phototropic: Growth towards light. Keep flowers in uniform light to discourage bending towards strong light.

Postharvest life: The life of the flower from harvest to the end of **vase life**. It includes time at the grower, wholesaler, exporter and retailer and depends on the conditions during the marketing chain. It is difficult to compare postharvest life between flowers and marketing chains unless the conditions during marketing are specified.

Postharvest solution: Solution used in bulk by growers, wholesalers, exporters and importers to improve the quality of flowers. Solutions usually contain a **biocide** and sometimes contain sugar and compounds that improve water uptake. They can be made up from basic ingredients or bought as commercial preparations.

Pulsing: A short-term treatment with postharvest solution, by which the flower stems are stood in a specific solution and allowed to take it up for a set time, e.g. treatment in sugar solution, or anti-ethylene treatment.

Relative humidity (RH): The amount of water vapour in a quantity of air relative to the maximum amount of water vapour the air can hold at a given temperature, expressed as a percentage. The more water vapour in the air, the higher the RH. In relation to cut flowers, humidity matters. The RH in cool rooms must be around 95% or the flowers will dry out, especially if air movement in the room (due to fans) is high. Many "standard" cool rooms run at less than 80% RH, which is suitable for drinks but not flowers.

Sepal: A leaf- or petal-like part of the flower, just outside the petals. For example, in *Ceratopetalum* (NSW Christmas bush), the red sepals are just below the small white flowers.

Spathe: A large, flat, petal-like **bract** that forms a sheath that encloses the **spadix**. The spathe may look like a petal and be brightly coloured, as in Anthurium.

Spadix: A long, fleshy flower **spike** bearing tiny individual flowers, usually enclosed by a **spathe**.

Species: The basic unit of biological classification, often defined as a group of organisms capable of interbreeding and

producing fertile offspring. For example, Hydrangea macrophylla and *Hydrangea paniculata* are different species within the same **genus**. Sometimes subspecies are recognised as well.

Spike: A long, unbranched inflorescence on which individual **flowers** (**florets**) lack a **pedicel**. For example, the **spadix** of Anthurium.

Stamen: The male part of the flower. It consists of an anther containing pollen atop a thin, hairlike filament. Stamens are very noticeable in *Lilium*, *Acacia*, *Callistemon* and *Eucalyptus*.

Stem length: The length of the flower or foliage stem from the cut end at the base to the very top.

STS: Silver thiosulphate, a floral preservative used as an anti-**ethylene** agent.

Style: The female part of the flower that often sticks up in the centre. It receives pollen. The styles are very noticeable in flowers such as *Banksia*, *Grevillea*, *Leucospermum* (the styles give it the pincushion name) and *Telopea*.

Tepal: The "petals" of a flower in which the **sepals** and petals are alike or fused together, e.g. in *Doryanthes*, *Grevillea* and *Telopea*.

Variety: A naturally occurring plant form distinct in appearance from other forms within the same **species** that will hybridise freely with those other forms. The term is often but incorrectly used to mean horticultural "cultivated varieties", or **cultivars**.

Vase life: The life of flowers once they are placed in a vase. It is usually measured at 20 °C, 60% to 70% RH with lights on for 12 hours each day. The end of vase life is decided against some objective measure of quality, e.g. when 50% of individual flowers have dropped, wilted, closed or turned blue; or when 50% of leaves have wilted or turned black. The vase life is longer at temperatures lower than at 20 °C.

Water stress: Stress caused by water loss.

Wetting agent: A detergent-like chemical that allows water to spread and move easily. A wetting agent in a postharvest solution can increase water uptake.

