



 **K. van  
Bourgondien®**

# Garden Guide

A comprehensive planting and growing guide for bulbs and perennials

**HARDINESS  
ZONE MAP**  
See Page 41

# IMPORTANT! UPON ARRIVAL

We are often asked questions about the proper storage of the plant material we offer. In response, we offer you these guidelines...

## ***Bulbs for Spring Planting***

Plant the bulbs as soon as you receive your shipment. If you cannot plant the bulbs immediately, remove the bulbs from plastic bags and put them on a tray in a cool, dark, dry, well-ventilated place until you have a chance to plant them. Do not let the bulbs freeze. Plant outdoors when the conditions are right for your zone.

## ***Bulbs for Fall Planting***

Plant the bulbs as soon as possible after you receive them. If you cannot plant them right away, open the cartons. If the bulbs are in plastic bags, remove them from the plastic. Place them on a tray in a cool, dark, dry, well-ventilated area until you can plant them. Do not store them at temperatures below 39°F. Generally, all bulbs planted during the fall are hardy and do not need any special protection unless specified in this planting guide.

## ***Perennial Roots***

**Dormant Bareroots:** We usually ship perennials to you in their dormant state, that is: bareroots, usually without leaves, in bags with loose peat moss. They may have some shoots beginning to grow. It is very important to plant these dormant perennials as soon as possible after you receive them. If it is absolutely necessary to store them for a short time before planting them, open the shipping cartons, but keep the perennials in their plastic bags. Store the perennials in a very cold but not freezing location until you can plant. They can also be placed in pots of soil if planting will be delayed for more than 2 weeks.

## ***Planting Bareroot Perennials***

Take the roots out of the bags and soak for about half an hour in cold to lukewarm water.



## ***Non-Dormant in Pots:***

Some perennials will be shipped to you from our greenhouses. They will be in pots and may have actively growing green leaves.

These pots should be immersed in water upon arrival to thoroughly soak the root ball. If a severe dip in temperature is expected, you may want to place straw or an old blanket over the green leaves to protect them from severe damage. Frost or cold will not permanently hurt the plant, but it may damage the new leaves and set growth back.

## ***Storage of Summer-Flowering Bulbs***

To store summer-flowering bulbs, dig the bulbs when the foliage has withered or turned brown by a light frost. Air dry in a well-ventilated area for a week. Then remove all soil from the bulbs. Bulbs must be dried before storing or they will rot. Dust the bulbs with a fungicide and store in dry peat moss or wood shavings in a brown paper bag, open crate, netted bag or even old panty hose. Store at 50–55°F in a dry location until time to replant.

# Where to Plant

The most important rule when planting is to choose an area that is well drained. Most bulbs will rot or deteriorate quickly where soil is constantly damp. Most bulbs thrive in full sun, or at least 5-6 sunny hours daily. Some, like fritillaria and wood hyacinths, prefer filtered shade. Others, like tuberous begonias and caladiums, do best in partial shade.

## ***Soil Drainage***

Most bulbs, perennials and many other garden plants require well-drained soil in order to thrive. Areas that often have sitting water or constantly soggy soil can quickly cause roots to rot and deteriorate, especially over winter.

## Testing for Drainage

Dig a hole 1-foot deep by 1-foot wide. Fill the hole completely with water and record how long it takes for the water to completely drain. The ideal time is between 10 and 30 minutes. If it drains in less than 10 minutes, the soil is drought-prone and most suitable for plants that need dry or very well-drained soil. If it takes 3 to 4 hours, your soil is poorly drained, due either to a large percentage of clay or due to compaction or an impermeable layer of minerals below the surface that blocks water movement.

## Improving Soil Drainage

Any soil is improved by working in lots of organic matter, such as manure, compost or peat moss. Thoroughly till or double dig the area to a depth of 10-12". If your soil drains too quickly, organic matter will help it hold moisture. If your soil is poorly drained, organic matter will improve the texture. Very poorly drained areas may need to have drainage tile installed or you may need to garden in raised beds. Raising the soil level by just a few inches greatly improves drainage.

## Bulb & Root Types

What do the different types of bulb & root systems mean?

### Bulbs:

A true bulb is a thickened, fleshy, and commonly subterranean bud, usually emitting roots from its underside and the stems, flowers, and foliage from the crown. The term "bulb" applies to a large class of flowering and ornamental bulbouslike plants in their dormant condition such as corms, tubers, rhizomes and pips.

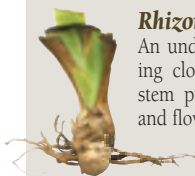
**Examples:** True Bulbs: Lilies, Tulips, Onions, Daffodils  
Pips: Lily-of-the-Valley



### Rhizomes:

An underground stem with branching close to the soil surface. This stem produces roots, stems, leaves and flowers along its length.

**Examples:** German iris, Eremurus



### Tap Roots:

A strong, nearly perpendicular main root that carries the plant axis straight into the ground. All other roots of the plant are secondary to it.

**Examples:** Hibiscus, Lupines



### Corms:

An underground bulb-like portion of the stem of a plant consisting of fleshy tissue with a bud at the top.

**Examples:** Crocus, Gladiolus, Crocosmia



### Fibrous Roots:

Mainly consists of thread-like, profusely branched roots with no main or tap-root development.

**Examples:** Coreopsis, Rudbeckia, Echinacea



### Roots with Eyes:

A form of rhizome where the size of the plant grade is determined by the number of buds or eyes. Such as 1 to 2 eye or 2 to 3 eye divisions.

**Examples:** Astilbe, Dicentra, Hosta, Paeonia



### Potted Plants:

This is a group of plants that usually transplant better as potted versus bareroot, or when the plant is produced from tissue culture.



### Tubers:

A short, thickened, fleshy part of an underground stem, where new plants develop from buds, or eyes.

**Examples:** Dahlia, Potato





## Overwintering

**Hardy Plants** are those that can be left in the ground safely all year, even where frost penetrates deeply into the soil. Most of the beloved bulbs of spring (bulbs planted in the fall) are in this category—crocus, daffodils, tulips, and hyacinths are the most familiar ones. Lilies and many perennials are also hardy in most zones. It is important to know your hardiness zone so that you can know what is hardy in your garden. The lower the zone number, the colder the zone. For example, zone 2 is colder than zone 3. A plant that is hardy to zone 3, may not overwinter in a zone 2 garden unless given special protection. Bulbs benefit greatly from a 2-4" deep mulch of shredded bark or hardwood, compost or leaves. Mulch prevents the ground from alternately freezing and thawing, which can heave the bulbs out of the ground during winter. In summer, mulch conserves moisture and suppresses weeds. Wait until the ground freezes before applying a winter mulch to fall-planted bulbs.

**Tender Plants** are those that can't survive the cold temperatures in your area. In most colder zones, you must dig up bulbs like begonias, dahlias, and gladioli before fall frost, winter them indoors and plant again in spring. Of course, in very warm climate zones, some can be left

in the garden year round. When brought indoors for the winter, storage temperatures may range from 45°-60°F depending on the type of bulb. Many gardeners treat them as annuals and replace them each season. If a bulb or perennial is borderline hardy in your area and you must provide protection, apply a thick winter mulch.

Bulbs and corms that have a protective papery husk are easy to deal with. Simply dig up in the fall and shake off the soil. If the foliage has not quite died, leave the bulbs upright in a cool spot for a couple of weeks. Cut off the dead foliage and store the bulbs in old nylon stockings or mesh bags in a cool but frost-free area. Summer-blooming bulbs with fleshy tubers or roots should be dug before frost and spread out in a shaded spot (like a garage) until the outside of the tuber feels dry. Then lay them in uncovered shallow flats or boxes filled with peat moss, sawdust or vermiculite. Check monthly to make sure they are not drying out and shriveling. They should stay plump until spring planting time, so you may have to sprinkle them with a little water to keep the right moisture.

**Caution:** Too much water will cause mold.

## BULBS & TUBERS

Near effortless planting preparation produces spectacular rewards.

No other types of plants will give the gardener more beauty, or a wider range of variety, color and flowering times than flowering bulbs. They will produce flowers of incredible colors from one end of the growing season to the other. Nothing else will reward you with so much pleasure for so little effort.

Color and time of bloom are two of the most important elements to consider when planning your bulb and garden planting. It can be very helpful to make a sketch of your garden before planting. Consider which bulbs to plant and where based upon height, sunlight, color and blooming time. Remember, some bulbs (most of the bulbs you plant in fall) are hardy and can remain undisturbed for years while others (most of the bulbs you plant in spring) are tender and must be dug up and stored before cold weather sets in.

Good soil preparation is the first step to successful bulb gardening. Make sure the soil is loose and porous. Well-drained soil is a must or bulbs will rot. The soil should be turned over and organic matter or peat moss should be worked through so that good root development can be formed.



To encourage root development, work a bulb nutrient into the soil. The depth of planting for bulbs depends on their size. A good rule of thumb is that the depth should be three times the diameter of the bulb. Small bulbs should be

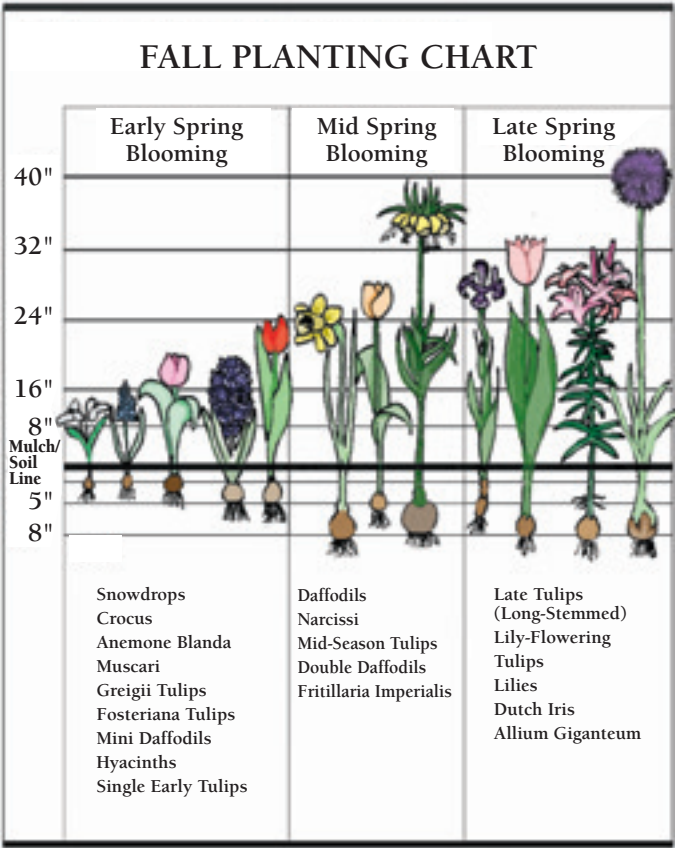
covered with 1–2" of soil while large bulbs should be planted 6–8" deep (see individual listings for specifics). In the South, plant large bulbs 2" deeper than the normal recommendations.

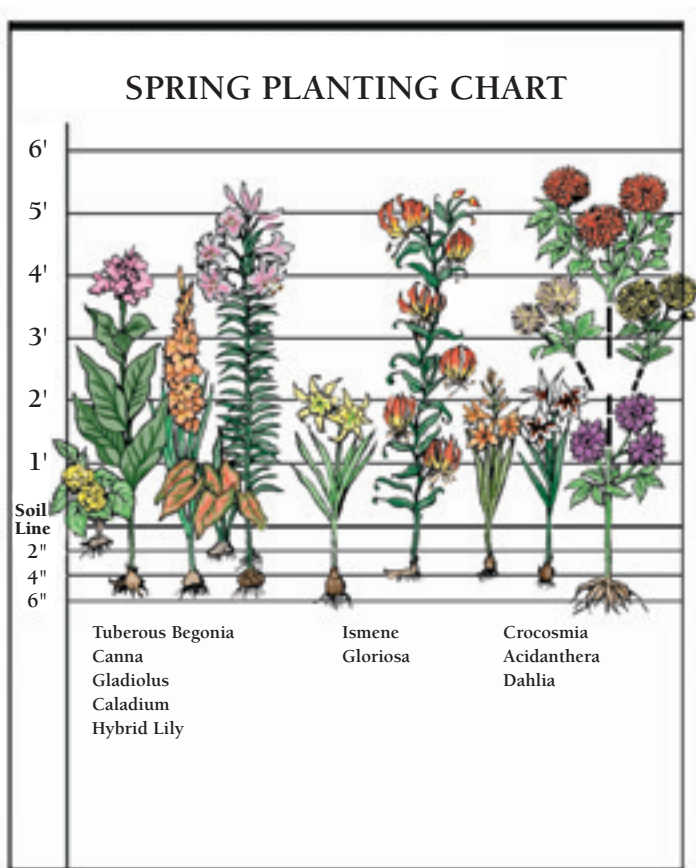
The spacing of bulbs depends largely on the effect you are trying to achieve. The most effective planting technique is to plant most bulbs in clumps rather than in individual lines. Space bulbs according to color with the softer colors in the front and the more vibrant in the background. Group bulbs according to height and in sequential bloom pattern for a long-lasting show of color.

