Spring Flowering Bulbs
SPRING FLOWERING BULBS

By Henry M. Cathey, ARS research horticulturist

Spring flowering bulbs are hardy plants that require little care. They provide early color in your garden or yard at a time when few other plants are in bloom.

Among the more popular spring flowering bulbs are tulip, narcissus, hyacinth, iris, and crocus. Some that are not so well known are scilla, chionodoxa, muscari, and galanthus.

You can use bulbs anywhere in your garden. Some are best as border plants. Others are best when grouped in large masses of color. And many kinds can be scattered in lawns or planted among shrubs as ground cover.

To grow spring flowering bulbs successfully—

- Select healthy, mature bulbs and store them in a cool, dry place until planting time.
- Prepare the soil in the planting beds thoroughly.
- Plant at depths, distances apart, and planting times recommended for each kind of bulb.
- Maintain a winter mulch to prevent damage from alternate freezing and thawing.

The following alphabetical list gives a brief description of how to plant and manage the more commonly grown spring flowering bulbs.

ALLIUM

Allium (flowering onion) varies in height from 9 inches to 5 feet. It lives many years and grows well throughout the United States.

Many varieties are grown. Allium blooms in May, June, and July. Flowers are white, yellow, red, or pink.

Some commonly grown kinds of spring flowering allium and their characteristics are as follows:

Christophi—Purple flowers, 12 inches in diameter; grows 2 feet tall; blooms in June.
Cowanbi—White flowers; grows 2 feet tall; blooms in early spring.
Moly—Yellow flowers, 12 inches in diameter; blooms in June.
Ostrowski—Reddish pink flowers, 6 inches in diameter; blooms in June.

Plant bulbs 2 or 3 inches deep in late fall. Space them 6 to 15 inches apart in clumps of 6 to 12 bulbs. The distance between bulbs depends on the height of the plant at flowering time.

You can leave the bulbs in place for many years. Dig, separate, and replant them when they become crowded or produce small flowers.

AMARYLLIS

Amaryllis (Hippeastrum) is grown as a potted plant indoors for spring flowering. It blooms from February to April. Flowers are red, pink, rose, white, or salmon. The plants grow about 3 feet tall.

Plant bulbs in early December in an 8-inch pot. Use a mixture of sandy soil

The list of plants in this bulletin includes some that grow from corms and tubers as well as those that grow from bulbs. Corms, tubers, and bulbs store food for the growing plants. All references to bulbs also include corms and tubers.

1 Florist and Nursery Crops Laboratory, Beltsville Agricultural Research Center-West, Beltsville, Md. 20705
and peat moss with an inch of small gravel in the bottom of the pot. Plant only half of the bulb beneath the soil. Water thoroughly after planting and each time the soil becomes moderately dry.

When the flower begins to form, water and fertilize at weekly intervals; continue for 3 months after flowering. Fertilize with a mixture of 1 teaspoon of 20-20-20 soluble fertilizer per gallon of water.

Keep the potted bulb in a cool room (60° to 65° F.) and away from direct sunlight until May when it may be put outside.

When the leaves turn yellow, decrease watering until the soil becomes very dry. Store the potted plant on its side in a cool, dry place (40° to 55° F.). Leave the bulb in the same pot for 3 years.

**ANEMONE**

Anemone (windflower) varies in height from 5 to 12 inches. It grows from tubers and blooms in March or April. Flowers are purple, red, blue, white, or pink. Anemone is a good source of cut flowers.

Select a planting site that is sheltered from the wind and lightly shaded. Soak tubers in water for 48 hours before planting. Plant them in October, 2 inches deep and 4 inches apart in clumps of 12 tubers. Leave tubers in place 2 or 3 years.

**CHIONODOXA**

Chionodoxa (glory-of-the-snow) grows 3 or 4 inches tall. It blooms very early as the snow is melting. Flowers are silvery pink, or blue and white. Use chionodoxa in groups under deciduous trees or in lawns.

Plant bulbs 3 inches deep in the fall. Space them 2 inches apart in clumps of 12 to 25 bulbs. Leave bulbs in place until they become crowded, often 5 to 8 years.

**CROCUS**

Many varieties of crocus are grown. Bulbs are usually sold by variety and graded by size. The largest bulbs produce the largest flowers.

The varieties generally recommended for planting are:

- Yellow Mammoth (yellow);
- Snowstorm, Remembrance, Mont Blanc (white);
- King of the Striped (white, striped blue); and
- Purpurea Grandiflora (purple).