Photo credits

AS, Anne Sefton; Ball, Ball Australia; BG, Bettina Gollnow; CC, used under Creative Commons licence; Cedar, Cedar Hill Corporate Group; Chrysal, Chrysal International; CS, Craig Scott; DT, Del Thomas; ES, Elwyn Swane; FI, Flora International; GN, Grandiflora Nursery; HE, Highsun Express; HMcI, Heather McIntyre; IS, Ian Smith; JE, Joe Ekman; JF, John Faragher; JH, Judy Horton; JL, Jonathan Lidbetter; KR, Kasia Radke; KS, Kevin Seaton; L&L, Leigh Brenton & Lyn Johnson; LC, Lambley Cottage Nursery; LG, Lawrie Greenup; LR, Lorna Rose; LT, Lowan Turton; MLS, Matthew Stevens; NP, Nikki Poulish; Ramm, Ramm Botanicals; RW, Ross Worrall; Teulon, the Teulon family; TO, Tinonee Orchids; WH, Wendy Houlahan

Index

A

Abbreviations viii
Acacia 36, 37, 154
Achillea 22
Actinotus 81
Adenanthos 37
Advice to customers 13
African marigold 113
After Dark 36
Agapanthus 39
Ageratum 40
Agonis 36
Air embolisms 6, 14
Alchornea 36
Allium 41
Alpinia 87
Alstroemeria 42
Amaranthus 43, 61
Amaryllis 49
Ammi 22
Ananas 122
Andromeda 121
Anemone 44
Anemone, poppy 44
Anigozanthos 101
Anthurium 45
Anti-ethylene treatments 15, 16
Antirrhinum 136
Arab's eyes 62
Arachnis 140, 151
Aralia 167
Aranda orchid 151
Aranthera 151
Arum lily 21
Asiatics 108
Asparagus fern 21
Aspidistra 158
Aster 46
Aster, China 46
Athertonia 180
Atherton oak 180
Australian native flowers 33, 47, 52, 54, 63, 64, 116, 127, 129, 133, 139, 147, 148, 153, 154, 155
Australian native foliage 36, 163, 164, 166, 168, 169, 170, 173, 174, 180, 183, 184, 185, 188
Aztec marigold 113

B

Baby's breath 93
Backhousia 33
Bacterial plugging 14
Balloon vine 21
Baloskion 163
Banksia 47
Banksia snapshots 47
Barker bush 36
Beaufortia 33
Belladonna lily 49
Berries 37
Berzelia 50, 55
Billy buttons 33
Biocides 12, 14, 189
Bird of paradise 144
Blackening of leaves 16, 190
Blandfordia 63
Blockage of stems 14
Blue buttons 66
Blushing bride 51
Book list 18
Boronia 52
Botanical names 20
Botrytis 8, 11, 15, 18
Bouvardia 53
Bracteantha 54
Brassica 100
Broom 21
Brunia 50, 55
Bryophyllum 22
Bud wax 155
Bush ivy 172
Button bush 50
Buttons 65

C

Cabbage, Ornamental 100
Calendula 56
Calla lily 57
Calluna 22
Candytuft 58
Cardiospermum 21
Care 3
Carnation 59
Cast iron plant 158
Cattleya orchid 60
Caustis 170, 173
Celosia 43, 61
Centaurea 66
Chamelaucium 155
Cherry laurel 160
Chilling injury 7, 9, 24, 189
China aster 46
Chincherinchee 62
Chinese lotus 176
Chlorophytum 22
Christmas bells 63
Christmas bush 64
Christmas cones 104
Chrysanthemum 65
Cockscomb 61
Codiaeum 162
Cold handling 6
Conditioning 5, 14, 189
Coneflower (Echinacea) 75
Cone flower (Isopogon) 116
Cones 37
Conospermum 35
Convallaria 110
Cooling 8
Cool rooms 8
Cool storage 38
Coral fern 183
Cordyline 161
Cornflower 66

Cortaderia 22
Corymbia 79
Cosmos 67
Cotoneaster 21
Cotton bush (Ptilotus) 126
Cottonbush (Spyridium) 34
Crab claw 94
Crane flower 144
Craspedia 33
Croton 162
Cryptandra 34
Cumbungi 22
Curcuma 134
Cuscuta 22
Cyclamen 68
Cytisus 21

