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Research and Extension  
Johnson County

# Bulbs for the Garden



## Introduction

When someone mentions the word bulbs, what image does your mind conjure up, a light bulb, or the brightly colored tulip or daffodil? These are images we have of bulbs, but for the avid gardener the latter should come to mind. Bulbs have long been a favorite of many gardens. There is much more than tulips and daffodils for the gardener to grow, in fact, there is a type of bulb for almost every letter in the alphabet.

Bulbs are popular with the gardener for many reasons. Once planted, many bulbs will maintain themselves for years with a minimum amount of care. Many of the flowers planted such as annuals and perennials have relatively short bloom periods, but with a well-planned bulb garden the bloom period can extend from late winter right through the fall with many colors and plant forms. Another advantage of growing bulbs is the ease with which these plants adapt themselves to a varied habitat. Whatever the reason for growing bulbs, the main advantage is for enjoyment and their beauty.

## What is a Bulb?

If you were to cut a true bulb in half, you would find a neatly packed next year's plant surrounded by the scale leaves—immature foliage, flower stems, possibly even flower buds in some.

The term "bulb" is one that we loosely apply to any plant with a swollen or thickened storage organ from which the stalk grows up and roots grow down. The other structures that we associate with bulbs are corms, tubers, rhizomes and tuberous roots.

A **true bulb** is a shortened underground stem on a basal plate surrounded by fleshy leaves (scales) that protect and store food for use by the young plant. The outer scales dry, forming a papery covering called a tunic. True bulbs include allium, hyacinth, narcissus and tulip.

**Corms** are swollen, underground portions of stem, usually broader than higher, covered with one or more dead leaf bases. Food storage is in the solid tissue. Examples include crocus and gladiolus.

**Tubers** are short, fat underground stems for food storage that are either flattened, rounded or irregular. Tubers include anemone, begonia and dahlia.

**Tuberous Roots** are a thickened stem for food storage that grows horizontally along or under the surface of the soil, like an Iris.

## Selecting Bulbs

Bulbs are sold in nurseries, garden centers and nursery catalogs. Buy from a reputable source. Cheap bulbs are usually of poor quality. Newer varieties will cost more than older established varieties.

When purchasing, bulbs should be of top quality. Make sure the bulbs are not diseased. Diseased bulbs look moldy, discolored, or soft and rotted. Bulbs should be firm and have an unblemished skin.

Know types, colors and sizes of bulbs and places they grow

best. Choose either domestic or imported bulbs. They are equally good.

The size of bulbs purchased is important for best results. Top size bulbs are the most expensive and generally produce the biggest flowers. Smaller sizes may be adequate for a good garden display. Experience with growing bulbs will help you select the proper size. Until that time, experiment. Purchase a dozen larger ones and a dozen smaller, then compare the results after flowering.

## Site Selection, Soil Preparation and Fertilization

Most bulbs need full sunshine for best results. Try to select a planting site that will provide at least five or six hours of direct sunlight a day. There are some bulbs that will perform well in partial shade.

If you plant bulbs in a southern exposure near a building or wall, they will bloom earlier than bulbs you plant in a northern exposure.

Soil preparation is important, as many bulbs will remain in place many years. Bulbs will grow well in most soil types as long as the soil is well drained. Poorly drained soil will result in poor success with bulbs.

Before planting a new bed, test the drainage of the soil. Dig a hole about a foot deep and fill it with water. The next day, fill the hole with water and see how long the water remains. If the water drains away in eight to 10 hours, the soil is sufficiently well drained. If water remains in the hole after 10 hours, it will be necessary to improve the drainage of the planting site.

Spade the soil deeply, 8–12 inches. As you dig remove all trash from the soil. Since many bulbs will remain in place for many years, steps to improve the soil should be taken at this time. Work organic matter into the soil. Compost, manure or peat moss applied 3–4 inches deep and spaded in deeply will help improve the soil structure. Fertilizers should be applied at this time. Mix bone meal into the planting area at the rate of 5 pounds per 100 square feet of bed area or apply 1–2 pounds of a low analysis garden fertilizer to the same area. Nutrients will need to be replaced as the plant uses them during the active growing period to build up the bulbs for the next year's bloom. Apply a complete fertilizer to the bed before flowering. Use 1–2 pounds of low analysis fertilizer per 100 square feet or a handful for each clump of bulbs.

