



Campanula Appeal Primer

Greenhouse Production tips



SAKATA®

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Disclaimer

- Note that this presentation is based on production in Salinas, California.
- Sow: week 46
- Transplant: week 51
- Lighting: weeks 2 & 3 (9 weeks from sowing)
- Pinch: end of week 3
- Temperatures were higher than recommended due to the mild climate.
- The following presentation is intended to provide an overview of basic production techniques but each grower needs to tailor these recommendations for his/her region and operation.

Young Plant Production

- 5 weeks in a 288 plug cell
 - Germinate at 65-68°F / 18-20°C
 - Media pH 5.8 to 6.2
 - Avoid excess moisture to prevent damping off.
 - Cal/Mag fertilizer at 100-150 ppm N
 - Supply boron at 0.25 ppm
 - EC 0.7 – 1.0 mmhos (1:2 slurry)
 - 3,000 f.c. / 32,000 lux
 - Good air movement
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- **Note:** To prevent pre-mature flower bud initiation, avoid long day conditions in the plug stage (>11 hours). If necessary, using black cloth or curtain to shorten the photoperiod.



Pre-mature budding

Transplanting

- When plug have 3 true leaves they are ready to transplant into the final container.
- Option to use 4, 5, 6-inch / 10, 12, 15 cm. pots.
- Select a well-drained sterile media with a pH of 5.8–6.2 and EC of 0.7–1.0 mmhos (1:2 slurry).



Establishment

- Maintain short day conditions (<11 hours) for the first three weeks and target a temperature of 68-70°F / 20-21°C.
- Plants should be fully rooted and have 8-10 true leaves prior to flower bud initiation.



Campanula Appeal 2 weeks after transplanting

Flower bud initiation

- 3 weeks after transplanting the plants should be well-established and have 8-10 true leaves.
- Lower the temperature to 50-55°F / 10-13°C.
- Apply long day conditions for 2 weeks using either night interruption (10 PM to 2 AM) or day length extension to 16 hours. If plants are undersized extend lighting an additional week.
- Minimum 10 f.c / 110 lux.



Plants undergoing lighting.

Pinching

- Lighting will promote vertical elongation of the central shoot.
- For fuller pots and a rounder shape, apply a soft pinch to the central shoot as it begins to elongate vertically. This is usually done just after long day treatment is complete (5 weeks after transplanting).
- **Note:** Pinching will delay flowering by 5-7 days.



Unpinched - Pinched

Pinching



Top Row: 6-inch/15 cm., 5-inch/12 cm., 4-inch/10 cm. un-pinned

Bottom Row: 6-inch/15 cm., 5-inch/12 cm., 4-inch/10 cm. pinched

Finishing

- After lighting is complete, maintain 50-55°F/10-13°C for 4 weeks for flower bud development. Cooler temperatures promote compact plants and branching.
- Then, raise the temperature to 59°F / 15°C for the final 5 weeks for flower forcing.
- In general, plants will begin to flower 19 – 20 weeks after sowing.



Production window

Hemisphere	Sow	Flower*
Northern	August – February	December – June
Southern	February - August	June - December

* Mid February sowings in the Northern Hemisphere, and mid August sowings in the Southern Hemisphere will initiate flower buds naturally without supplemental lighting.

Note: Sowing schedule is totally dependent upon the ability to maintain optimum temperatures. In mid to late spring the longer photoperiod, higher light levels and warmer temperatures will accelerate flowering and reduce plant height.

Campanula Appeal Crop Schedule

Plug Stage	Transplant – Bulking	Long days – Bud initiation	Flower bud development	Forcing	Crop Time
5 weeks	3 weeks	2 weeks	4 weeks	5 weeks	19 weeks
68°F/20°C	68-70°F/20-21°C	50-55°F /10-13°C	50-55°F/10-13°C	59°F/15°C	
Short Days*	Short Days*	Long Days**	Ambient light	Ambient light	

* 11 hours or less

** 4 hour night interruption or day length extension to 16 hours. Minimum 10 f.c. / 110 lux

Plant Growth Regulation

- If needed, B-Nine (daminozide) is effective in controlling plant height. Rates range from 0.1% to 0.375%. Larger pots sizes and pinched plants require lower rates. Smaller pot sizes and non-pinched plants require higher rates. Temperature, light levels and photoperiod all affect the rate required.
- In the following photos, B-Nine was applied one time, 2 weeks after long day treatment was stopped or 13 weeks from sowing.

Variety	4 inch / 10 cm.	5 inch / 12 cm.	6 inch / 15 cm.
Unpinched Appeal Deep Blue	3,750 ppm/0.375% B-Nine	2,500 ppm/0.25% B-Nine	1,500 ppm/0.15% B-Nine
Pinched Appeal Deep Blue	2,500 ppm/0.25% B-Nine	1,500 ppm/0.15% B-Nine	1,000 ppm/0.1% B-Nine

Appeal Deep Blue works in several pot sizes – no pinch



4 inch/10 cm., 5 inch/12 cm., 6 inch/15 cm. pots (with no PGR)



Appeal Deep Blue works in several pot sizes - no pinch



4 inch/10 cm., 5 inch/12 cm., 6 inch/15 cm. pots (with PGR)



Appeal Deep Blue works in several pot sizes - pinched



4 inch/10 cm., 5 inch/12 cm., 6 inch/15 cm. pots (with no PGR)



Appeal Deep Blue works in several pot sizes - pinched



4 inch/10 cm., 5 inch/12 cm., 6 inch/15 cm. pots (with PGR)



6-inch / 15 cm. pot, no pinch - PGR vs. no PGR



0.15% B-Nine / no PGR

6-inch / 15 cm. pot, pinched - PGR vs. no PGR



0.1% B-Nine / no PGR

5 inch / 12 cm. pot, no pinch - PGR vs. no PGR



0.25% B-Nine / no PGR

5 inch / 12 cm. pot, pinched - PGR vs. no PGR



0.15% B-Nine / no PGR

4 inch / 10 cm. pot, no pinch - PGR vs. no PGR



0.375% B-Nine / no PGR

4 inch / 10 cm. pot, pinched - PGR vs. no PGR



0.25% B-Nine / no PGR

Consumer care

- Place plants in bright, indirect light away from heat vents and radiators.
- Cooler temperatures will prolong the blooming period.
- Water when the soil becomes dry. Pots feel less heavy when the soil is dry. If a pot cover or foil is used, be sure to remove it when watering to allow any excess moisture to drain from the container.
- Once the plant is finished flowering, please compost and recycle the plastic pot.

Conclusion

- Appeal works in multiple container sizes.
- Pinched plants have a more rounded look compared to non-pinched plants but flower 5-7 days later.
- For smaller pot sizes, pinching helps to control height.
- A pinch may substitute for a PGR application, especially for larger pot sizes.
- B-Nine (daminozide) works well to control plant height. Rates ranged from 0.1% to 0.375%. Large pots sizes and pinched plants require lower rates. Smaller pot sizes and non-pinched plants require higher rates. Temperature, light levels and photoperiod all affect the rate required.
- A PGR application is recommended for non-pinched plants.