

# Rice flower information kit

Reprint – information current in 1997



## REPRINT INFORMATION – PLEASE READ!

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This publication has been reprinted as a digital book without any changes to the content published in 1997. We advise readers to take particular note of the areas most likely to be out-of-date and so requiring further research:

- Chemical recommendations—check with an agronomist or Infopest [www.infopest.qld.gov.au](http://www.infopest.qld.gov.au)
- Financial information—costs and returns listed in this publication are out of date. Please contact an adviser or industry body to assist with identifying more current figures.
- Varieties—new varieties are likely to be available and some older varieties may no longer be recommended. Check with an agronomist, call the Business Information Centre on 13 25 23, visit our website [www.deedi.qld.gov.au](http://www.deedi.qld.gov.au) or contact the industry body.
- Contacts—many of the contact details may have changed and there could be several new contacts available. The industry organisation may be able to assist you to find the information or services you require.
- Organisation names—most government agencies referred to in this publication have had name changes. Contact the Business Information Centre on 13 25 23 or the industry organisation to find out the current name and contact details for these agencies.
- Additional information—many other sources of information are now available for each crop. Contact an agronomist, Business Information Centre on 13 25 23 or the industry organisation for other suggested reading.

Even with these limitations we believe this information kit provides important and valuable information for intending and existing growers.

**This publication was last revised in 1997. The information is not current and the accuracy of the information cannot be guaranteed by the State of Queensland.**

This information has been made available to assist users to identify issues involved in marketing rice flower. This information is not to be used or relied upon by users for any purpose which may expose the user or any other person to loss or damage. Users should conduct their own inquiries and rely on their own independent professional advice.

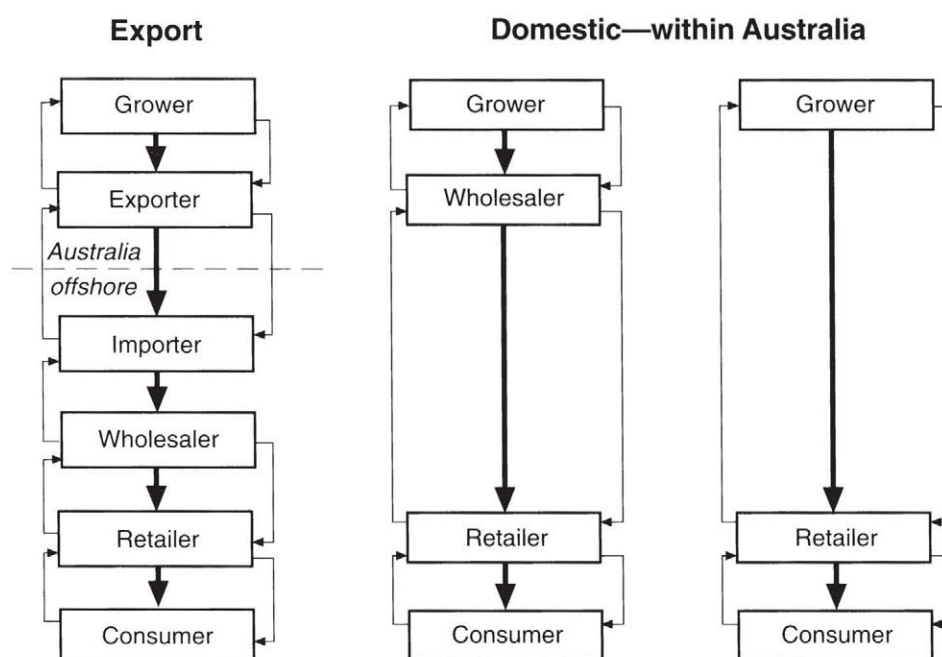
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Queensland Government

### 3. Basic market requirements

The commodity ‘market’ is an amorphous concept in the sense that while the demand from the end-user pulls a product through the marketing chain, there are a range of intermediaries handling it, all with their own agendas and expectations. Export presents a particular challenge as it involves a relatively large number of geographically and culturally remote intermediaries. Figure 2 indicates in simplified form how rice flower generally moves on the export and Australian markets. The thick arrows indicate the movement of product. The thin arrows indicate the most common communication channels.



