

# GrowerFacts

## Angelonia Serena

(Angelonia angustifolia)

### Germination

#### Media

Use a well-drained, disease-free, soilless medium with a pH of 5.5 to 6.0 and a medium initial nutrient charge (EC 0.75 mmhos/cm with a 1:2 extraction).

#### Sowing

Plug tray size from 406 to 128. Do not cover or bury the seed.

#### Stage 1 – Germination takes 4 to 5 days.

**Soil temperature:** 71 to 76°F (22 to 24°C)

**Light:** 10 f.c. (100 Lux) or higher. Light is required for germination. Seeds will not germinate in the dark.

**Moisture:** Keep soil moist but not saturated (level 4) during Stage 1 for optimal germination.

**Humidity:** Maintain 95% relative humidity (RH) until radicle emergence.

### Plug Production

#### Media

Use a well-drained, disease-free, soilless medium with a pH of 5.5 to 6.0 and a medium initial nutrient charge (EC 0.75 mmhos/cm with a 1:2 extraction).

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**Light:** 10 f.c. (100 Lux) or higher. Light is required for germination. Seeds will not germinate in the dark.

**Moisture:** Keep soil moist but not saturated (level 4) during Stage 1 for optimal germination.

**Humidity:** Maintain 95% relative humidity (RH) until radicle emergence.

#### Stage 2

**Soil temperature:** 68 to 73°F (20 to 23°C)

**Light:** Up to 2,500 f.c. (26,900 Lux)

**Moisture:** Start to slightly reduce soil moisture (level 3) to allow the roots to penetrate into the media.

**Fertilizer:** Apply fertilizer at rate 1 (less than 100 ppm N/less than 0.7 mS/cm EC) from nitrate-form fertilizers with low phosphorous.

#### Stage 3

**Soil temperature:** 65 to 70°F (18 to 21°C)

**Light:** Up to 2,500 f.c. (26,900 Lux)

**Moisture:** Allow the media to further dry until the surface becomes light brown (level 2) before watering. Keep the moisture level at wet-dry cycle (moisture level 4 to 2). Do not allow the seedlings to wilt as they do not recover very well.

**Fertilizer:** Increase fertilizer to rate 2 (100 to 175 ppm N/0.7 to 1.2 mS/cm EC).

**Growth Regulators:** Growth regulators are generally not needed in plug stage. If necessary, B-Nine/Alar (daminozide) 5,000 ppm (6.0 g/l, 85% formulation or 7.8 g/l, 64% formulation) spray can be used.

**In Northern Europe:** 1 to 3 applications of B-Nine/Alar (daminozide) at 1,250 ppm (1.5 g/l, 85% formulation or 2.0 g/l, 64% formulation) sprays have been tested and shown to be effective if needed.

#### Stage 4

**Soil temperature:** 65 to 67°F (18 to 19°C)

**Light:** Up to 5,000 f.c. (53,800 Lux) if optimal temperature can be maintained.

**Moisture:** Same as Stage 3.

**Fertilizer:** Same as Stage 3.

### Growing On to Finish

#### Media

Use a well-drained, disease-free, soilless medium with a pH of 5.4 to 6.2 and a medium initial nutrient charge.

#### Temperature

**Nights:** 65 to 67°F (18 to 19°C)

**Days:** 65 to 76°F (18 to 24°C)

Daily average temperatures below 65°F (18°C) will slow down the crop growth rate dramatically.

#### Light

Keep light as high as possible while maintaining recommended temperatures.

#### Irrigation

Avoid both excessive watering and drought.

#### Fertilizer

Feed plants weekly at rate 3 (175 to 225 ppm N/1.2 to 1.5 mS/cm) using predominantly nitrate-form fertilizer with low phosphorus and high potassium. Maintain the media EC at 1.5 to 2.0 mS/cm and pH at 5.8 to 6.2.

#### Growth Regulators

A tank mix of B-Nine/Alar (daminozide) 2,500 ppm (3.0 g/l 85% formulation or 4.0 g/l of 64% formulation) mixed with Cycocel (chlormequat) 750 to 1,000 ppm (6.4 to 8.5 ml/l 11.8% formulation or 1.0 to 1.5 g/l of 75% formulation) is the most effective growth regulator for angelonia. Cycocel rates can be adjusted depending on environmental conditions. Use lower rates under cooler and shorter daylength conditions, and higher rates under warmer and longer daylength conditions. Growth regulators can be started 2 weeks after transplanting. Repeat as needed.

For growers in warmer climates, a Bonzi (paclobutrazol) drench at 5-10ppm (1.3 to 2.5 ml/l, 0.4% formulation) can be used 2 weeks after transplant instead of the B-Nine/Cycocel tank mix.

**In Northern Europe:** 1 to 2 applications of B-nine/Alar (daminozide) 3,150 ppm (3.7 g/l 85% formulation or 5.0 g/l of 64% formulation) mixed with Cycocel (chlormequat) 350 ppm (3.0 ml/l 11.8% formulation or 0.5 g/l of 75% formulation) has been tested and shown to be effective.

#### Pinching

Do not pinch the plants! Seed angelonia has excellent natural basal-branching. Pinching will only delay



flowering and make the plant habit unattractive.

### **Crop Scheduling**

**Sow to transplant (406 to 128-cell plug tray):** 5 to 6 weeks

Transplant from 406 to 288-tray to saleable finished container:

Container Size: 306 pack

Plants Per Pot: 1

Weeks From Transplant: 8-9

Total Weeks: 13-15

Container Size: 4-4.5-in. (10-11-cm pot)

Plants Per Pot: 1

Weeks From Transplant: 9-10

Total Weeks: 13-15

Container Size: 6-6.5-in. (15-16-cm) pot

Plants Per Pot: 3

Weeks From Transplant: 9-10

Total Weeks: 14-16

Container Size: Gallon

Plants Per Pot: 3

Weeks From Transplant: 9-10

Total Weeks: 14-16

**NOTE:** When transplanted from a 128-tray, finish crop time for Serena can be reduced by 1 to 2 weeks.

### **Common Problems**

**Insects:** No serious problems

**Diseases:** No serious problems

### **Garden and Landscape Information**

**Location:** Full sun

**Height:** 10 to 12 in. (25 to 30 cm)

**Florida-like conditions:** 18 in. (45 cm)

**Spread:** 14 to 16 in. (35 to 41 cm)

**Florida-like conditions:** 25 in. (63 cm)

**Spacing:** 8 in. (20 cm) apart

**NOTE:** Growers should use the information presented here as a starting point. Crop times will vary depending on the climate, location, time of year and greenhouse environmental conditions. Chemical and PGR recommendations are only guidelines. It is the responsibility of the applicator to read and follow all the current label directions for the specific chemical being used in accordance with all regulations.

*Ref. May 1, 2013*

*<http://www.panamseed.com/advancedsearch.aspx>*