D

Dahlia 71
Daisy Chrysanthemum 65
Daisy, Easter 46
Daisy, Everlasting 54
Daisy, Hills 139
Daisy, Michaelmas 46
Daisy, Mountain 139
Daisy, Paper 54
Daisy, South Australian 139
Dancing lady orchid 117
Daphne 72
Dasypogon 36
David Austin roses 131
Deer antlers 36
Delphinium 73
Dendranthema 65
Devitalisation 3, 189
Dianthus 59
Digitalis 22
Dingo fern 163
Dipsacus 22
Disbuds 65
Dodder vine 22
Doryanthes 92, 164
Dracaena 165
Drumsticks 41, 116
Dryandra 48
Dutch iris 99

E

Easter daisy 46
Eastern waxflower 77
Echinacea 75
Embolisms 6, 14, 189
Emile statice 141
Emu grass 36
English ivy 22, 172
English lavender 102
Equisetum 22
Erlicheer daffodil 70
Eryngium 78
Ethylene 15, 16, 189
Ethylene-sensitive species 17
Etlingera 87
Eucalyptus 166
Eucalyptus buds 34
Eucalyptus nuts 34
Eucomis 80
Eustoma 111
Everlasting daisy 54
Explanation of terms 189

F

Fairy statice 141
Fatsia 167
Feather flowers 90
Featherhead 120
Fern, Coral 183
Fern, Dingo 163
Fern, Koala 173
Fern, Leather 174
Fern, Sea star 183
Fern, Skeleton 183
Fern, Umbrella 185
Field roses 131
Findlay's silver oak 180
Fire wheels 105
Flamingo 45
Flexi grass 168
Floral foam 13
Floral preservatives 10, 14
Floret 4, 189
Floristry Training Package vii
Flower, definition 4, 189
Flower food 5, 10, 189
Flower head 4
Flowering gum 79
Flower maturity 7
Foam, floral 13
Foliage maturity 7
Forest Gem 180
Forest Lace 180
Foxglove 22
Fox tail 173
Foxtail asparagus 21
Fragrance 1
Freesia 83
French lavender 102
Freshness 3, 6
Fumigation, damaged caused by 18

G

Gardenia 84
Geebung 169
Genista 21
Geotropism 16, 190
Geraldton wax 155
Gerbera 86
Giant lily 92, 164
Ginger 87
Ginger, yellow 22
Gladioli 88
Gladiolus 88
Gleichenia 183
Glossary 189
Goanna claw 170
Grass tree 184
Green Goddess lily 57
Green Trick carnation 59
Grevillea 36, 180

Grey mould 8, 11, 15, 18
Guelder rose 137
Guernsey lily 115
Gum 36, 166
Gymea lily 164
Gyp 93
Gypsophila 93

H

Hakea 35
Handling 12
Happy plant 165
Heath 76
Hedera 22
Hedychium 22
Helianthus 145
Helichrysum 54, 129
Helipterum 54
Helleborus 95, 171
Hills daisy 139
Honey Protea 125
Horsetail 22
Hosta 188
Humidity 8, 9, 190
Hyacinth 96
Hyacinthus 96
Hydrangea 97
Hydrating solutions 6, 10, 190
Hydration 9
Hygiene 9, 12
Hypericum 98

I

Iberis 58
Iceland poppy 123
Imported flowers 18
Inca Gold 103
Inflorescence 4
Integrated pest management 1
IPM 1
Iris 99
Iris, Dutch 99
Irish green bells 114
Isopogon 116
Ivy 172
Ixodia 139