Plant with the pointy side facing up. If you can't tell which is the rooting side and which is the sprouting side, plant the bulb on its side. It will figure out which way is up!

After planting, cover bulbs with soil, water well, and mulch with shredded leaves. In the spring when the first shoots appear, remove the mulch and sprinkle again with bulb food. This will encourage flowering and also help rebuild the bulb for the next year.

If the weather is dry, water the bulbs during their growing period. When the flowers begin to fade and before a seed pod forms, cut the flower head, being careful to leave the foliage to die back naturally. Spring-flowering bulbs do not have to be dug and stored in most hardiness zones.





## Bulb Dos & Don'ts

- **Always** plant bulbs in borders or beds with good drainage. Planting bulbs in well-drained soil is vital and the most important instruction we can give you. Our guarantee does not cover losses from planting in poorly drained soil.
- **Do Not** use strong commercial fertilizer or fresh manure when planting.
- **Always** cut as little foliage as possible when cutting flowers from your bulbous plants. The leaves and foliage are essential for storing food for next year.
- **Do Not** let a Tulip flower go to seed. Cut flowers as they fade and remove any seed pods that form. Leave the foliage to keep the bulb strong.
- **Always** let the foliage die back on its own in the garden before trimming it back or digging up the bulbs. Do not trim back healthy green foliage or the bulb will not perform well next year.
- **Never** dry bulbs in the sun, always in the shade in a well-ventilated area.
- **Always** store bulbs in a dry, well-ventilated area to prevent mold or mildew. Do not store them in an air-tight container.
- **Do Not** grow tulip bulbs year after year in the same place. Sooner or later they may be attacked with a fungus disease called fire blight, which affects both foliage and flowers. Either change the soil or the location; follow the principle of crop rotation.
- **Always** label the bulbs as you plant them. Use labels that are big enough so that 2-3" of the label is below soil level. Smaller bulbs can get heaved out of the soil during winter freezing and thawing. Labeling prevents you from accidentally digging up bulbs out of season. Do not rely on your memory alone. Labeling is much safer.

## Naturalizing

Naturalizing bulbs is a popular planting technique to achieve a natural effect in the landscape—as if nature had planted them. You can naturalize bulbs in a meadow or woodland, in areas under deciduous trees and shrubs, at the edges of paths and walkways, or in a lawn. The traditional method of naturalizing is to scatter the bulbs across the area and plant them where they fall. Or you can simply plant the bulbs at random, avoiding any resemblance to rows or patterns. In succeeding years, the bulbs will multiply and fill in the spaces. Daffodils naturalize beautifully in an open area, at the edge of woodlands, or on the slope of a lawn. Small bulbs like snow crocus, snowdrops and Siberian squill, whose foliage matures fast, are best for naturalizing in lawns, set out individually or in clusters.



## Bulbs for Outdoor Containers

Many summer-blooming bulbs take beautifully to container growing. To get a longer growing season, you can start many of them indoors early in spring and move them outdoors, pot and all, when temperatures are warm enough. Tuberous begonias, caladiums, calla lilies, dwarf cannas, dwarf dahlias and zephyranthes are some of the best to try. Whether potting bulbs for indoors or outdoors, make sure the

pot has good drainage by placing gravel or broken pottery in the bottom of the pot. Position the bulbs at the recommended depth and water well once, and then water sparingly until top growth appears. After that, keep the soil moist and remember that clay pots dry out very quickly. In hot weather, water daily. Turn the pots a bit each day to keep stems straight.

## Bulbs for Cut Flowers

You may want to grow some summer bulbs – particularly dahlias, callas, lilies, gladioli, and anemone coronaria – primarily for cutting. A separate bed, or a section of your vegetable garden, is often the best

solution for growing large quantities of these bulbs. If good drainage is a problem, make a raised bed. Follow the same recommendations for spacing and depth as you would for using them in the border.

## Bulb Preparation & Planting



- 1 Prepare Bed**  
Dig out the soil to proper depth. A shovel is quicker and easier than a trowel.



- 3 Plant**  
Place bulbs firmly in soil, pointed end up. Plant bulbs in clusters, 12 or more to produce best effect.



- 2 Condition Soil**  
Loosen the soil and add fertilizer. If soil is sandy, mix with peat moss or leaf compost. For clay-based soil, add sand or peat moss.



- 4 Cover and Mulch**  
Cover the bulbs with soil; water well. Add two or three inches of mulch in cold areas.



## Varieties

**Abyssinian Gladiolus** See *Acidanthera*, this page.

***Acidanthera murielae*** (*Abyssinian Gladiolus*) Plant in spring in a sunny, well-drained area. Space bulbs 6" apart and 3-4" deep. Water well throughout the growing season. They grow 24-36" tall and flower from August through September and are especially fragrant. Dig and store indoors for the winter in zones 3-6. Hardy in zones 7-10. Now officially classified as *Gladiolus callianthus* 'murielae'.

***Allium*** Plant all varieties of *Allium* in rich, well-drained soil in full sun in early fall. The smaller varieties of *Allium* should be planted 4" deep and the larger varieties 7-8" deep. *Alliums* are members of the onion family, so their fragrance may be rather pungent. Hardy in zones 4-9.

***Alocasia*** See *Colocasia*, page 10.

***Amarcrinum howardii*** Plant bulbs so the bulb 'nose' is 2" below soil surface in the spring after all chance of frost has passed. Plant in well-drained, fertile soil in sun to light shade. Keep soil moist, but not wet throughout the growing season. Great for containers. Dig prior to frost in the fall or move containers to a frost-free location. In warm locations, allow the foliage to winter and the bulbs to go dormant. This is a cross between *Amaryllis* 'Belladonna' and *Crinum*. Grows 2-5" tall. Blooms Sept.-Oct. Hardy in zones 7-10.

***Amaryllis*, *Garden & Belladonna*** (*Hippeastrum*) Choose a sunny, well-drained location. Dig to a depth of 12-15" and enrich the soil with organic matter. Replace about 9" of soil and plant the bulbs 4-6" apart. (In zones 9-10, plant bulbs only 1-2" deep). They do not like to be disturbed once planted. May be grown indoors as a potted plant with the culture the same as *Hippeastrum* (see "Indoor Bulbs" page 20). Grows 18" tall. Hardy in zones 8-10.

***Anemone blanda*** (*Greek Windflower*) Soak corms for 24 hours in tepid water before planting. Plant early in the fall 2" deep and 2" apart in full sun. Flowers may not open in shade. They grow about 6" tall and bloom April-May. Ideal for naturalizing. Hardy in zones 5-9.



***Anemone coronaria 'De Caen'*** (*Windflower*) Soak corms in tepid water overnight before planting. Plant corms in a sunny area 2" deep and 4-6" apart with the rounded side facing upward. Grows 12" tall. Blooms June-August. From zone 8 south, plant outdoors in early fall. In zones 4-7, bulbs must be protected with a heavy winter cover of leaves or straw. In zones 2 and 3, plant in early spring after all danger of frost has passed. Hardy in zones 8-10.

***Anemone coronaria 'St. Brigid'*** (*Windflower*) See *Anemone coronaria* 'De Caen', above.

***Arisaema*** Plant in sun or partial shade in well-drained soil that is not dry. Plant tubers about 5" deep in humus-rich or gravelly soil. Performs best in half shade. Grows 15" tall and blooms June-July. Hardy in zones 5-9.

***Arum italicum*** Plant tubers 3-4" deep and 4-6" apart in moisture-retentive, well-drained soil enriched with plenty of organic matter. Grow in partial shade. Top dress every year with well-rotted compost. Once established, do not disturb the plant. Grows 12-18" tall. Foliage appears in the fall and lasts until mid spring. Blooms April-May and has showy seed heads in late summer to early fall. Hardy in zones 5-10.

***Autumn Crocus*** See *Crocus*, Fall Flowering.

***Babiana stricta*** (*Baboon Flower*) Plant in full sun to light shade in fast-draining garden soil. Space corms 5-9" apart and 2" deep. The bulbs are not hardy and must be lifted over the winter. They may be used as an indoor plant in colder climates by transplanting the corms to a deep (6-8") pot. Let the plant dry out and go dormant after the leaves turn brown. Resume watering after a rest period of six to eight weeks. Grows 12-18" tall. Blooms July-August. Hardy in zones 8-10, zone 6 with winter mulch.

***Baboon Flower*** See *Babiana stricta*, above.

***Begonias*** In cold areas, start the tubers indoors about 6 weeks before you anticipate the last frost. Plant the tuber in potting soil, round side down, about 1" below the surface. Water well and then keep the soil moist but not soggy. Keep in a warm, semi-shady area. When all danger of frost has passed, transplant outdoors being careful not to disturb the roots.

In the garden, begonias need rich, porous, well-drained soil and shelter from wind. Space 12" apart in shade or partial shade. Keep moist and fertilize at least once a month. In containers, tubers can be spaced 4-5" apart. Tuberous begonias should be dug and stored over the winter. Hardy in zones 9 and 10.

***Belladonna Lily*** See *Amaryllis Belladonna*, above.

***Bellevia pycnantha*** See *Muscari*, page 16.

***Bessera elegans*** (*Coral Drops*) Plant tubers 1" deep in sandy, loamy soil in a sunny location after last frost date in the garden. If planting in containers, tubers may be planted earlier as long as container is in a



frost-free area. After all threat of frost has passed, move container outside to a sunny location. Coral Drops are not cold hardy and must be dug prior to fall frosts and stored in a frost-free location. Grows 2-4' tall. Blooms June-July. Hardy in zones 9-11.

**Bletilla** (*Hardy Orchid*) Plant the bulb in partial shade in moist, rich soil. Space 6" apart and 4" deep. Grows 10-12" tall. Blooms June-July. Zones 6-8.

**Blood Lily** (*Haemanthus*) See "Indoor Bulbs", page 20.

**Brimeura amethystina** (*Alpine Hyacinth*) Plant the bulbs in the fall 1-2" deep and 4-5" apart in humus-rich, well-drained soil in sun to light shade. Apply a layer of mulch to prevent frost heaving and to conserve moisture. The small bulbs make the best display when several are grouped in an area, planted closely together and left undisturbed to naturalize. Reseeds readily. May be forced. (see "Forceable Bulbs," page 21). Grows 6-12" tall and 8-12" wide. Blooms May-June. Hardy in zones 4-10.

**Brodiaea** (*Triplet Lily*) Select a sunny location with sandy, dry, well-drained soil. Plant the corms 4" deep and 3-5" apart. Mulch heavily in zones 5-7 for winter protection. In colder areas, dig and store over the winter. Hardy in zones 5-8 with a heavy mulch.

**Caladium** For maximum performance, start bulbs indoors about 6 weeks before the last frost date. Start in flats or individual pots. Plant about 1" deep in damp peat moss or vermiculite. Space 3". Water well and keep in a very warm area. Transplant outdoors when all danger of frost has passed and the soil has warmed. Outdoors, plant 1" deep and about 10" apart. Grow in full to partial shade. Water frequently and fertilize once a month. Caladiums are highly recommended for container gardening. Grows 12-18" tall. Caladiums are winter hardy only in zones 10 and 11. In other areas, they must be dug and stored indoors for the winter.

**Calla Lily** See *Zantedeschia*, page 19.

**Calochortus** (*Mariposa Lily*) In the fall, plant the bulbs 2" deep and 4-6" apart in well-drained soil in a sunny location. In colder regions, mulch heavily after the ground freezes to prevent frost heaving. They need a dry, warm period after flowering for foliage to ripen. If necessary, lift the bulbs in late summer and replant in the fall. Bulbs may also be grown in pots to overwinter in cold frames. Grow 25" tall. Blooms June-July. Hardy in zones 5-9.

**Camassia** (*Indian Hyacinths*, *Quamash*) Grow in full sun to partial shade. Camassias are tolerant of most soil types, including heavy, wet soil. Plant 4-5" deep and 6-8" apart. Keep well watered during the growing season. Naturalizes well. Grows 12-18" tall. Blooms in May. Hardy in zones 4-8.

