

**COLORADO GREENHOUSE  
GROWERS ASSOCIATION, INC.**



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## PRIMULA: A FLOWERING MINI POT PLANT

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Primula is the scientific name for one of approximately 30 genera of herbs listed in the Primulaceae or Primrose family (1). It is possible that no other plant, used in floriculture circles, can present greater confusion as to classification, use and culture. Bailey (1) lists them as "well known attractive mostly low perennial herbs---" but also indicates there are hardy and non-hardy primroses. This is probably the reason most of the seed catalogs classify them as annuals or perennials. Hoy and Syngé (4) list all primula as perennials, but categorizes them into uses, i.e. rock or alpine and greenhouse. Based on Bailey (1&2) the commonly known greenhouse facing primula are categorized as follows:

- Acaulis, (also known as vulgaris) a species name
- Chinensis, (also known as sinensis) a species name
- Kewensis, a hybrid, but a species name
- Malacoides - small flowered and of great interest.
- Not listed in Bailey (1), but emphasized in Ball Red Book (3).
- Polyantha (Polyanthus) - Supposedly a garden group of hybrids. Pacific Giants category.

The horticulturist will most likely be confronted mainly with the names Acaulis, Polyanthus and Malacoides. Some cultivars of the latter have contributed to skin problems of some people.

The classification confusion horticulturally is not unusual because the taxonomists around the world cannot get a "handle on primula." The horticulture confusion is further compounded because many important cultivars are of diverse hybrid origin.

The interest in using primula in the mini pot program was initiated during a visit to the Sakata Seed Company, Yokohama, Japan, in 1973. Seed of Primula *polyantha* Pacific Giants and F-1 *acaulis* were sown in October, 1973 and programmed using the STPS Systems described in CFGA Bulletins 346 & 348. Preliminary evaluations indicated that Primula were exceptionally well adapted to the STP program. Also, the period of time they were kept in

the cell packs, prior to potting, had a definite influence on bud initiation and the ability to produce a prime, flowering plant, when shifted to a 4" azalea pot.

During the winter months of 1975-76 and 1977-78, seed of numerous Pacific Giant and F-1 Acaulis lines were sown at 15-day intervals and incorporated into the STPS System in order to determine if the plants could be programmed for flowering. The seed were germinated under mist in a "peat-lite" medium. When the cotyledons were well developed they were placed in a 60-65° F house for further development. When the second set of true leaves were visible, the seedlings are transplanted into "608" type cell packs and placed in a glass covered greenhouse housing an environment of 60-62° F night and 60-70° F day temperatures, approximately 900 ppm CO<sub>2</sub> during daylight hours and natural photoperiods. The flats were left in the growing environment until the foliage was well developed and completely covered the flat. They were grown in the cell packs 54 to 80 days depending on the time of year. Flower buds were visible in many of the flats when shifted to 4-inch azalea pots for finishing. The medium used for the cell packs and finishing stages was equal parts, by volume, Fort Collins clay loam, No. 6 perlite and Canadian peat moss.

Two finishing temperatures were considered during the evaluation:

Heat to: 11-12° C (52-54° F), N and 15-16° C (60-62° F), D 15-16° C (60-62° F), N and D

Cool to: 21° C (70° F), D (both houses)

Both temperature regimes produced excellent plants, however, those grown at the lower temperature were approximately 10 days slower in reaching the salable stage (Fig. 1). A schedule, Table 1, was developed from the data obtained between 1974 and 1978, when F-1 Acaulis and Pacific Giant lines were grown.

Growers often experience poor growth and chlorotic foliage during all stages of primula production. The STPS System can also have problems, especially in the cell pack

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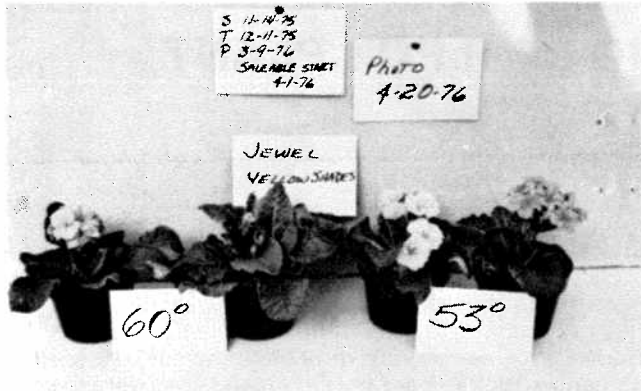
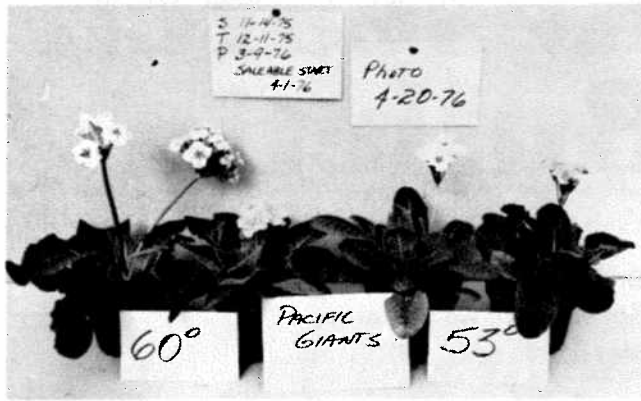


Figure 1. Salable pots of primula cultivars grown in two temperature regimes following potting.

phase (Fig. 2) or immediately after shifting to the 4-inch pots. Over watering appears to be the main cause, but can be corrected with a little effort.

The primula adapts well to the 4/sq ft spacing and in most instances they could be grown pot to pot. Since they do not flower uniformly, spacing is almost automatic as finished plants are sold. Iron deficiency also appeared and

Table 1. Basic suggested schedule for flowering *Primula polyanthus* and *acaulis* in 4-inch azalea pots using the STPS System. It is only intended as a guide and each grower will have to develop their own schedule based on their growing environment.

Seed (S)	Transplant (T)	Pot (P)	Salable (S)	Weeks From Seed To Sale
15 Sept.	1 Nov.	20 Jan.	5 Feb.	20
15 Oct.	5 Dec.	1 Feb.	20 Mar.	22
15 Nov.	30 Dec.	20 Mar.	25 Apr.	22
15 Dec.	7 Feb.	10 Apr.	1 May	20*

\*Bench time for this crop is minimal and provides the greatest dollar return.



Figure 2. Chlorotic primula, in cell pack stage, which required better moisture control and an addition of chelated iron.

was overcome with additions of chelated iron at half the recommended strength.

Not all the varieties from every seed company were evaluated. In general, all the strains or varieties responded similarly each year. The F-1 *acaulis* and Jewel Strains appear to provide the best plants for the STPS System. One year the Pacific Giants had elongated flower stems and the next they were short and desirable. Stretching was attributed to keeping them in the cell pack phase too long. The Color Magic Series from Suttons of England were included in 1974, they were found to be highly variable in growth habit and undesirable for the STPS program.

Sales involving primula in late winter are definitely possible. As soon as the first two or three flowers were open, with several visible buds, the consumer purchased them in mass market outlets. The fragrance of the F-1 *acaulis*, especially yellow-gold, probably influenced the early sales. The scent is similar to that of freesia or hyacinth. The Primula is a dual sale plant and should be so marked. It can be enjoyed as a pot and then placed outside in the spring as a bedding plant in a slightly shaded area. The F-1 *acaulis* and Pacific Giants have both overwintered in Fort Collins with no protection.

All available Primula species and lines will be included in the 1980-81 STPS program at Colorado State University.

### Literature Cited

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