**MINOR BULB PLANTING GUIDE**
Crocus grows 4 or 5 inches high from corms planted in October or early November. It blooms in late February or early March. Use crocus in a rock garden, border, or scattered in the garden.

Select a planting site that is sheltered from the wind for early flowering. Plant in an exposed area for late flowering.

Plant corms 3 inches deep and 3 to 6 inches apart in clumps of 25. Leave them in place for many years.

**ERANTHIS**

Eranthis (winter aconite) grows 2 to 8 inches high. It blooms in early spring and produces a yellow flower cushioned on green leaves. Use eranthis in rock gardens.

Plant tubers 2 inches deep in the fall. Space them 2 to 6 inches apart in clumps of 12 tubers. Leave them in place for many years. They are too small to dig.

**FRITILLARIA**

Fritillaria includes both meleagris (snakeshead fritillaria) and imperialis (crown imperial).

**Meleagris**

Meleagris produces bell-shaped flowers in April and May. They are white, gray-purple, or pink. Use meleagris in rock gardens, as borders, or scattered as ground cover.

Plant the bulbs 3 or 4 inches deep, and put a handful of sand around each bulb. Space them 3 or 4 inches apart in clumps of 12 bulbs. Plant them in the fall. Leave the bulbs in place for many years; they are too small to dig.

**Imperialis**

Imperialis produces large flowers that hang in a circle from the top of the stem. Flowers are coppery red, orange, or yellow. Use imperialis in borders.

Plant these bulbs 6 to 8 inches deep and 12 inches apart in the fall. Use at least three bulbs in each clump. Plant the bulbs on their sides to keep water from
settling in the centers of the bulbs and rotting them.

Fertilize the plants three or four times during the growing season with a mixture of 1 teaspoon of 20-20-20 fertilizer per gallon of water. Leave the bulbs in place for many years.

GALANTHUS

Galanthus (snowdrop) grows 6 inches tall. It blooms at the end of January. Flowers are snowwhite. Use galanthus in flowerbeds, as borders, or scattered in lawns and gardens.

Select a planting site that is shaded. Plant bulbs 6 inches deep in light sandy soil and 4 inches deep in heavy clay soil. If you wish, you may plant galanthus with other small bulbs such as muscari or chionodoxa.

Plant galanthus in September or October in clumps of at least 25 bulbs. Plant bulbs so they almost touch each other. Leave them in place until they become crowded.

HYACINTH

Hyacinth is showy and formal. It produces many small flowers close together along the stem.

These bulbs are sold by variety and usually are graded by size. Size of bulb indicates size of flower. Top-grade bulbs produce the largest flowers.

Some well known and dependable varieties are:
City of Haarlem (yellow), L’Innocence (white), Gertrude (rose), and Bismarck, King of the Blues (blue).

You can buy hyacinth plants that are specially grown and potted for indoor flowering at Christmas.

Hyacinth grows 6 to 12 inches high. It usually blooms in April when narcissi fade and before tall tulips blossom. Flowers are all colors. Use hyacinth in formal plantings among shrubs and as borders.

The bulbs of some varieties are larger than others. Plant small bulbs 3 or 4 inches deep and 4 to 6 inches apart; plant large bulbs 5 or 6 inches deep and 6 to 8 inches apart. Plant bulbs in October.

Handle these bulbs carefully because they bruise easily. Leave them in place for several years. Flowers become smaller each year; dig and discard the bulbs when flowers become too small for good display.

IRIS

Two kinds of iris are grown. Tall iris grows 2 to 2½ feet high. Dwarf iris varies in height from 3 to 12 inches.
Some varieties of both kinds of iris are grown from bulbs and some from rhizomes (underground stems). Both bulbs and rhizomes are called bulbs here.

**Tall iris**

Tall iris produces flowers that are erect on firm, straight stems. The most common types are Dutch, Spanish, and English. Blooming time varies among the types, but the difference is slight.

Some commonly grown varieties are:
- Golden Harvest, Pacific Gold, Yellow Queen (yellow);
- White Excelsior, White Superior (white);
- Wedgewood (light blue);
- and Imperator (dark blue).

Tall iris blooms in May, June, and July. Flowers make excellent indoor arrangements; cut when a blue or yellow slit appears down the side of the opening flower.

Plant bulbs 3 inches deep and 6 to 8 inches apart in October. If flowers appear before the danger of freezing has passed in the spring, protect them by placing cut branches over the plants. Leave bulbs in place 2 or 3 years.

