Geranium Ivy Tornado™
Culture Guide

Botanical name: Pelargonium peltatum
Product form: Seed
Containers: Pints, Quarts, Gallons, Hanging Baskets
Habit: Upright

Garden Specifications
Garden Height: 8–10” (12–14 cm) tall
Garden Width: 12–14” (30–35 cm) wide
Exposure: Full sun
USDA zone: 11
AHS zone: 12–1
Product use: Containers, Hanging Baskets, Patio Pots, Combos

Germination
Stages 1 & 2
Germination time: 4 days
Media temp: 73 °F (23 °C)
Chamber: Optional
Light: Not 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
Seed cover: Yes

Young Plant Production
Stage 3 & 4
Temperature
Day: 70–72 °F (21–22 °C)
Night: 64–66 °F (18–19 °C)
Average daily temperature: 68 °F (20 °C)

Lighting
Day extension lighting: Not necessary
Light intensity: 3,000–3,500 foot candles (600–700 micro mols)
Day length response: Day neutral
Day light integral: 8–10 mols/day
Media pH: 5.8–6.2
Media EC: SME EC: 0.9–1.3 mS/cm

Fertilizer: 75–125 ppm N
Moisture level: Media should be allowed to dry between irrigations. Alternate between moisture level 3 and 4.
2 - MEDIUM: Soil is light brown in color, no water can be extracted from soil, and soil will crumble apart.
3 - MOIST: Soil is brown in color, strongly squeezing the soil will extract a few drops of water, and trays are light with no visible bend.
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): Tornado Ivy Geraniums are naturally compact and self-branching so require lower rates of PGRs than zonal Geraniums. Spray one time with Cycocel at 300 ppm when 3–5 leaves are present (around 3 weeks after sowing). Do not apply more than 750 ppm Cycocel or leaf edge yellowing may occur. Using a spray adjuvant such as Capsil will reduce the chance of leaf edge yellowing.

Plug grow time: 5–6 weeks in a 288-cell tray

Comments: Geraniums are irradiance plants so the more light they receive the faster they will flower. Under short days or cloudy conditions it is beneficial to provide supplemental lighting of around 400 foot candles (4,000 lux) especially in the plug tray to speed up flowering. All geraniums are especially sensitive to bacterial diseases so be sure to start with clean plug trays, media and propagation areas. Geranium seed does not carry bacterial diseases so if you start clean you can stay clean. Do not subirrigate or use recycled water. Media pH should not drop below 6.0 or the plants may suffer from iron and/or manganese toxicity.

Finishing
Temperature
Day: 68–70 °F (20–21 °C)
Night: 60–62 °F (16–17 °C)
Average daily temperature: 65 °F (18 °C)

Lighting
Day extension lighting: Not necessary
Light intensity: 4,000–6,000 foot candles
Day length response: Day neutral
Day 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 that the root ball is covered and that the plug is situated in the center of the pot. Be careful not to damage roots when transplanting since damaged roots increase the likelihood of Pythium infections.

Media pH: 5.8–6.2
Media EC: SME EC: 0.9–1.3 mS/cm, PourThru EC: 1.4–2.0 mS/cm
Fertilizer: 125–175 ppm N
Pinching: No. Pinching is not recommended or needed.

Plant growth regulators (PGRs): If necessary sprays of Cycocel at 300–500 ppm will help control growth. Do not apply more than 750 ppm Cycocel or leaf edge yellowing may occur. Using a spray adjuvant such as Capsil will reduce the chance of leaf edge yellowing. Do not apply Cycocel when flower buds are plainly visible. Late Cycocel sprays can result in small and/or malformed flowers.

Tech tip: Ivy Geraniums are irradiance plants so the more light they receive the faster they will flower. Under short days or cloudy conditions it is beneficial to provide supplemental lighting of around 400 foot candles (4,000 lux) to speed up flowering. All geraniums are especially sensitive to bacterial diseases so be sure to start with clean containers, media and growing areas. Do not subirrigate or use recycled water. Do not grow a hanging Geranium crop over another Geranium crop. Keeping media saturated will promote Pythium root rot infections. Proper air circulation is very important at time of flowering to reduce likelihood of Botrytis flower petal blight.

Moisture level: Media should be allowed to dry between irrigations. Alternate between moisture level 2 and 4.
1 - DRY: Soil is tan to gray in color, trays are extremely light, and soil pulls away from sides of container.
2 - MEDIUM: Soil is light brown in color, no water can be extracted from soil, and soil will crumble apart.
3 - MOIST: Soil is brown in color, strongly squeezing the soil will extract a few drops of water, and trays are light with no visible bend.
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.
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.

Common pests: Fungus Gnats, Shoreflies and Thrips
Common diseases: Botrytis, Rhizoctonia, Pythium, Thielaviopsis and Bacterial root and leaf diseases

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

### Scheduling

<table>
<thead>
<tr>
<th>Size</th>
<th>Crop Time</th>
<th>Plants Per Pot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 pint (4 inch)</td>
<td>8–9 weeks</td>
<td>1 ppp</td>
</tr>
<tr>
<td>1.0 quart (4.5 to 5 inch)</td>
<td>9–10 weeks</td>
<td>1 ppp</td>
</tr>
<tr>
<td>1.25 to 2.5 quart (5.5 to 6.5 inch, trade gallon)</td>
<td>9–10 weeks</td>
<td>2–3 ppp</td>
</tr>
<tr>
<td>1.5 gallon hanging basket (10 inch basket)</td>
<td>10–12 weeks</td>
<td>3–5 ppp</td>
</tr>
<tr>
<td>2.0 gallon hanging basket (12 inch basket)</td>
<td>10–12 weeks</td>
<td>5–6 ppp</td>
</tr>
</tbody>
</table>

Estimated finish crop time is from transplant of a 288-cell tray and finished at an average daily temperature (ADT) of 66 °F (19 °C).

**Example crop schedule for a 1.5 gallon hanging basket**

<table>
<thead>
<tr>
<th>Weeks From Transplant</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 week</td>
<td>Drench media with preventative fungicide to help prevent Pythium</td>
</tr>
<tr>
<td>3 weeks</td>
<td>If needed spray with Cycocel at 300–500 ppm</td>
</tr>
<tr>
<td>5 weeks</td>
<td>If needed spray with Cycocel at 300–500 ppm</td>
</tr>
<tr>
<td>7 weeks</td>
<td>If needed spray with Cycocel at 300–500 ppm</td>
</tr>
<tr>
<td>12 weeks</td>
<td>Ready to ship</td>
</tr>
</tbody>
</table>

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