

Keeping the High Tunnel Full of Cuts Year-round

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High tunnels are unheated greenhouses that commonly consist of a metal frame covered by clear polyethylene plastic. They have become popular in recent years to extend the growing season on vegetables, cut flowers and to protect these and berry crops from adverse weather during that season. In this presentation, examples of cut flower growing schemes in high tunnels will be presented and initial experiments with tender perennial cut flowers that have been overwintered successfully in such structures will be shown.

As a season-extension tool, the unheated high tunnel typically allows three weeks earlier planting in the spring, and with low tunnel protection in the structure, a similar period of continued growth in the fall, compared to outside. This allows the transplanting of cool-adapted cut flower crops such as stock (*Matthiola incana*), sweet pea (*Lathyrus odorata*), campanula and larkspur as early as mid-April. As these early crops mature and can be pulled out, late-season crops of snapdragons, zinnia and calendula can be productive the rest of the season.

Alternatively, crops that grow well in the high temperatures of the summer tunnel could be planted later in spring and produce cut stems into fall. Lisianthus, celosia and trachelium are good candidates for that purpose, producing taller and more numerous stems over the extended season.

Additional species that could be of interest for fall harvest include pumpkin-on-a-stick (*Solanum integrifolium*), which is harvested for the mature red miniature pumpkins borne on the stem. There are now also many showy peppers (*Capsicum annuum*) varieties that look attractive in a fall arrangement. The frost protection of the high tunnel also allows for growth of late-flowering varieties of chrysanthemum, both pompom and spray types.

It has become apparent that the high tunnel can also serve as a valuable aid to overwintering tender species that could not be successfully grown in botanical zones 5 and 6. We have recently found that pineapple lily (*Eucomis*), a genus native to South Africa, can survive and thrive in a high tunnel, and produce attractive flowers with considerable consumer appeal. A vase life of three weeks adds to its desirability.

Other overwintered crops that look promising in the high tunnel are tulips, which bear early and tall high quality flowers from fall plantings. Flowering is advanced by at least 2 weeks compared to outside. We are also currently experimenting with lesser-known bulb crops such as *Brodiaea* and *Fritillaria*.

In summary, growing cut flowers in a high tunnel can provide for an extended flower marketing season, and allow for production of flowers that could not be grown in the outdoor climates prevailing here.