

How To Store Cyclamen Plugs

by ROYAL HEINS and NATHAN LANGE

WE have an ongoing research program to determine the responses of plug seedlings to low-temperature storage. Results have been published on impatiens, pansy, petunia, and geranium (see GG, January and February 1991); salvia, ageratum, begonia and marigold (see GG, February and March 1992); and alyssum and vinca (see GG, March and April 1993).

We have continued that research with cyclamen plugs. Here's what we found.

How We Did It

Plugs of 'Sylvia' and 'Giselle' (84 plugs per sheet) were sprayed with Avid, Aliette, and Dithane 5 days before they were put in storage. The day storage began, control plugs (unstored) were planted in 5½-inch pots in the greenhouse.

Storage temperatures and light levels were as follows: 32°F, 36.5°F, 41°F, 45.5°F, 50°F, and 54.5°F, and 0 (darkness), 5, 25, and 50 footcandles. Plants were illuminated by cool-white fluorescent bulbs 24 hours a day. Plugs were held in darkness by placing them in closed cardboard shipping boxes. (Because of limited plant numbers, 'Giselle' plugs were not stored at 50 footcandles or at 32°F.)

All plants were subirrigated with clear water as needed during storage. Irrigation frequency varied from 3 to 17 days, depending on the temperature and humidity of the coolers. Plugs held in darkness, however,

were irrigated only once (after 24 days).

Ten representative plants were removed from each treatment weekly for 6 weeks. A typical plant from each treatment was photographed, and the length of the longest petiole was recorded. All the plugs were then planted into 5½-inch pots and forced into flower in a glass greenhouse with

a minimum temperature of 66°F.

Plants were grown until they had five open flowers, and data were recorded on the dates the first and fifth flowers opened. Flowering time was based on days from transplanting. The time to five open flowers was considered days to flower.

What We Found

The temperature in the chamber set at 32°F dropped to about 29°F, causing severe damage to the plugs (Figures 1 and 2).

There was no significant petiole elongation in either 'Sylvia' or 'Giselle' when plants were stored in darkness or light at 36.5°F or 41°F. Elongation became more pronounced over time as storage temperature increased to 54.5°F.

Compared to temperature, light had much less effect on elongation, although petioles tended to elongate less at warmer temperatures as light levels increased.

Average time to flower was similar for both cultivars, varying little for plants stored up to 4 weeks. After that time, flowering was faster, especially for 'Sylvia' — plants stored 6 weeks flowered an average of 11 days faster than those stored 1 week (Figures 3 and 4).

The trend toward decreased time to flower with increased storage duration was probably a result of the higher greenhouse light levels and temperatures that existed following the later plantings.

Storage temperature had no marked, consistent effect on time to flower. Plants held at 36.5°F flowered earliest. At 50°F and 54.5°F,

Figure 1: Appearance of cyclamen 'Sylvia' plugs immediately following 5 weeks of storage at 0-25 footcandles and 32°-54.5°F (0°-12.5°C).

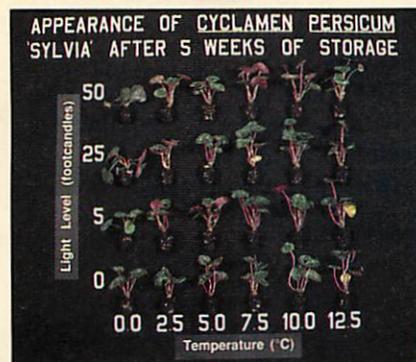
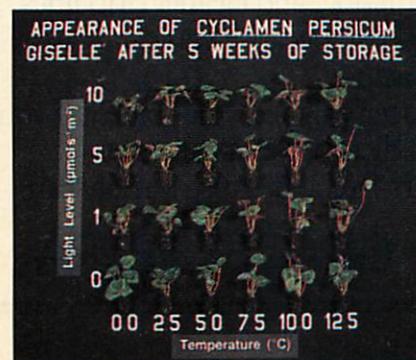


Figure 2: Appearance of cyclamen 'Giselle' plugs immediately following 5 weeks of storage at 0-25 footcandles and 32°-54.5°F (0°-12.5°C).



