Sunfinity™ Sunflower
Culture Guide
Plug Production Guide

GERMINATION
Germination time: 5–6 days
Media temperature: 68–72 °F (20–22 °C)
Chamber: Optional
Light: Not required
Seed cover: Cover seed with a thin layer of media or coarse-grade vermiculite
Moisture level: 4 (wet) until germination is complete
Tray size: 128- to 50-cell plug tray, 72-cell recommended
Seeds per cell: 1

YOунG PLАNT PRODUCTION
TEMPERATURE:
Day: 65–68 °F (18–20 °C)
Night: 65–68 °F (18–20 °C)

LIGHTING:
Recommended day length: Long days
Light intensity: 3,500–4,500 foot candles, (700–900 micro mols)
Day length response: Facultative long day
Daily light integral: 12–16 mols/day

SCHEDULE

<table>
<thead>
<tr>
<th>Lat.</th>
<th>Cites</th>
<th>Plug time</th>
<th>Sow Date Weeks</th>
<th>Plug Ship/Transplant Weeks</th>
<th>Finish time</th>
<th>Est. Retail Weeks</th>
<th>Sow Date Weeks</th>
<th>Plug Ship/Transplant Weeks</th>
<th>Finish time</th>
<th>Est. Retail Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>30°</td>
<td>Jacksonville, FL; Houston, TX</td>
<td>5 wks.</td>
<td>Week 8–28</td>
<td>Week 13–33</td>
<td>7 wks.</td>
<td>Week 20–40</td>
<td>Week 7–27</td>
<td>Week 12–34</td>
<td>8 wks.</td>
<td>Week 20–40</td>
</tr>
<tr>
<td>35°</td>
<td>Albuquerque, NM; Charlotte, NC; Los Angeles, CA</td>
<td>5 wks.</td>
<td>Week 10–26</td>
<td>Week 15–31</td>
<td>7 wks.</td>
<td>Week 22–38</td>
<td>Week 9–25</td>
<td>Week 14–30</td>
<td>8 wks.</td>
<td>Week 22–38</td>
</tr>
<tr>
<td>42.5°</td>
<td>Boston, MA; Grand Rapids, MI; Grants Pass, OR</td>
<td>5 wks.</td>
<td>Week 11–25</td>
<td>Week 16–30</td>
<td>8 wks.</td>
<td>Week 24–38</td>
<td>Week 10–24</td>
<td>Week 15–29</td>
<td>9 wks.</td>
<td>Week 24–38</td>
</tr>
<tr>
<td>45°</td>
<td>Minneapolis, MN; Ottawa, ON; Portland, OR</td>
<td>5 wks.</td>
<td>Week 11–25</td>
<td>Week 16–30</td>
<td>8 wks.</td>
<td>Week 24–38</td>
<td>Week 10–24</td>
<td>Week 15–29</td>
<td>9 wks.</td>
<td>Week 24–38</td>
</tr>
</tbody>
</table>

Download Sunfinity video culture at syngentaflowers-us.com/sunfinity
CROP PROTOCOL

<table>
<thead>
<tr>
<th>Days</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
<th>Stage 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5</td>
<td>6 7 8 10</td>
<td>12 14 16 20</td>
<td>22 24 26 28 30 32 34 36</td>
</tr>
<tr>
<td>Crop Profile</td>
<td>Sowing, light vermiculite covering</td>
<td>Radicle emergence</td>
<td>Cotyledon expansion</td>
<td>Plug bulking</td>
</tr>
<tr>
<td>Temperature D/N Settings</td>
<td>68–72 °F</td>
<td>65–68 °F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light</td>
<td></td>
<td></td>
<td>Supplemental Lighting &gt; 14 hours / long day treatment required</td>
<td></td>
</tr>
<tr>
<td>Humidity</td>
<td>90%</td>
<td>&lt; 70%</td>
<td>&lt; 50%</td>
<td></td>
</tr>
<tr>
<td>Moisture Level</td>
<td>4</td>
<td>4–3</td>
<td>4–2</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>5.5–5.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC</td>
<td>0.5–0.75</td>
<td>0.75–1.0</td>
<td>1.0–1.5</td>
<td></td>
</tr>
<tr>
<td>PGR</td>
<td>Bonzi Drench 2 ppm</td>
<td></td>
<td>B-Nine® at 2,500–5,000 ppm if needed prior to shipping</td>
<td></td>
</tr>
</tbody>
</table>

ILLUSTRATED EXAMPLES OF EACH STAGE

Stage 1

Stage 2

Stage 3

Stage 4 - Plug Tray

Stage 4 - Single plug, side view

Stage 4 - Single plug, top view
Finish Culture Guide

Tall indeterminate sunflower bred for branching, multiple flowers and large garden habit. Best grown in large premium containers and spaced during production.