**Canna** Start indoors about 4 weeks before outdoor planting. Lay the root horizontally in the potting soil about 1" below the surface. Plant outdoors after all danger of frost has passed and the soil has warmed.

Space the plants 15-18" apart in moist, rich garden soil. Cannas love full sun and hot weather. Keep moist and fertilize at least once a month. Cannas can also be grown throughout summer in containers. North of zone 8, dig and store the roots indoors over the winter. Hardy in zones 8-11.



**Cape Lily** See *Crinum*, page 10.

**Chincherinchee** See *Ornithogalum umbellatum*, page 17.

**Chinese Lantern Lily** See *Sandersonia aurantiaca*, page 17.

**Chinese Sacred Lily** See "Indoor Bulbs," *Narcissus*, page 20.

**Chionodoxa** (*Glory of the Snow*) In early fall, plant bulbs 2" deep and 2" apart in humus-rich soil in semi-shade. Recommended for borders and rock gardens. Naturalizes well. Grows 4-8" tall. Blooms February-March. Hardy in zones 3-8.

**Chlidanthus fragrans** (*Perfumed Fairy Lily*) Grow in well-drained, sandy garden soil in full sun. In early spring, plant bulbs 3" deep and 6-8" apart. Keep well watered throughout the growing season. Allow to dry out as bulb goes dormant. In cold areas, dig bulbs and store indoors for the winter. Grows 10" tall, blooms in July. Hardy in zones 8-11.

**Indoor Culture** Chlidanthus makes a good potted plant. Plant 1 bulb per 6" pot, with the tip of the bulb barely exposed above the soil.

**Climbing Lily** See *Gloriosa*, page 13.

**Colchicum** (*Autumn Crocus*) **Important-Plant Immediately.** Open carton and plant as soon as you get the bulbs or they may bloom in the carton. Plant in August or September in moist, well-drained soil in full sun to partial shade. Plant 4" deep and 6" apart. Flowers appear soon after planting. Foliage will develop in spring, but will wither by early summer. Grow 4-6" tall. Hardy in Zones 4-9.

**Colocasias** (*Alocasia*, *Elephant Ears*) Cultural instructions are the same as *Caladium* but bulbs must be planted 6" deep. Excellent tub plant. Grows 3-5' tall. Hardy in zones 9-10.

**Coral Drops** See *Bessera elegans*, page 8.

**Corn Lily** See *Ixia*, page 15.

**Corydalis solida** Prefers woodland conditions. Partial to full shade and well-drained, humus-rich soils are preferred. Does well below deciduous trees and shrubs. Plant about 3-4" deep and 3-4" apart. Grows 10" tall and flowers in April (May). Bulbs naturalize easily when happy.

**Crinum** (*Cape Lily*) Plant in full to part sun in moist, well-drained soil. Plant the bulb half out of the soil to avoid rot at the crown. Water liberally during the growing season (summer to early autumn), then encourage dormancy by allowing the soil to dry out between waterings until the foliage has died away. Then stop all watering and store the bulb indoors in a cool (not cold), dark, dry place when night temperatures drop below 50°F. Reinstigate growth in spring by starting to water them again. Height: 30-36". Blooms summer/early fall. Hardy in zones 9-10.

**Crocasmia** Plant in spring in well-drained soil in full sun to light shade. Plant corms 3-5" deep and 6-8" apart. Keep well watered throughout the growing season. In colder areas, mulch thickly or dig in fall and store indoors over the winter. Grows 2-3' tall. Blooms July-Aug. Hardy in zones 7-9.

**Crocus** Plant in fall in well-drained, sandy soil in full sun to partial shade. Plant bulbs 2-4" deep and 2-3" apart. For best effect, plant in drifts of 20 or more bulbs. Crocus naturalize well. Grows 4-6" tall.

Crocus can be successfully grown in a lawn for a spring meadow effect. Hold off on mowing the lawn in spring until the crocus foliage begins to die back. Blooms February-March. Hardy in zones 3-9.

**Crocus, Fall Flowering** Plant before October 15th, in well-drained soil in full sun to partial shade. Plant 3-4" deep in groups of 10 or more bulbs. They naturalize well. Grows 4-6" tall. Hardy in zones 4-9.

**Crown Imperial** See *Fritillaria imperialis*, page 12.

**Cyclamen** (*Hardy Cyclamen*) Plant in light shade. Cyclamen need well-drained, neutral to slightly alkaline soil with preferably lots of organic matter. Grow Cyclamen beneath shrubs, around trees in rock gardens or mixed borders. Plant tubers with concave side

up, ½-1" deep and 6-8" apart during their dormant period. Once established, do not disturb and they will slowly multiply. Apply winter cover in cold areas. Grows 3-4' tall. Blooms October or February-March depending on species. Hardy in zones 5-9.

**Cyrtanthus mackeni** (*Yellow Clarion*) The bulbs may be planted in containers or in the garden in full sun, in the spring, after all danger of frost has passed. Plant bulbs twice as deep as the diameter of the bulb in well-drained, neutral soil. When planting in containers, the bulbs may be spaced closer for a fuller look. 'Yellow Clarion' may be left in the ground or containers in zones 10-11. In colder regions, they must be lifted prior to frost and stored in a frost-free area. Allow the foliage to ripen naturally and then remove. Grows 12" tall. Blooms July-October. Hardy in zones 10-11.

**Daffodils** See *Narcissus*, page 16.



**Dahlias** Dahlias can be started indoors in individual pots with damp peat moss and vermiculite. Care MUST be taken in transplanting them outdoors. Plant dahlias outdoors after all danger of frost has passed. Choose a sunny site with well-drained, sandy soil. Dig soil to a depth of 12". Amend soil with peat moss or compost. Replace about half the soil, then place tubers flat and cover with remaining soil. Space tubers 12-36" apart depending on variety. Water after planting and not again until shoots appear. Stake plants. As plants grow, increase watering. Fertilize sparingly. Pinch and disbud dahlias for later and larger flowers.

Buds tend to grow in threes; two-sided ones should carefully be pinched to develop the central bloom. This is especially important with border or pot plant dahlias. (*For clarification, see illustration on pot dahlias.*) If the plants are not pinched back, they will not retain their low, compact size. An exception to this would be the Dahlianovas, which do not require pinching.

In areas with winter freeze, carefully dig the tubers in fall after the first frost kills the foliage. Cut the stalk approximately 3" above the tuber. Allow tubers to dry thoroughly. Pack them carefully in dry sand, peat moss, or sawdust and store in a cool (40-45°F) dry place. Leave 1" of stalk attached to each tuber which must have an eye or bud to bloom. Hardy in zones 9-10.



## Planting Instructions for Pot Dahlias

For the best results with Pot Plant and Border Dahlias, certain instructions must be followed. Dahlias may be started indoors. Plant one clump in a 6-8" pot. Use a soil mixture of equal parts potting soil, sand and peat moss. Good drainage is essential.

Plant with the crown slightly above the soil surface. The soil surface should be at least  $\frac{1}{2}$  to 1" below the pot rim. Do not divide roots prior to planting. See Figure 1.



After planting, water well and continue to keep the soil moist but not wet.

When the flower buds appear, water may have to be increased due to the increased demand of the plant for water while developing buds. Do not wet the plant foliage when watering.

Fertilizer should be applied as soon as the foliage begins to appear. Slow-release fertilizer (14-14-14) is recommended.

For maximum flowering, dahlia shoots must be pinched. The terminal shoot should be pinched after the 3rd or 4th pair of leaves have unfolded. Pinch the strong shoot of a 2-shooted plant. Pinch all single-shooted plants. Do not pinch 3-shooted plants, but do not allow more than 3 main shoots to develop from the crown. The pinch should remove all growth above the 3rd or 4th pair of leaves. See Figure 2.



The dahlia plant should be placed outdoors after all danger of frost has passed. They must have full sunlight. If they are planted in a garden, they should be spaced 10-12" apart.

**Dichelostemma** Plant corms in the fall 4-5" deep and 3" apart in well-drained soil in full sun. They require excellent drainage and dry conditions after blooming. In areas with wet summers, dig after foliage fades and replant in the fall. In colder regions, mulch after fall planting. May be planted in containers in the fall in a well drained soil with 4-5 corms per 6" container. Store in a cold frame over winter. In late winter, bring containers indoors into a cool, sunny location and keep soil moist. Grows 12-35" tall and 18-24" wide. Blooms June-July. Hardy in zones 5-7.

**Dog Tooth Violet** See *Erythronium*, this page.

**Dracunculus vulgaris** (Dragon Arum) Should be planted with the flat side of the bulb up, about 3" deep in rich, moist soil. They do excellent in the wild garden or by the waterside. They flourish in a sunny or a somewhat shady area. The bulbs should be planted 12-16" apart. In areas with severe frost, a winter cover is necessary, especially the first winter after planting. After flowering, it is best to top-dress the plant with top soil or other rich organic matter and cultivate into the ground around the plant. Blooms May-June. Hardy in zones 5-9.

**Dragon Arum** See *Dracunculus vulgaris*, above.

**Dutch Iris** See *Iris hollandica*, page 15.

**Easter Lily** See "Indoor Bulbs" *Lilium*, page 22.

**Elephant Ears** See *Colocasia*, page 10.

**Eranthis** (Winter Aconite) As soon as you get the corms in late summer or early fall, soak them in warm water overnight. After soaking, plant in humus-rich, well-drained soil in full sun or partial shade. Plant 3" deep and 2-4" apart. *Eranthis* naturalizes well and are recommended for rock gardens or borders. Grows 2-3" tall and 4" wide. Blooms January-February. Hardy in zones 4-8.

**Eremurus** (Foxtail Lily) Plant in spring or fall in full sun and well-drained, rich, sandy soil. Dig a hole 6" deep and form a cone of soil in the center. Spread the clump of tuberous roots so the crown rests on the cone and the top of the crown is 4-6" from top of hole. Fill in with soil. Keep well watered during the growing season. Once planted, *Eremurus* do not like to be disturbed, so mark the planting area so that you do not dig there after the foliage dies back in summer. Grow 4-5' tall and 2' wide. Blooms late May-June. Zones 4-8.



**Erythronium** (Dog Tooth Violet, Trout Lily) In early fall, plant corms 3-5" apart and 3-4" deep in well-drained, moist, humus-rich soil. Grow in light to medium shade. Mulch with organic material to conserve moisture. Water regularly during the growing season. After it blooms, do not disturb the plant. *Erythronium* naturalizes well and is effective in a woodland or rock garden. Grows 10" tall. Blooms in April. Hardy in zones 4-9.

**Eucomis** (Pineapple Lily) Plant the bulbs in early spring in warm areas (after last frost outdoors in cold areas or inside in pots) leaving the necks barely exposed. Grow in a pot or in the garden in well-drained, sandy, humus-rich soil in full sun or light shade. When you see growth, begin to water and feed regularly. It thrives in high humidity. To induce blooming, alternate periods of wetness and dryness. In cold climates, lift bulbs from the garden and keep indoors in pots for the winter. Grows 12-15" tall. Blooms July-September. Hardy in zones 8-10.



**Fairy Lily** See *Zephyranthes*, page 19.

**Ferraria crispa** A seldom offered bulb species from southwestern Africa. Individual flowers last about a day, but are produced in abundance. They prefer to be located in sun or semi-shade in loamy, well-drained soil just beneath the surface (2"). Plants do well in pots. Hardy in zones 9-10. Dig up and store indoors in a dark, frost-free location. 12-18" tall.

**Four O'Clocks** See *Mirabilis*, page 17.

**Foxtail Lily** See *Eremurus*, page 12.

**Freesia** Plant 2" deep and 2" apart in good, well-drained soil in sun or light shade. In warm areas, plant corms in the fall. In colder areas, plant outdoors in spring. Keep the soil moist during the growing season and fertilize monthly. They require sun and protection. Freesias do best where the nights are cool. Staking is advised to keep the stems upright. After blooming, let the foliage die back. Then lift and store the bulbs indoors. Freesias may be perennial where summers are dry and winters cool and moist and above 32°F. Grows 18-24". Blooms May-June. Hardy in zones 8-10.

**Indoor Culture** As a cool greenhouse or house plant, plant 6-8 corms 1" deep in a 6" pot with the pointed ends up. They do best when kept cool (50°F) and in a well-ventilated area. Water lightly and do not let the plants dry out. After they have flowered, and the foliage becomes yellow, they can be dug, dried and kept for replanting the following fall.

**Fritillaria imperialis** (Crown Imperial) In fall, plant 5-6" deep and 8" apart in a well-drained, deep, sandy loam enriched with organic matter. Plant in a lightly shaded, sheltered area. Remove the dead flower heads before they go to seed. Refrain from watering in the summer. Bulbs should be left undisturbed. Bulbs and foliage have a pungent (somewhat skunky) odor, so you may want to plant it a distance from the house. This pungent odor is a natural deterrent to rodents in the garden. Grows 3-4' tall. Blooms April-May. Hardy in zones 4-8.

