

# Antirrhinum

**Plant type:** Perennial but treated as half hardy annual  
**Sowing** November - May  
Mid January for bedding sales  
15 - 20<sup>0</sup>C  
Do not cover with vermiculite  
Germination in 2 - 3 weeks  
Light needed for germination

**Approximate crop timing (mid season):**

Sowing to transplanting	4 - 5 weeks
Sowing to flowering	14 - 15 weeks
Seedling to flowering	10 weeks
GREEN 550 to flowering	9 weeks

**Growing on:**

Temperature	16 - 18 <sup>0</sup> C day initially 15 <sup>0</sup> C night dropping to 10 <sup>0</sup> C minimum night after establishment
PH	5.8 - 6.5
Feeding	Balanced fertilizer at 200ppm Nitrogen as needed. Plants are sensitive to high EC concentration levels.
Growth regulation	Only if necessary when plants developing soft growth. Respond to Chlormequat at 0.5 - 1.0 ml/l
Pack/Pot size	Transplant into P60's if necessary then onto Pack 24 's
Planting out spacing	15 - 20 cm
Advice	A pre-sowing drench using a suitable fungicide would be recommended. Compost should be allowed to dry between watering without excessive plant wilting. Water early in the day, plants should not be left wet overnight as distorted growth can result. Strict hygiene is important throughout the crop. Supplementary lighting useful for early sowings.
Common diseases	Pythium - rotting roots and chlorotic plants at any stage Rhizoctonia - basal stem rot, red/brown in color generally at seedling stage Botrytis - grey mould attacks damaged plants in high humidity poor ventilated conditions.

# Aquilegia Cameo

**Plant type:** Hardy perennial  
**Sowing** 20°C  
Cover with a thin layer of fine vermiculite  
Germination 3 - 4 weeks  
Germination can be erratic and double sowing probably needed  
in plugs

## Approximate crop timing:

Sowing	August
Sowing to seedling transplanting	8 weeks (Late September)
Sowing to potting	18 weeks (December)
Flowering	May
GREEN 230 flowering (del weeks 2 - 6)	June
(del weeks 23 - 25)	Green sales October Colour sales April

## Growing on:

**Temperature** After seedling night temperature minimum 15 - 18°C to increase plant size and build up root growth. Overwinter drop temperature to just frost free night (2°C) and 8°C or below day. After plug transplanting in Jan/Feb temperature minimum 15°C just to get establishment then drop temperature as before. Cold period essential to promote flowering, ideally 8 - 10 weeks for faster blooming. Grow on for 6 weeks to sales time at 15 - 16°C to finish crop.

**PH** 5.5 - 6.2

**Compost/Feeding** We used Bulrush potting compost with low level background liquid feed, 2:1:2 NPK.

**Growth regulation** Not necessary

**Pack/Pot size** 9 - 10 cm

**Advice** Sulphur fungicides can cause a phytotoxic reaction. Keep dry and well ventilated during cold growing period. Flowers will drop in very warm temperatures.

**Common diseases and pests** No major pests or diseases damaged the plants. Preventative applications including Bravo 500, Rovral, and Dipterex used.

# Begonia

## Begonia semperflorens

**Plant type:** Tender annual  
**Sowing** December - March, for main May/June sales  
April - May, for summer pot bedding sales  
20 - 25<sup>0</sup>C  
Do not cover with vermiculite  
Germination 2 - 3 weeks  
Light needed for germination

### Approximate crop timing(mid season):

Sowing to transplanting	5 - 6 weeks
Sowing to flowering	12 - 15 weeks
Seedling to flowering	7 - 8 weeks
GREEN 600 to flowering	5 - 6 weeks
GREEN 350 to flowering	5 weeks
GREEN 230 to flowering	4 - 5 weeks
GREEN 80 to flowering	4 weeks

### Growing on:

Temperature Minimum of 20<sup>0</sup>C until plants establish then lower to 16 - 18<sup>0</sup>C  
PH 5.5 - 6.0  
Feeding Use continuous low rate balanced feed.  
Growth regulation May be used to reduce foliage size 2 or 3 times before flowering. Respond to Chlormequat 0.5 ml/l  
Pack/pot size Pack 18 - 24's. Pot 9 - 10 cm  
Planting out spacing 15 cm  
Advice A pre-sowing drench is advisable.  
Good light levels are essential for seedling development but avoid direct sunlight. Take care not to transplant shallow rooted seedlings too deeply. Water evenly until the flower buds are visible but once established allow to dry between watering.  
Common Diseases Damping off of seedlings (Pythium or Rhizoctonia)  
Botrytis - grey mould on mature plants in high humidity, poor ventilated conditions.

# Tuberous Begonia

**Plant type:** Grasshouse perennial. Grown as a tender annual.

**Sowing** Early December for May sales  
20°C  
Do not cover with vermiculite  
Germination 2 - 3 weeks

## Approximate crop timing (mid season)

Sowing to transplanting	7 weeks
Sowing to flowering	20 - 22 weeks
Seedling to flowering	13 - 14 weeks
GREEN 80 to flowering	8 - 9 weeks

## Growing on:

Temperature	18°C for transplanting seedlings. Once roots have developed grow on at 15 - 18°C
PH	5.5 - 6.5
Feeding	At about 6 weeks the seedlings may need a weak nitrogen feed. 4 - 5 weeks after potting on start liquid feeding with 150 ppm nitrogen (20.10.20)
Growth regulation	Plants respond to Chlormequat at 0.5 ml/l. Use only if necessary.
Pack/pot size	10 - 12 cm pots. Double six packs
Planting out spacing	20 cm
Advice	Seedlings require supplementary light to provide 14 hour daylight until mid March. Ensure high humidity and shade from direct sunlight from the seedling stage until flower buds have initiated. Potting on should be using a soft potting technique followed by careful watering.
Common Diseases	Damping off of seedlings (Pythium or Rhizoctonia) Botrytis - grey mould on mature plants in high humidity, poor ventilated conditions.
Common pests	Thrips. Cyclamen Mite. Whiteflies.