**Dwarf iris**

The flowers of dwarf iris are small; some, as iris reticulata, are very fragrant. Dwarf iris should be planted in masses for best display.

Dwarf iris blooms from January to March. Flowers are yellow, purple, violet, or blue. Use dwarf iris in rock gardens.

Select a planting site in the rock garden that is protected from the wind. Plant 2 to 4 inches deep in October or November. Space 1 or 2 inches apart in drifts of 25 to 50 bulbs. Leave bulbs in place for many years. They are too small to dig and replant.


**LEUCOJUM**

Leucojum (snowflake) grows 16 inches tall. It blooms in April and May. Flowers are white like those of galanthus, but much larger.

Select a planting site that is well drained and lightly shaded. Plant bulbs 4 inches deep in the fall. Space them 4 inches apart in clumps of 12 bulbs. Leave them in place for many years.

**LILY-OF-THE-VALLEY**

Lily-of-the-valley grows 12 to 15 inches high from pips (underground stems). It produces white, bell-shaped flowers in May. Use lily-of-the-valley as bedding plants in lightly shaded areas, among shrubs as ground cover, and in rock gardens.

Plant pips in late summer. Plant them so their tops are level with the ground. Space them 6 to 12 inches apart in clumps of 12 pips. Leave them in place for many years. Dig and divide pips only when they become crowded.

**MUSCARI**

Muscari (grape hyacinth) grows 6 to 8 inches tall. It blooms in mid-April. Its flowers generally are shades of blue or white. Starch muscari, however, has large black flowers, 5 inches in diameter; ostrich feather produces violet blue flowers in a feathery plume.

Use muscari in rock gardens or scattered among shrubs as ground cover.

Plant the bulbs 3 or 4 inches deep and 3 or 4 inches apart in October. Leave them in place until they become crowded. These bulbs seldom are dug and replanted because they are too small to handle.
NARCISSUS

The narcissus family includes the narcissus and the daffodil. They are classified by the length of the crown—the center of the flower that forms either a cup or a trumpet. Flowers are white, cream, yellow, orange, red, or peach.

Narcissi grow 3 to 20 inches high. They bloom in March and April. Use them in flowerbeds or scatter them in lawns and gardens. Narcissi make good cut flowers.

Bulb size determines the number of flowers. Double-nose bulbs produce two flowers and smaller, round bulbs produce one flower. Bulbs with old and new growth on them may produce three or four flowers.

Plant bulbs 4 to 6 inches deep and 4 to 8 inches apart in September and October. If you plant them scattered in lawns, you may replace the sod over them. Leave the grass uncut at least until July.

Narcissus bulbs may be in place until they become crowded, usually 3 or 4 years.

ORNITHOGALUM

Ornithogalum (star of Bethlehem) grows 8 to 18 inches tall. It blooms in May and June; flowers are white or silvery gray. You may scatter ornithogalum wherever you like throughout the garden. Cut flowers last a long time.

Plant bulbs 3 inches deep and 4 inches apart from September to November. Leave them in place for many years. Do not dig and replant the old bulbs; use new ones.

OXALIS

Oxalis grows 3 to 4 inches high. Flowers are lilac pink or coppery red. Lilac-pink oxalis blooms from May to July and coppery-red oxalis in mid-August.

In warm climates, use oxalis in rock gardens. Plant the bulbs in October, 3

RANUNCULUS

Ranunculus grows 10 to 14 inches high. It produces flowers of all colors from May to July. Use ranunculus as color masses in gardens and as cut flowers.
Select a sunny, well-drained planting site. Plant the bulbs 2 inches deep and put a handful of sand around each bulb. Space them 6 to 8 inches apart in clumps of 12 bulbs. Mulch the ground with 2 or 3 inches of peat moss to keep the soil and bulbs from drying.

In warm climates, plant the bulbs any time from December until mid-April. In cold climates, plant them after the danger of freezing has passed in spring. These bulbs will not overwinter.

**SCILLA**

Scilla includes squill and bluebells. Squill grows 3 to 6 inches high and bluebells, 12 inches. Use either kind in beds, as borders, in rock gardens, or scattered in lawns.

Squill blooms in March and April and bluebells in May and June. Flowers are blue, white, or pink.

Plant squill bulbs three times their diameter in depth and bluebell bulbs 3 or 4 inches deep. Space both kinds 3 or 4 inches apart in clumps of 12 bulbs. Plant them in October and November. Leave the bulbs in place for many years. Do not dig and replant these bulbs; use new ones.