**Fritillaria meleagris** (Guinea Hen Flower) In fall, plant in moist, alkaline, deep sandy loam amended with organic matter in a sheltered, lightly shaded area. Space 3-4" apart and 3-4" deep. Bulbs and foliage are odorless. Excellent for naturalizing. Good for areas with poor drainage. Grows 10-15" tall. Blooms April. Hardy in zones 4-8.

**Fritillaria michailovskyi** (Michael's Flower) In fall, plant bulbs in well-drained, alkaline, deep, sandy loam amended with organic matter in full sun to light shade. Space bulbs 2-3" apart and 4" deep. For best effect, plant in clusters of 7 or 9 bulbs. Mulch lightly in late fall. Fertilize when new growth appears in the spring. Grows 4-8" tall. Blooms late May-early June. Hardy in zones 4-8.

**Fritillaria pallidiflora** In fall, plant bulbs in well-drained, alkaline, deep, sandy loam amended with organic matter in full sun to light shade. Space bulbs 4-6" apart and 4-6" deep. Mulch lightly in late fall. Fertilize when new growth appears in the spring. Grows 6-14" tall. Blooms early spring. Hardy in zones 4-8.

**Fritillaria persica** (Persian Bell) In fall, plant in well-drained, alkaline, deep, sandy loam amended with organic matter in light shade to full sun. Space bulbs 6-8" apart and 6-8" deep. Mulch lightly in late fall. Fertilize when new growth appears in the spring. Grows to 36" tall. Blooms April-May. Hardy in zones 5-9.

**Fumewort** See *Corydalis solida*, page 10.

**Galanthus** (Snowdrops) In early fall, plant in moist, humus-rich soil in sun to partial shade. Space bulbs 2-3" apart and 4" deep. Mulch lightly with shredded leaves in winter. Leave them undisturbed and they will naturalize happily without being divided. Do not fertilize. Since they are among the first bulbs up in late winter, you can plant them under deciduous trees. Plant in groups of 25 or more bulbs for best effect. Grows 6" tall. Blooms January-March. Hardy in zones 3-9.



**Gladiolus** Gladiolus grows best in sandy, well-drained soil rich in organic matter in full sun. After last frost, dig a trench 8" deep. For a flower border, dig a roundish or oval hole to give a more natural look than the soldier-like rows of a cutting garden. Add compost and bulb food to the trench, using one cup per 10' of row. Cover with 2" of soil. Firmly place bulbs on soil, pointed ends up, 4" deep and 4-6" apart. In a flower border, plant a group of at least 10 bulbs for best effect. Cover with remaining soil. Water well and add 2" of mulch to conserve moisture and keep the roots cool. Begin planting in mid spring and continue to plant every two weeks until mid July for flowers throughout the summer. Bulbs will bloom from 70-100 days from planting, depending on the lateness in the season. Tall-growing varieties may need staking. Water well throughout the growing season. Fertilize when the flower spikes first appear and after the flowers are picked. Grows 3-5' tall.

Gladiolus are susceptible to thrip infestation. To avoid problems, soak the bulbs for 2-3 hours just before planting in a solution of 4 teaspoons of Lysol in 1 gallon of water. Dig up the corms 4-6 weeks after the flowers fade. Remove as much soil as possible and cut off flower stalk 1" above corm. Dry and store the bulbs indoors for the winter. Hardy in zones 8-10.



**Gladiolus nanus** (Hardy Gladiolus) Plant in well-drained garden soil in full sun. Plant the corms 4-6" apart in clumps approximately 4" deep. Fertilize when planting with any 5-10-5 fertilizer but avoid animal manure since it may encourage rot. In zones 2-3, mulch over the winter. Grows 18-24" tall. Blooms July-August. Hardy in zones 4-9.



**Gloriosa** (Climbing Lily) After danger of frost has passed, select a slightly to medium shady spot in the garden where a trellis or fence can support the plants as they climb up to 6'. Dig a hole at least 6" deep and amend the soil with sand, leaf mulch and peat moss. If your soil is clay, dig a bigger and deeper hole, adding more sand. Plant tubers horizontally 2-4" deep and 12" apart. Cover with remaining soil. Keep well watered until shoots appear, then keep soil moist but not soggy. After the plants bloom, carefully dig up the tubers (they may be deeper than when planted). Clean the tubers and dust with sulfur to prevent disease. Store in dry peat moss for about 3 months until the pink buds form. Hardy in zones 7-10.

**Indoor Culture** Plant in pots 2-4" deep in a mixture of two parts rich potting soil, one part builders sand and one part peat moss. Place in indirect light and keep soil evenly moist. Once it begins to grow, move into more sun and increase watering. Keep the temperature below 65°. After blooming, withhold water and fertilizer, allowing the plant to go dormant.

**Glory of the Snow** See *Chionodoxa*, page 9.

**Glory of the Sun** See *Leucocoryne*, page 15.

**Grape Hyacinth** See *Muscari*, page 16.

**Guinea Hen Flower** See *Fritillaria meleagris*, page 12.

**Haemanthus** See "Indoor Bulbs," page 22.

**Hardy Cyclamen** See *Cyclamen*, page 10.

**Hardy Gladiolus** See *Gladiolus nanus*, this page.

**Hardy Gloxinia** See *Incarvillea*, page 14.

**Hardy Orchid** See *Bletilla*, page 9.

***Hermodyctylus tuberosa*** (*SNAKE'S HEAD IRIS*) Plant the iris tubers in the fall 3" deep and 6-8" apart in well-drained, neutral to alkaline fertile soil in full sun to a partially shaded location. Ideally planted in rock gardens or sunny borders where they'll slowly form colonies 3½" wide. Remove spent flower stems after blooming. Allow foliage to ripen before removing. Tubers die out after blooming, but produce fingerlike offsets that will bloom the following year. May also be grown in containers. Plant 3-4 tubers per 8" pot, 3" deep. Repot annually while dormant in late summer or fall. Grows 8-10" tall, 6-8" wide. Blooms February-March. Hardy in zones 4-9.

***Hippeastrum*** See "Indoor Bulbs," page 22.

***Hyacinth*** See *Hyacinthus*, below.

***Hyacinthoides*** See *Scilla*, page 18.



***Hyacinthus*** (*Hyacinth*) In fall, plant Hyacinths in full sun to light shade in fast-draining, rich soil. Plant in clumps of 3-4 bulbs about 4-6" deep and 4-8" apart. Keep well watered during the growing season. Mulch lightly for winter protection. Grows 8-12" tall. Blooms April-May. Hardy in zones 4-9.

**Indoor Culture** Hyacinths are one of the easiest bulbs to force. Use top size and large bedding hyacinths for indoor forcing. Plant 3-5 bulbs in an 8" pot in a good-quality sandy soil so that the top of the bulb is even with the soil surface. Water thoroughly and bury pot in the garden for 3 months. They may also be kept in a cold (30-40°F), dark place. Water as

necessary to keep soil lightly moist. Bring pots in when there is 1-2" of growth. Gradually expose to light and warmth.

Hyacinths can also be grown on water in a hyacinth glass. Place the bulb in the top half of the glass. Fill the bottom of the glass to within ¼" of the bottom of the bulb. Place in a cool area, 40-50°F, adding water as necessary until the lower section is filled with roots. When the top growth is about 1-2" tall, move the glass to a cool, bright room. Within several weeks it will bloom.

***Hymenocallis festalis*** (*Ismene festalis*, *Peruvian Daffodil*). See *Ismene festalis*, page 15.



***Incarvillea*** (*Hardy Gloxinia*) In spring, after all danger of frost has passed and the soil has warmed, choose a sheltered, sunny, warm spot with sandy, well-drained soil enriched with humus. Plant tubers 6" deep and 12-18" apart. Mulch deeply in later fall for winter protection. Grows 16-20" tall. Blooms May-August. Hardy in zones 6-10.

***Indian Hyacinths*** See *Camassia*, page 9.

***Ipheion uniflorum*** (*Spring Starflowers*) Plant bulbs in the fall 3" deep and 3-6" apart in well-drained soil in full sun to light shade. Allow foliage to ripen before removing. In cold regions, mulch after the ground freezes. May be forced by planting 1" deep and 2-3" apart in 6" containers. Grows 6-7" tall. Blooms April-May. Hardy in zones 4-9.

***Iris*** Iris are divided into two basic types; bulbous and rhizomatous. See "Perennials" section for rhizomatous Iris.

**Iris hollandica** (Dutch Iris) Plant bulbs in the fall 4" deep and 3-6" apart in well-drained average soil in a sunny to shaded location. They'll bloom better when planted in full sun. In colder regions, mulch after ground freezes. Allow foliage to ripen through summer and then gently remove. For greater impact, plant several bulbs in an area. They do best when allowed to form thick clumps over 3-5 years, after which flowering will diminish. Lift while dormant and remove and replant offsets that form along mature bulbs. Grows 24" tall and 12-18" wide. Blooms May-June. Hardy in zones 4-9.

**Iris reticulata and danfordiae** Plant in well-drained soil in full sun. Space the bulbs 3-4" apart and 2" deep in clumps of 4-6. Water well during their growth period. Mulch lightly over the winter for protection. Leave undisturbed after foliage dies back. Reticulata blooms February-March, and Danfordiae blooms late January-early February. Hardy in zones 4-9.

**Ismene festalis** (*Hymenocallis festalis*, Peruvian Daffodil) Plant in sandy, well-drained soil in a sunny, sheltered spot. Space 6" apart and 6" deep. Keep lightly moist. Fertilize once a month. Dig before frost. Leave the roots on and store upside down in a dry medium such as peat moss or perlite. Grows 18-24" tall. Blooms June-July. Hardy in zones 7-10.

**Ixia** (Corn Lily) In late spring, plant corms 2-3" deep and 3-4" apart in sandy, well-drained soil in a sheltered area with full sun. In autumn, dig and store the bulbs indoors for winter. Grows 12-18" tall. Blooms April-May. Hardy in zones 7-10.

**Ixiolirion** (Sky Blue Lily) In fall, plant 6" apart and 4" deep in a sunny, warm, sheltered area. Fertilize lightly after planting and again in spring. In frost area, mulch with straw or evergreen branches. Naturalizes easily. 10-12" tall. Blooms May-June. Hardy in zones 5-9.

**Leucocoryne** (*Glory of the Sun*) Plant bulbs in spring after all danger of frost has passed and ground is warm. Grow in very well-drained, sandy soil in full sun to light shade. Plant corms 3-4" deep and 3-4" apart. In fall, dig and store bulbs indoors for the winter. Grows 18-20" tall. Blooms June-July. Hardy in zone 10.

**Indoor Culture** Grows well as a potted plant indoors in a sunny greenhouse. Plant 4-5 corms 2" deep in a 6" pot in a well-drained, sandy mix.

**Leucojum aestivum** (*Summer Snowflake*) In fall, plant bulbs in regular to moist soil in full sun to part shade. For best effect, plant in large drifts of 12 or more bulbs, 4-5" deep and 4-6" apart. Do not disturb the bulbs after planting and they will multiply and naturalize. Good choice for a stream bank or the edge of a pond. Bulbs can sit in water for a while without problems. Grows 12" tall. Blooms end of April to early June. Hardy in zones 4-9.



## Lilium Height & Bloom Time

Variety	Ht.	Blooms in:
Asiatic Hybrids	24-60"	Jun-Jul
Aurelian Hybrids	48-60"	Jul-Aug
Dwarf Oriental Hybrids	10-18"	Jul-Aug
Dwarf Asiatic Hybrids	12-24"	Jun-Jul
Giant Hybrid Lilies	72-96"	Jun-Jul
Henryi	5 feet	Jul-Aug
Oriental Hybrids	36-60"	Jul-Aug
Speciosum Rubrum	5 feet	Jul-Aug
Tenuifolium	24-30"	Jun-Jul
Tiger	24-48"	Jun-Jul

**Lilium** (Lily) Plant lilies as soon as they arrive. Take care not to break off any stalks or growth that may be on the bulb. Choose a sunny spot, with light, porous, sandy soil enriched with compost. The ideal site is one where the plants get full sun at the tops and are shaded at the soil level to keep the ground moist. Plant 6-8" deep and 6" apart in clumps of 3 or more bulbs. In the spring, fertilize the bulbs monthly until the plants finish blooming. After flowering, remove only the blooms, NOT the stems or leaves. Allow the foliage to die back naturally. The stalk can be cut back carefully when the foliage has died back completely. See above for height and bloom times. Hardy in zones 3-8. Also see "Indoor Bulbs" page 20.