# Cineraria

**Plant type:** Greenhouse biennial  
**Sowing** Usually July - August  
 20°C  
 Cover with a thin layer of fine vermiculite  
 Germination 1 - 2 weeks

## Approximate crop timing: sowing to flowering

	Sow	GREEN 100 Delivery Week	Market
Cindy Mixed	June	33-34	Dec/Jan
	August	37-39	February
	October		April/May
Chloe Mixed	August	37-39	Dec/Feb
Star Wars	August	37-39	February
Brilliant Mixed	August	37-39	February
Royalty Mixed	August	37-39	March
	Late August	42	April/May

## Growing on:

**Temperature** Grow cool and well shaded until October, then minimum 7 - 9°C night to maximum 12°C day

**PH** 5.5 - 6.0

**Feeding** In 9 cm pot use 1:1:1 balanced feed once roots have reached the pot wall, in large pots feeding will be needed 6-8 weeks after potting. After flower initiation increase potash levels.

**Growth regulation** May be used to reduce foliage size and improve uniformity 1-2 times before flower initiation (about 12 weeks sowing). Respond to Daminozide (Alar) 3.0g/l

Pot size				Spacing Plants per sq.m
9 cm	Cindy	Chloe	Star Wars	25
10 cm	Cindy	Chloe	Star Wars	18
12.5 cm	Cindy	Brilliant	Royalty	8 - 11

**Advice** Pot on using a soft potting technique. Throughout Autumn and Winter the plants should be kept just moist, and good ventilation is required.

**Common pests and diseases** Aphids, Whitefly and Leaf Miner  
 Powdery Mildew if overcrowded and poorly ventilated  
 Root Rot in too wet Conditions.

# Cyclamen

**Plant type:** Glasshouse perennial

**Sowing** February - April for marketing September through to Christmas.  
15 - 18°C

Cover with an average layer of medium vermiculite

Germination initially should be in the dark. After about 18 days inspect daily and move into light when seedlings have emerged.

Germination 3- 4 weeks

**Approximate crop timing(mid season):**

	Sowing to transplanting	8 weeks
	Sowing to flowering	Sierra 30- 32 weeks; Laser 26-28
weeks		Miracle 23 - 26 weeks
	GREEN 80 to flowering	Sierra 14 weeks
	GREEN 230 to flowering	Laser 14 weeks: Miracle 12 weeks

**Growing on:**

**Temperature** 18°C while root growth is needed at seedling development and transplanting periods, then 12 - 15°C

**PH** 6.0 - 6.5

**Feeding** If using a peat based compost a 2:1:1 NPK weekly feed until bud formation changing to 1:1:1 and then 1:1:2 as flowers develop. Alternately incorporating a slow release granular fertilizer in the compost is popular for this crop.

**Pot size and spacing** Sierra 11 - 14 cm      16 per sq.m  
Laser 10 cm                      30 per sq.m  
Miracle 7.5 - 9 cm      30 - 45 per sq.m

**Advice** Use a soft potting technique for transplanting, leaving about 1/3 of the corm exposed after watering in. Plants should be shaded temporarily in bright sunlight but prolonged shading will cause large leaf development and flower number will be reduced. Grow on a dry regime but avoid wilting. Water early in the day to avoid foliage lying wet overnight. Good ventilation is essential.

**Common pests and diseases** Fusarium Wilt - sudden yellowing of the foliage and irreversible wilting.

Associated with over watering and poor hygiene.

Bacterial Rot - wilt of the leaves without yellowing along with a soft corm.

Botrytis - grey mould

Cyclamen Mite - bronzing, hardening and distortion of the leaves.

Vine Weevil - soft larvae which feed on corms

Sciarid Fly - associated with wet conditions.

# Carnation

## Seed Raised Dwarf Carnations

**Plant type:** Annual

**Sowing** September to overwinter for May sales of plants in bud.  
Sow early January for flowering sales June onwards.  
15 - 20°C

Cover with an average layer of medium vermiculite

Germination in 2 - 3 weeks

A pre-sowing fungicide drench would be recommended

**Approximate crop timing(mid season):**

Sowing to transplanting 4 weeks

Sowing to flowering 22 - 23 weeks (from January

sowing)

GREEN 230 to flowering 17 weeks (from early season

delivery)

13 weeks (from main season

delivery)

GREEN 350 to flowering 18 weeks

**Growing on:**

**Temperature** Initially 16 - 18°C dropping to 10 - 15°C day and 5 - 7°C night after transplants are established. Cool growing is essential to produce good basal branching and strong compact growth.

**pH** 5.5 - 6.0

**Feeding** Balanced 1:1:1 NPK feeding to start 5 weeks after potting, alternately the use of a slow release fertilizer incorporated in the compost is popular.

**Growth regulation** The plants once well established will respond to Chlormequat (Cycocel) 0.5 - 1.0 ml/l once or twice weekly. Stop 3 weeks prior to anticipated sales time.

**Pot size** 10 - 11 cm

**Planting out spacing** 20 cm

**Advice** As plants mature keep on the dry side. 15°C night will develop flower buds.

**Common diseases** Fusarium Wilt - yellowing of lower leaves before wilting - soil borne.

Rust - brown cracking on stems and leaves especially in high humidity.

Fusarium Root Rot - invades a wound especially at high

temperatures. Often on plants too deeply planted