

## Geraldton Wax Growing in Central Australia

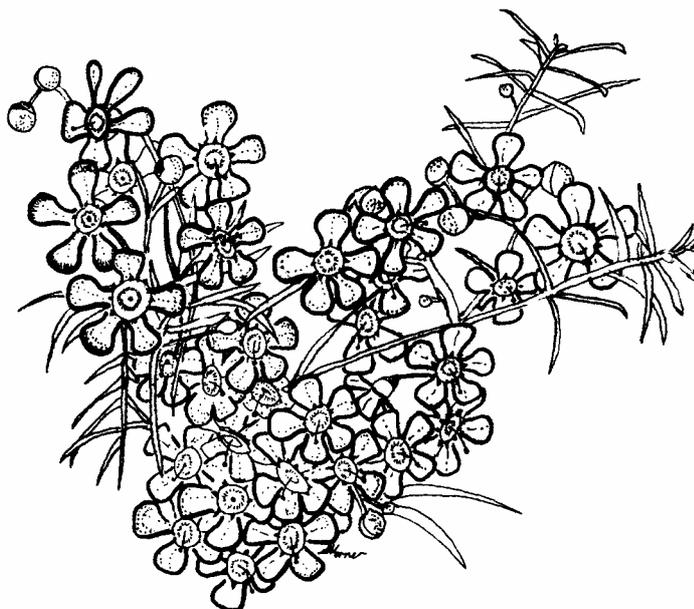
*(Chamelaucium uncinatum)*

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### INTRODUCTION

Geraldton wax (*Chamelaucium uncinatum*) is a native plant of Western Australia. There are over 400 named hybrids and varieties, with approximately 20 varieties being grown commercially.

The flowering stems are sought as "fillers" which are useful for providing backing for single stemmed flowers such as roses, carnations and kangaroo paw. A range of flower colours are available from white to pinks and purples. Several varieties are being trialled at Ti Tree where they grow well and are high yielding.



### CLIMATE

The plants thrive under hot conditions and with adequate irrigation grow rapidly through the summer months. Frosts in late winter to spring will affect flower quality and may render the crop unmarketable. Severe frosts may cause plant death. At Ti Tree, frost risk is minimal during late August to September.

Studies carried out in Israel suggest that the main factor affecting floral initiation is the photo period (number of hours of daylight), while temperature is the main factor affecting the rate of flower development. Four weeks of short days (less than 12 hours sunshine) are generally required for obtaining full flowering. The number of flowers produced per plant rises with an

increase in the number of short days. Central Australia has a period of two months of "short days" (daylight less than 12 hours) which will enhance good flowering of Geraldton wax.

## VARIETIES

There are many varieties and hybrids of Geraldton wax available. Purple and pinks are the most popular although white is demanded in smaller quantities. The variety "Alba" should not be planted as there are superior white varieties available. Growers should seek market information as to which varieties are in demand before planting.

## VARIETIES TRIALLED IN CENTRAL AUSTRALIA

Year	1	2	3	4
Variety	Average number bunches per plant			
Purple pride	0	7.4	20.5	26.7
CWA pink	0	7.8	22.8	39.6
Newmarracarra	0	40.0	39.1	50.5
Light pink	0	20.3		

At Ti Tree, Purple Pride flowers from late August to early September, followed by Light Pink in early September. CWA Pink flowers early to mid September and Newmarracarra flowers mid to late September. To achieve a longer flowering period, early and late hybrids should be considered for planting. The flowering times in any year may vary depending on the climatic conditions.

## SOIL AND FERTILISER

Well-drained soils with a pH of 7 to 9 are preferred. Geraldton wax has low nutritional requirements. Excess nitrogen at flowering time will result in excessive fresh tip growth beyond the flowers. This causes a reduction in flower quality and reduces the price received for the flowers.

A recommended fertiliser regime for Central Australia consists of 500 kg/ha superphosphate applied before planting, followed by an application once a week of ammonium sulphate (0.88 g/plant/week) and potassium nitrate (0.52 g/plant/week). When bud formation occurs fertiliser applications should cease. If the nitrates in the irrigation water are high, the amount of nitrogen fertiliser applied will need to be revised.

Micronutrient requirements need to be applied once to three times a year, depending on leaf analysis. These can be applied through the irrigation system or as a foliar spray.

## PLANTING

Geraldton wax should be bought as plantlets from reputable propagators and should be ordered six months before planting. Plant in autumn or spring, although in frost prone areas, spring planting would be suggested.

