



Regal Geraniums

Elegance™ and Maiden™ Series

Series Overview: The Elegance and Maiden series offers a full range of colors for early spring color. They can be easily grown for Easter and Mother's Day sales. Elegance are easy to grow, free branching and best in 6" containers while the Maidens are more compact and best in 4" and 5" containers. The distinguished tissue-like flowers have high impact and instant consumer appeal at the retail level.

Product Forms:

- Unrooted, non-budded cuttings
- Plant paks (rooted non-budded liners)
- Single shoot cuttings (1-C product which are budded but not pinched)
- Multi-shoot budded cuttings (3-C product which are budded, pinched cuttings)

Culture –

Propagation of unrooted, non-budded cuttings: Propagation of unrooted Regal geranium cuttings can be difficult and an ideal propagation environment as well as starting with fresh, culture indexed cuttings from a reputable supplier is necessary for successful rooting.

- Unpack cuttings immediately upon arrival and stick immediately. Regals are very sensitive to ethylene build up in transit which will lead to leaf yellowing in propagation so it is imperative that cuttings be removed from the box immediately upon arrival to minimize the exposure to ethylene.
- Choose a sterile, well-drained media that will also maintain adequate moisture for rooting. Adjust media pH to 6.0.
- Spray the base of the cuttings with a rooting hormone containing 100 ppm IBA. Make a dibble hole in the media before sticking the cutting to prevent loss of the rooting hormone and to increase aeration to the base of the cutting as the media settles. This also prevents unnecessary wounding to the base of the cutting. Do not stick the cuttings so the base of the cutting is deeper than ½".
- Water cuttings in well to settle the media then begin misting immediately.
- **Adjust misting frequency accordingly based on environmental conditions.** The first 3 days cuttings will probably require misting every 10 minutes for 3-4 seconds to avoid wilting. The goal is to maintain a constant film of moisture on the foliage while not oversaturating the media. After day 3 misting can slowly be reduced until day 7 to 14 at which time misting should be discontinued all together. If at anytime during day 3 through 14 the cuttings should wilt increase misting again until wilting no longer occurs.
- Bottom heat is essential! Maintain media temperature at 70-72°F (21-22°C) until roots are formed. Monitor temperature of the media closely using a soil probe. Using air to gauge media

temperatures is not precise enough to maintain adequate media temperatures for successful rooting.

- Air Temperatures: Maintain day and night temperatures at 65°F (18°C).
- Root formation should be apparent in as little as 7 days with plants fully rooted in 4 weeks. Fertilization should begin once misting stops. Use a balanced fertilizer including micronutrients and provide 250 ppm nitrogen and potassium – apply with every irrigation. The cuttings may dry out easily during this time so careful moisture management is essential to prevent the cuttings from wilting.
- Do not overlook sound sanitation practices before and during Regal propagation. Periodic cleaning of any yellowing leaves to prevent botrytis is very important. A preventative fungicide application within 24 hours after sticking for botrytis prevention is beneficial.



Rooted cuttings after 4 weeks in propagation



Side view after 4 weeks in propagation

Vegetative Phase (for rooted cuttings out of propagation and rooted, non-budded liners) - Once the cuttings are rooted well vegetative growth is necessary before flower initiation to ensure adequate finishing size. Transplant the cuttings to final finished container in a sterile well-drained media. During this time grow the plants at 62-65°F (16-18°C) nights and vent at 70°F (21°C) days to keep the plants vegetative. Light levels should be maintained at 3,500-4,000 f.c. Supplemental lighting will be beneficial if natural lighting does not provide the proper intensity. Lateral shoot formation is encouraged with 1000-1500 ppm supplemental carbon dioxide. During this vegetative phase pinch the cuttings if necessary for the final finished product. Pinch cuttings to four to five nodes. If cuttings are pinched begin the initiation phase when the new growth is 3/8-1/2" long. Pinching will add two to three weeks to the vegetative growth phase.