J

Jonquil 70

K

Kale 100
King Protea 124
Koala fern 173
Kunzea 35

L

Lady palm 182
Lamb's tail 126
Larkspur 73
LAs 108
Lathyrus 146
Lavandula 102
Lavender 102
Lavender, English 102
Lavender, French 102
Leaf blackening 16, 190
Leather fern 174
Leather leaf 174
Lenten rose 95
Lepironia 181
Leptospermum 147
Leucadendron 175
Leucadendron snapshots 104
Liatris 106
Ligustrum 22
Lilac 107
Lilium 108
Lily 108
Lily, Belladonna 49
Lily, Calla 57
Lily, Giant 92, 164
Lily, Green Goddess 57
Lily, Gymea 164
Lily of the Nile 39
Lily of the valley 110
Lily of the valley bush 121
Lily, Peruvian 42
Limonium 141
Lisianthus 111
Little Gem Magnolia 177
Lobster claw 94
Lomandra 188
Lomatia 180
Longevity, maximising 5, 10
LOs 108
Lotus 176
Love lies bleeding 43
Lucky plant 165
Lycopodium 36
Lycoris 115

M

Macropidia 101
Marginata 165
Marigold 113
Marsdenia 142
Matthiola 143
Maturity 7
Michaelmas daisy 46
Ming fern 21
Mini king Protea 124
Mini pineapple 122
Misty statice 141
Mokara orchid 151
Molucca balm 114
Moluccella laevis 114
Monstera 178
Mother of millions 22
Moth orchid 119
Mould 15
Mountain daisy 139
Mountain moss 36
Mulla mulla 126

N

Naked lady 49
Names, botanical 20

Names of plants 20
Nandina 179
National Floristry Training Package vii
Native flowers 33
Native foliage 36
Native holly 36
Needlepoint ivy 172
Nelumbo 112, 176
Nerine 115
North Queensland tropical foliage 180
Novembers 108
Noxious weeds 21
NSW Christmas bush 64
Nuts 37
Nut top 116

O

Orchid, Aranda 151
Orchid care 22
Orchid, Cattleya 60
Orchid, Dancing lady 117
Orchid, Mokara 151
Orchid, Moth 119
Orchids 22, 23
Orchid, Singapore 74, 151
Orchid, Slipper 135
Orchid, Vanda 151
Orientals 108
Ornamental cabbage 100
Ornamental kale 100
Ornithogalum 62
Ozothamnus 129

P

Packaging 6
Paeonia 118
Pampas grass 22
Papaver 123
Paper daisy 54
Paper White jonquil 70
Paphiopedilum 135
Parma violet 152
Parrot flowers 94
PBR viii
Pearl flower 155
Peony 118
Peony rose 118
Persoonia 36, 169
Peruvian lily 42
Pesticides in imports 3, 18
pH viii, 5, 9, 190
Philodendron 187
Philotheca 77
Physiological plugging 14
Pieris 121
Pimelia 127
Pincushions 105
Pineapple grass 36
Pineapple lily 80
Pisa 103
Plant Breeders' Rights viii, 20
Plant names 20
Plumeria 82
Podocarpus 36
Polianthes 149
Poppy 123
Poppy anemone 44
Postharvest care 2, 5
Postharvest life 3, 190
Postharvest solutions 2, 190
Potential problems 14
Prince of Wales feather 43, 61
Privet 22
Problems, how to avoid 14
Prunus 160
Purple coneflower 75
Pycnosorus 33
Pyracantha 21

Q

Quality, bad 5
Quality, good 5
Quality, signs of 5
Quality specifications for wildflowers 19
Qualup bells 127
Quarantine 3, 22
Queen Anne's lace 22
Queen Protea 124

R

Ranunculus 128
Recommended reading 18
Recutting 5, 9
Regals 108
Restio 163
Rhapis palm 182
Rhodanthe 54
Ribbon plant 22
Riceflower 129
Rosa 130
Rose 130
Rothschildiana 89
Rumohra 174

S

Sacred bamboo 179
Sacred lotus 112, 176
SA daisy 139
Safari Red 103
Safari Sunset 103
Sago bush 129
Salix 22
Santini 65
Saviour grass 36
Schoenus 168
Scholtzia 133
Scots heather 22
Sea holly 78
Seasonal flowers and foliage 25
Sea star fern 183
Serruria 51
Siam tulip 134
Sim carnation 59
Singapore orchid 74, 151
Skeleton fern 183
Slipper orchid 135
Smokebush 35
Snowball tree 137
Solidago 138