**TULIP**

Tulips are sold by type, variety, or species. Common types of tulips and some of their characteristics are as follows:

- **Breeder**—Bronzed, almost muddy appearance; colors are not bright and clear.
- **Cottage**—Bloom later than other tulips; petals form a deep cup.

---

**TULIP PLANTING GUIDE**

<table>
<thead>
<tr>
<th>Very Early Spring</th>
<th>Early Spring</th>
<th>Mid Spring</th>
<th>Late Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>T Greigii</td>
<td>T Fosteriana</td>
<td>T Praestans</td>
<td>T Kaufmanniana</td>
</tr>
<tr>
<td>T.fosterana</td>
<td>T Tarda</td>
<td>T Eichleri</td>
<td>T Tarda</td>
</tr>
<tr>
<td>T praestans</td>
<td>T Eichleri</td>
<td>T Double Early</td>
<td>T Tarda</td>
</tr>
<tr>
<td>T Kaufmanniana</td>
<td>T Tarda</td>
<td>T Double Early</td>
<td>T Double Late</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T Double Early</td>
<td>T Breeder</td>
</tr>
</tbody>
</table>
Darwin—Tallest tulips; flower is as wide as it is deep.
Lily Flowered—Petals curve outward and form a bell-shaped flower.
Parrot—Twisted, ruffled petals.
Double—Two or more rows of petals.

Many new types of tulips are being developed. Some have ruffled petals with lace edges. Others have mottled petals and foliage. Most of the new forms are similar to the varieties from which they were developed.

Tulips that do not belong to the common types are sold by species. Some well known species are greigii, kaufmanniana, fosteriana, tarda, praestans, and eichleri.

Tulips vary in height from 3 inches to almost 3 1/2 feet. Most varieties have one cup-shaped flower to a stem. Tulips bloom in April and May. Flowers are red, pink, yellow, white, or blue. Use tulips for landscaping and as cut flowers.

Plant tulip bulbs 4 to 6 inches deep in late October or early November. Space them 6 to 12 inches apart in clumps of at least 8 to 10 bulbs.

Flowers become smaller each year. Dig and discard bulbs after about 3 years or when flowers become too small for good display. Use new bulbs for replanting. Bulbs that you dig from the garden and replant often fail to bloom.

SELECTING BULBS

Bulbs are sold in nurseries, drug and variety stores, garden shops, and through florist or nursery catalogs. Buy from a dealer who sells good bulbs. Cheap bulbs are usually of poor quality.

Make sure 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 the places they grow best. Choose either domestic or imported bulbs. They are equally good.

Select varieties and colors that will blend with the rest of your garden. You can get ideas from local garden clubs, public parks, and botanical gardens.

Buy bulbs of named varieties that flower together and grow to about the same height. Be sure to buy enough of each color and type for a good display in your garden. You can buy mixtures of colors and types, but they are often unsatisfactory because they fail to give enough of each color.

If you buy bulbs before planting time, keep them in a cool, dry area. A temperature of 60° to 65° F. is cool enough to prevent bulbs from drying out until you plant them. Temperatures higher than 70° F. will damage the flower buds inside the bulbs.

Although spring flowering bulbs are primarily cold-weather plants, some will grow and produce flowers in warm areas. Tulip, hyacinth, crocus, and narcissi grow well in the Deep South and other hot areas.

When you buy bulbs in hot climates, be sure the bulbs have been stored in reliable commercial storage at 40° F. and are kept at that temperature until planting time in mid-January. When bulbs are left in the ground in hot climates or stored in warm temperatures, they will not produce good flowers.

PLANTING

In most areas, spring flowering bulbs should be planted in the fall so that roots can develop before the ground freezes. Specific planting times are given in the list of bulbs.

In States south of a line from South Carolina to southern California, bulbs should be planted in mid-January. Bulbs bloom in these warm areas in 8 to 10 weeks after planting.

Most bulbs need full sunshine. Try to select a planting site that will provide at
Use a garden trowel to plant bulbs. Be sure to plant them at the proper depth and distance apart.

least 5 or 6 hours of direct sunlight a day. Bulbs that you leave in the ground year after year should have 8 to 10 hours of daily sunlight for good flowering.

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.

Always plant bulbs in groups or clumps, never in rows. You can plant them in front of evergreens, among perennials and flowering shrubs, or preceding annuals. Satisfactory results depend on good drainage and thorough preparation of the soil in the planting site.

Before preparing new flowerbeds 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 again and see how long the water remains. If the water drains away in 8 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. Dig furrows along the sides of the bed and add soil from the furrows to the bed. This raises the level of the bed above the level of the ground.