**Lily** See Lilium, above.





## Lycoris Height & Bloom Time

Variety	Zones	Ht.	Blooms in:
<i>Albiflora</i>	7-10	18-24"	August
<i>Aurea</i>	7-10	24"	August
<i>Radiata</i>	5-10	18"	August
<i>Sanguinea</i>	7-10	12-18"	August
<i>Squamigera</i>	5-10	24"	August

**Lycoris** (*Magic Lily*) Plant in an open, sunny, well-drained area. Space 6-8" apart and 4-6" deep. Water frequently during the growth cycle. Let the bulb dry out during its dormancy in the summer. Do not disturb the bulbs after planting and mulch lightly over the winter. See above for hardiness, height and bloom times.

**Magic Lily** See *Lycoris*, above.

**Mariposa Lily** See *Calochortus*, page 9.

**Mexican Shell Flower** See *Tigridia*, page 18.

**Michael's Flower** See *Fritillaria michailovskyi*, page 12.

**Mirabilis** (*Mirabilis jalapa*, *Four O'clocks*) This heirloom, tuberous perennial quickly develops into a bushy plant that is covered with fragrant, trumpet-like blossoms; carrot-shaped, top-sized tubers; 1 plant per sq. ft.; blooms midsummer to frost; overwinterize in zones 7-9, with extra winter mulch. Hardy in zones 8-10.

**Muscari** Plant in fall in well-drained soil in full sun to light shade 3-4" deep and 3" apart, preferably in clumps of 10-12 bulbs. Do not fertilize. They multiply freely and can be left undisturbed for years. Height depends on variety. Blooms April-May. Hardy in zones 3-9.

**Indoor Culture** Plant 5 or 6 bulbs in a 6" pot. Plant 1" deep and 2" apart. See "Indoor Bulbs" section, page 21, and follow general instructions for bulb forcing.

**Narcissus** (*Daffodil*) In fall, plant bulbs in deep, fertile, well-drained soil in full sun to light shade. Plant 6" apart and 8" deep in groups of 5, 7, 9 or more. Consider planting them under deciduous trees that will not leaf out until after the *Narcissus* have bloomed. Water during their growth period. After flowers bloom, let the foliage die back naturally. Once the foliage fades, cut it back. *Narcissus* can be left undisturbed to naturalize for years. To transplant, dig and divide the bulbs after the foliage has turned brown and replant at once. If you cannot plant bulbs immediately, store in a cool, airy place. Height depends on variety. Some species bloom in February, others March-May. Hardy in zones 3-8. Also see "Indoor Bulbs" page 20.



**Nectaroscordum siculum** (*Allium bulgaricum*) Plant bulbs in the fall 4" deep and 18" apart in ordinary, well-drained soil in full sun. Blooms best when clumps are undisturbed. Readily reseeds and forms colonies. Plant dies down after flowering. Propagate by dividing the clumps in the fall or by collecting and sowing the seeds in the fall. Grows 36" tall and 24-36" wide. Blooms May-June. Hardy in zones 4-10. Mulch in zone 4.



**Nerine** Plant in spring in organic, well-drained soil in a sunny location. Space bulbs 10-12" apart and 3" deep. Do not water until flower spike emerges, then water well and fertilize until the foliage is of good size. Cut back on water as foliage matures. When foliage dies back completely, allow bulbs to dry and rest until flower spike re-emerges. In areas with winter frost, dig and store bulbs indoors over the winter. Grows 12" tall. Blooms late fall. Hardy in zones 8-10.

**Ornithogalum umbellatum** (Chincherinchee, Star of Bethlehem) Choose a sheltered location with well-drained soil that gets full sun to partial shade. Space bulbs 2-5" apart and 4" deep in clumps of 5 or 7 bulbs. Dig bulbs and store indoors in cold winter areas. Grows 36" tall. Blooms spring to late summer. Hardy in zones 7-10.

**Oxalis** (Spring-planting varieties) Plant in spring in full sun to partial shade in well-drained soil. Space 2-3" apart and 1-1½" deep. Water well throughout the summer. Grow 6-10" tall. Blooms June-July. Hardy in zones 8-10. In cold regions, must be dug in the fall and stored in a warm, dry location.

**Indoor Culture** Plant 1" deep and 2" apart in good potting soil. They need at least 4 hours of direct sunlight per day. Water well and fertilize once a month with indoor plant fertilizer.

**Oxalis adenophylla** Forms compact, 3-4" tall mounds of attractive foliage. In late spring violet-pink flowers appear. Best planted in full sun in a well-drained soil. Good choice for rock gardens, the front of the border and pots. Space approx. 4" apart. Hardy in zones 4-9.

**Paperwhite Narcissus** See "Indoor Bulbs", Narcissus, page 22.

**Persian Bell** See *Fritillaria persica*, page 12.

**Persian Buttercup** See *Ranunculus*, above right.

**Peruvian Daffodil** See *Ismene festalis*, page 15.

**Pineapple Lily** See *Eucomis*, page 12.

**Pleione** Also known as the 'windowsill orchid'. Best planted in semi-shade in pots, in a peat wall or in a rock garden. It is very important that the potting medium or soil is well-drained. The tuber should not be planted too deep, best is if 1/3 of the tuber remains above the ground. They dislike to be 'baked' on hot summer days. Pleione can withstand light frost periods, but it is safer to move the pots indoors or to dig up the tubers and store indoors in a cool, but frost-free location. Height: 4-5".

**Polianthes** (Tuberose) Plant in spring after the weather is relatively warm (60°F or more at night). Choose a moist, well-drained, humus-rich location in full sun. Space bulbs 6-8" apart and 1-2" deep. Feed after the foliage appears. Keep lightly moist. In areas of winter frost, dig the bulbs in fall before the first frost. Store them indoors over the winter. They are very fragrant. Grows 24-48" tall. Blooms June-August. Hardy in zones 8-10.

**Puschkinia libanotica** (Striped Squill) In fall, plant in well-drained, rich, sandy soil in full sun to partial shade. Plant bulbs 3" deep and 3" apart in clumps of 10-12. Keep well watered during the growing season. Naturalizes well if not disturbed. Grows 6-8" tall. Blooms April-May. Hardy in zones 3-10.



**Ranunculus** (Persian Buttercup) Plant in the fall or spring. In zones 6 and north, start the bulbs indoors in the spring for best results. Choose a spot in full sun to partial shade with well-drained, sandy, slightly acid soil. Before planting, soak corms for 3 to 4 hours in warm water. Plant corms with claws pointing downward, 4" deep and 4" apart in the garden or three corms 1" deep in a 6" pot. As soon as the foliage appears, fertilize weekly. Ranunculus like cool nights and sunny but not hot days. They grow best when the soil around the crown is dry but the roots are moist. Do not overwater. Grows 12-15" tall. Blooms June-July. Hardy in zones 8-10.

**Saffron Crocus** See *Crocus*, Fall Flowering, page 10.

**Sandersonia aurantiaca** (Chinese Lantern Lily) After danger of frost has passed, select a slightly to medium shady spot in the garden where a trellis or fence can support the plants as they climb to 2'. Dig a hole at least 6" deep and amend the soil with sand, leaf mulch and peat moss. If your soil is clay, dig a bigger and deeper hole, adding more sand. Plant tubers horizontally 2-4" deep and 12" apart. Cover with remaining soil. Keep well watered until shoots appear, then keep soil moist but not soggy. After the plants bloom, carefully dig up the tubers (they may be deeper than when planted). Clean the tubers and dust with sulfur to prevent disease. Store in dry peat moss for about 3 months, until danger of frost has passed, then replant in the garden. Blooms June-July. Hardy in zones 7-11.

**Indoor Culture** Plant in pots 2-4" deep in a mixture of two parts rich potting soil, one part builders sand and one part peat moss. Place in indirect light and keep soil evenly moist. Once it begins to grow, move into more sun and increase watering. Keep the temperature below 65°. After blooming, withhold water and fertilizer, allowing the plant to go dormant.



## Scilla (and Hyacinthoides) Height & Bloom Time

Variety	Zones	Ht.	Blooms in:
<i>Bifolia</i>	3-9	11-12"	April-May
<i>Campanulata</i>	4-9	12-15"	April-May
<i>Litardieri</i>	3-9	6-8"	March-April
<i>Mischelschenroani</i>	3-9	4"	March-April
<i>Nutans</i>	3-9	14-18"	March-April
<i>Peruviana</i>	9-10	14-18"	April-May
<i>Siberica</i>	3-9	6-8"	March-April

**Scilla** (*Hyacinthoides*, *Squill*, *Wood Hyacinths*) Plant in fall in an area with full sun or partial shade and rich, well-drained, sandy soil. Space bulbs 3-4" apart and 3" deep in clumps of 7-12 or more. Water well during the growing season. Leave the bulbs undisturbed and they will soon naturalize. Very suitable for woodland conditions. See above for hardiness, heights and bloom times.

**Siberian Squill** See *Scilla siberica*, above.

**Sky Blue Lily** See *Ixiolirion*, page 15.

**Snake's Head Iris** See *Hermodactylus*, page 14.

**Snowdrops** See *Galanthus*, page 12.

**Soleil d'Or Narcissus** See "Indoor Bulbs," *Narcissus*, pg 22.

**Spanish Bluebells** See *Scilla campanulata*, above.

**Spargaxis** (*Wand Flower*) In late spring, plant corms 4-5" deep and 3-4" apart in sandy, well-drained soil in a sheltered area. Grow in full sun. In autumn, dig and store the bulbs indoors for the winter. Grows 10-12" tall. Blooms May-June. Hardy in zones 7-10.

**Spider Lily** See *Lycoris radiata*, page 16.

**Spring Starflowers** See *Ipheion uniflorum*, page 14.

**Squill** See *Scilla*, below.

**Starflower** See *Triteleia uniflora*, below.

**Star of Bethlehem** See *Ornithogalum umbellatum*, page 17.

**Summer Snowflake** See *Leucojum aestivum*, page 15.

**Tigridia** (*Mexican Shell Flower*) Plant bulbs in spring in a cool location with full sun to light shade (in hot climates) and fast-draining, sandy soil enriched with organic material. Space bulbs 6-8" apart and 3" deep. Stake if necessary. After the flowers fade, reduce water, then when foliage browns, stop watering. In zones 8-10, mulch the bulbs for the winter. In colder areas, dig the bulbs, store in peat moss, sand or sawdust in a cold, dry place. Grows 24" tall. Blooms July-August. Hardy in zones 8-10.

**Triplet Lily** See *Brodiaea*, page 9.

**Triteleia uniflora** (*Starflower*) Select a sunny location with sandy, dry, well-drained soil. Prepare the soil to a depth of 12". Plant the corms 2-3" deep and 3-5" apart. Grows 6" tall. Blooms April-May. Hardy in zones 3-9.

**Tritonia corcata** (*Flame Freesia*) In warm climates, plant corms in the fall 3-4" deep and 4-6" apart in moist, well-drained soil in full sun. Blooms April-May. Remove spent flowers and allow foliage to ripen. In cold regions, treat as annuals and plant corms in the spring 3-4" deep and 4-6" apart in moist, well-drained soil in full sun. Blooms June-July. Remove spent flowers. Prior to frost, lift from the garden and allow foliage to ripen. Remove dried foliage and store corms in a frost-free, cool, dry location. Divide corms in the spring and replant. May be forced in containers for early spring flowering. Grows 22-24" tall and 18-24" wide. Hardy in zones 7-10.

**Trout Lily** See *Erythronium*, page 11.

**Tuberose** See *Polyanthes*, page 17.

**Tulip** (*Tulipa*) Plant tulips in late fall in humus-rich, sandy, well-drained soil. Grow where they will get at least 5-6 hours of sun a day; full sun is preferable. Dig the soil to a depth of 8-12" and work in bulb food. Set the bulbs 4-8" deep and 4-8" apart, depending on size and variety. After the ground has frozen in winter, mulch with straw or hay. After flowering, remove the head of the tulip but allow the stem and foliage to die back naturally. Tulips perform best their first year; many gardeners treat them as annuals, discarding the plants after they finish blooming. Extensive testing in recent years has proven that if a slow-release fertilizer is applied, you can expect more than one year of flowers out of most varieties of tulips. Many early-flowering species, as well as Darwin Hybrid Tulips, come back year after year with no effort.

Tulips are often planted in rows, but the result is a formal look, much like soldiers lined up in ranks. For a more informal look, plant them in groups of 5-11 or more in natural swathes. The best advice we can give is to "plant bouquets." Plant several different varieties of tulips throughout the garden to extend the blooming time. Hardy in zones 3-8.