## Planting Bulbs

For the most part, the sooner you plant after they become available, the better. As a general rule of thumb, plant spring flowering bulbs from early to late fall; summer flowering bulbs in early spring (mid to late spring for less hardy ones) and plant autumn flowering bulbs in late spring to late summer.

The planting depth for bulbs is very important for good growth. A general rule for planting bulbs is to set them at a depth approximately three times their greatest diameter. Plant a little deeper in sandy soil, less deeply in heavy soils. If planting a large number of bulbs in a bed, it is often easier to excavate the entire area to the recommended depth, set out the bulbs and cover them all at one time. This way insures planting to a uniform depth, which is quite important when you are setting out bulbs in a precise, formal arrangement. For smaller planting and naturalizing especially designed bulbs, planters would be helpful. For more information on planting depths for the different varieties see the enclosed charts.

### Care After Planting

Most hardy bulbs need relatively little attention during the growing season and many will thrive for several years.

Remove weed growth as soon as the bulb's shoots show clearly. Take care not to damage the shoots during cultivation. Fertilization is recommended for bulbs that are to be left in the ground for several years. Follow the rates that are discussed under *Site Selection, Soil Preparation and Fertilization*.

During prolonged dry spells in spring and summer, thorough watering will improve growth. If the plants are in bloom, water from the base rather than above. Continue watering in dry spells even after flowering. The growing cycle does not end until the leaves turn yellow and die.

If you cannot avoid digging the bulbs that have finished flowering to make room for other plants, the bulb foliage should be allowed to ripen naturally because it manufactures all the nutrients needed for the plant's future growth. Some gardeners tidy the bulb bed by tying the foliage together. This is not recommended because it reduces the amount of leaf surface exposed to the sun, with subsequent diminishing of nourishment to the bulbs.

As bulbs finish flowering, remove their faded blooms. This is called deadheading. The bulbs will exhaust themselves if the seeds set. On tulips, daffodils and other narcissi, cut off the dead flower heads, as well as 1–2 inches of stem, and leave the remaining stems and leaves on the plant to build up nourishment in the bulbs. On a Hyacinth, remove the small flowers that make up the spike by running your hand up and down the cluster. Leave the stem to provide food for the bulbs. On Gladiolus, cut off the flower spike, but let at least four pairs of leaves remain.

There are, however, bulbs that multiply freely from self-sown seeds. Snowdrops, Scillas, Winter Aconites Chionodoxas and Muscarius should be deadheaded only if no more plants are wanted.

### Digging, Drying and Storing Bulbs

Bulbs are lifted from the ground for three main reasons: because room is needed for other plants, because they are not hardy enough to spend the winter outdoors or because they are crowded and blooming poorly.

Bulbs ideally should be left until the foliage has died naturally. It is easy to recognize when this stage is reached because the leaves will turn yellow. A slight pull should separate them from the bulb. The foliage is often prematurely removed in an effort

to improve the appearance of the gardens, but this is not recommended because of a reduction of nourishment to the bulb. Bulbs can be dug for transplanting or dividing after the foliage has ripened.

If the bulbs must be dug when the foliage is still green they may be temporarily trenched in to finish ripening. To do this, gently dig the bulbs without the leaves. Heel them into a trench 5–6 inches deep. Fill the trench in with soil and water thoroughly. After the leaves have withered, they may be dug and then stored until time for replanting in a desired location. Only replant the larger bulbs for best blooms.

Bulbs may need to be stored for several reasons. Those that have been dug and ripened or needed to be divided and transplanted, or those that will not withstand the cold winter.

Dry bulbs for about a week in a dark ventilated area. Then remove any clinging dirt, diseased and damaged bulbs.

Dust with a fungicide powder to prevent rot during storage. Place the bulbs in a flat or paper bag with some dry peat moss to keep bulbs from touching one another. Store spring blooming bulbs at temperatures between 60 and 70 degrees; summer blooming bulbs need lower temperatures from 45 to 60 degrees. Then replant at the proper times.

### Forcing Bulbs

Bulbs can be forced to bloom indoors earlier than they normally would outdoors. The easiest bulbs to force are Crocus, Galanthus, Hyacinth, Narcissus, Scilla and Tulip.

Forcing bulbs includes two phases. The bulbs develop buds and roots in the first phase and bloom in the second.

