

How Long Will Carnations Keep?

Joe J. Hanan

The extent of the work done on cutflower keeping life is awesome. Yet, the true potential keeping life of a carnation has not been found. Recent experiments have indicated that the potential keeping life of a carnation cut flower has been limited by the methods used to test keeping life. We have not fully explored true keeping life of carnations as determined by growing practices when the flower is still on the plant.

Work at CSU has indicated that keeping life is controlled to some degree by the percent of dry matter in the cut flower. The relationship between fresh and dry weight is in turn influenced by light, nutrition, watering, temperature, etc. Perhaps, by pinning down the exact relationship between dry weight and keeping life, we could proceed to a study of measuring the potential keeping life of carnations without destroying them.

Reviewing previous records did not indicate a recognizable relationship, and it was felt that differences in time between determination of percent dry weight and keeping life resulted in excess variation. An experiment was started in September 1963 whereby two lots of cut flowers were obtained each week from various treatments in progress at CSU. These were subjected to the standard practice for determining cut flower life. After grading, the cut flowers were placed in warm water for about 12 hours at 33° F. At the end of 12 hours, the flowers were removed and cut to standard grade stem length. Twenty centimeters of the bottom stem portion were removed for dry weight determination and the cut flowers placed in warm

water to which approximately 100 ppm chlorine had been added. These were placed in a keeping room controlled at 75° F., with a relative humidity of 50 to 70 percent. The results are plotted in figure 1. There was no apparent relationship between percent dry weight and keeping life. The maximum keeping life was less than 7.5 days. In past studies, maximum keeping life has never exceeded 9 days with one exception, work carried out in CO₂ chambers.

The knowledge that chlorine does not remain at initial strength in solution but gradually disappears, indicated that chlorine does not keep stems open for water uptake and its effect is practically nil by the end of 7 to 8 days. A switch was made to a combination of chemicals used previously by Scholes and Boodley at Cornell University. Treatment of the cut flowers remained the same except that the Cornell solution, minus sugar, was added to the water in place of the chlorine. The results are shown in figure 2. Flowers placed in the CS solution minus sugar kept varying periods up to a maximum of 14.5 days. These preliminary results may be interpreted as indicating that true keeping life of a carnation, as influenced by treatment on the plant, has not been shown. Reevaluation of effects of environment may show a greater effect on cut flower keeping than previously suspected. Since no sugar is in the solution used, it may be assumed that the cut flower was using for food sugars that were present at the time of cutting. The function of the CS minus sugar solution was to keep the water conducting vessels open.

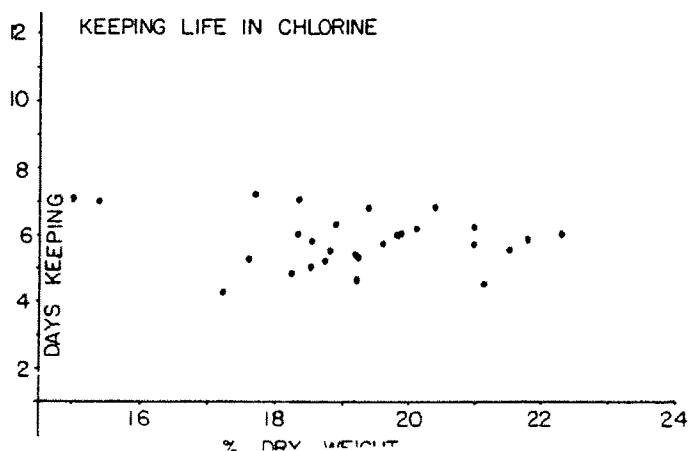


Fig. 1.--Keeping life of carnation cut flowers from different treatments when placed in warm water containing chlorine. Each point an average of 6.

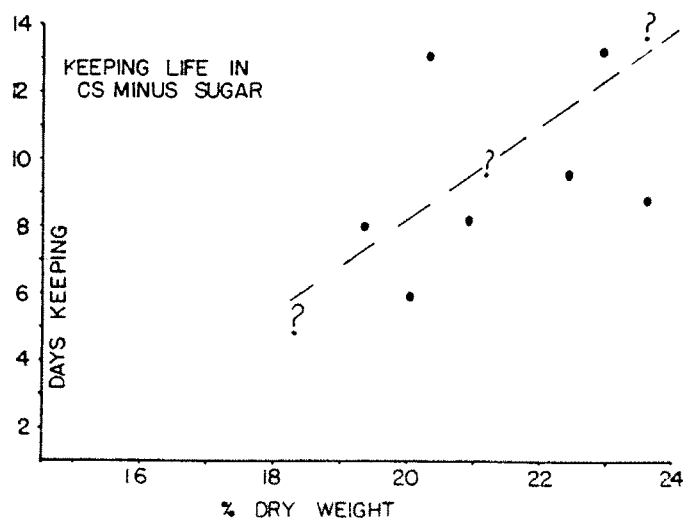


Fig. 2.--Keeping life of carnation cut flowers from different treatments when placed in warm water containing Cornell solution minus sugar. Each point an average of 6.