**Container size:** 2.5–3 quart (6- to 8-inch pots), 1.5 gallon and larger patio containers

**Habit:** Upright

**GARDEN SPECIFICATIONS**

**Garden height:** 36–48”

**Garden width:** 24–36”

**Light:** Full sun

**USDA Hardiness Zone:** 11

**AHS Heat zone:** 12–1

**Product use:** Beds and large containers

**FINISHING**

**TEMPERATURE:**

- **Day:** 70–75 °F (21–24 °C)
- **Night:** 65–68 °F (18–20 °C)
- **Average daily temperature:** 68–75 °F (20–24 °C)

**LIGHTING:**

- **Recommended day length:** If Sunfinity plugs were propagated under long days (>13 hours) for 4 weeks then finish photoperiod is not critical. If plugs were not propagated under long days then >13 hours or 4-hour night interruption is highly recommended to speed flowering (see **Figure 1**).

- **Light intensity:** 3,500–4,500 foot candles (700–900 micro mols)

- **Day length response:** Facultative long day

- **Daily light integral:** 12–20 mols/day

**Media pH:** 5.5–6.0

**Media EC:** 1.2–1.75 mS/cm (saturated media extract)

**Fertilizer:** 150–200 ppm Nitrogen

**Pinching:** Required to improve branching and control vigor. After 6–7 nodes develop on the stem, pinch shoot tips leaving 4 nodes. The nodes of Sunfinity are opposite so a pinch to 4 nodes would leave 8 leaves. Do not pinch too early to avoid issues with uneven branching. This is a hard pinch — similar to how poinsettias are traditionally pinched (see **Figure 2** more information on pinching Sunfinity).

**Plant growth regulators (PGRs):** Apply 2–3 ppm Bonzi® (paclobutrazol) drench 1–2 weeks after pinching; 2–3 ppm drench at first sign of visible buds; 2 ppm drench when flowers start cracking color to hold for finish. Higher rates may be necessary under high light and temperature conditions.

**Pests:** Aphid, spider mites, thrips, whitefly, caterpillars

**Diseases:** Botrytis, Pythium, Rhizoctonia, Powdery Mildew, Downy Mildew, Rust

**TECH TIPS:**

- Facultative long-day plant. Crop time is 2–4 weeks longer if starting with plugs propagated under short days versus long days (see **Figure 1**). For earliest flowering, provide long days, high light levels, and warm temperature.

- Preventive fungicide applications for Powdery Mildew and Downy Mildew are recommended, especially in high humidity environments. Palladium®, Micora® and Segovis® fungicides have all been effective at suppressing pathogens.

- Plants grown outside can attract chewing insects. Preventive insecticides, such as Mainspring® and Flagship® are effective. Avid® insecticide is also recommended for spider mite control when grown in warm, dry conditions. Avid also has the added benefit of caterpillar and whitefly control.

**SCHEDULING**

<table>
<thead>
<tr>
<th>Container size</th>
<th>Crop time after transplant (wks) @ 68 °F ADT*</th>
<th>Plants per pot</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5- to 3-quart pots (6- to 8-inch pots, trade gallon)</td>
<td>7–8</td>
<td>1</td>
</tr>
<tr>
<td>1.5- to 2.5-gallon pots (10- to 12-inch pots)</td>
<td>7–8</td>
<td>1–2</td>
</tr>
<tr>
<td>3.0-gallon and larger (14-inch pots and larger)</td>
<td>8–9</td>
<td>2–3</td>
</tr>
</tbody>
</table>

*Estimated finish crop time is from transplant of a four week old 72-cell plug tray, propagated under long days, and finished at an average daily temperature (ADT) of 68 °F (20 °C). Crop time is one week faster at an ADT of 73 °F (23 °C) versus 68 °F (20 °C).
Effect of Propagation and Finish Photoperiod on Finish Time

Container: 2.5 qt. Average daily temperature: 67 °F (19.4 °C)
Daily light integral: 10.3 mols/day

Short Day Propagation
- 11.5 weeks
- 11.5 weeks
- 9.5 weeks
- 10 weeks

Long Day Propagation
- 8 weeks
- 7.5 weeks
- 7.5 weeks
- 8 weeks

Source: August–December 2016, Gilroy, CA

Effect of Pinching on Branching

All plants were grown under the same conditions and transplanted and pinched (where applicable) at the same time.

No Pinch = One Stem/One Flower at First Flush
Pinched to 2 Nodes = 4 Branches/Flowers at First Flush
Pinched to 4 Nodes = 8 Branches/Flowers at First Flush

Source: March–May 2017, Gilroy, CA