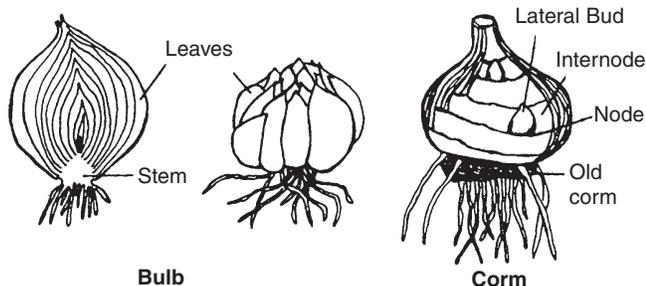


## Flowering Bulbs: Culture and Maintenance

Diane Relf and Elizabeth Ball\*

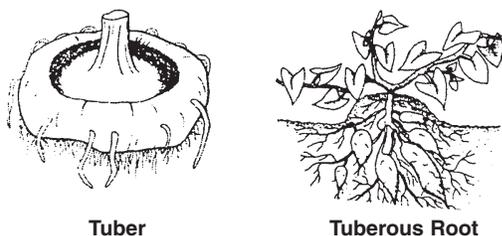
“Bulbs” is a term loosely used to include corms, tubers, tuberous roots, and rhizomes as well as true bulbs. This publication will refer to all of the above as bulbs. Many vegetables are propagated from or produce edible organs of these types (e.g., tuber, Irish potato; tuberous root, sweet potato; rhizome, Jerusalem artichoke; bulb, onion).

A **true bulb** is a complete or nearly complete miniature plant encased in fleshy modified leaves called scales which contain reserves of food.



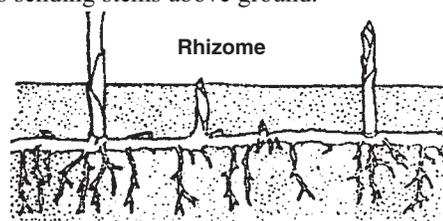
A **corm** is the base of a stem that becomes swollen and solid with nutrients. It has no fleshy scales.

A **tuber**, which is an underground stem that stores food, differs from the true bulb or corm in that it has no covering of dry leaves and no basal plant from which the roots grow. Usually short, fat, and rounded, it has a knobby surface with growth buds, or eyes, from which the shoots of the new plant emerge.



A **tuberous root** is the only one from this group that is a real root; its food supply is kept in root tissue, not in stem or leaf tissue as in other bulbs.

A **rhizome** is a thickened stem that grows horizontally, weaving its way along or below the surface of the soil and at intervals sending stems above ground.



**Bulbs are broadly grouped into spring-flowering (January-May) and summer-flowering (June-September).**

Spring bulbs provide early color before most annuals and perennials.

One of the most popular spring bulbs is the tulip. **Tulips** come in all colors except blue. Some of the most common types are: *Cottage-late-blooming*; *Darwin-tallest*; *Lily flowered*-petals recurve in a bell-shape; *Parrot-twisted*, ruffled petals; *Double-2* or more rows of petals. **Daffodils and jonquils** (common names for the genus *Narcissus*) are classed by length of corolla in relation to perianth segments. They come in the colors of white, yellow, pink, and peach. Many have naturalized. **Hyacinths** produce a large single spike of many small, fragrant flowers, and come in a complete color range. **Crocus** are usually grown for early bloom (in snow). Crocuses are available in white, purple, yellow, and bicolors. There are many other excellent spring-flowering bulbs that are not as widely used as tulips and daffodils. These include scilla, leucorum, anemone, chionodoxa, and muscari.

Summer-flowering bulbs include amaryllis, canna, tuberous begonia, caladium, daylily, dahlia, gladiolus, lily, and spider lily.

### Culture

**Selecting bulbs.** Selecting quality spring bulbs is very important, because the flower bud has already developed before the bulb is sold. Size is also important; look for plump, firm bulbs. Select on a basis of color and size for intended purposes; for example, small ones for naturalizing and large ones to stand out as specimen plants.

\*Retired Horticulture Extension Specialist and former Program Support Technician, Virginia Tech. Revised by Joyce Latimer, Extension Specialist, Virginia Tech.

**Storage.** If bulbs are bought before planting time, keep them in a cool, dry place. A temperature of 60° to 65°F is cool enough to prevent bulbs from drying out until time for planting. Temperatures higher than 70°F will damage the flower inside spring-flowering bulbs. Rhizomes, tubers, and tuberous roots are more easily desiccated than bulbs and corms, and should be stored in peat, perlite, or vermiculite.

**Site Selection.** In selecting a site for planting, consider light, temperature, soil texture, and function. Most bulbs need full sun. Select a planting site that will provide at least 5 to 6 hours of direct sunlight a day. Bulbs left in the ground year after year should have 8 to 10 hours of daily sunlight for good flowering. Bulbs planted in a southern exposure near a building or wall will bloom earlier than bulbs planted in a northern exposure. Adequate drainage is an important consideration. Most bulbs and bulb-like plants will not tolerate poor drainage, and rot easily if planted in wet areas. Function must also be kept in mind. If bulbs are being used to naturalize an area, toss the bulbs then plant them where they fall to create a scattered effect.