Solidaster 138
South African flowers 50, 51, 55, 62, 104, 125
South African foliage 175
South Australian daisy 139
Spear grass 184
Spiders 65
Spray carnation 59
Sprays 65
Sprenger fern 21
Spyridium 34
Standard carnation 59
Star jasmine 22
Star of Bethlehem 39, 62
Statice 141
Steel grass 184
Stem bending 16
Stem blockage 6, 14
Stem length 14
Stenanthemum 34
Stenocarpus 180
Stephanotis 142
Sticherus 185
St John's wort 98
Stock 143
Straw flower 54
Strelitzia 144
Sugar 10
Sunflower 145
Suppliers of solutions 12
Sweet pea 146
Sweet violet 152
Sweet William 59
Swiss cheese plant 178
Syringa 107

T

Tagetes 113
Teasel 22
Tea tree 147
Telopea 153
Temperature 6, 7, 8
Tetragona nuts 166
Tetra nuts 166
Thai tulip 134
Thryp 148
Thryptomene 148
Ti 161
Tjienkerientjee 62
Trachelospermum 22
Tropical flowers 45, 82, 87, 89, 94, 112, 122, 134
Tropical foliage 161, 162, 165, 178, 180, 182, 187
Tropical species 24
Tuberose 149
Tulip 150
Tulipa 150
Tulip, Siam 134
Tulip, Thai 134
Typha 22

U

Umbrella fern 185

V

Vanda orchid 151
Vase life 3, 7, 10, 18, 191
Vase solution 9
Ventilation 9
Verticordia 90
Viburnum 137, 186
Viola 152
Violet 152

W

Waratah 153
Water quality 5
Water uptake 9
Wattle 154
Waxflower 155
Waxflower, Eastern 77
Weeds 20
Weeds used in floristry 20, 21
Wheat Celosia 61
White oak 180
Willow 22
Woolly bush 37

X

Xanadu 187
Xanthorrhoea 184
Xerochrysum 54

Y

Yarrow 22
Yellow bells 85
Yellow ginger 22

Z

Zantedeschia 21, 57
Zigzag wattle 37
Zingiber 87
Zinnia 156

What Cut Flower Is That?

The essential care and handling guide for cut flower professionals

Del Thomas and Bettina Gollnow both have a lifetime's experience in floristry, floriculture and horticulture. This book distils their encyclopaedic knowledge of cut flower and foliage products grown both in Australia and overseas. In nearly 200 pages it details everything the successful florist needs to know about sourcing, buying, storing, preparing and selling 116 flower products and 30 foliage products. Each full-page entry gives the common names, botanical names, availability, vase life, stem length, typical bunch size, colour range, buying tips, care and handling, which floral preservatives to use, ethylene sensitivity, storage temperature, design uses in floristry and special advice. Each product is illustrated with a beautiful colour photograph to aid recognition.

Special advice is given on caring for orchids and tropical species, and colour tabs on the page margins highlight Australian, South African, tropical and orchid species.

Two sections list the colour range and seasonal availability of all these products and many more, allowing the details to be read at a glance.

Written with the considerable support of the Rural Industries Research and Development Corporation, industry funding and the invaluable assistance of many industry experts, *What Cut Flower Is That?* brings together all of this information and advice—some of it never before published—for the first time. Fully indexed, this book is an essential resource for all florists, floristry students and anyone with a passion for cut flowers.

RIGHT WAY
SERVICESKILLS AUSTRALIA
TRAININGRESOURCE

***What Cut Flower is That? The essential care and handling guide for cut flower professionals*, a general reference resource supporting the SFL10 Floristry Training Package, has been granted industry recognition through the Right Way Program.**