**Figure 2: Simplified marketing chains for rice flower**

In a well functioning system feedback on product quality, performance, quantity needed, timing and price would be readily available in both directions along the length of the chain. This would enable the grower to make continual modifications to supply, quality, timing, presentation and type of product to meet the changing requirements of the market.

Unfortunately the reality is that marketing chains do not operate under these ideal conditions. Often the price received is the sole feedback.

A grower has multiple ‘customers’ in the marketing chain, all with their own requirements. Feedback from these ‘customers’ is most reliable when obtained as directly as possible. Satisfying the needs of all these groups removes obstacles to the acceptance of a relatively new commodity such as rice flower. On the other hand, if the product becomes ‘too much trouble’ at any point in the chain, there are many competing flower species to divert their interest. Table 1 contains a hypothetical example from the Japanese marketing chain to demonstrate some sample perspectives. The challenge for producers is to broaden their outlook to consider the wider needs of their market and to be responsive to feedback.

**Table 1: Some sample perspectives within an export marketing chain**

<b>Export chain</b>	<b>Sample perspectives</b>
Grower	production, profit, minimising costs/risks
Exporter	quality, quantity and timing of production, profit, reputation
Overseas—Importer	quality landed, customs clearance, dealing with documentation, profit, reputation
Overseas—Wholesaler	predicting likely demand, product use, freshness, profit
Overseas—Retailer	ease of handling (packaging and storage), profit, freshness
Overseas—Customer	attractiveness, purpose of purchase, probable vase life, value for money

Growers need to consider not only their customers, but also the requirements of the flower itself. From the moment the stem is separated from the plant, temperature management will be the primary determinant of product freshness. The producer is responsible for the first important stages in postharvest handling. These are the rapid cooling of the stems and on-farm refrigeration, chemical treatments for quarantine and/or flower longevity, market preparation and packaging.

After the rice flower has left the farm, any breakdown in the cold chain can devalue product or cause losses. Growers with a genuine concern for performance of their product at the consumer level need to take a whole systems approach, monitoring not only their product and the market, but also the distribution system.

## Product standards

Working with the Flower Export Council of Australia, Standards Australia has sought to implement basic standards for a range of Australian export cutflowers. The aim of the standards is to provide minimum guidelines on how to achieve the appropriate freshness and quality for export. The issues of product storage, packaging and labelling were addressed, both at the general level and for specific crops. These criteria can be used to achieve consistency in quality, not only at harvest and in the packing shed, but in the selection of quality cultivars for production purposes.

Some general principles cover all cutflowers. Table 2 is a summary of the draft general standard for Australian export flowers.

**Table 2: General standards for Australian export cutflowers**

Vase life	five days is the minimum requirement after purchase
Consistency/quality	<p>must be harvested at the correct stage of maturity, and conform to the species, variety or cultivar nominated;</p> <p>must be sound, clean, fresh and substantially free of live pests or diseases of animal or plant origin;</p> <p>must meet regulatory requirements of the destination country;</p> <p>must be free of residues of foreign substances affecting the product;</p> <p>must have no more than 5% of product affected by bruises or blemishes, vegetation defects, damage by parasites, petal or flower drop.</p>
Labelling—general	<p>carton labels shall describe the contents/the contents shall be true to the label;</p> <p>the correct botanical name must be able to be supplied;</p> <p>the same name shall be used in all labelling and documentation.</p>
Labelling—cartons	<p>each carton shall be labelled with:</p> <ul style="list-style-type: none"> <li>genus, species, and variety or cultivar</li> <li>number of stems per bunch or weight per bunch</li> <li>number of bunches</li> <li>stem length from top of flowerhead to end in centimetres</li> <li>flower colour</li> <li>whether artificially coloured</li> <li>carton tracing code;</li> </ul> <p>labels shall read 'KEEP COOL—FRESH AUSTRALIAN FLOWERS'.</p>
Packaging	<p>cartons shall be new, clean and designed to protect flowers;</p> <p>carton lid should be the same height as the box or of equivalent strength;</p> <p>cartons should be stacked and transported in such a way that collapsing or crushing is avoided.</p>
Packing of product	<p>product should neither be crushed nor be able to move in transit, but shall be loose enough for pressure cooling and for product to breathe;</p> <p>the contents of each carton shall be consistent with that designated on the invoice.</p>
Core temperature	<p>product is to be pressure cooled and stored immediately after harvesting and processing;</p> <p>cool room shall be calibrated and adjusted to maintain a stable temperature;</p> <p>product is to be despatched fresh or after five or fewer cool storage days.</p>

