



Orion[®], Primera[™]

PRIMULA ACAULIS

Minimum Germination Rate: 80%

Seed Product Form: Raw, GoldSmart[™] Primed

FLOWERING

Time frame when plants are receptive to flower initiation: 8 – 10 leaves present.

Flowering Type: Facultative long-day plant – long days enhance flowering.

Specific Flowering Mechanism: Maturity and irradiance (12 – 15 mols) trigger flowering.

PLUG CULTURE

Germination: Optimum conditions for seedling development that begins the day the crop is sown until cotyledon expansion.

Cover: Cover seeds with a thin layer of medium-sized vermiculite to maintain moisture levels.

Media: • pH: 5.5 – 5.8
• EC: <1

Light: Light is not necessary for germination. If utilizing a chamber, providing a light source of 10 – 100 foot candles (100 – 1,000 lux) will improve germination and reduce stretch compared to seed germinated in the dark.

Temperature: 64° – 68°F (18° – 20°C) until cotyledon expansion; then 60° – 62°F (16° – 17°C) to prevent stretch. Temperatures above 76°F (24°C) will result in a lower germination percentage.

Moisture: Saturated (5), from day 1 – 7. On day 7, lower to moisture level wet (4), and re-saturate to level (5) until day 12, or to full cotyledon expansion. Afterward, alternate between moisture level wet (4) to moist (3).

Humidity: 100% until day 8 – 10. Make sure that germination is complete before lowering humidity or lower germination percentages may result if humidity is reduced too early.

Dehumidify: On day 8 – 10, lower humidity level to 40 – 50%. Provide horizontal airflow to aid in drying down the media through evapotranspiration, allowing better penetration of oxygen to the roots.

Fertilizers: None needed until cotyledon expansion (approximately day 9 – 10), then feed 50 ppm nitrogen with a nitrogen:potassium (N:K) ratio of 1:2 as needed. NOTE: Primula are light feeders.

Plug Bulking/Flower Initiation: 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.

Media: • pH: 5.5 – 5.8
• EC: .75 – 1

Light: 3,000 – 4,000 foot candles (30,000 – 40,000) lux. Avoid direct sunlight.

Temperature: 60° – 65°F (16° – 18°C). After roots are established and plants have 6 – 8 true leaves, lower temperatures to 45° – 50°F (7° – 10°C) for 4 – 5 weeks. NOTE: A juvenile plant will not respond to cool temperatures and will result in blind plants. Do not drop temperatures if young plant has not established 6 – 8 true leaves.

Moisture: Alternate between moisture level moist (3) and medium (2). Allow the soil to approach level (2) before re-saturating to level (3). Watch for excess algae growth. Using R/O (Reverse Osmosis) water will help reduce algae levels.

Fertilizers: Under high light conditions, alternate with an ammonium-based feed (17-5-17) at 50 – 75 ppm nitrogen and a calcium-based feed (12-4-20) at 50 – 75 ppm nitrogen. Under low light conditions, apply a calcium-based feed (14-2-14) at 50 – 75 ppm nitrogen. Emphasis should be on potassium during the majority of the crop's production cycle.

Growth Regulators: None at this time.

GROWING ON

Transplant Ready: 6 – 8 weeks from a '288' plug tray.

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.

Media: • pH: 5.5 – 5.8
• EC: 1 – 1.5

Light: Provide 3,000 – 4,000 foot candles (12 – 15 total mols or 30,000 – 40,000 lux) to hasten flower development. Long days may enhance growth. Avoid direct sunlight as leaf scorch may occur. NOTE: do not allow light level to exceed 3,500 foot candles (35,000 lux) for an extended length of time.

Temperature: Days 50° – 55°F (10° – 12°C); Nights 55° – 60°F (12° – 16°C) with a negative DIF of 5° – 10°F (1° – 3°C) from 5 – 9 a.m.

Average Daily Temperature (ADT): 54°F (12°C)

Moisture: Alternate between moisture level moist (3) and medium (2). Allow soil to reach level (2) before re-saturating to level (3).

Humidity: 40 – 70%

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

Fertilizers: Finish plants with an N:K ratio of 1:3. In cool weather, maintain low ammonium levels to avoid excessive vegetative growth and root-rot problems. Alternate with calcium-based and nitrate-based fertilizers (12-4-20 at 100 – 150 ppm nitrogen, 14-4-14 at 100 – 150 ppm nitrogen).

Growth Regulators: If grown cool, PGRs should not be necessary. If needed, apply B-Nine (daminozide) spray at 2,500 – 5,000 ppm.

TECHNIQUES TO ENHANCE POST HARVEST QUALITY

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

Growth Regulators: B-Nine (daminozide) spray at 2,500 ppm may be applied if desired.

Fertilizer: Potassium nitrate at 150 ppm nitrogen.

Common Diseases: Ramularia and Botrytis. Provide adequate ventilation between plants and avoid over-saturated conditions. Apply fungicides as needed according to label rates and directions.

Common Pests: Cutworms, Whitefly, Fungus Gnats, Shore Flies, Leafminers, Aphids and Thrips. Scout plants on a regular basis and apply appropriate pesticides according to label rates.

PRODUCT USE

Beds and borders during cool season months. Primrose is a novelty blooming plant in winter months.

GARDEN SPECIFICATIONS

Light: Full sun to light shade
USDA Hardiness Zone: 10
AHS Heat Zone: 4 – 1

	Garden Height	Garden Width
Primera, Orion	5 – 6" (13 – 15 cm)	5 – 6" (13 – 15 cm)

PRIMULA ACAULIS SCHEDULING IN WEEKS

	Primera	Orion
Total crop time	20 – 22	21 – 23
'288' plug crop time	6 – 7	6 – 7
Transplant to finish crop time		
4" crop	13 – 14	14 – 15

Traditionally, Primrose is sown in July. Primera is an early season variety for blooming October – January. Orion is a mid season variety for blooming December – March.

Note: These suggestions are only guidelines and may have to be altered to meet individual grower's needs. Check all chemical labels to verify registration for use in your region.