

M. Richards



THE LIFE OF A BULB

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GARDENER'S REFERENCE

Each May, Filoli orders its bulbs to be contract grown by specialty growers in Holland. The shipment arrives at Filoli by the third week in October, and gardeners immediately begin the task of sorting and planting thousands of tulips, hyacinth and narcissus into pots and annual display beds. Typically, Filoli's gardeners plant 95,000 bulbs each year. Of these, 16,000 tulips are planted in the parterres, and 40,000 tulips are planted in containers. Container plantings are stored at the nursery and moved into the gardens in three rounds—from early to late blooming—adding spots of color

that complement the bed plantings and greatly extend the length of our bulb display. Come spring, visitors and gardeners alike 'ooh' and 'aah' over vivid splashes of color in one of the most spectacular tulip displays on the west coast. Since few witness the shifting and replacement of pots as these flowers fade, or their eventual removal from beds at the end of the season, many are left to wonder—where do all of those bulbs go, and why don't we just leave the bulbs in the ground?

Where do the bulbs go?

Each year's daffodils and other *Narcissus spp* are planted in pots, which are moved to the back nursery area when their blooms fade. They are watered until their foliage dies down, at which point the bulbs are cleaned by volunteers and stored until fall. Starting in September, they are replanted in various sites on the property: most of our narcissus get replanted en masse in Daffodil Meadow, located within the fruit garden, or along the perimeter of the parking lot. Many other bulbs, like scilla, muscari and hyacinth also naturalize in California's climate and are planted with the narcissus in areas where they receive little or no summer water. Like narcissus, these bulbs are also deer-proof.

Filoli's tulip bulbs, in contrast, meet their end in the compost heap. The parterres have to be pulled and prepped to make way for the summer display, and the planting schedule leaves no room for the tulips to finish the cycle of growth and nutrient storage needed for another year of blooms. All of our tulips are forked from the beds, since color schemes also change from year to year, and old bulbs could interfere with the planting plan.

Mass Plantings. In contrast to the orderly plantings of our parterres, naturalized bulbs are planted in trenches. Or, to avoid damaging tree roots, bulbs are scattered and covered with a layer of Filoli's home-made compost for fast planting and a flowing, natural appearance.

Why do narcissus naturalize more readily than tulips?

Narcissus are some of the most satisfying plants to grow, for novice and experienced gardeners alike. Our familiar horticultural varieties are largely descendants of natives of the Iberian peninsula—although wild relatives can be found throughout the Mediterranean region—and are adapted to thrive in conditions very similar to California's Mediterranean climate. With minimal attention and in the poorest soils, they will come back for years. And, most importantly for some, they are ignored by wildlife! If anything, displays may improve in the second to fourth years, and bulbs may be dug and replanted if crowding begins to reduce plants' vigor.

Both hyacinths and tulips, on the other hand, are descended from natives of the Middle East—particularly Turkey and the

JAN	PLANT
DEC	
NOV	
OCT	
SEP	
AUG	CLEAN & STORE
JUL	
JUN	
MAY	PULL
APR	TULIPS BLOOM
MAR	HYACINTH/ NARCISSUS BLOOM
FEB	

foothills of the Himalayas. In their native range, they tend to be subject to extremes of winter cold, spring moisture, and dry summer heat. By mimicking cues of temperature and moisture, Dutch growers maximize the energy reserves that get directed to new bulblets, which will produce the next year's flowers. Normal garden conditions in California are not ideal for tulips or hyacinths, which is why their blooms are rarely the same quality after their first year.

**Making more bulbs:
How are tulips propagated?**

Bulbs can generally be propagated in three ways. Known varieties are propagated either by vegetative reproduction, or offsets, which produce flowers with qualities identical to the parent; or by tissue culture, a sterile process used in commercial growing to produce 'clean,' virus-free stock of genetically identical plants. New tulip varieties are hybridized and grown by seed. It can take seven years for new hybrids to bloom, at which point desirable hybrids are selected and grown for another seven before they can reach the market. Vegetative reproduction has been the standard in Holland's bulb industry for hundreds of years. In the ground, flowers are topped and bulbs are fertilized at key intervals in their growth

cycle. Bulbs are then mechanically harvested, cleaned, dried, and cooled before being graded and sold for garden planting and cut flowers, or are replanted to increase the size of young bulbs.

Volunteers pulling the spring display



References & Further Reading:

Brent & Becky's Bulbs:
<http://brentandbeckysbulbs.com>
 Bryan, J.E. (2002). *Bulbs*. Portland, OR: Timber Press.
 Purdue Univ. Cooperative Extension service:
<http://www.hort.purdue.edu/ext/HO-11.pdf>
 Rockwell, F.F. and Grayson, E.C. (1953). *The Complete Book of Bulbs*. Garden City, NY: Doubleday & Co. Inc.
 Synges, P.M. (1984). *Collins Guide to Bulbs*. St James's Place, London: Collins.
 Van Engelen, Inc. :
http://www.vanengelen.com/tips_h.html

Perennial tulips in the garden. Tulips in pots can be held over for many years by simply watering until the foliage dies down on its own. The pots can then be stored in a cool, dry place during the summer. Usually, the bulbs are protected from predators if left in the pot. Or, they can be removed, cleaned, and stored in a cool dry place and repotted in the fall. The tulips most suited for saving are most Darwin Hybrids, like 'Apeldoorn' and 'Pink Impression', or single late tulips like 'Mrs. John Scheepers', 'Menton', and 'Renown'.
 To maintain tulips in the ground in California, growers recommend first removing spent blooms. Lift spent tulips in June when all of the leaves have browned, clean off soil and foliage, and allow bulbs to dry in cool, airy conditions to be ready for re-planting in October. Surface fertilize at planting to encourage root growth, again in spring as foliage emerges, and a third time when flowers are topped, to maximize the growth of bulb offsets.

Filoli Gardener's Reference sheets are created by garden staff to answer common questions regarding Filoli's traditional horticultural practices. This sheet may be accessed from the Filoli website.
FILOLI CENTER, 86 CAÑADA ROAD, WOODSIDE, CA 94062
(650) 364-8300 WWW.FILOLI.ORG