Recommended plant spacing is 2.5 m apart, with row spacing of 4 m. The number of plants per hectare at this density would be 1,000.

Do not plant root bound plantlets as these will have a very low survival rate in the field. Plant carefully as the roots break easily.

## **IRRIGATION**

Water frequently following planting to avoid moisture stress. Once established Geraldton wax is relatively drought resistant due to its deep root system.

Drip irrigation with emitter spacing of 40 to 80 cm is highly desirable as this produces a uniform wetting pattern along the plant row. Each row of plants will require a line of drip irrigation.

The amount of water required depends on the soil and climatic conditions. Tensiometers are useful instruments to monitor and guide water requirements. Geraldton wax takes up most of its water at 60 cm depth so it is critical to monitor irrigation at this depth.

## **WEED CONTROL**

Plant Geraldton wax through plastic mulch if weeds are a severe problem.

Pre-emergent herbicides can be used before planting to stop many weeds from germinating. Grass weeds in the crop can be controlled using a selective herbicide once they have emerged. Weeds between the plant rows are easily controlled by slashing.

## **PESTS AND DISEASE**

Disease is not a major problem in Central Australia due to the dry conditions. Soil diseases such as phytophthora and pythium can cause plant deaths, so it is important to buy plants from reputable suppliers and not to overwater.

Powdery mildew of Geraldton wax has not been observed to date in the Centre but growers will need to monitor the crop as the climatic conditions in Central Australia do favour this disease. Botrytis, a flower petal disease, can easily be controlled with a suitable fungicide either in the field or as a dip in the post-harvest process.

Central Australia is free of Geraldton wax gall-wasp and growers need to ensure that material they are buying is free of this pest.

Case moth has been the most damaging insect observed on Geraldton wax in Central Australia. An inspection of the crop needs to be carried out regularly as this pest can defoliate a bush in 48 hours. A systemic insecticide will control this pest.

Harlequin bugs can also be a potential problem. These need to be controlled during harvesting with an application of insecticide the day before picking.

Due to the stringent regulations regarding exporting of flowers to Japan, the crop should be sprayed for insects and disease regularly. This will maintain a low level of insects in the crop. This program should start six weeks before harvesting.

## HARVESTING AND MARKETING

Flowers must be free of pests and disease. Harvest flowers when 20 to 70% are open depending on market requirements. This should be done in the cool of the morning. The flowers need pulsing in silver thiosulphate as soon as possible after picking. (See Appendix 1).

The flowers are then graded to bunch specifications:

Grade	USA	Japan
50-60 cm	400 g	-
70 cm	400 g	10 stems
80-100 cm	-	5 stems

Ensure tips of graded stems are level and strapping on bunches is firm and tidy. Bunches can be strapped with elastic bands or string. There should be a tight banding at the base of the stem and a loose banding 3/4 the way up the stem.

Flowers are to be dipped in a fungicide and deltamethrin (a residual insecticide) mix and left to dry before packing. Cool the flowers to 2–4°C before despatching. Forced air cooling is best for rapid cooling of the flowers.

The Australian market is easily oversupplied with Geraldton wax and 95% of the crop is exported to Japan and USA. Other export markets are being developed, however, their requirements change from season to season. Before planting, seek market information regarding the supply and demand for Geraldton wax for each market over the season.

## APPENDIX 1

### Preparation of Silver Thiosulphate (STS)

#### Preparation of the STS stock solution

#### 40 mM silver Ag<sup>+</sup>

- Step 1. Dissolve 13.6 g of silver nitrate (AgNO<sub>3</sub>) in 1 litre of rain, demineralised or deionised water.
- Step 2. Dissolve 50.6 g of sodium thiosulphate (Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>) or 79.4 g of sodium thiosulphate pentahydrate (Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>·5H<sub>2</sub>O) in 1 litre of rain water.
- Step 3. With vigorous stirring, slowly pour the silver nitrate solution into the sodium thiosulphate solution to obtain a final volume of 2 litres.
- Step 4. Store the 40 mM STS stock solution in a dark container in the cool room.

Diluting the stock solution for:

- A. Pulsing flowers at room temperature (20°C) 15-20 minutes

Dilute 1 litre of 40 mM STS solution to 10 litres with 9 litres of water to obtain a 4 mM STS pulsing solution.

- B. Pulsing flowers in the coolroom (0.5-2°C) overnight (8-12 hours)

Dilute 125 ml of 40 mM STS stock solution to 10 litres with 9.875 litres of water to obtain a 0.5 mM STS pulsing solution.

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