You should begin the first phase in October or November. Plant the bulbs in pots and keep them at a temperature of 40 degrees for eight to 12 weeks. During the phase, you can keep the potted bulbs outdoors, in a cold room indoors or in the refrigerator.

If you keep the bulbs indoors, the room must be dark and kept at 40 degrees. Do not let the soil dry out, water as needed.

The second phase begins about mid January after shoots have appeared on the bulbs. When the shoots are well out of the necks of the bulb, bring the bulb into a cool, bright room that can be kept at 55 degrees. They will bloom in about one month.

The bulbs may be refrigerated for about two months then planted into the pots. At the end of two months, plant the bulbs in bowls and start them in the second phase.

After forcing, the bulbs should be discarded. They seldom grow and flower when replanted in the garden.

## Landscaping with Bulbs

Almost any garden spot is suitable for some kind of flowering bulb, in beds or borders, in naturalized areas or in rock gardens. Most gardeners use bulbs as accents or highlights. Very few home gardeners can plant bulbs by the thousands, but it is still a challenge and fun to see what effects you can create with a few dozen or a handful of bulbs.

Bulbs can be used freely in borders, naturalized in ground covers and lawns or under trees. Bulbs in borders are most effective when placed in front of a hedge, shrub border, fence or other structures with at least 6 to 12 bulbs of one variety in each group.

Groups of colors are more effective than a random mixture of colors when planting a bed. Groups of colors tend to make a bold statement while a mixture lessens the effect. It is also advisable to plant bulbs in mass or multiple rows. Never plant a single row of bulbs because the beauty of the bulbs is lost in plantings such as this.

When using bulbs in naturalized areas, be careful. The foliage cannot be removed until it has died down. This additional time may allow the grass to grow tall and become overgrown. Naturalizing should only be done in low maintenance areas or other special places.

When landscaping with bulbs, remember that each variety is in bloom for a short period. Therefore, for continuous garden color, you must plan carefully. Fortunately, bulbs don't limit their color to just spring. Although most of us plant more of the spring flowering kind, a great many bulbs bloom in summer and fall. So remember to combine bulbs with one another for a yearlong show as this is the true beauty of bulbs.

Following on the next several pages are some helpful tables to assist you in planning your bulbs for extended beauty. Most of all have fun and experiment with the many different bulbs and expand your bulb alphabet from A to Z.

Name of Bulb	Planting Depth (inches)	Spacing Between Bulbs (inches)	Bloom Season	Planting Time	Comments
Allium (larger bulb)	6–8"	12–18"	spring and summer	fall	
Allium (smaller bulb)	2–6"	4–12"	summer	fall	
Alstroemeria <i>Peruvian Lily</i>	3–6"	6–12"	late summer	fall	
Anemone apennine	1–2"	6–8"	early summer	fall	
Anemone blanda	1–2"	6–8"	late spring	fall	
Babiana <i>Baboon Flower</i>	3–4"	3–4"	late spring early summer	early spring	Plant early, spring, let flower die back, lift corms and store, replant in spring
Begonia evansiana <i>Hardy Begonia</i>	2"	12"	summer and late summer	spring	Tender, will require heavy mulch for year-round outdoors or dig in fall.
Begonia tuberhybrida <i>Tuberous Begonia</i>	1–2"	12"	summer	spring	Tender, dig for winter storage.
Bletilla striata <i>Chinese Ground Orchid</i>	4"	6"	early summer	fall	Semi-hardy, will require a winter mulch for protection
Brodiaea	3"	3–5"	spring and summer	fall	Requires a winter mulch for protection
Bulbocodium <i>Spring Meadow Saffron</i>	2–3"	4"	early spring	September	