Dig and plant your flower beds when the soil is fairly dry. Wet soil packs tightly and retards plant growth. If you can crumble the soil between your fingers, it is dry enough for digging and planting.

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 easily.

Add fertilizer, sand, and coarse peat moss to the soil. Use 1 pound (2 rounded cups) of 5-10-10 fertilizer for a 5-by 10-foot area, or a small handful for a cluster of bulbs. Place a 1-inch layer of sand and a 1- to 2-inch layer of peat moss over the bed. Thoroughly mix the fertilizer, sand, and peat moss with the soil.

Plant bulbs upright, and press the soil firmly over them to prevent air pockets underneath. Water the planted beds thoroughly to help settle the bulbs in the soil.

In loose, sandy soil, plant bulbs 3 or 4 inches deeper than the depths recommended in the list of bulbs.

Be sure to plant bulbs at recommended distances apart because many of them need room to develop new offshoots.

You may allow space for overplantings of pansy, alyssum, saxatile, viola, wallflower, phlox, forget-me-not, or English daisy. These annuals provide excellent color contrast and flower display with your bulbs.

Instructions on how to grow annuals are given in Home and Garden Bulletin

CARE OF PLANTS

In areas where the ground freezes in winter, mulch your bulbs with 2 to 4 inches of straw, pine bark, hay, or ground leaves. Do not use large leaves; they pack too tightly on the ground. A winter mulch prevents alternate freezing and thawing, which damages bulbs and plant roots.

Apply the mulch after cold weather arrives. You may damage the bulbs if you mulch while the soil temperature is still high.

Remove the mulch as soon as the danger of freezing has passed in early spring. If you leave the mulch on the ground after new growth starts, the tops of new shoots will be pale green or colorless, and new stems and foliage may be broken.

Some bulbs sprout leaves in the fall. If the tips of the leaves turn yellow after exposure to sunlight, they have been damaged by alternate freezing and thawing. This damage often cannot be avoided; it occurs when the leaves sprout too early in the fall. Leave the bulbs in place.

When plants bloom, fertilize them lightly with 5-10-10 fertilizer. Use no more than 1 pound for a 5- by 10-foot flowerbed. Many flowerbeds will be fertile enough from fertilizer used on other plants grown in the bed. Avoid high nitrogen fertilizer.

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 nitrogen to promote plant growth for the next year. Bulbs decay when too much nitrogen is used at one time. But decay is unlikely when you use bonemeal because it releases nitrogen slowly.

Apply bonemeal at flowering time. Use no more than 3 pounds for a 5- by 10-foot bed. Mix it thoroughly into the soil.

Normal rainfall usually provides enough moisture for bulbs. But, during dry weather, you should water the plants at weekly intervals. When you water, soak the ground thoroughly.

If weeds grow in your flowerbeds, you can usually pull them by hand. Be careful when you use a hoe or other weeding tool; they can injure plant stems and bulbs.

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

If you want to leave bulbs in place for blooms the next year, do not cut the leaves after flowering. Green leaves produce food for plant growth the next year. When you cut flowers for indoor arrangements, leave as much green foliage on the stalks as possible.

After the 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. If disease is severe, plant bulbs in a new location.

You may want to remove the bulbs from your garden after they bloom each spring, especially if you have limited space. Also, foliage is unsightly after flowers fade.

Bulbs you dig before the leaves turn yellow are useless. But if you wish, you may dig and discard bulbs after flowering, plant summer annuals in the empty space, and replant new bulbs in the fall.

CARE OF BULBS

Although bulbs, corms, and tubers are all referred to as bulbs, they differ in appearance.

A bulb is composed of layers of flesh, or scales, that overlap each other like the layers of an onion. A complete flowering plant develops inside the bulb. Each year, the growing plant replaces the bulb entirely the way a tulip does or it re-
places the bulb partially the way a narcissus does.

A corm is a swollen underground stem that grows upright. Each year, the growing plant produces a new corm on top of the old one. The plant grows from the top of the corm.

A tuber is the swollen end of an underground side shoot that has eyes, or growing points. Each eye produces a separate plant.

Tubers multiply from year to year and may be cut apart, or divided, to increase the number of plants you can have in your garden. When tubers are divided for replanting, each division must have eyes on it. Tubers without eyes will not grow.

In cold areas, you can leave most kinds of bulbs in the ground for several years. When bulbs become crowded, you can dig, store, and replant them.

