

SOME OBSERVATIONS ON THE VASE-LIFE OF CUT SUNFLOWERS

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Although sunflowers are also grown for ornamental purposes, no information is available on their post-harvest life. In our work with cut sunflowers, we noticed several features which might be of general interest to sunflower breeders. Some of these features are presented in this paper.

Cut sunflowers (*i.e.*, inflorescences plus stems) of ornamental and oil varieties were found to have a vase life of 9-15 days at 20°C (Table 1; ref. 1). The length of the vase life generally remained unchanged when cut flowers were kept in cold storage (2-3°C) for 5-10 days before being put into the vase (1,4).

TABLE 1

Plant height and cut flower vase life of several sunflower varieties

Variety	Plant height (cm)	Vase-life at 20°C (days)
Uniflorus	57	12.9
Taiyo	64	11.3
Californicus	101	10.2
Yellow Gold	85	9.3
Giganteus	110	9.3

It is generally recognized that treatment of cut flowers with solutions containing sugars improves the longevity of the flower in the vase (2,3). We therefore examined the effect of sugar treatments

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on cut sunflowers. They were harvested in the closed-bud stage (having closed ray flowers), and were placed in a 10% sucrose solution containing also an anti-microbial agent, for 24 h. This treatment, termed in the present report as "loading" of cut flowers, was performed either before or after 10 days cold storage.

Since in previous work we found that anti-microbial agent applied to the vase water without sucrose did not affect the performance of cut sunflowers, control treatment in the present study consisted of cutflowers placed in tap water only. From the results presented in Table 2 it can be seen that loading with sugar extended the longevity of the flowers and significantly improved flower size. Longevity was more favorably affected by loading after cold storage than before.

TABLE 2

The influence of 24 h loading with 10% sugar on post-storage vase-life of cut sunflowers

Treatment		Vase-life at 20°C (days)		Inflorescence diameter (mm)	
Loading before storage	Loading after storage				
Sugar	—	11.0	0.4	95.2	8.2
Water control	—	9.8	1.0	71.0	4.7
—	Sugar	14.2	0.5	96.7	8.4
—	Water control	12.2	0.8	55.8	5.4

Additional effects of loading cut-sunflowers were observed and are presented in Table 3.

Sugar seems to stimulate developmental processes in the inflorescence which might facilitate collection of viable pollen under favorable conditions (room or laboratory). On the other hand, it has some deleterious effects on the leaves remaining attached to the stem during vase-life. It is therefore beneficial to excise the leaves after harvest.

TABLE 3

The influence of 24 h loading with 10% sugar on development and on disc florets, pollen quality and stem foliage of sunflowers

Observation	Treatment			
	Pre-storage		Post-storage	
	Loading with sugar	Water control	Loading with sugar	Water control
Opening of central disc florets	most plants	none	all plants	none
Pollen quantity	high	low	highest	low
Pollen fertility (tested on male sterile)	+	+	+	+
Scorched leaves	+	-	+	-

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