In zones 8-10, refrigerate the bulbs for about 8 weeks at 40-45°F. In the garden, plant the bulbs after Nov. 1, 6-8" deep in a lightly shady area to keep the bulbs as cool as possible. Dig and discard the tulips after they bloom.



**Tulipa** See *Tulip*, page 18.

**Wand Flower** See *Sparaxis*, page 18.

**Windflower** See *Anemone*, page 8.

**Winter Aconite** See *Eranthis*, page 11.

**Wood Hyacinths** See *Scilla*, page 18.

**Wood Sorrel** See *Oxalis*, page 17.

**Zantedeschia** (*Calla Lily*) In frost-free areas, grow calla lilies in a moist, sunny to semi-shady location with soil that has been amended with a lot of organic matter. Plant the rhizomes 4" deep and 12-18" apart. Water liberally and feed monthly during the growing season. After the flowers fade, reduce the amount of water. In areas where Callas are not hardy, allow the plants to dry out. Dig the rhizomes and store in dry material for the winter. Grows 18-24" tall (aethiopica hybrids grow 24-36" tall). Blooms June-July. Hardy in zones 9-10.

**Indoor Culture** Plant one rhizome 1-2" deep in a 6" pot filled with good potting soil. Water lightly and keep in a cool, shaded spot until growth begins. Then move to a sunny window where it can get at least 4 hours of sun a day. Water regularly and fertilize biweekly. Callas thrive in cool temperatures and high humidity. Rest the bulbs for three months after the foliage dies back but do not transplant out of the pot until necessary.

**Zephyranthes** (*Fairy Lily*) Plant in spring in full sun in well-drained, sandy soil. Space bulbs 3-4" apart and 1-2" deep. In areas where bulbs are not hardy, dig them in the fall and store them in warm, dry material for the winter. Grows 8-10" tall. Blooms June-July. Hardy in zones 8-11.

**Indoor Culture** Plant 5-6 bulbs 2" deep in a 6" pot. Water thoroughly. Keep in a cool, dark area until the foliage emerges. Move to a sunny location with a night temperature of 50°F. After the foliage dies, do not water for 10 weeks. To induce flowering, begin the cycle again.

# INDOOR BULBS

## Planting in pots and forcing bulbs indoors.

Forcing bulbs indoors is a process by which you get the bulbs to flower earlier than they would if planted in the garden. When forcing, bulbs are potted, then subjected to darkness and temperatures near freezing for several months to mimic outdoor conditions. When there is sufficient root growth, they are brought gradually into the heat and light as if they were emerging on a balmy spring day. Some bulbs, like Amaryllis and Paperwhite Narcissus are not hardy outdoor bulbs and do not need to go through a cold period to force them into bloom.

For forcing, use only named varieties of bulbs and top-sized bulbs. Avoid bulb mixtures that may be suitable for naturalizing outdoors; indoors they will be disappointing. To guarantee flowering bulbs throughout the winter, choose a variety of different bulbs, and make successive plantings through the fall.

Keep all bulbs away from apples or pineapples which give off ethylene gas that inhibits flower formation.



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## Bulbs as Houseplants

Several of the summer bulbs do well as houseplants. Be sure to provide at least 4 to 6 hours of sun each day, adequate humidity, and, for some bulbs, cool enough temperatures. Overwatering of summer bulbs indoors is as bad as poor drainage outdoors. Let the surface become almost dry to the touch before watering. Caladium and cyclamen are the exceptions; they need constant moisture. Use a porous soil mixture, not garden soil, and place coarse drainage material in the bottom of the pot. Set the pots on trays of

pebbles with water added to increase humidity or group plants together. Most summer bulbs grown indoors require temperatures ranging from 39°F to 59°F. Even if you can only offer temperatures from 59°F to 70°F, you can still grow a wide selection of bulbs including gloriosa lily, vallota, eucomis and the amaryllis relatives. Most bulbs grown as houseplants need a rest period of at least a few weeks in winter. Water minimally, if at all, during this period.





## Forceable Bulbs

Variety	Weeks of Cold	Weeks to Bloom	# Bulbs in 6" Pot
<i>Amaryllis</i>	None	6-8	1
<i>Chionodoxa</i>	15	2-3	6-10
<i>Crocus</i>	15	2	8-12
<i>Eranthis</i>	15	2	8-12
<i>Fritillaria Meleagris</i>	15	3	5
<i>Galanthus</i>	15	2	6-10
<i>Hyacinth</i>	10-12	2-3	3
<i>Iris Danfordiae</i>	11-15	2-3	5-8
<i>Iris Reticulata</i>	15	2-3	5-8
<i>Muscari</i>	13-15	2-3	5-7
<i>Narcissus</i>	15-17	2-3	3-5
<i>Paperwhite Narcissus</i>	None	3-5	5-7
<i>Puschkinia</i>	15	2-3	8-10
<i>Scilla</i>	12-15	2-3	8-10
<i>Tulip</i>	14-20	2-3	5

## Planting & Forcing Steps

A container of sunny daffodils, or cheery crocus, blooming on your windowsill in February can be a treat. In order to enjoy these beautiful blooms in winter, you must make plans in late fall. Depending on the type of bulb, it may take anywhere from 1-4 months from the time they are potted until they bloom.

**Step One** Fill a pot three-quarters full with potting soil. Place the bulbs as close together as possible with pointed ends up. Gently press the bulbs into the soil so that the tips of the bulbs are about level with the rim of the pot. Once the bulbs are positioned, fill the pots with soil to within  $\frac{1}{4}$ - $\frac{1}{2}$ " of the rim, leaving the tips of the bulbs exposed. Water gently until soil is evenly moist.

**Step Two** Now the bulbs must go into a cool, dark place to grow roots. This takes a minimum of eight weeks, averaging about 12-15 weeks (see bulb chart above). The best places for the cool period are in the refrigerator (not the crisper drawer) or in cold areas outside. It is important to remember that heat will interfere with the forcing process. An outdoor storage space must remain between 35-50°F. If placed outdoors, set on good level ground, free from water, or dig a 2' trench. Line the trench with 6" of mulch or hay. Set the pots in the trench, then cover with 6-8" of chopped leaves, mulch or hay. Finally, cover with 3-4" of soil. Do not permit the pots to dry out.

**Step Three** Check the pots after about 8 weeks. Once the roots have developed and shoots have begun to emerge from the bulb, bring the pots gradually into the warmth and light. Start with a cool room and indi-

rect sunlight. By the end of one week, the bulbs can be in full sun at 60-65°F. Keep the soil lightly moist, and within a month you will be enjoying flowers. Once the bulbs are in full bud, you can slow down or speed up the process by controlling the temperature—warmer temperatures make the flowers open faster, cooler temperature will make them last longer.

**Step Four** If you keep watering the bulbs after they have finished blooming, you can then plant them in the garden once the weather has warmed up. However, much energy has been expended by the bulbs in the forcing process and the blooms the following spring may not be as good as if you planted fresh bulbs in the fall. Tulips, especially, do not come back well after being forced. In general, the smaller bulbs, like crocus, scilla, and galanthus, are best to replant in the garden.

**Tip: No Flop Paperwhites.** Recipe for Success: Start your Paperwhite bulbs in plain old water. Wait until the stem is 1-2" long and roots have formed. Then drain the water. Replace water with a solution of 1 part gin to 7 parts water. Wait for Paperwhites to grow their stunted, stronger stems and watch them hold their heads up high.

## Varieties

**Amaryllis** See *Hippeastrum*, below.

**Blood Lily** See *Haemanthus*, below.

**Chinese Sacred Lily** See *Narcissus*, below.

**Crocus Pot** The pre-potted, pre-cooled Crocus bulbs will bloom in their attractive pot within two to three weeks after arrival. Simply water the bulbs three times a week. When blooming starts, keep the Crocus Pot in the coolest part of the room away from radiators or direct sun. You can prolong flowering by keeping the Crocus in a cool room at night. When the flowers fade, water bulbs only once every two weeks. When the weather warms in spring, remove the bulbs from the pot and plant outside. They will lie dormant during the summer and winter, then bloom again in the garden for your enjoyment the following spring.

**Haemanthus** (*Blood Lily*) Plant the bulbs in 6" containers as soon as they arrive in the spring. Set the bulb in well-drained potting soil so the bulb tip is at the soil surface. Place container in a sunny to partially shaded location and keep soil moist, but not waterlogged. Leaves and the flower stem will appear within 12-16 weeks after planting. Remove spent flower stem after blooming. In the fall, start withholding water and allow foliage to ripen before removing. Store bulb in container in a cool, dry, frost-free location over the winter. Do not repot. They grow and bloom best when pot-bound. Then, in the late spring, bring container into a cool, sunny location and begin watering. New growth will appear and the growing cycle starts all over. Grows 10-12" tall. Blooms 12-16 weeks after planting. Hardy in zones 9-10.

**Hippeastrum** (*Amaryllis*) Amaryllis thrive when they are potbound. Choose a deep pot that is not more than 2" wider than the bulb. Using good potting soil, plant the bulb so that the upper 1/3 of the bulb is above the soil level. Water thoroughly, then place in full sun at room temperature (65-70°F). Water only when the soil feels dry to the touch. It will bloom within 6-8 weeks. After the flower fades, cut down the flower stalk. Continue to water. Fertilize once a month. During the summer, plant the pot and bulb in the garden. In September, bring the pot and bulb indoors, and start withholding water. Let foliage dry. Store in a cool, dark place with no water or fertilizer for 8-10 weeks. In mid November, add some fresh soil and start re-watering.

**Lilium** (*Lily*) Use only bulbs that have been pre-cooled for pot culture. Make a light, porous potting mixture for lilies using 2 parts sandy loam, 1 part sphagnum moss and 1 part sand. Large, deep pots are essential. Plant 3 bulbs in an 8-10" pot. Deep planting is important. Put the pots in the greenhouse or bright, sunny room immediately. Lilies need day temperatures of 68°F or less and night temperatures of

40-50°F. Do not force at temperatures higher than 70°F. Fertilize with a 5-10-5 liquid fertilizer when the buds first appear and then 14 days later. Plants will flower approximately 30 days after the buds first become visible. You can then increase temperature for faster blooming or decrease temperature to slow the growth. The forced bulbs can be planted after blooming in your garden for added years of pleasure.

**Narcissus** (*Paperwhite*, *Chinese Sacred Lily*, *Soleil d'Or*) These tender Narcissus are not hardy outdoors in most areas, and for indoor forcing do not need a cold period. Plant the bulbs in any potting soil with the top just above the surface. Water well and keep the soil evenly moist. Place the pot in a sunny window. Flowers will appear within 4-6 weeks. Forced tender Narcissus are treated like annuals. Once they have finished blooming, they are discarded. However, in frost-free areas, these Narcissus can be grown outside. Hardy in zones 8-10.

You can also grow these bulbs in gravel, stone, sand, marbles, or other material which serves to anchor the roots. Use a decorative, shallow container without a drainage hole and place the bulbs so that the lower third of the bulb is covered with gravel or whatever material you have used. Add water to a level of the base of the bulb. Narcissus grown in this manner need a lot of water, every day.

**Paperwhite Narcissus** See *Narcissus*, above.

**Soleil d'Or Narcissus** See *Narcissus*, above.

# FERNS

## Shade-loving perennials.

Ferns need moisture and protection from direct rays of the sun to thrive. They do best in rich, loamy soil with good drainage. Diffused light is ideal, especially during the warmer months. A northern exposure that is protected from the wind often works well.

## Planting Instructions

Ferns are best planted in spring. Loosen soil to a depth of 12" and amend the soil with organic material such as leaf mold. For ferns that arrive bareroot, we advise soaking the roots for about half an hour in cold to lukewarm water. Plant immediately after soaking. Plant the ferns so the roots are covered with about 1" of soil. Space ferns at least 20" apart, allow 24" for larger varieties. Throughout the summer, keep the bed mulched. Keep watering well into November. In late summer and fall do not remove any



dead fronds; they act as natural insulation for the crowns during the winter. After a hard frost, cover lightly with leaves or evergreen boughs and do not remove until all danger of frost has passed.

## Varieties



***Adiantum pedatum*** (Maidenhair Fern) Plant in light shade to bright light (no direct sun) in well-drained, organic soil. Deciduous. Grows 1-2' tall. Hardy in zones 3-8.

***Athyrium felix femina*** (Lady Fern) Plant in partial to full shade. It is tolerant of all but very dry or very wet soils. Deciduous. Grows 1.5-2' tall. Hardy in zones 3-8.