These standards relate to both product handling by growers and the often neglected administrative dimension of marketing. Correct documentation is important in all markets and essential for Japan. The invoice, export licence (see page 28), phytosanitary certificate (see page 28) and airway bill must all correspond. The product description and stem counts on all papers must be an accurate record of

what is contained in the boxes. In Japan inspection depots are flooded with cutflowers. Product is inspected in order of receipt, **provided that all the documentation is correct**. If there are any problems the flowers are placed to one side. The resultant delay proves costly to growers as the product deteriorates before it can be offered to a highly quality-sensitive market.

The reputation of Australian product overseas is tarnished by poor consignments, and it is the responsibility of all growers to help build Australia's position as a supplier of quality wildflowers.

## Rice flower industry standards<sup>4</sup>

Maturity and objective quality standards have been developed for export rice flower. The standards cover flower, foliage and stem quality, harvest maturity, uniformity of grading, accuracy in labelling and postharvest cooling. The rice flower draft standard (see Table 3) provides a basis upon which Australian growers can meet customer requirements for quality and consistency.

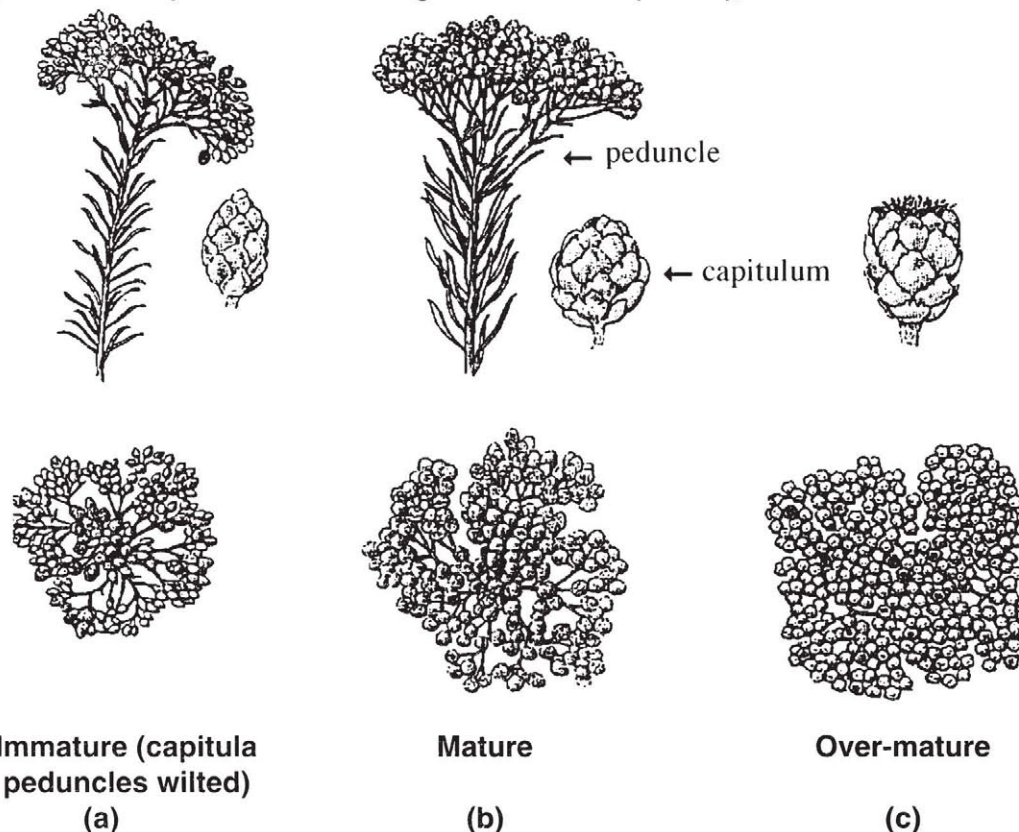
**Table 3: Industry standard for rice flower (modified draft)**