Name of Bulb	Planting Depth (inches)	Spacing Between Bulbs (inches)	Bloom Season	Planting Time	Comments
Calochortus <i>Mariposa lily</i>	2–3"	4–6"	spring and summer	fall	Requires a heavy winter mulch
Caladium	3–5"	5–10"		Spring in 70° soil	Dig and store in winter
Camassia <i>Camass</i>	4"	4–6"	spring	fall	
Canna	5'	15–25"	summer, late summer	spring after frost	Dig and store in winter
Chionodoxa <i>Glory-of-the-Snow</i>	3–4"	2–3"	early spring	fall	
Colchicum <i>Autumn crocus</i>	3–4"	6–8"	fall	mid August to mid September	
Convallaria <i>Lily-of-the-Valley</i>	1"	4–6"	spring	spring or early fall, September	
Crocus <i>Montbretia</i>	2"	3"	late summer and early fall	spring or fall	Mulch heavy or for best results is to dig and store
Crocus <i>Crocus</i>	2–4'	2–6"	early spring	fall	
Cyclamen sp <i>Cyclamen</i>	1–2"	6–10"	early and late spring and fall	fall or spring	Will not withstand extreme heat. Not the florist variety.
Dahlia	3"	16–50"	summer and late summer	spring	Not winter hardy, must be dug and stored.
Eranthus <i>Winter Aconite</i>	2–3"	3–4"	early spring	early fall	
Eremurus <i>Foxtail lily</i>	6"	10–36"	spring and summer	fall	Requires <b>well-drained</b> soil and a heavy winter mulch
Erythronium <i>Trout lily</i> <i>Dog's Tooth Violet</i>	2–5'	3–6"	spring	fall	Will not survive the extreme summer heat or drought
Eucomis cosmosa <i>Pineapple lily</i>	6"	12"	summer	early fall	Will require heavy winter mulch
Fritillaria imperialis <i>Crown Imperial</i>	6–8"	8–12"	spring	fall	
Fritillaria sp <i>(many varieties)</i>	3–4"	6–8"	spring	fall	
Galanthus <i>Snowdrop</i>	3–4"	2–3"	early spring	fall	
Gladiolus	3–5"	6"	summer	spring	Must be dug and stored over winter.
Hyacinthus	4–6"	6–8"	spring	fall	

Name of Bulb	Planting Depth (inches)	Spacing Between Bulbs (inches)	Bloom Season	Planting Time	Comments
Hyacinthus	4–6"	6–8"	spring	fall	
Iris (bulbs) <i>Reticulata Iris</i>	3–4"	4–6"	spring	early fall	
Iris (rhizomes)	Just below the surface.	4"	spring and summer	fall	
Leucojum <i>Snow Flake</i>	4"	4"	spring and summer	fall	
Lilium <i>Lilies</i> <i>Madonna lily</i>	1–2"	10–12"	early summer	mid- August to mid- September	
Lycoris <i>Magic, Surprise Lily</i>	3–4"	5–8"	late summer	mid- August to mid -September	
Muscari <i>Grape Hyacinth</i>	2–3"	3"	spring	fall	
Narcissus <i>Daffodil, Jonquil</i>	6–8"	6–8"	spring	fall	
Omithogalum <i>Star-of-Bethlehem</i>	3–5"	4"	spring	fall	
Polianthes <i>Tuberose</i>	2"	4–6"	summer and fall	spring	Must be dug and stored for winter
Puschkinia scilloides <i>Striped Squill</i>	2–3"	2–3'	early spring	fall	
Scilla hispanica	3'	6"	early spring	fall	
Scilla nonscripta <i>English Bluebell</i>	2–3"	6"	late spring	fall	
Scilla Siberica <i>Siberian Squill</i>	2–3"	6"	early spring	fall	
Stembergia lutea <i>Stembergia</i> <i>Fall Daffodill</i>	3–5"	2–3'	fall	mid- August September	
Tulipa <i>Tulips</i>	6–8"	4–8"	spring	fall	

### Bloom Time for Bulbs

Most gardeners think of flowering bulbs only blooming in early spring. They don't realize that these plants can furnish flowers throughout much of the year. Most bulbs have such predictable habits that their flowering season, and their order of bloom within that season, can be charted on timetables like the one below. When each season begins and how long it lasts vary with the climate zone, but the bulbs order of blossoming remains the same. A single bulb may bloom only a week or two, but many genera include species and varieties that blossom at slightly different times; by planning a combination you can double or triple the period bloom for each kind. You can also capitalize on the fact that some bulbs, such a squills, bloom earlier in full sun than in partial shade, and others, such as gladioluses, can be planted in batches to sprout serially over a period of months. So, start planning for your full season of flowering bulbs.

