

## Rudbeckia Radiance

(*Rudbeckia hirta*)

### Germination

**Germination** – Optimum conditions for seedling development that begins the day the crop is sown until cotyledon expansion. Expect radicle emergence in 10 – 14 days.

**Cover:** No covering over the seed is required.

#### Media:

- pH: 5.8 – 6.2
- EC: <1.0

**Light:** Light: Light is necessary for germination. Provide a light source of 10 – 100 foot candles if utilizing a chamber.

**Temperature:** 75° - 78°F (24° - 25°C) till day 14.

**Moisture:** Level (4+) wet, from day 1 – 10. On day 10, drop to moisture level (3) moist, and water to (4) till day 21. Then alternate between moisture level (2) medium, and (4) wet.

**Humidity:** 100% from day 1 - 10 or until seed coats are shed.

**Dehumidify:** Day 14 to 40%. Provide horizontal airflow to aid in drying down the media through evapotranspiration, allowing better penetration of oxygen to the roots.

### Plug Production

Optimum conditions during the vegetative period, beginning at cotyledon expansion, needed for the root to reach the edge of the plug cell; AND to make the plant receptive to flower initiation.

**Time Frame when plants are receptive to flower initiation:** Days 21 - 35.

**Flowering Type:** Obligate Long Day Plant – Plants must be exposed to critical day length in order to flower.

**Specific Flowering Mechanism:** Flower initiation - two weeks or more of extended day-length or a night break of sufficient time (>13 hours of light) will initiate flowering; and maturity of plants, usually at the ten - fourteen leaf stage.

#### Media:

- pH: 5.8 – 6.2
- EC: 1.0 – 1.2

**Light:** Supplemental lighting at 350 – 500 foot candles at day 10 will enhance shoot and root growth.

**Temperature:** 72° - 75°F (22° - 24°C) from day 14 – 18. Then 70° - 75°F (20° - 24°C).  
Average Daily Temperature (ADT): Constant day and night temperature 72° - 75°F (22° - 24°C).

**Moisture:** Alternate between moisture level (4) Wet to (2) Medium. Allow the soil to approach level (2) medium, before re-saturating to (4).

**Fertilizers:** Under high light conditions, apply an ammonium-based feed (17-5-17) at 50 – 75 ppm Nitrogen. Under low light conditions, apply a calcium-based feed (14-4-14) at 50 – 75 ppm Nitrogen.

**Growth Regulators:** If needed, spray B-Nine (daminozide) at 1250 - 2500 ppm or Sumagic (uniconazole) at 1- 3 ppm.

**Fungicides:** Preventative fungicide may be applied between days 21 – 35 for Botrytis.

### Growing On to Finish

**Finish Bulking/Flower Initiation** - Optimum conditions during the vegetative period, beginning at transplant, needed for the root to reach the edge of the container; AND to make the plant receptive to flower initiation.

**Transplant Ready:** 7 - 8 weeks from a 288 plug tray.

#### Media:

- pH: 5.8 – 6.2
- EC: 1.5 – 1.75

**Light:** Approximately 4500 foot candles (12 – 15 moles of light, or 45000 lux); long days may enhance growth. The primary mechanisms for flowering are long days and maturity.

**Temperature:** 70° – 75°F (21° - 24°C) day and night time temperature.

**Average Daily Temperature (ADT):** 73°F (23°C).

**Moisture:** Alternate between moisture level (4) wet, and (2) medium. Allow soil to approach level (2) before re-saturating to (4).

**Humidity:** 40% - 70%. Provide horizontal airflow to aid in drying down the media through evapotranspiration, allowing better penetration of oxygen to the roots.

**Fertilizers:** Under high light conditions, apply an ammonium-based feed (17-5-17) at 100 – 150 ppm Nitrogen. Under low light conditions, apply a calcium-based feed (14-4-14) at 100 – 150 ppm Nitrogen. A weekly supplement of Magnesium sulfate (Epsom salts) at 16 oz/100 gallons will enhance the foliage color.

**Growth Regulators:** It is best to control growth through moisture, feed and temperature management. If needed, apply sprays of B-Nine (daminozide) at 2500 – 5000 ppm, or Bonzi (paclobutrazol) at 2 – 4 ppm, or Sumagic (uniconazole) at 1 – 3 ppm.

### **Pre-Shipping Techniques to Enhance Post Harvest Quality**

**When to treat:** 1 – 2 weeks prior to finish or shipping

**Growth regulators:** B-Nine (daminozide) at 2500 – 3000 ppm

**Fertilizer:** Potassium nitrate drench at 150 ppm Nitrogen

**Common Diseases:** Botrytis, Pythium: monitor moisture and humidity levels and use preventative fungicide drenches.

**Common Pests:** Fungus Gnats, Shore Flies, White Fly; use pesticides according to label directions

### **Scheduling**

**Total crop time:** 14 – 17 weeks

**288 Plug crop time:** 7 – 8 weeks

**Transplant to finish crop time:**

**Packs:** 6 – 7 weeks (sold green)

**4" crop:** 9 – 11 weeks

**6" crop:** 9 – 12 weeks, depending on number of plugs transplanted into pot.