<b>Rice flower</b> – <i>Ozothamnus diosmifolius</i> syn. <i>Helichrysum diosmifolium</i>	
This industry standard is based on an earlier standard for rice flower adopted by the Flower Export Council of Australia. It has been submitted to Standards Australia for consideration as the Australian standard.	
<b>1. Scope</b>	
This standard sets out a specification for rice flower. The standard does not apply to dried or preserved rice flower, nor does it include information on operational or market-specific matters.	
<b>2. Definitions</b>	
Capitulum:	A small flower head, approximately match-head in size on rice flower
Capitula:	Two or more capitulum
Bracts:	Visible protective structures making up the outermost covering of the capitula of rice flower
Corymb:	A terminal flower head made up of a collection of capitula
Floret:	A small flower protruding from opened bracts, clearly visible with a hand lens
Flowering stem:	In commercial harvests of rice flower, an array of corymbs.
Peduncles:	Stalks supporting the flower head.
<b>3. Consistency/quality</b>	
<b>3.1 Maturity and quality for harvesting</b>	
(a)	Less than 10 per cent (2 per cent for top quality product) of capitula in the centre of the most advanced corymbs show bract separation and floret extension.
(b)	Stalks (peduncles) supporting the corymb do not wilt causing capitula to droop after harvest. This is a symptom of picking too early.
(Continued)	

<sup>4</sup>Data on the harvest window for rice flower and the use of postharvest preserving solutions were sourced from *Development of rice flower as a cut flower crop. 127A Final Report* by Peter Beal, Lois Turnbull and Leif Forsberg, RIRDC, 1995.

- (c) Flowers shall be harvested no earlier than at the stage of corymb and capitulum maturity illustrated in line drawings of Stage (b)—mature, and earlier than that illustrated in drawings of Stage (c)—over-mature. Note: Postharvest treatments that prevent wilting may advance the earliest harvesting stage.

**Corymbs and capitula at three stages: immature (wilted), mature and over-mature.**



**3.2 General**

The flowering stem shall have the following general characteristics after careful harvesting at the appropriate stage (see Clause 3.1):

- (a) Capitula are of a clean, distinct colour, such as white, cream, light pink, mid pink or dark pink.
- (b) Foliage at the top of the stems should be fresh, clean and green.
- (c) Stems must be strong, reasonably straight and derived from new season's wood. Strong, low side-branches growing at an angle greater than 45 degrees should be removed.
- (d) The stem must meet the requirements detailed in the general standards for Australian export cutflowers (see Table 2).

**4. Export Grade Classification and Appearance**

**4.1 Criteria for bunches**

Each bunch of rice flower for export shall meet the criteria below:

- (a) give a balanced appearance of high flowering density, produced by a combination of stem number, stem length and size, number and distribution of capitula;
- (b) be true to type for described hybrids/cultivars;
- (c) have uniform foliage colour;

(Continued)

- (d) be of uniform weight compared to others in the same order or shipment;
- (e) have a consistent stem diameter  $\pm$  10 per cent.

#### 4.2 Criteria for cartons

Each carton of rice flower for export shall meet the criteria below:

- (a) be cooled to approximately 2°C, with forced air cooling, preferably within three hours of cutting in the field;
- (b) meet the requirements detailed in the general standards for Australian export cutflowers (see Table 2).

Overmature rice flower should not be picked at all. **Incorrectly harvested product has the capacity to completely kill market interest.** Rice flower is ready for harvest at the plump bud stage, when the capitula are mature, yet unbroken, with a fully expanded corymb. Depending on the variety, this harvest window lasts from 1 to 10 days in Queensland (averaging 3 to 5 days). During the flowering season, the crop has to be constantly monitored so that it can be picked at the correct stage of maturity. Individual growers cannot easily handle varieties with a one or two day harvest period, and such varieties should be selected against as they are non-commercial.

Rice flower that is picked too early wilts. However in some cultivars, and with the use of postharvest preserving solutions, there is the potential to pick at an earlier stage of maturity, extending the harvest period.

