

# Viola Endurio®

## Culture Guide

**Botanical name:** Viola cornuta

**Product form:** Seed

**Containers:** Packs, Pints, Quarts, Gallons, Hanging Baskets

**Habit:** Trailing/Spreading

### Garden Specifications

**Garden Height:** 4–6" (12–18 cm) tall

**Garden Width:** 8–12" (20–30 cm) wide

**Exposure:** Full sun

**USDA zone:** 4

**AHS zone:** 9–1

**Product use:** Packs, Containers, Hanging Baskets, Landscapes

### Germination

Stages 1 & 2

**Germination time:** 5 days

**Media temp:** 65–68 °F (18–20 °C)

**Chamber:** Optional

**Light:** Required for germination

**Seed cover:** Yes

**Moisture level:** 5 - SATURATED: Soil is dark brown and shiny, free water is present at the surface of the soil, water drips freely from the bottom of the tray, and trays are heavy with a visible bend in the middle.

**Rec. tray size:** 288-cell tray

**Seeds per cell:** 1

### Young Plant Production

Stages 3 & 4

#### **Temperature**

**Day:** 68–70 °F (20–21 °C)

**Night:** 64–66 °F (18–19 °C)

**Average daily temperature:** 67 °F (19.5 °C)

#### **Lighting**

**Day extension lighting:** Beneficial to 14 hours

**Light intensity:** 2,500–3,500 foot candles (500–700 micro mols)

**Day length response:** Facultative long day

**Daily light integral:** 10–12 mols/day

**Media pH:** 5.5–5.9

**Media EC:** SME EC: 0.9–1.3 mS/cm

**Fertilizer:** 50–75 ppm N

**Moisture level:** Media should be allowed to dry between irrigations. Alternate between moisture level 2 and 4.

**2 - MEDIUM:** Soil is light brown in color, no water can be extracted from soil, and soil will crumble apart.

**4 - WET:** Soil is dark brown but not shiny, no free water is seen at the surface of the soil, when pressed or squeezed water drips easily, and trays are heavy with a visible bend in the middle.

**Pinching:** No

**Plant growth regulators (PGRs):** Spray with B-Nine® WSG at 2,500 ppm if hypocotyl stretch is observed, or if environmental conditions are such that hypocotyl stretch is likely.

**Plug grow time:** 4–5 weeks in a 288-cell tray

**Comments:** Keep media pH below 5.8 to help avoid Thielaviopsis infections. Under hot temperatures provide lower light levels to reduce heat stress. Also, if frequent irrigation occurs due to high temperatures, apply a supplemental feed of Solubor® to avoid Boron deficiency.

### Finishing

#### **Temperature**

**Day:** 64–66 °F (18–19 °C)

**Night:** 64–66 °F (18–19 °C)

**Average daily temperature:** 65 °F (18.5 °C)

#### **Lighting**

**Day extension lighting:** Beneficial to 14 hours

**Light intensity:** 4,000–6,000 foot candles

**Day length response:** Facultative long day

**Daily light integral:** 12–14 mols/day

**Transplanting:** Transplant directly into the finished container. Place the rooting media slightly below the level of media in the container. Make sure the root ball is covered and that the plug is situated in the center of the pot.

**Media pH:** 5.5–5.9

**Media EC:** SME EC: 0.9–1.3 mS/cm, PourThru EC: 1.4–2.0 mS/cm

**Fertilizer:** 75–125 ppm N

**Pinching:** No. Pinching is not recommended or needed.

**Plant growth regulators (PGRs):** Usually not required if growing cool. If conditions are warmer or darker than ideal, spray with B-Nine® WSG at 2,500–5,000 ppm.

**Tech tip:** Keep media pH below 5.8 to help avoid Thielaviopsis infections. Under hot temperatures provide lower light levels to reduce heat stress. Also, if very frequent irrigation occurs due to high temperatures, apply a supplemental feed of Solubor to avoid Boron deficiency.



Try Chrysal Alesco®, a postharvest foliar spray, to protect ethylene sensitive crops during shipping and retail.

**Moisture level:** Media should be allowed to dry between irrigations. Alternate between moisture level 2 and 4.

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**4 - WET:** Soil is dark brown but not shiny, no free water is seen at the surface of the soil, when pressed or squeezed water drips easily, and trays are heavy with a visible bend in the middle.

**Common pests:** Aphids, Thrips

**Common diseases:** Alternaria, Downy mildew, Thielaviopsis, Cercospora, Botrytis

## Scheduling

Size	Crop Time	Plants Per Pot
Packs	4–5 weeks	1 ppp
Large Packs	5–6 weeks	1–2 ppp
1.0 pint (4 inch)	5–6 weeks	1–2 ppp
1.0 quart (4.5 to 5 inch)	5–6 weeks	1–2 ppp
1.25 to 2.5 quart (5.5 to 6.5 inch, trade gallon)	6–7 weeks	2–3 ppp
1.5 gallon hanging basket (10 inch basket)	7–9 weeks	5 ppp

Estimated finish crop time is from transplant of a 288-cell tray and finished at an average daily temperature (ADT) of 65 °F (18.5 °C).

## Example crop schedule for a pack

Weeks From Transplant	Description
1 week	Drench with preventative fungicide
2 weeks	Spray with B-Nine® WSG at 2,500–5,000 ppm, if needed
5 weeks	Ready to ship



Endurio® Pink Shades

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