**Site Preparation.** Good drainage is the most important single factor for successful bulb growing. Bulb beds should be dug when the soil is fairly dry. Wet soil packs tightly and retards plant growth. Spade the soil 8 to 12 inches deep. As you dig, remove large stones and building trash, but turn under all leaves, grass, stems, roots, and anything else that will decay. Add fertilizer and organic matter to the soil. Use 1 pound of 5-10-10 fertilizer for a 5 by 10 foot area, or a small handful for a cluster of bulbs. Place a 1 to 2 inch layer of organic matter over the bed. Thoroughly mix the fertilizer and organic matter with the soil. For individual planting holes, loosen the soil below the depth the bulb is to be planted. Add fertilizer and cover with a layer of soil (bulbs should not contact fertilizers directly). Set the bulb upright in the planting hole and cover with amended soil. In wet, hot summers, organic fertilizer may retard blooming and promote disease, especially with gladiolus. If voles are a problem, the bulbs can be planted in baskets made of wire screen to prevent the animals from reaching and destroying them.

**Time of Planting.** Hardy, spring-flowering bulbs are planted in fall. Hardy, fall-flowering bulbs, such as colchicum, are planted in August. Tender, summer-flowering bulbs are planted in the spring after danger of frost. Lilies are best planted in late fall.

**Depth of Planting.** It is best to check correct planting depth for each bulb with a successful local grower or other good local source. Bulb catalog and reference book recommendations for planting may be either too shallow or too deep depending on soil condition. As a general rule of thumb, bulbs should be planted 2½ to 3 times the diameter of the bulb in depth. It is important not to plant bulbs too shallow, as this will encourage frost heaving.

## Maintenance

**Watering.** Normal rainfall usually provides enough moisture for bulbs. However, during dry weather, water plants at weekly intervals, soaking the ground thoroughly. Be especially careful not to neglect bulbs after blooming.

**Mulching.** In the winter, mulch bulbs 2 to 4 inches deep with organic material such as straw, pine bark, hay, or ground leaves. Do not use large leaves, as they may mat too tightly on the ground. A winter mulch prevents alternate freezing and thawing, which damages bulbs and plant roots. Apply mulch after cold weather arrives. You may damage the bulbs if you mulch while soil temperature is still high. Remove mulch as soon as danger of severe freezing has passed in early spring. If mulch is left on the ground after new growth starts, tops of new shoots will be pale green or colorless and new stems and foliage may be broken.

**Fertilizing.** After plants bloom, fertilize them lightly with 5-10-10 fertilizer. Use no more than 1 pound for a 5 by 10 foot bed. Avoid high-nitrogen fertilizer (N is the first of the 3 numbers). Be sure to keep fertilizer off the leaves and away from roots; it will burn them. In addition to 5-10-10 fertilizer, you can use bonemeal as an extra source of phosphorus.

**Staking.** Some tall, heavy-flowered bulbs may require staking. Stake plants when they are emerging, but be careful not to damage the bulb with the stake.

**Deadheading.** When flowers fade, cut them off to prevent seed formation. Seeds take stored food from the bulbs.

**Removing foliage.** If leaving bulbs in place for bloom next year, do not cut the leaves after flowering until they start to wither. Green leaves produce food for plant growth next year. After leaves turn yellow, cut and destroy the stems and foliage of the plants. Dead foliage left on the ground may carry disease to new growth the next year. Bulbs naturalized in lawns are unfortunately subject to mowing which can be very harmful. Bulbs need their foliage left intact until it has turned brown in order to build strong bulbs for the next year's flowers. Avoid mowing or covering the foliage before it matures naturally.

**Moving.** If moving bulbs from one place to another, or if a planting has become crowded and ceased blooming, move only after the foliage has faded. Bulbs dug and moved before foliage fades may not bloom for several years.

**Digging and Storing.** In parts of Virginia, many summer-flowering bulbs should be dug and stored, as they are tender. This is done when the leaves on the plants turn yellow, before danger of freeze damage. Use a spading fork to lift the bulbs from the ground. Wash off any soil that clings to the bulbs, except those that are stored in pots or with the soil around them. Spread the washed bulbs in a shaded place to dry. When dry, store them away from sunlight in a cool, dry basement, cellar, garage, or shed at 50° to 60°F. Avoid temperatures below 50°F or above 70°F. Be sure that air circulates around stored bulbs. Never store bulbs more than two or three layers deep, as they can generate heat which causes decay. Leave the soil on begonia, canna, caladium, and dahlia bulbs. Store these bulbs in clumps on a slightly moistened layer of peat moss or sawdust in a cool place. Rinse, clean, and separate them just before planting.

*Original publication reviewed by Holly Scoggins, Virginia Tech Department of Horticulture; Joyce Latimer, Virginia Tech Department of Horticulture; and Dawn Alleman, Virginia Cooperative Extension, Norfolk Office.*