

# Tuberous Begonia Limitless™

## Culture Guide

*Begonia tuberhybrida*

**Product form:** Seed

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

**Habit:** Mounded

### Garden Specifications

**Garden Height:** 10–12" (25–30 cm) tall

**Garden Width:** 10–12" (25–30 cm) wide

**Exposure:** Part shade to full shade

**USDA zone:** 11

**AHS zone:** 12–1

**Product use:** Containers, Hanging Baskets, Landscapes, Patio Pots, Combos

### Germination

#### Stages 1 & 2

**Germination time:** 7–10 days

**Media temp:** 73–78 °F (23–26 °C)

**Chamber:** Optional

**Light:** Required for germination

**Seed cover:** No

**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

#### Stage 3 & 4

##### Temperature

**Day:** 68–70 °F (20–21 °C)

**Night:** 68–70 °F (20–21 °C)

**Average daily temperature:** 68–70 °F (20–21 °C)

##### Lighting

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

**Light intensity:** 2,000–2,500 foot candles (400–500  $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ )

**Day length response:** Obligate short day

**Daily light integral (DLI):** 10–12  $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$

**Media pH:** 5.5–5.9

**Media EC:** SME 0.5 to 0.75 mS/cm

**Fertilizer:** 75–125 ppm N

**Moisture level:** Media should be allowed to dry between irrigations. Alternate between moisture level 3 and 4.

**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

Limitless™ Dark Red

**Plant growth regulators (PGRs):** Usually not needed in the plug. If needed spray with B-Nine® WSG at 1,500 ppm or Cycocel® at 300 ppm.

**Plug grow time:** 7–8 weeks in a 288-cell tray

**Comments:** Tuberous Begonias will form tubers and single flowers under short days so providing night interruption lighting for a total of at least 14 hours is necessary, even in the plug stage. During the early stages of growth, irrigate very gently since Begonia seedlings are very small and heavy watering will disturb the roots. This is a relatively long plug crop so keeping the media too wet can lead to excessive algae growth.

## Finishing

### Temperature

**Day:** 62–64 °F (17–18 °C)

**Night:** 60–62 °F (16–17 °C)

**Average daily temperature:** 62 °F (17 °C)

### Lighting

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

**Light intensity:** 4,000–6,000 foot candles (800–1,200  $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ )

**Day length response:** Obligate short day

**Daily light integral (DLI):** 12–14  $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$

**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.

**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):** In larger containers PGRs are usually not needed. For smaller pots spray with Cycocel® at 500–1,000 ppm 1–3 times depending on plant growth.

**Tech tip:** Tuberous Begonias are extremely sensitive to Tospoviruses; controlling thrips is imperative to avoid this disease. If planting more than one plug in a container, point the tips of the leaves to the outside of the pot for better flower presentation at retail. Provide excellent air flow during flowering to help control Botrytis and Powdery Mildew.



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.

**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.

**Common pests:** Aphids, Thrips

**Common diseases:** Pythium, Rhizoctonia, Botrytis, Powdery mildew, Tospoviruses (INSV and TSWV)

## Scheduling

SIZE	CROP TIME	PLANTS PER POT
Large Packs	8–10 weeks	1 ppp
1.0 pint (4 inch)	8–10 weeks	1 ppp
1.0 quart (4.5 to 5 inch)	10–12 weeks	1 ppp
1.25 to 2.5 quart (5.5 to 6.5 inch, trade gallon)	10–12 weeks	1–2 ppp
3.0 quart to 2.0 gallon (7.5 to 10 inch)	11–12 weeks	3–5 ppp
1.5 gallon hanging basket (10 inch basket)	11–12 weeks	3–5 ppp
2.0 gallon hanging basket (12 inch basket)	11–12 weeks	4–5 ppp

Estimated finish crop time is from transplant of a 288-cell tray and finished at an average daily temperature (ADT) of 62 °F (17 °C).

## Example crop schedule for a large pack

WEEKS FROM TRANSPLANT	DESCRIPTION
1 week	Make sure leaves are pointing to outside of basket. Check to see that long days are being provided. Ensure that a great Thrips scouting/control program is in place
4 weeks	Apply plant growth regulators (PGRs) if necessary
6 weeks	Apply plant growth regulators (PGRs) if necessary
8 weeks	Apply plant growth regulators (PGRs) if necessary
9 weeks	Start scouting for Powdery Mildew since if it does show up it is usually at the start of flower bud formation
10 weeks	Finish