

<b>Cultural Information for:</b>	Primula SuperNova	Annual
<b>Common Name:</b>	Primrose	
<b>Botanical Name:</b>	Primula polyantha	
<b>Seed Count:</b>	31,185 /ounce	1,100 /gram
<b>Optimum Germination Temperature:</b>	65°F / 18°C	
<b>Optimum Growing Temperature:</b>	59°F / 15°C	
<b>Optimum pH:</b>	5.8 – 6.2	
<b>EC – Plug:</b>	0.4 – 0.8 mmhos/cm (1:2) / 0.9 – 2.0 (SME) / 1.1 - 2.6 (Pour Thru)	
<b>EC – Finishing:</b>	0.9 – 1.3 mmhos/cm (1:2) / 2.1 – 3.5 (SME) / 2.7 - 4.6 (Pour Thru)	

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

**Pre-cooling:** Place trays in a chamber at 55°F/13°C for one week and cover with vermiculite and plastic for high humidity. Pre-cooling enhances germination.

**Stage 1 (days 1-14)** Select a sterile substrate with high organic matter. Primula seed requires light for germination, but a light cover of vermiculite is recommended to maintain enough moisture. Optimum germination temperature is 65°F/18°C. Temperatures above 68°F/20°C reduce total emergence. Maintain high humidity levels and if needed place the flats in a germination chamber with lights for 5 weeks or a shaded greenhouse to provide 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 strong growth.

**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.

**Fertilizer:** A well-balanced calcium nitrate-based formulation is recommended. Apply 125-150 ppm N as necessary to maintain healthy growth. 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 by 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
B-Nine (daminozide)	2,500 – 5,000 ppm (0.25 – 0.5%)
Bonzi (paclobutrazol) NAFTA	5-10 ppm foliar spray 0.5-1.0 ppm drench

**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.

**Culture Watch Point:** In areas with extended periods of low light (early season in the Northwest) a higher percentage of blind plants may occur. Transplanting prior to Week 42 ensures that the plants receive enough light prior to flower bud initiation to prevent blindness.

*“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.”*