***Dennstaedtia punctilobula*** (Hay Scented Fern) Plant in spring in partial to full shade in moist, well-drained, slightly acidic soil. Deciduous. Tolerates wide range of growing conditions. Grows 2-2.5' tall and 2-3' wide. Hardy in zones 3-8.

***Diplazium pycnocarpon*** (Ostrich Fern) Plant in light shade in rich, moist soil. Deciduous. Grows 4-5' tall. Hardy in zones 3-8.

***Dryopteris marginalis*** (Leatherwood Fern) Plant in light shade in rich, light soil of any type. Semi-evergreen. Grows 2' tall. Hardy in zones 3-8.

***Dryopteris spinulosa*** (Toothed Wood Fern) Plant in partial to full shade in rich, moist soil. Semi-evergreen. Grows 1-2' tall. Hardy in zones 3-8.

***Onoclea sensibilis*** (Sensitive Fern) Plant in light to deep shade in slightly acid, moist soil. Deciduous. Grows 12-18" tall. Hardy zones 3-8.

***Osmunda cinnamomea*** (Cinnamon Fern) Plant in light to deep shade in ordinary garden soil. It grows happily in swampy or dry areas. Deciduous. Grows 2-3' tall. Hardy in zones 3-8.

***Osmunda regalis*** (Royal Fern) Plant in full sun (if close to water) to partial shade in moist, slightly acid soil. It thrives in wet, boggy, swampy areas. Deciduous. Grows 3-4' tall. Hardy in zones 3-9.

***Polystichum acrostichoides*** (Christmas Fern) Plant in spring or fall in partial to full shade in moist, fertile, well-drained soil. Evergreen. Grows 1-2' tall and 1-2' wide. Hardy in zones 3-9.

# PERENNIALS

The backbone of the flower garden.

Perennials are among the most rewarding of all garden plants. They have long been considered the backbone of the flower garden. Their popularity continues to grow as gardeners discover the innumerable varieties with their range of colors, sizes, forms and blooming times. There are perennials suitable for almost any spot in the garden, from tall flowering perennials for the sunniest part of the garden to low-growing perennials that provide a bright spot in a dark, shady area.

Perennials do not provide an instant garden, but, once established, continue to perform in the garden for a number of years. As tempting as it may be to space perennials closer than recommended, refrain from doing so. Otherwise, you will just have to dig them up and replant them in a year or two when they are crowding each other out.

With some careful planning and preparation, your perennial garden will produce amazing results from a relatively small financial investment. It is important to remember that any new perennial planting is an investment for the future. **Few perennials will properly bloom or develop to their full potential their first year in the garden.** However, they will come back the next year and in following years in all their perennial splendor.

A perennial garden can be a fun challenge. Unlike many annuals, no single perennial gives a continuous show of color (from flowers) from spring to fall. A careful selection of perennials is necessary to achieve a continuity of bloom. Include a range of bulbs and a few annuals and you will have flowers from early spring through the summer and well into fall.

As with any plant, it is of utmost importance to choose the right perennial for the site. A sun-loving perennial will grow straggly in the shade, likewise a shade-loving plant will be blasted in full sun. Choose low-growing plants for the front of the garden, and tall plants for the back. Occasionally plant heights can be confusing. Some plants, like *Heuchera*, have foliage that is relatively low to the ground with flowers up to 30". Yet, because the flowers are on airy sprays, you can plant *Heuchera* in the foreground without obliterating the view of plants behind. Look also to the foliage to provide form, color, contrast and textural interest when the plants are not in bloom.

When planning your garden, whether you are making a new garden or just adding some perennials to an existing garden, there are several basics to remember.

Most perennials need at least one square foot of garden space per plant.

It may look like a lot of space at first, but the plant will fill out in time. Plant like the professionals, in groups of 3, 5 or 7. A single plant is not enough to make a good showing.

Plant your perennials as soon as you receive them. Be careful when handling the plants so that the roots do not dry out and break. Take the perennial roots out of the bag, and soak the roots for about half an hour in cold to lukewarm water. Plant immediately afterwards. Take the time to plant your perennials right. Make sure the soil is the type required. You can always amend the hole for the particular plant to suit it; however, you cannot easily turn a shady spot into a sunny one, nor readily make a sandy area rich and moisture retentive. Dig a hole large enough to accommodate all the roots comfortably. Spread the roots outward as well as downward so that they can start to grow and establish themselves. If the perennial has a large crown, set the crown on a little mound of firm soil in the center of the hole, allowing the roots to trail down. Always plant the perennials at the same depth at which they were growing. Fill in around the plant with soil, gently firming with the palms of your hands to eliminate any air pockets, but not so heavily as to compact the soil. Mulch with several inches of organic mulch to conserve water and keep weeds from growing.



# How to Plant Different Types of Bareroot Plants

## *Iris divisions*

Plant rhizomes horizontally with the tops of the rhizomes above the soil level. Press soil firmly around the roots to remove the air pockets.

## *Dicentra, Paeonia, Platycodon Roots*

Plant about 2" deep so that the tips of the new eyes are just below ground level.

## *Chrysanthemum, Dianthus, Phlox, Campanula, Echinacea, Rudbeckia, etc.*

Plant so that the crowns of plants with fibrous root systems are just above the surface of the soil.

## *Gypsophila, Hibiscus, Mirabilis, etc.*

Plant perennials with long tap roots so that the crowns are just below soil level.

Some plants require staking to support the weight of their flower heads without drooping, or to keep tall flowering spikes from being broken by wind or rain. It is easier to place the stake or support hoop when planting, avoiding possible injury to a larger plant.

Once the plants start growing, water when necessary. Fertilize sparingly. Keep a close eye out for insect infestation or disease and treat immediately. Deadhead or cut back the flowers after they fade. This often encourages a second flush of bloom and keeps the plant looking neat. After the first frost, cut back all



the dead stalks and foliage to about 4". In cold winter areas, perennials benefit from mulching. Once the weather is consistently cold, mulch with straw, salt hay or leaves to prevent winter injury caused by alternate freezing and thawing of the ground. If the fall has been dry, water the garden well before mulching.

Most perennials need to be divided every few years to generate new growth and to keep them from becoming overgrown and crowded. Dividing is usually done in spring, unless otherwise noted. Replant one division where the original plant was, and use the other divisions in other parts of the garden. Friends will often be glad to help with this garden chore, especially if they are repaid with divisions to take back to their own gardens.

**PLANTING DEPTH:** If planting depth is not indicated, the perennial root should be planted just beneath the soil surface. Dig an adequate hole for your perennial root, spread the roots, and allow 1-2" of soil around the crown.

## Varieties

**Acanthus** (*Bear's Breech*) Plant in full sun in well-drained, ordinary soil. A mixture of compost and sand is preferred. They do not like heavy clay or loam. Once planted, do not disturb. They become established slowly. If transplanting is absolutely necessary, it should only be done in February and March. Grows 3-4' tall. Blooms July-August. Hardy in zones 6-10.

**Achillea** (*Yarrow*) Yarrow thrives in poor or light, well-drained, dry soil in full sun. Plant horizontally, 1-2" below the soil line, with any green growth above soil level. Allow 1-2' between plants. Stake if planted in a windy place. Divide in spring or fall. Grows to 36" tall with an 18" spread. Blooms June-September. Hardy in zones 3-9.

**Aconitum** (*Monk's Hood*) Grow in partial shade in rich, moist, slightly acid, well-drained soil. It will grow in full sun if the soil is moist. Space plants 12-18" apart. Do not disturb the roots. Stake tall flower spikes. All parts of the plant are poisonous if consumed. Grows 24-48" tall with a 12" spread. Blooms June-September. Hardy in zones 3-8.

**Actaea** See *Cimicifuga*, page 27.

**Agapanthus** (*Lily of the Nile*) Thrives in deep, rich, well-drained, moist soil in full sun to light shade. In zones 8-10, plant in the ground, allowing 2' between plants. In colder areas, grow in large containers. It flowers more heavily as it becomes rootbound. Keep well watered during the growing season; cut back on water in fall and winter. Drought tolerant once established. Divide only when absolutely necessary. Does not like having its roots disturbed. Grows 18-36" tall. Blooms summer to early fall. Hardy in zones 6-10.

**Agastache** Plant in spring or fall in full sun in moist, well-drained average soil. Space plants 18-24" apart. After 3-4 years, divide plant in spring or fall. Remove spent flower stems after blooming. Grows 24" tall and 18-24" wide. Blooms July-August. Hardy in zones 5-9.

**Alcea** See *Althaea rosea*, page 26.

**Alchemilla mollis** (*Lady's Mantle*) Plant in rich, moist soil. Grows best in partial shade, but will tolerate full sun. Grows 18" tall with 24" spread. Blooms June. Hardy in zones 3-9.

**Alstroemeria** (Peruvian Lily) Plant 12" apart in deep, rich, organic, well-drained soil in full sun. Water well during growing season. Fertilize occasionally with liquid fertilizer. Grows 18-36" tall. Blooms July-September. Hardy in zones 7-10.

**Althaea rosea** (Alcea, Hollyhock) Plant 18-24" apart in clumps of 5 or more plants for presentation. Grow in full sun in well-drained, neutral to slightly alkaline soil. Choose a sheltered location or stake the flower spikes to avoid wind damage. Good air circulation helps prevent powdery mildew on the leaves in summer. Grows 4-7' tall. Flowers July-August. Hardy in zones 3-9.

**Amsonia hubrichtii** (Blue Star Arkansas) Plant in full sun to partial shade in average well-drained soil. Space 48-56" apart. Do not overwater plants, allow plants to dry between watering. Cut back stems to 6-8" off the ground after flowering to create a fuller plant. Low-maintenance, easy-to-grow plant. Grows 36-40" tall. Blooms late spring to early summer. Hardy zones 4-9.

**Anemone japonica** (Japanese Anemone) Plant in light sun to partial shade in a moist, rich, well-drained soil in a protected location. Plant about 2" below soil level. Space plants 2' apart. Mulch lightly in early winter for added protection. Grows 24-30" tall. Blooms September to frost. Hardy in zones 5-8.

**Aquilegia** (Columbine) Plant in moist, well-drained soil enriched with organic matter in partial shade to full sun. Plant 12-18" apart. To prolong the flowering period, cut off all spent flowers. Grows 24-30" tall, depending on variety. Blooms in May-June. Hardy in zones 3-9.

**Aruncus dioicus** (Goat's Beard) Plant in rich, moist soil in full sun to partial shade. Grows 4-6' tall, depending on variety. Blooms June-July. Hardy in zones 3-8.

**Asclepias** (Butterfly Plant) Plant in well-drained, sandy or gravelly soil in full sun to light shade. Plant the root vertically so that the eye is 1-2" beneath the soil surface. Space drought-tolerant plants 18" apart, and water sparingly. Clumps can remain undisturbed indefinitely. Grows 18-24" tall. Blooms June-September. Hardy in zones 3-10.

**Aster dumosus** (Dwarf Asters) Compact plants are covered with flowers in late summer and fall. All they need is a well-drained soil and full sun to part shade. Plant the roots with the sprouts just below the soil. Space 18-24" apart. Grows 12-18" tall. Hardy in zones 4-8.

**Aster Stokes** See *Stokesia*, page 36.

**Astilbe** (Spirea) Plant in deep, organically rich, well-drained, moist soil in partial shade. It will grow in full sun in moderate climates, but does not tolerate hot summer temperatures. Space 18-24" apart. Fertilize in spring. Divide every three years. Grows 18-60" tall. Blooms June-August. Hardy in zones 4-8.

**Astrantia** (Masterwort) Plant in rich, evenly moist soil in full to partial shade. Space 12-18" apart. Grows 24-36" tall. Blooms June-Sept. Hardy in zones 4-8.

**Baby's Breath** See *Gypsophila paniculata*, page 29.

**Balloon Flower** See *Platycodon grandiflorus*, page 35.

**Baptisia** (Blue Wild Indigo) Native perennial thrives in both sun and part shade. It prefers moist soil but can also tolerate drier soils if it is given enough irrigation to establish a good root system. It is not uncommon for the plant to be slow to establish and to only create one or two flowering stalks for the first couple of years. Usually, however it will experience a growth spurt in its third year and then grow quickly. It will die back to the ground in autumn. Height: 35-45". Blooms in summer. Hardy in zones 3-9.

**Barrenwort** See *Epidemium*, page 28.

**Bearded Iris** See *Iris germanica*, page 30.

**Bear's Breech** See *Acanthus*, page 25.

**Bee Balm** See *Monarda*, page 33.

**Belamcanda** (Blackberry Lily) Plant in full sun to full shade, in rich, well-drained soil. Plant roots about 1" below soil level. Space 12" apart. Grows 24-30" tall and 30" wide. Blooms June-August, with seed heads of interest in late summer and fall. Hardy in zones 5-8.

