

<b>Cultural Information for:</b>	Primula SuperNova	Annual
<b>Common Name:</b>	Primrose	
<b>Botanical Name:</b>	Primula polyanthus	
<b>Seed Count:</b>	31,185 /ounce	1,100 /gram
<b>Optimum Germination Temperature:</b>	64-68°F / 18-20°C	
<b>Optimum Growing Temperature:</b>	59°F / 15°C	

### Plug Culture – 8 weeks (288 / 12 x 24 tray)

**Stage 1 (days 1-14)** Select a sterile substrate containing a high amount of organic matter and a pH between 5.5-5.8 and an EC <0.6 mmhos (2:1 dilution). Primula seed requires light for germination but a thin cover of vermiculite is recommended to maintain sufficient moisture. Optimum germination temperature is 64-68°F/18-20°C. Maintain high humidity levels and place the flats either in a germination chamber or a shaded greenhouse to provide the necessary cool conditions.

**Stage 2 (days 15-29)** When the cotyledons are fully expanded, lower the humidity levels but do not allow the plants to dry out. A light mist 2-3 times per day is beneficial. Primula plants are very sensitive to high light (>3,000 foot candles / 32,000 lux) Apply shading as needed to protect the plugs. During periods of high temperatures the plants grow very slowly. Fertilize with 50-75 ppm N to strengthen the plants. Select a well-balanced calcium nitrate based fertilizer to produce strong and healthy seedlings.

**Stage 3 (days 30-48)** The first true leaves have formed. For high quality plugs it is necessary to maintain cool temperatures and sufficient humidity. Fertilize the plants with 100 ppm N as needed to maintain EC levels around 1.0 mmhos (2:1 dilution).

**Stage 4 (days 49-56)** The plants have 3-4 true leaves and are now ready for transplanting. Applying 200 ppm N a week before transplanting helps the plants make the transition from the plug tray to the final container.

### Transplant to Flowering – 84 to 112 days

**Media:** Transplant the plugs into 4-inch/10 cm. pots using a well drained sterile media. Optimum pH is between 5.5-5.8 and an EC <0.6 mmhos (2:1 dilution).

**Fertilizer:** A well-balanced calcium nitrate based formulation is recommended. Apply 100-150 ppm N as necessary to maintain an EC between 1.0-1.2 mmhos (2:1 dilution). Supplementing with Magnesium sulfate (MgSO<sub>4</sub>) at 30 ppm (4 ounces per 100 gallons/113 grams per 100 liters) promotes a deeper green color.

**Temperature/Bulking:** Maintain 65-72°F/18-21°C for 4 weeks to bulk the plants and produce sufficient vegetative growth prior to vernalization.

**Lighting:** Optimum range is between 1,700 – 2,000 foot candles/18,000 – 21,500, lux with a maximum of 3,000 foot candles/32,000 lux.

**Flower Initiation:** When the plants have 6-10 leaves and a well-established root system, the plants are receptive to flower bud initiation. Reduce the temperature to 45°F/7°C for 5-6 weeks.

**Note:** SuperNova will initiate flower buds at warmer temperatures (55-60°F/13-16°C but greater uniformity is achieved at cooler temperatures.

**Growth Regulation:** In general, Primula growth is controlled with fertilizer and cool temperatures. If necessary, the following chemical growth regulators are effective. Do not apply below 41°F/5°C. To avoid over-regulation, multiple applications at lower rates is best. Do not apply after flower bud set.

Chemical	Rate
Bonzi (paclobutrazol) NAFTA	5-10 ppm foliar spray 0.5-1.0 ppm drench
Banner/Maxx*	2-5 fl. oz./100 gallons Apply at 16 fl. oz. per 100 sq. ft.
*Propiconazole 14% active ingredient	15-40 ml/100 liters Apply at 5 liters/100 m <sup>2</sup>

\* apply as needed, but no more than 2 times per week.

**Flowering:** After the plants are vernalized, raise the temperature to 59°F/15°C. Primula SuperNova flowers in 3 weeks and in general is sold with 5-7 open flowers.

Area	Sow	Flower
Warm Climate	Mid June	Mid-November (168 days)
Cool Climate	Mid November	Mid-March (140 days)

**Production Points:** In general, Primula is not attractive to insects, but aphid, thrip, white fly and cut worm are the major concerns. Problems with fungus gnat or shore fly are common during the germination and plug stage. Primula requires cool conditions and high humidity to produce high quality plants which favors the development of botrytis. Good sanitation, watering early in the day and good air movement helps to control and prevent this disease.

*“All information given is intended for general guidance only and may have to be adjusted to meet individual needs. Cultural details are based on North American conditions and Sakata cannot be held responsible for any crop damage related to the information given herein. Application of recommended growth regulators and chemicals are subject to local and state regulations. Always follow manufacturer's label instructions. Testing a few plants prior to treating the entire crop is best.”*