

Primula Production

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Introduction:

Commercial primula are in the Primulaceae family which is composed of 800 species. The genus *Primula* contains 400 of those species. Most of these primula are native to temperate re-

gions of the Northern Hemisphere. Most primula are, therefore, adapted for cooler climates.

Significant Species:

Several primula species are commercially grown as floriculture crops:

- 1) *P. malacoides* (Fairy/Baby Primrose).
- 2) *P. obconica* (German/Poison Primrose).
- 3) *P. x polyantha/aucalis* (Polyantha Primrose).
- 4) *P. sinensis* (Chinese

Primrose).

- 5) *P. veris* (Cowslip Primrose).
- 6) *P. vulgaris* (English Primrose).

The three most significant Primula crops are *P. malacoides*, *P. obconica* and *P. x polyantha*. The most commercially significant is the *P. polyantha*. Literally, hundreds of varieties/cultivars of this interspecific hybrid have been developed. The remainder of this article will focus on these species.

Propagation:

Primula are commercially propagated from seed. Significant considerations when germinating Primula seed are outlined below:

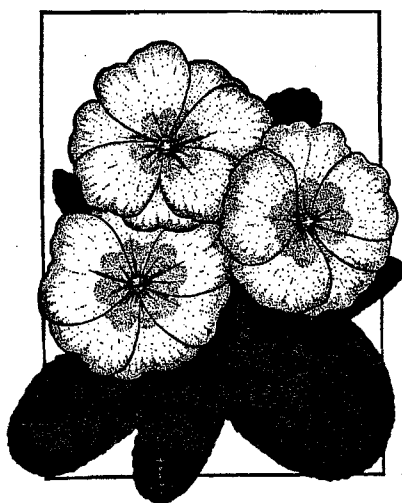
- 1) Sow seed on the media surface.
- 2) Germinate most Primula seed at temperatures ranging from 59-70°F. Germinate *P. obconica* seed at temperatures ranging from 59-77°F.
- 3) Light enhances germination.
- 4) Potassium nitrate (2%), IAA+NAA, and GA seed soaks have been shown to increase percent germination.

Flower Induction/Initiation:

Factors that affect flowering of primula vary with species. Factors that affect

each significant species are outlined below:

- 1) *P. malacoides*—Day-neutral between 41-63°F, SD between 63-70, LD inhibits flowering.
- 2) *P. obconica*—Day-neutral
- 3) *P. x polyantha*—First 60 days under LD at 68°F followed by SD at 54-60°F.



- 4) *P. sinensis*—No information
- 5) *P. vulgaris*—SD at warm temperatures, LD at cool temperatures.

Optimal light intensity decreases as temperature increases. Flower initiation and development are optimal when plants are exposed to a minimum of 10 moles of light per day.

Nutrition:

Grow primula at a pH range between 5.5-6.5. Primula are not 'high feed' requiring crops. Feed most primula 60 ppm N and K starting 2 weeks after seeding, 200 ppm immediately before transplanting, followed by regular 90-100 ppm N and K after transplanting. *P. obconica* should be fed 250 ppm. All primula should be fed with a nitrate-based (as opposed to an ammonium-based fertilizer).

Primula can frequently have nutrient deficiency problems. In particular, primula have the following nutritional problems:

- 1) **Iron Deficiency**—Interveinal chlorosis on youngest leaves due to either high pH or insufficient iron in the media. Decrease pH and supply iron by applying an acidic fertilizer as an overhead feed (acts as foliar feed as well).
- 2) **Ammonium Toxicity**—General leaf edge yellowing of lower leaves. Occurs when ammonium based fertilizers are used during low light periods of the year. Leach and switch to a nitrate-based fertilizer.
- 3) **Boron Deficiency**—Young leaf distortion. Overhead water with fertilizer containing boron and/or apply Borax (0.5 oz/100 gal, or Solubor 0.25 oz/100 gal.).
- 4) **Calcium Deficiency**—Upper leaf chlorosis, necrosis or leaf edge burn. Switch to a calcium nitrate based fertilizer.

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Cultural Step	Production Time (weeks)	Temperature (°F)
Seeds germinate	4-6	60
Plugs transplanted into 4" pot. Space pot to pot.	2-3	60
flower induction and space when plants have unfolded 6-10 leaves.		
Buds with color	2	60
Total time to flower	18-23	

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Growth Retardants:

Growth retardants are used to control peduncle/pedicle elongation on primula as well as excessive leaf expansion. B-9 is effective (1000-2000 ppm) on *P. vulgaris*, *x polyantha*, *sinensis* and *malacoides*. B-9 is ineffective on *P. obconica*.

Insects and Diseases:

Primula can develop aphid, thrip, fungus gnat and/or mite infestations. Of most significance is the spread of tomato spotted wilt virus (TSWV)/impatiens spotted wilt virus (INSV) by Western flower thrips. There is no cure for either of these viruses.

Symptoms include general stunting of plant growth and/or spotting of foliage. Control is achieved by removing infected plants, controlling thrips and not shipping in infected materials.

Postharvest:

Harvest primula when 5-7 florets have opened. Application of a spray of 0.25 mM silver thiosulfate (STS) 5 days prior to harvest will increase postharvest life. Ship at temperatures of 36-43°F.

Scheduling:

A schedule for *P. x polyantha* production is shown below. Contact me for schedules for *malacoides* and *obconica*.

Other Sources of Information:

Information of Primula varieties and culture can be found on the following web sites:

- 1) www.goldsmithseeds.com
- 2) www.daehnfeldt.com