

How To Store Tuberous Begonias

by ROYAL HEINS and THOMAS F. WALLACE, JR.

WE have experimented with low-temperature storage of a variety of bedding plant plugs and have reported the results in a series of GREENHOUSE GROWER articles (see GG, January and February 1991; February and March 1992; and March, April, May, and Fall Bonus Edition 1993). Our objective was to determine the optimum storage conditions and durations.

Here's a look at storing tuberous begonia plugs.

How We Did It

We received plug sheets (size 84) of 'Nonstop Scarlet' tuberous begonias from a commercial grower when plugs were transplantable. Plants were kept in a glass greenhouse at 68°F for one week prior to the start of the experiment to eliminate shipping effects.

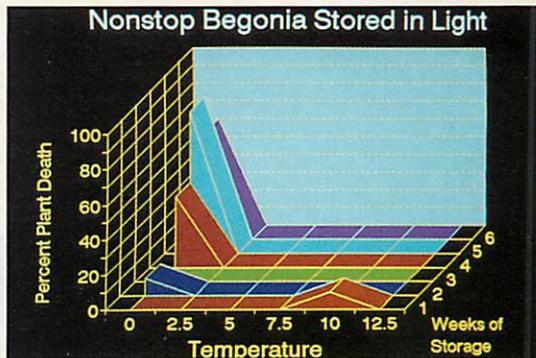
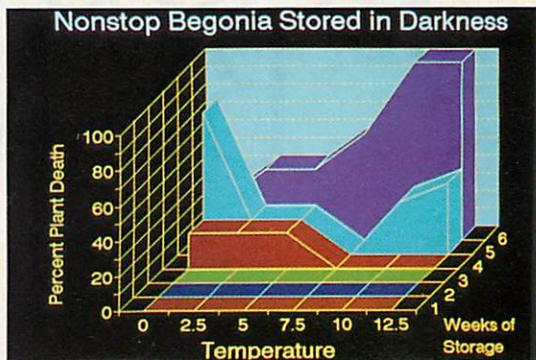
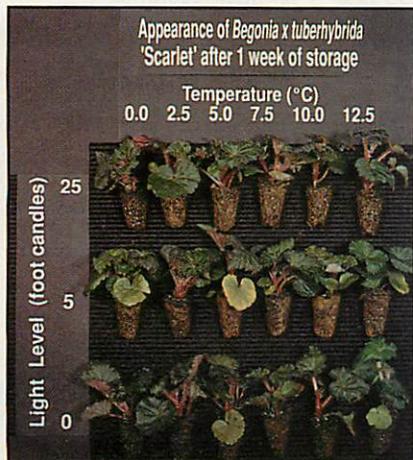
One plug sheet was placed in storage at each of 18 different temperature

and light-level combinations. Temperatures were 32°F, 36.5°F, 41°F, 45.5°F, 50°F, or 54.5°F, and light from cool white fluorescent bulbs burning constantly was kept at 0, 5, or 25 footcandles (plug sheets were stored in darkness – or 0 footcandles – by placing them in closed cardboard shipping boxes).

All of the plants were subirrigated with clear water as needed during storage. Irrigation frequency varied from 3 to 20 days, depending on the temperature and humidity of the coolers.

Ten representative plants were removed from each treatment once a week for a total of 6 weeks. One plant per treatment was photographed before all the plants were potted in 4-inch containers. The plants were then forced into flower in a glass greenhouse with a minimum temperature of 68°F.

We recorded the date of first flower for each plant that survived storage, determined the average number of days from the start of forcing to first flow-



Figures 3 and 4: Percent plant death of 'Nonstop Scarlet' begonias from transplanting after 0-6 weeks of dark storage (top) and light storage (bottom) at 32°-54.5°F (0°-12.5°C).

er, and then calculated percent plant survival for each treatment.

Storage treatments were rated either satisfactory or unsatisfactory. When no more than one of the 10 plants died after storage and flowering was not delayed more than 5 days compared to that of control plants (unstored), the treatment was classified satisfactory.

