## Single-cut harvesting CHRYSANTHEMU for commercial

Saleable chrysanthemums cv. 'Albatross.' The bloom on the left was harvested four days earlier than the one on the right and opened in solution.



SINGLE-CUT OR "ONCE-OVER" harvesting of standard chrysanthemums may be possible commercially, according to results of trials conducted during the summer and fall of 1971 at floriculture greenhouses of the Deciduous Fruit Field Station, San Jose. Cultivars tested included 'Albatross,' 'Detroit News' and 'Escapade.' These are the major white, bronze and pink standards grown during the summer in California. Additional trials with other cultivars are in progress.

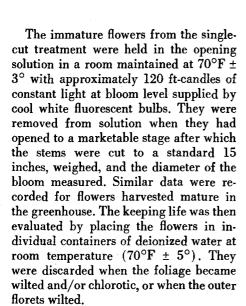
Typical commercial practices were followed in these experiments until the first flowers (approximately 40% of the total to bloom) were sufficiently mature for harvest. In the first trial with 'Albatross,' the mature blooms in one treatment were harvested every two days (July 4, 6 and 8) until the ground beds were entirely cut out (by commercial harvest standards). Blooms in another treatment were all cut on the first day of commercial harvest (July 4). These were graded into two lots: those mature enough for immediate shipment, and a mixture of immature stages. A typical flower in the least mature stage of development is shown in the photo (opposite page).

The immature flowers were then placed in standard plastic chrysanthemum buckets containing deionized water to which had been added 2% sucrose and 0.0025% silver nitrate. Preliminary observations indicated that this was a satisfactory opening solution for such bud stages at San Jose. Previous work had shown optimal levels of sucrose to be 5% for the cultivar 'Fred Shoesmith' and 2% for 'Albatross.' The latter exhibited leaf injury symptoms at sucrose levels of 5% at San Jose while 'Detroit News' showed leaf injury at 2.5%.

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The "harvest" period during which the flowers opened in solution was five days, the same as recorded for blooms harvested as they became mature in the greenhouse. An equivalent decline in fresh weight and flower size for the later-maturing flowers was noted for both treatments.

Data for the cultivar 'Albatross' are presented in the table. Figures shown are the means of six replications of nine flowers each per treatment. Row samples from each plot were used to reduce the effect of location in the bed (stems from outer plants are typically heavier and mature earlier). The differences in weight, bloom diameter and keeping life are not statistically significant. A repre-



Chrysanthemum cv. 'Albatross' at earliest stage open in solution.

sentative saleable 'Albatross' flower harvested conventionally is compared in a photo showing a similar flower harvested four days earlier and opened in solution (opposite page).

The results with 'Detroit News' and 'Escapade' were similar to those with 'Albatross.' In none of the trials were there significant differences in fresh weight, time of maturity or keeping life between blooms harvested conventionally and those harvested with a single cut. The harvest period for an August crop of 'Detroit News' and an early October crop of 'Escapade' was the same as for the 'Albatross.' None of the flowers exhibited flower or foliage injury symptoms from the opening solution. Weight alone was recorded in tests subsequent to those with 'Albatross.' The data indicated that fresh weight and flower size are closely correlated, but weight is a more objective measurement.

Once-over harvesting suggests a number of possibilities for the commercial grower. These include closer scheduling; better utilization of greenhouse space; lower labor rquirements; less skill required for harvest labor; possible mechanization of harvest; increased flexibility in scheduling harvest; and reduced damage to blooms from insects, diseases, handling, or by cutting at a less-mature stage.

There also exists the possibility of increasing the keeping life of chrysanthemums by using an opening solution, especially during periods of low light intensity. Future experiments (utilizing information relating to optimal opening solutions for specific cultivars grown under such conditions) will attempt to establish whether this method can improve the post-harvest quality of the latermaturing flowers from any given wintergrown crop.

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COMPARISON OF WEIGHT, FLOWER SIZE AND VASE LIFE OF CHRYSANTHEMUM MORIFOLIUM CV. 'ALBATROSS' HARVESTED CONVENTIONALLY AND HARVESTED ENTIRELY IN ONE DAY WITH SOLUTION SAN JOSE, 1971

	of	h weight 15-inch + flower	Flower diameter	Keeping life
Conventional harve (July 4, 6 and 8)	st	gm* 72.4	inches* 5.2	days 16.6
Single-cut harvest with solution (July 4)		73.9	5.2	16.9

Measurements taken on date of harvest for conventional harvest treatment and on date of saleability for single-cut treatment.