Overmature rice flower should never be marketed. When the capitula open the styles emerge from the florets, all of which quickly dry off, capping each bud with an unsightly brown fuzz. With further development bracts open like a miniature daisy, revealing the seed heads, which shatter and fall. European and Japanese importers have unfavourable memories of this type of product exported in the late 1980s.

All forms of rice flower are prone to leaf blackening in some circumstances. Rough handling of the mid-leafed and broad-leafed varieties can exacerbate the problem, with tissue blackening occurring at the damage sites.

After grading and bunching, flowers are normally dipped to control pests and diseases. For flowers not put into water, the dip has a secondary function of preventing the foliage from drying out. The dipping solution needs to remain in contact with the stems at room temperature (normally on a drying rack) long enough to kill any live insects. This can take up to two hours and has to be balanced against the need to keep flowers cool to retain their freshness. Good pre-harvest control of insects in the field reduces the chance of any live insects surviving the dipping process.

It is recommended that growers hire or build a cool store that can be dedicated to flowers. Forced air cooling (FAC) is highly desirable for the rapid removal of heat from the centre of cartons. With an efficient FAC system, the temperature at the centre of the cartons may be reduced to cool room level in 20 minutes. In a cool room without FAC this process can take up to 72 hours. It is worth noting that refrigerated trucks are no substitute for FAC. This type of refrigeration is designed to maintain carton temperature, not to cool warm product.

## Basic market requirements

Rice flower clearly benefits from cooling to around 2°C as soon as practicable after harvesting. In laboratory trials this has been shown to stop foliage blackening in non-flowering stems. Commercially, good results have been obtained with dry storage in forced-air-cooled cartons at 2°C within three hours of harvest.

Some elements of the rice flower standard relate directly to the choice of varieties. Some desirable and undesirable varietal characteristics that directly affect product quality are listed in Table 4.

**Table 4: Desirable and undesirable varietal characteristics**

Characteristics	Good varieties	Poor varieties
stems	distinct, clean flower colour	pinks fade, giving a washed out appearance; whites and creams look 'dirty'
	strong stems	whip-like stems
	straight stems	whole plant tends to branch at angles greater than 45°, these branches then curve upwards
	no 'bypassing' on stems	vegetative shoots produced below the flower head extend beyond the top of the flower head
flowers/buds	high levels of flowering, many buds, well distributed	flowering on cut stems looks sparse; there are relatively few buds and/or a poor distribution of buds, inadequate branch numbers per stem
	buds mature evenly on stem	terminal corymb matures well in advance of other corymbs on the same stem
foliage	clean green foliage	leaf blackening; leaf yellowing due to sensitivity to nutritional deficiencies, water stress and salinity

Site or crop management factors also affect quality. A central issue is that quality rice flower cannot be grown cheaply in an unsuitable location, irrespective of how good the variety can be. Details of how to select a site for rice flower; the infrastructure required; crop agronomy; pests, diseases and their control; and postharvest handling procedures are contained in the DPI publication *Rice flower—production guidelines for growers* by Peter Beal, Cynthia Carson, Lois Turnbull and Leif Forsberg, to be published in 1998 (see Appendix 2). Some of the management factors affecting rice flower quality, where the variety and site are otherwise appropriate, are listed in Table 5.



**Table 5: Crop management factors which affect quality**

<b>Objectives</b>	<b>Management factors</b>
clean, green, uniform foliage colour, strong stems of consistent diameter, high levels of flowering	quality planting material, crop nutrition, irrigation, root zone drainage, overall plant health, including pest and disease control
fresh foliage	irrigation, postharvest handling
straight stems	planting density, pruning, canopy support, wind protection, nutrition and cultivar
stems derived from new season's wood	harvesting technique, postharvest pruning
cultivars true to type	use of a reputable supplier for planting stock, blocks of named varieties, grading technique
a product substantially free of live pests or diseases	pre-harvest pest, disease and weed control, postharvest dipping/fumigation, grading
a product unaffected by residues of foreign substances	weed control, field and shed hygiene, no over-spraying (residues)
no more than 5% of product affected by bruises or blemishes, vegetation defects, damage by parasites, or flower drop	pre-harvest pest and disease control, mechanical handling of plants in the field, stage of picking, harvesting and product handling methods, grading and formal quality controls