Cyclamen Sylvia Stored in Darkness

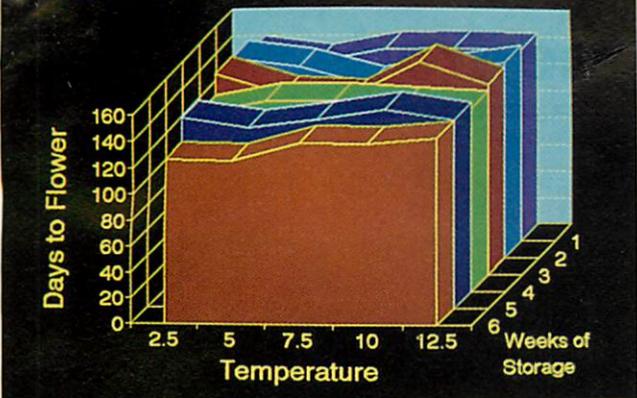


Figure 3: Days to flower from transplanting of 'Sylvia' after 0-6 weeks of dark storage at 32°-54.5°F (0°-12.5°C).

Cyclamen Sylvia Stored in Light

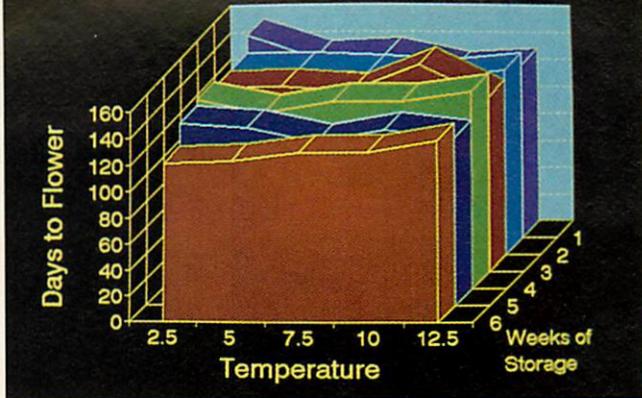


Figure 4: Days to flower from transplanting of 'Sylvia' after 0-6 weeks of light storage at 32°-54.5°F (0°-12.5°C).

plants stored for 4 weeks or more were slower to flower than those stored at lower temperatures.

Light Levels And Flowering Time

Light levels had little effect on time to flower, particularly in 'Sylvia.' 'Giselle' plugs stored in the dark exhibited 5-7 days' flowering delay compared to those held in light.

Neither the presence nor absence of light affected flowering time of 'Sylvia' stored for less than 4 weeks, but at 5 and 6 weeks, some delay was evident on plants stored in the dark compared to those stored in the light.

The results suggest that, as with other species we have observed, the longer cyclamen plugs are stored, the more precise the conditions must be.

The optimum storage-temperature range for 4-6 weeks was 36.5°-41°F. Adding light at lower temperatures yielded no significant benefits, but the opposite was true as the temperature increased. Plants stored in 5 footcandles of light always looked better at the end of 4-6 weeks' storage than those stored in darkness.

To Summarize . . .

The optimum storage-temperature

range for cyclamen is 36.5°-41°F. The results show cyclamen plugs can be stored in this range up to 6 weeks, although some flowering delay (5-7 days) may occur if plugs are stored in the dark. **GG**

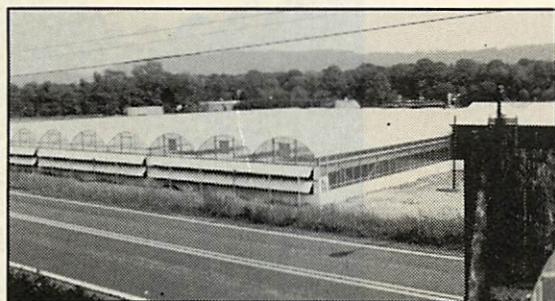
About the authors: Dr. Royal Heins is professor and Nathan Lange was a graduate student at the time this research was conducted, Department of Horticulture, Michigan State University, East Lansing, MI 48824. Lange's current address is Department of Environmental Horticulture, University of California, Davis, CA 95616.

This research was funded in part by Sluis & Groot.

Poly-Grower Greenhouse Co.

QUALITY GREENHOUSES

• • Since 1968 • •



Gutter Connected



Quonset



Get the full & complete story
Call or write for our free brochure
TODAY

- All Aluminum Construction
- Easily Erected
- Totally Maintenance Free
- Stainless Steel Hardware
- Quality, Strength & Attractiveness
- Full & Complete Design
- Energy Efficient
- No Rust, Corrosion or Deterioration

P. O. Box 359 Muncy, PA 17756 Dial (717) 546-3216 Collect Fax (717) 546-2689