Initiation of unrooted cuttings and rooted non-budded liners: Both products forms will require 4 weeks of a vernalization treatment to flower. For initiation temperatures must be maintained at 50°F (10°C) and below 56°F (13°C) day and night. Regals are light accumulators; high light levels and long days will enhance flowering. Provide 16 hour days with at least 10 f.c. at plant height using day length extension. During the extended photoperiod providing at least 200 f.c. with HID lamps will improve plant quality. Maintain natural day light at 3,500-4,000 f.c. During this time it is important to maintain relative humidity below 70% and to allow plants to dry to the point of slight moisture stress between irrigations. This will help minimize vegetative growth. Do not allow the plants to dry excessively to the point that the foliage and roots are damaged.

Finishing (all product forms) – Cuttings should be transplanted to final container (if starting with the 1-C or 3-C budded product) and spaced for the finishing environment. Grow 6” pots at 1 pot per square foot. Place 4” and 5” pots at 2 ½ pots per square foot.

- **Temperature:** Maintain 59°F (15°C) nights and 65°F (18°C) days.
- **Fertility:** Supply 200 to 250 ppm nitrogen and potassium constant liquid feed using a balanced liquid fertilizer complete with micronutrients. Periodic applications of Epsom salts are also beneficial. Maintain EC below 1.0 mmhos; Regals are sensitive to excess soluble salts, if EC is above the recommended range do not allow the plants to dry excessively. If the EC is below 1.0 mmhos plants should be allowed to dry slightly between irrigations. Soil pH should range from 5.6-6.0.
- **Supplemental Carbon Dioxide:** Supply at 1000 to 1500 ppm to promote lateral branch development.
- **Lighting:** Regals are light accumulators; high light levels and long days will enhance flowering. Provide 16 hour days September 15th through April 1st. Shade if light levels exceed 3,800 f.c. until the plants begin to show color. At this time light levels should be reduced to 2,500 f.c. to extend the longevity of the flowers.
- **Moisture Management:** Until the first bud appears the plants should be allowed to dry between irrigations to control vegetative growth. As flowers begin to develop irrigation frequency should increase to avoid problems with flower bud abortion.
- **Height Control:** If plants are grown under adequate light levels, with moderate moisture, and cool nights height control should not be necessary. If needed, Regals will respond to Cycocel®. Apply Cycocel at 1,500 to 3,000 ppm as a spray until the buds begin to elongate. Cycocel can be applied at 7-14 day intervals. If this is the first time working with Cycocel on Regals test the application on a small number of plants first and always consult the label for further instructions.
- **Insect and Disease Concerns:** Whiteflies can be a concern on a Regal crop. Monitor populations using yellow sticky cards and make necessary insecticide applications to control populations prior to flower development. Botrytis is also a major concern at all stages of the crop. Maintain relative humidity below 70% in the finishing environment and provide good air circulation and ventilation. Water plants early in the day and avoid overhead irrigation. Weekly fungicide sprays are beneficial for prevention of botrytis.

Crop Timing for various product forms:

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| • Unrooted non-budded cuttings for pinched or non-pinched product forms | 21-23 weeks |
| • Non –budded rooted liners | 17-19 weeks |
| • Single budded cutting (1-C) | 8-10 weeks |
| • Multi-shoot budded cutting (3-C) | 8-10 weeks |

* Crop timing will vary depending on temperatures and light levels. Crop timing will be extended without the use of supplemental lighting if the crop is scheduled for production during the months between September 15th and April 1st.

Sample Schedules:

For Valentines Day 2008 using rooted, budded cuttings

Transplant	Week 49
Finish	Week 7

For Easter 2008 using unrooted, non-budded cuttings and pinched

Stick	Week 40
Transplant	Week 44
Pinch	Week 46
Begin Vernalization	Week 48
Begin Finishing	Week 1
Finish	Week 11

For Easter 2008 using rooted, budded cuttings (1-C and 3-C)

Transplant	Week 1
Finish	Week 11

For Mother's Day 2008 using unrooted, non-budded cuttings and pinched

Stick	Week 47
Transplant	Week 51
Pinch	Week 1
Begin Vernalization	Week 4
Begin Finishing	Week 8
Finish	Week 18

For Mother's Day 2008 using rooted, budded cuttings (1-C and 3-C)

Transplant	Week 8
Finish	Week 18

Shipping Information: Regals are very sensitive to ethylene in transit. Leaving yellowing and bud abortion may occur if time in transit is prolonged. For best results ship plants with one or two open flowers and use Ethylblock.