What We Found

Plants tolerated storage in the light or dark at all temperatures for 3 weeks (Table 1). After that time, chilling injury became evident at 32°F in both the light and dark, and percent mortality increased as dark-storage duration and temperature increased (Figures 3 and 4).

Time to flower after transplanting

Figures 1 and 2: Appearance of tuberous begonia 'Nonstop Scarlet' plugs immediately following 1 week of storage (far left) and 5 weeks of storage (left) at 0-25 footcandles and 32°-54.5°F (0°-12.5°C).

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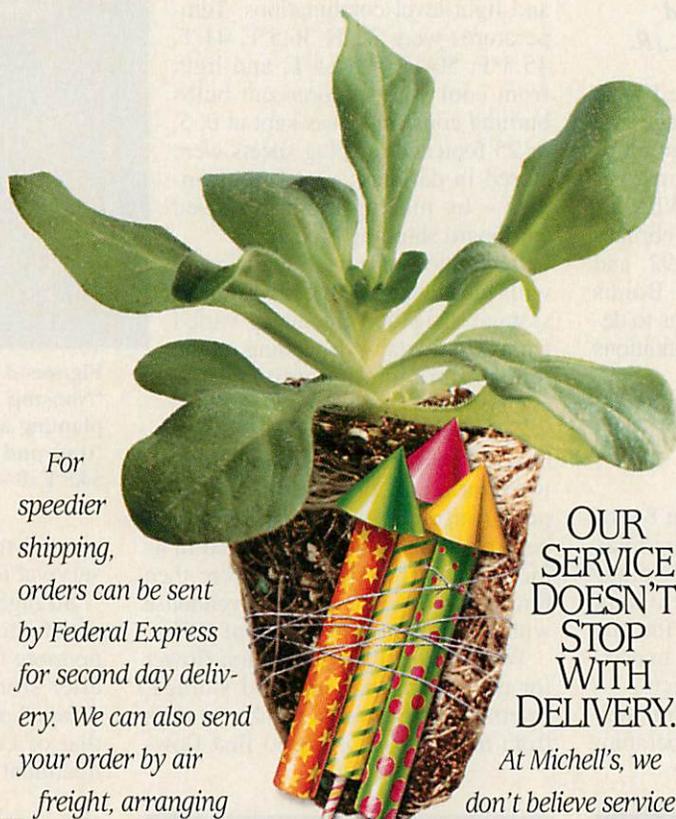
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was unaffected by the light storage but increased as temperature increased and the dark-storage duration surpassed 3 weeks.

Stem height did not increase signif-

icantly during storage at any temperature or in the dark. However, leaf petioles elongated at warmer storage temperatures, especially when stored in the light. Plant size and height at first flow-

er were unaffected by the light-storage treatment, but the size of those plants stored in the dark increased as the storage duration and temperature increased.

Appearance after 6 weeks of forcing was similar for plants stored 1 week in the cooler or held in the greenhouse. However, development of plants stored for 5 weeks in the dark or held in the greenhouse was delayed compared to that of plants stored at 41°F in the light.

The Bottom Line

The optimum storage range for tuberous begonia plugs is 41°-45°F, but plants tolerate 32°-54.5°F for up to 3 weeks. The plants are susceptible to chilling injury at 35.5°F or lower and do not tolerate dark storage for more than 4 weeks at any temperature. **GG**

About the authors: Dr. Royal Heins is professor and Thomas F. Wallace, Jr. is research technician, Department of Horticulture, Michigan State University, East Lansing, MI 48824.

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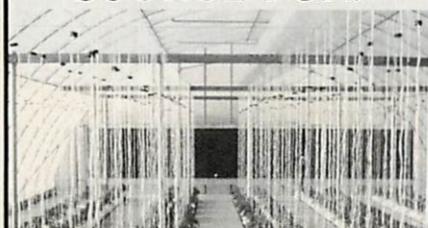
Table 1

TEMPERATURE		LIGHT	WEEKS OF STORAGE					
°F	Footcandles		1	2	3	4	5	6
32	0							
	5							
	25							
36.5	0							
	5							
	25							
41	0							
	5							
	25							
45.5	0							
	5							
	25							
50	0							
	5							
	25							
54.5	0							
	5							
	25							



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