

Promoting Pot Plant Staying Power

Consumers love potted flowering plants—especially in the dead of winter when there's nothing blooming in the garden. New and exciting varieties and improved production practices enhance the grower's opportunity to provide top quality plants to meet demand. Longer shelf life is a vital element of both retailer and customer satisfaction. Happy retailers increase orders next season and happy customers come back to buy again.

Commercial growers strive to produce the highest quality plants possible with the most pleasing shapes and most plentiful flowers. Unfortunately, we lose over 20% of these once-beautiful plants due to production practices or damage during handling, transport and storage.

Fortunately, the practices that prolong pot plant beauty are simple for the grower to implement. A little knowledge and a commitment to these few cultural changes can do a lot to increase both retailer and consumer satisfaction with our product.

Some factors which affect quality and longevity include variety selection, temperature, light, ethylene. How can we manipulate these factors to keep plants beautiful longer?

Cultivar Selection

Choose cultivars carefully, not only for production ease but also for resistance to transit stress and longevity in the home environment. For example, bronze chrysanthemums 'Favor' and 'Mandarin,' light bronze mums 'Mandalay' and '24-Karat' white mums 'Mountain Show,' 'Spirit,' 'Surf' and 'Puritan'; and yellow mums 'Mountain Peak' and 'Sunny Mandalay' all lasted three weeks under simulated interior conditions. Yellow mums 'Bright Golden Anne' and 'Iridon' lasted four weeks. Other varieties last only two weeks.

Poinsettia longevity increased considerably with the introduction of 'Eckespoint Lilo' a dark-leaf, dark-bract variety with excellent leaf retention. 'Eckespoint Freedom' also has outstanding interior performance.

Cultural Practices

Production procedures which affect longevity include light, fertilization, medium, temperature and water. Managed well, these practices can contribute significantly to pot plant longevity.

Light—Low light decreases longevity in chrysanthemums and increases

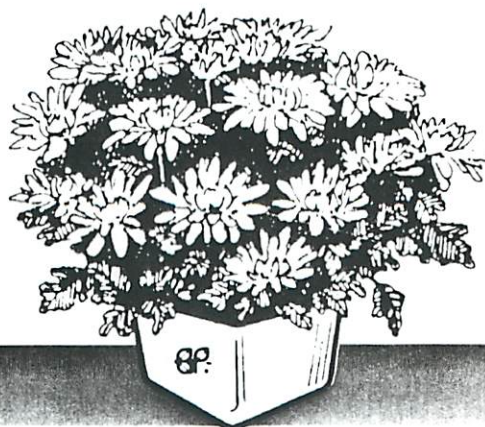
premature cyathia (bud) drop in poinsettias. Keeping production light high—even adding high intensity lighting—can ultimately improve plant longevity.

Fertilization—High fertilizer levels decrease longevity in most flowering potted plants and increase bract edge burn in poinsettias. Decreasing fertilizer rate throughout the crop or stopping fertilizer during the last two to four weeks of production increases longevity. Review fertilizer needs for each crop in order to establish the optimum fertilization schedule to extend longevity.

For example, to reduce poinsettia bract edge burn, reduce irrigation as you reduce fertilizer—and also maintain good air circulation, low greenhouse humidity, low ammonium and fertilizers.

With chrysanthemums, longevity was increased seven to twelve days by discontinuing fertilizer at disbudding (approximately three weeks prior to marketing.)

Fertilizer termination has been beneficial (or not to affect longevity) of flowering plants except Easter lily. In the case of lilies, fertilizer termination may promote leaf yellowing.



Temperature—Lowering the night temperature by three to five degrees F during the final two to three weeks of chrysanthemum production will intensify flower color, reduce greenhouse energy bills and should lead to increased interior longevity.

Using negative DIF (cooler days than nights) during the final stages of production will increase cyathia drop in poinsettias and increase the incidence of bract edge burn. Limit the use of negative DIF to the early stages of the crop and use a positive DIF in the last three to four weeks of production.

Shipping and Handling

A high quality, long-lived plant can become a low quality, short-lived plant if it takes too long to get where it's going. Proper temperatures and short shipping times are important factors in maintaining quality and shelf life. Darkness, too-hot or too-cold temperatures, and the presence of ethylene during shipping can all reduce quality.

Some plants are so sensitive to the dark they drop leaves or flowers just from being placed in sleeves or boxes. It is critical that plants stay in shipping containers for only brief periods.

Both high and low temperatures during shipping can damage plants. Dif-

ferent species have different temperature preferences, so no single shipping temperature is ideal.

African violets, for example, will have brown leaves at unboxing if they are shipped below 50°F. Hibiscus shipped at 35-40°F will appear uninjured at unboxing but will lose all buds three or four days later. However, the longevity of other plants, such as azaleas and chrysanthemums, is best maintained at 35-40°F shipping temperature.

Plants that prefer a 35-40°F shipping temperature include amaryllis, azalea, calceolaria, chrysanthemum, cineraria, crocus, cyclamen, daffodil, Easter lily, freesia, grape hyacinth, hyacinth, hydrangea, kalanchoe, oxalis, regal geranium, rose and tulip.

Plants that prefer a 50-60°F shipping temperature include African violet, begonia elatior, bougainvillea, browallia, Christmas cactus, clerodendron, crossandra, cymbidium, Easter cactus, exacum, gloxinia, hibiscus, poinsettia and streptocarpus.

Ethylene—is a naturally-occurring plant hormone that causes leaf or flower drop and sometimes leaf yellowing and petiole bending. Injury is directly proportional to the ethylene concentration, length of exposure and temperature during exposure. Minimize ethylene injury by lowering tempera-

ture to 35-40°F during transit. Of course, this only works with plants not sensitive to chilling injury.

Plants especially sensitive to ethylene are kalanchoe, browallia, bougainvillea and Christmas cactus. The only way to minimize ethylene injury on plants that are sensitive to both ethylene and chilling is to avoid the presence of ethylene. Some research has been done using silver thiosulfate (STS) to prevent the action of ethylene, but recommendations have not been determined as to concentration, application and effect on large numbers of plants. Also, STS is not labeled for use on flowering pot plants.

Conclusion

Pot plant longevity is good business for everyone in the marketing chain. When growers work with retailers to assure proper shipping and handling conditions, everyone profits.

PPGA's Flowering Plants Video instructs retail employees on the importance of speedy and careful unpacking as well as care and maintenance in the store. This video comes with an employee workbook and sells for \$49.95 plus \$5.00 shipping and handling. Progressive growers have given this video to their retailer customers to help them increase plant longevity and sales.

Adapted from information by James E. Barrett and Terril A. Nell in SAF's Grower Notes, Summer 1996

