GrowerFacts

Campanula glomerata Acaulis

(*Campanula glomerata*)

Germination

- Time of radicle emergence (4-7 days)
- Soil temperature 68-72°F (20-22°C).
- Keep media evenly moist but not saturated.
- Cover the seed lightly with coarse vermiculite.
- Exposing the seed to alternate light/dark periods has been known to improve germination rates.
- Soil pH 5.5-5.8 and soluble salts (EC) less than 0.75 mmhos/cm (2:1 extraction).
- Campanula is very sensitive to high salts, particularly high ammonium, during germination.
- Keep ammonium levels less than 10 ppm.

Plug Production

STAGE 1 - Time of radicle emergence (4-7 days)

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STAGE 2 - Stem and cotyledon emergence (7-14 days)

- Soil temperature 68-72°F (20-22°C).
- Reduce moisture levels once radicle emergence occurs! Allow the soil to dry out slightly before watering for best germination and rooting.
- Gradually increase light intensity to 500-1000 foot-candles.
- Keep soil pH 5.5-5.8 and EC less than 0.75 mmhos/cm.
- Keep ammonium levels less than 10 ppm.
- Begin fertilizing with 50 75 ppm N from 14 0 14 or a calcium/potassium nitrate feed once cotyledons are fully expanded.
- Alternate feed with clear water.
- Irrigate early in the day so foliage is dry by nightfall to prevent diseases.

STAGE 3 - Growth and development of true leaves (7-14 days)

- Soil temperature 65-68°F (18-20°C).
- Allow the soil to dry thoroughly between irrigations but avoid permanent wilting to promote root growth and control shoot growth.
- Gradually increase light intensity to 1000-1500 foot-candles.
- Maintain soil pH 5.5-5.8 and EC less than 1.0 mmhos/cm.
- Increase feed to 100 150 ppm N from 20 10 20 alternating with 14 0 14 or other calcium/potassium nitrate fertilizer.
- Fertilize every 2 3 irrigations.
- Use DIF whenever possible, especially the first 2 hours after sunrise, to control plant height.
- C. carpatica is responsive to B-Nine and Cycocel.

STAGE 4 - Plants ready for transplanting or shipping (7 days)

- Soil temperature 60-65°F (16-18°C).
- Allow soil to dry thoroughly between irrigations.
- Gradually increase light intensity to 1500-2500 foot-candles.
- Maintain soil pH 5.5-5.8 and EC less than 0.75 mmhos/cm.
- Fertilize with 14 0 14 or calcium/potassium nitrate feed at 100 150 ppm N as needed.

JANUARY SOWING

- Seed sown in January will be ready for sale in late April to early May.
- C. carpatica will bloom the same season they were sown, C. medium will not.

JUNE - AUGUST SOWING

Plants sown in June - August will bloom the following July to August.

TEMPERATURE

30-35°F (-1-2°C)

TRANSPLANT

Transplant into pots around September 15.

OVER WINTERING

- Over winter the plants until spring in an unheated greenhouse or cold frame.
- The root system should be developed throughout the soil prior to over wintering.
- Pots should be packed as close together as possible.
- If plants are over wintered outside, cover the plants with a thick layer of mulch.

FERTILIZATION

Fertilization during dormancy will not be necessary.

SEPTEMBER - OCTOBER SOWING

Plants sown in September - October will bloom the following July to August.

TEMPERATURE

35-40°F (2-4°C)

TRANSPLANT

Transplant to packs in early November. Transplant into pots in February.

OVER WINTERING

- Plants are grown at 40°F (4°C) for 12-14 weeks.
- Perennials grown at this time will compete with other crops for greenhouse space.

FERTILIZATION

Fertilize at 75-100 ppm N from 14-0-14 once per week.

Growing On to Finish

TEMPERATURE

Night: 62-65°F (17-18°C)

Day: 70-75°F (21-24°C)

LIGHT

Maintain light intensity between 3500-5500 foot-candles.

DAYLENGTH

- Long days from the time of planting are required for rapid flowering.
- A 16-18 hour photoperiod is recommended using day continuation lighting.
- Natural long days May through August may not require long day treatment for flowering.

MEDIA

Use a well-drained, disease-free soil-less medium with a medium initial nutrient charge and a pH 5.8-6.2.

FERTILIZATION

- Fertilize every other irrigation with 15-0-15 alternating with 20-10-20 at 250-300 ppm nitrogen.
- Maintain medium electrical conductivity around 1.0 mmhos/cm (using 1:2 extraction).

CONTROLLING HEIGHT

- Once plants are rooted to the sides of the containers they can be allowed to wilt prior to irrigation to provide some height control.
- Height can also be controlled by withholding fertilizer, especially phosphorous and ammonium-form nitrogen.
- Campanula are responsive to day/night temperature differential (DIF), and are shorter with a negative DIF.
- B-Nine or Cycocel can be used to control height of campanula.

Post Production Care

TEMPERATURE

Campanula should be displayed in a cool, below 70°F (21°C), location.

LIGHT

Campanula prefer full sun to part shade. Part shade may be beneficial during retail display.

COMMON PROBLEMS:

Insects: Aphids, Fungus gnats, Mealy bugs, Mites

Diseases: Botrytis, Leaf spots, Pythium, Rhizoctonia

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