In warm areas, you should dig and discard bulbs each year after the blooms have faded. Bulbs seldom flower well in hot climates after the first year.

Make sure your bulbs have matured before you dig them for replanting in the fall. When the leaves on the plants turn yellow, uncover a few bulbs without disturbing them. If the bulb coats are tan to brown, the bulbs are ready to be dug. The coat of an immature bulb is white.

Use a spading fork to lift the bulbs from the ground. Very little soil will cling to them. Wash off any soil that remains on the bulbs and remove any old, dry scales.

Inspect your bulbs for signs of disease. Keep only large, healthy bulbs that are firm and free of spots. Discard undersized bulbs because they require 1 or 2 years growth before they bloom; many never bloom.

Spread the bulbs you keep in a shaded place to dry. When the outer scales have dried, store the bulbs away from sunlight in a cool, dry basement, cellar, garage, or shed at 60° to 65° F. Avoid temperatures below 50° or above 70° F.

If you have only a few bulbs, you can keep them in paper bags hung by strings from the ceiling or wall. You should store large numbers of bulbs on trays with screen bottoms. Separate your bulbs by species or variety when you store them.

Be sure that air can circulate around your stored bulbs. Never store bulbs more than 2 or 3 layers deep. Deep piles of bulbs generate heat and decay the bulbs.

Inspect bulbs in storage several times during the summer. Remove any that are decaying as soon as possible. A musty odor may indicate that your bulbs are decaying.

FORCING BULBS

Bulbs can be forced to bloom indoors earlier than they normally would outdoors in the garden or yard. The easiest bulbs to force are crocus, galanthus, hyacinth, narcissus, scilla, and tulip. A nurseryman can tell you the varieties that are best suited for forcing.

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 early November. Plant the bulbs in pots and keep them at a temperature of 40° F. for 8 to 12 weeks. During this phase, you can keep the potted bulbs outdoors or in a cold room indoors.

If you keep your bulbs indoors, the room must be dark and kept at 40° F. Do not let the soil in the pots dry out; water the bulbs every day.

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 bulbs, bring the bulbs into a cool, bright room that can be kept at 55° F. They will bloom in about 1 month.

You may refrigerate crocus, hyacinth, narcissus, and tulip bulbs at 40° F. for 2 months instead of planting them in pots. At the end of 2 months, plant the bulbs in bowls and start them in the second phase of development.

You should discard bulbs that you force. They seldom grow and flower well when replanted in the garden.
Steps in Forcing Bulbs

A. Clean the pot and cover the drainage hole with a clay plug.

B. Cover the bottom of the pot with a mixture of equal parts garden soil, sand, and sphagnum moss. Set the bulbs firmly in the soil mix with the flat side of each bulb facing toward the outside of the pot.

C. Cover the bulbs with the soil mix. Press it firmly around and over the bulbs.

D. Place the pots in a stone well around a tree and cover them with a layer of loose leaves or straw. Never pack the leaves or straw because water must drain freely through them.
E. If you do not have a stone tree-well, you can bury the potted bulbs in a pit. Set the pots close together and cover them completely with soil. Put a wire screen over the pots to protect the bulbs from rodents, moles, and other animals.

F. You also can force bulbs in vermiculite. Follow the same steps that you would if you were using a soil mix.

G. Inspect your bulbs occasionally. When the shoots are well out of the soil, bring the bulbs into a cool room for flowering. The shoots will be pale green to almost colorless.

H. Place the potted bulbs in a cool, bright room. Keep them at a temperature of 55° F. until they bloom. Water the bulbs daily.

I. You can force hyacinths in hyacinth glasses. Put enough water in each glass to cover the bottom of the bulb. Keep the bulbs in a cool, dark area (40° F.) until you can feel the flower buds under the leaves. Then move the bulbs to a cool, bright room (55° to 65° F.) for flowering.
FLOWERS INDOORS

Many spring flowering bulbs make excellent flowers for indoor arrangements. You may use the whole plants of tulips and other small bulbs, or you may use cut flowers of all kinds. If you dig the whole plant, the flower lasts much longer.

Dig the plants when flowers appear, wash the soil from the roots, and plant the bulbs in coarse sphagnum moss or vermiculite in waterproof containers.

Water lightly to keep the plants alive. When the flowers fade, discard the plants.

Cut flowers last only a few days. After you cut the flowers, put them in water. Be sure to wash the containers with soap and water before you use them.

DISEASES AND INSECTS

See your county agricultural agent for information on insects and diseases that attack spring flowering bulbs.