## Early Spring Bulbs

(February to mid-May)

Flowering Bulbs in Order of Blossoming	Length of Bloom
<i>Snowdrops</i> (Galanthus)	2–3 weeks
<i>Winter Aconites</i> (Eranthus)	1–2 weeks (2–3 weeks if several varieties are planted)
<i>Bulbous Irises</i> (Iris)	1 week (4–6 weeks if several varieties are planted)
<i>Spring Snowflakes</i> (Leucojum)	1–2 weeks
<i>Crocuses</i> (Crocus)	2 weeks (4–5 weeks if several varieties are planted)
<i>Glory-of-the-Snow</i> (Chionodoxa)	3–4 weeks
<i>Squills</i> (Scilla)	1–2 weeks (2–3 weeks if several varieties are planted)
<i>Early Daffodils</i> (Narcissus)	2 weeks (3–4 weeks if several varieties are planted)
<i>Early tulips</i> (Tulips)	1–2 weeks (2–3 weeks if several varieties are planted)
<i>Grape Hyacinths</i> (Muscari)	2–3 weeks (4–5 weeks if several varieties are planted)

## Late Spring Bulbs

(mid-April to early June)

Flowering Bulbs in Order of Blossoming	Length of Bloom
<i>Daffodils</i> (Narcissus)	1–2 weeks (4–5 if several varieties are planted)
<i>Hyacinths</i> (Hyacinthus)	2–3 weeks (4–5 weeks if several varieties are planted)
<i>Fritillarias</i> (Fritillaria)	1 week (2 weeks if several varieties are planted)
<i>Tulips</i> (Tulipa)	1–2 weeks (4–6 weeks if several varieties are planted)
<i>Late Squills</i> (Scilla)	2–3 weeks (4 weeks if several varieties are planted)
<i>Stars-of-Bethlehem</i> (Ornithogalum)	1–2 weeks (6–8 weeks if several varieties are planted)
<i>Alliums</i> (Allium)	2–3 weeks (much of summer if several varieties are planned)
<i>Caladiums</i> (Caladium)	colorful foliage, early summer to frost
<i>Tuberous Begonias</i> (Begonia tuber)	early summer to frost
<i>Lilies</i> (Lilium)	3–4 weeks (all summer if several varieties are planted)
<i>Cannas</i> (Canna)	10–12 weeks
<i>Gladioluses</i> (Gladiolus)	2–3 weeks (10–12 weeks with successive plantings)

## Late Summer and Fall Bulbs

(early July to mid-October)

Flowering Bulbs in Order of Blossoming	Length of Bloom
<i>Dahlias</i> (Dahlia)	mid summer to frost
<i>Surprise Lily</i> (Lycoris)	2–3 weeks
<i>Fall Daffodil</i> (Sternbergia)	1–2 weeks
<i>Autumn Flowering Crocuses</i> (Crocus)	2–3 weeks (6–8 weeks if several varieties are planted)
<i>Meadow Saffron of Autumn Crocus</i> (Colchicum)	2–3 weeks if several varieties are planted)

## Winter Bulbs

Flowering Bulbs in Order of Blossoming	Length of Bloom
<i>Florists' Cyclamens</i> (Cyclamen)	4–6 months (with 50 <sup>o</sup> – 55 <sup>o</sup> night temperatures) Buy plant in fall.
<i>Tanetta Narcissuses</i> (Narcissus)	1–2 weeks (3–4 months if forcing of bulbs is started at intervals) Plant 4–6 weeks before bloom.
<i>Amaryllis</i> (Hippeastrum)	1–2 weeks (3–4 months if forcing bulbs is started at intervals) Plant 2–4 weeks before bloom.
<i>Crocuses</i> (Crocus)	1 week (2 months if forcing of bulbs is started at intervals) Plant in fall.
<i>Daffodils</i> (Narcissus)	1 1/2 weeks (4 months if forcing of bulbs is started at intervals) Plant in fall.
<i>Tulips</i> (Tulipa)	1 1/2 weeks ( 4 months if forcing of bulbs is started at intervals) Plant in fall.
<i>Hyacinths</i> (Hyacinthus)	2 weeks (4 months if forcing of bulbs is started at intervals) Plant in fall.
<i>Lilies-of-the-Valley</i> (Convallaria)	1 1/2 weeks (5 months if forcing of pips is started at intervals) Plant in fall.
<i>Gloxinias</i> (Sinningia)	2 weeks (all winter with successive plantings) Plant 12 weeks before bloom.

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