**Bell Worts** See *Uvularia grandiflora*, page 37.

**Blackberry Lily** See *Belamcanda*, above.

**Black-Eyed Susan** See *Rudbeckia*, page 35.

**Black Iris** See *Iris chrysographes*, page 30.

**Black Mondo Grass** Shade-loving dwarf perennial with grassy foliage (although it is not a true grass and is more closely related to Lilies). It can tolerate part sun but full sun will scald the foliage. It thrives in moist soils (even heavy clay) and will need extra moisture to perform well in drier soils. It is mostly evergreen and will not need to be cut back in winter, although very hard winters or very dry and hot summers will sometimes damage the foliage to the point where it will look better if sheared back to within a few inches of the ground and allowed to regrow. Height: 6-8". Hardy in zones 5-9.



**Blazing Stars** See *Liatris*, page 32.

**Bleeding Hearts** See *Dicentra*, page 28.

**Bluebells, Virginia** See *Mertensia*, page 33.

**Blue Sea Holly** See *Eryngium*, page 28.

**Bottlebrush Plant** See *Sanguisorba*, page 36.

**Brunnera macrophylla** (Forget-Me-Not) Plant in fertile, moist soil in partial to full shade. Space 18-24" apart. Water well and cut back after flowering to encourage a second blooming. Divide in spring. Grows 12-18" tall. Blooms April-June. Hardy in zones 3-8.

**Bugbane** See *Cimicifuga*, this page.

**Butterfly Plant** See *Asclepias*, page 26.

**Campanula** (Clustered Bellflower) Plant in spring or fall in full sun to full shade in well-drained humus soil. Space plants 12-20" apart. After 3-4 years, divide plant in spring or fall. Remove spent flower stems after blooming. Grows 12-20" tall and 12-18" wide. When grown in the shade, plants will be taller than those grown in full sun. Blooms July-August. Hardy in zones 3-10.

**Candy Lily** See *Pardancanda norisii*, page 34.

**Cardinal Flower** See *Lobelia fulgens*, page 32.

**Cat's Mint** See *Nepeta*, page 33.

**Centaurea** (Bachelor Button) Plant in well-drained, slightly alkaline soil in full sun. It tolerates dry soil, but cannot tolerate soggy soil in winter. Space 24" apart. Most striking when planted in bold clumps of 3-5 plants. Grows 24-30" tall. Blooms June-July. Hardy in zones 3-10.



**Centranthus** (Keys of Heaven) Summer-flowering perennial with fragrant, cherry-red flowers. Removing faded flowers will encourage plants to form buds all summer long. A good choice for hot, dry sites. Plant the roots with the sprouts just below the soil. Plants grow about 2 feet tall. Best planted in full sun or part shade. Zones 4-9.

**Chelone obliqua** (Snakehead, Turtlehead) Plant in rich, moist soil in partial shade. It thrives near a pond or stream. Space 24" apart. Grows 24-36" tall. Blooms August-September. Hardy in zones 7-9.

**Christmas Rose** See *Helleborus*, page 29.

**Chrysanthemum m** (Painted Daisy, Shasta Daisy/ *Leucanthemum superbum*) Plant in rich, well-drained soil in full sun. Space 18-24" apart. Keep watered and fertilize regularly throughout growing season. Deadhead to encourage second flush of bloom. Divide in spring or fall every 2-3 years to keep plants vigorous and compact. Grows 12-16" tall. Blooms July-August. Hardy in zones 4-9.

**Cimicifuga** (*Actaea*, Bugbane) Plant in deep, well-drained, humus-rich soil in full sun to shade. Space 24" apart. Rarely needs staking despite height. Grows 4-6' tall. Blooms September-October. Hardy in zones 3-9.

**Cinquefoil** See *Potentilla*, page 35.

**Clustered Bellflower** See *Campanula*, this page.

**Columbine** See *Aquilegia*, page 26.

**Commelina** (Mexican Dayflower) Plant in well-drained soil in full sun to partial shade. Space 12-18" apart. Grows 12-18" tall. Flowers in summer. Completely hardy in zones 8-10. In zones 6-8, mulch well for winter protection. In colder areas, dig and store in sand or sawdust in a cool dry place over the winter.

**Coneflower** See *Echinacea*, page 28.

**Convallaria** (Lily-of-the-Valley) Plant in very early spring or fall in rich, well-drained soil in partial to full shade. Plant the fleshy rhizomes ("pips") horizontally about 1" deep and 4-6" apart. Mulch heavily in fall with compost or well-rotted manure. Divide only when flowering poorly—a good indication of over-crowding. Grows 6-8" tall. Blooms May-early June. Hardy in zones 3-9.



**Coral Bells** See *Heuchera*, page 30.

**Coral Iris** See *Iris foetidissima*, page 30.

**Coreopsis** (Golden Daisy) Plant in well-drained, ordinary soil in full sun. Space 12-24" apart. Plants are slow to appear in spring; be patient. Grows 12-18" tall. Blooms all summer to fall. Hardy in zones 3-10.



**Cosmos atrosanguineus** Plant in full sun in the spring in well-drained, fertile soil. Space plants 24-36" apart. Hardy in zones 7-10 only. Elsewhere dig and store in a frost-free area or treat as an annual and replant with new plants. May be planted in containers. Plant 3 per 10-12" container with well-drained potting soil. Keep soil moist, but not waterlogged. Grows 24-36" tall and 24-36" wide. Blooms July-Sept.

**Cote d'Azur Pinks** See *Saponaria*, page 36.

**Cotton Candy Grass** See *Muhlenbergia capillaris*, page 33.

**Crambe cordifolia** (*Gypsophila Giant*) Plant in deep, well-drained, moderately alkaline soil in full sun. Space 3-6" apart. May require staking. Grows 8-10' tall. Blooms June-July. Hardy in zones 6-10.

**Cranesbill** See *Geranium*, page 29.

**Daylily** See *Hemerocallis*, page 29.

**Delphinium** Plant in moist, well-drained soil in full sun to partial shade. Space 24" apart. Protect from the wind. Delphiniums do not do well in hot areas with long summers. Stake plants to support tall flower spikes. Secure stakes in at least 12" of soil. Fertilize regularly during the growing season. Cut down the flower spike after it blooms and it may rebloom in fall. Mulch well over the winter. Grows 24-72" tall and blooms June-Sept, depending on variety. Hardy in zones 3-7.

**Dianthus** (*Hardy Carnation*, *Sweet William*) Plant in poor, very well-drained soil in full sun. Space 12" apart. Drought tolerant. Well suited for a rock garden. Grows 8-10" tall. Blooms summer. Hardy in zones 3-10.

**Dicentra** (*Bleeding Hearts*) Plant in well-drained, humus-rich soil, in partial to full shade. It cannot tolerate constantly moist soil. May tolerate full sun in cool areas. Space 12-18" apart. Grows 18-36" tall. Blooms May to early June, depending on variety. 'Luxuriant' flowers spring to fall. 'Spectabilis varieties' foliage dies back in midsummer. Hardy in zones 3-9.

**Digitalis purpurea** (*Foxglove*) Plant in moist, porous soil enriched with organic matter in full sun to partial shade. In hot areas, shade the plants lightly. Space 12-18" apart. Cut down flower spike after it blooms and it may rebloom. After the ground freezes in winter, mulch to prevent crown rot. Grows 48-60" tall. Blooms May to early June. Hardy in zones 4-9.

**Echinacea** (*White Black-Eyed Susan*, *Pink Black-Eyed Susan*, *Coneflower*) Plant in well-drained, sandy loam in full sun or partial shade. Easy to grow in most soils. Drought tolerant. Space 18-24" apart. Grows 18-36" tall. Blooms July-September. Hardy in zones 3-9.

**Echinops** (*Globe Thistle*) Plant in full sun to partial shade in the spring or fall in well-drained, acidic, loamy soil. Space plants 3-4' apart. Blooms July to first fall frost. Grows 36-48" tall and just as wide. Hardy in zones 4-9.



**Epimedium** (*Barrenwort*) Prefers cool, shady areas; tolerates dry soils. Plant in a mixture of compost and sand. Space 8-12" apart. Beautiful plant to use as groundcover in rock garden or border. Flowering height 10-15". Hardy in zones 4-9.

**Eryngium** (*Blue Sea Holly/Sea Holly*) Plant in well-drained soil in full sun. Prefers poor soil to rich soil. Space 18-24" apart. Mulch with gravel around the crown to avoid winter wetness. Do not disturb plant once established; divide only when necessary. Grows 18-36" tall, depending on variety. Blooms July-frost. Hardy in zones 4-7.

**Eupatorium** (*Joe Pye Weed*) Plant in full sun in spring or fall in moist, well-drained, loamy soil. Space plants 4-5' apart. Blooms in July-August. Naturalizes well. Grows 4-5' tall and just as wide. Hardy in zones 4-7.

**Euphorbia** Plant in full sun to partial shade in any ordinary garden soil. Excellent for use in the perennial border or in a patio container. The milky looking sap that this plant exudes is very acrid and poisonous. Great care should be taken that the sap does not touch any broken skin. Hardy in zones 5-8.

**Evening Primrose** See *Oenothera*, page 33.

**Ferns** See *Ferns*, page 23.

**Fiesta Daisy** See *Gaillardia aristata*, page 29.

**Filipendula purpurea** (*Meadowsweet*) Plant in very moist soil in partial shade. Will tolerate full sun as long as the soil is moist. Thrives when planted beside a stream or pond. Mulch well in winter in cold areas to protect the roots which are close to the soil level. Grows 24-36" tall. Blooms July-September. Hardy in zones 3-9.

**Foam Flower** See *Tiarella*, page 36.

**Forget-Me-Not** See *Brunnera macrophylla*, page 27.

**Foxglove** See *Digitalis purpurea*, this page.

**Fuchsia** (*Hardy Fuchsia*) Plant in well-drained, moist, fertile soil in full sun to light shade. Space 24-36" apart. Pinch plant when young to achieve a bushy shape. Prune as necessary in spring, removing any dead wood and cutting back last year's growth to 2-3 buds. Grows up to 6' tall. Blooms June-August. Hardy in zones 6-10.

**Funkia** See *Hosta*, page 30.

**Gaillardia aristata** (*Indian Blanket, Fiesta Daisy*) Plant in poor, very well-drained soil in full sun. Space 18" apart. Drought tolerant. Well suited for a meadow or wildflower garden. Grows 8-10" tall. Blooms sum-mer. Hardy in zones 3-9.

**Gaura lindheimeri** Plant in late summer-fall in full sun in well-drained, fertile soil. Space plants 36" apart. Due to its long taproot, it is very tolerant of hot, humid and dry conditions and needs only occasional deep watering in extremely dry periods. Also, it does not like to be disturbed once established. Grows 2-4' tall and 2-3' wide. Blooms June-October. Hardy in zones 5-9.

**Gay Feather** See *Liatris*, page 32.

**Gentiana** Plant in sun or partial shade, by carefully spreading the roots and positioning the top of the plant approx. 1/2" below the soil line. They prefer lime-free soil. Carefully water after planting. They need perfect drain-ing. Plants must have water sparingly but often. Gentiana is an excellent rock garden plant. Once established they do not like to be disturbed. Grows 14-20" tall. Blooms July-September. Hardy in zones 6-8.

**Geranium** (*Hardy Geranium, Cranesbill*) Plant in ordinary, well-drained soil in full sun to shade. In warmest areas, plant in partial shade. Space 18-24" apart. Divide in spring or fall when necessary. Grows 6-30" tall, spreading 18-24", depending on variety. Blooms May-September (some even until November). Hardy in zones 3-8.

**German Iris** See *Iris germanica*, page 30.

**Globeflower** See *Trollius*, page 37.

**Globe Thistle** See *Echinops*, page 28.

**Goat's Beard** See *Aruncus dioicus*, page 26.

**Golden Daisy** See *Coreopsis*, page 27.

**Gypsophila paniculata** (*Baby's Breath*) Plant in free-draining, slightly alkaline soil in full sun. Space 48" apart. Strong staking (two-tiered rings do well) to support the large sprays of flowers which tend to become top heavy. In areas with a long growing season, cut the plant back after it flowers (for you to harvest the flowers for drying) to encourage a second flush of bloom. Once established, do not disturb. Grows 18-36" tall. Blooms June-August. Hardy in zones 3-8.

**Hardy Carnation** See *Dianthus*, page 28.

**Hardy Fuchsia** See *Fuchsia*, above.

**Hardy Geranium** See *Geranium*, above.

**Hardy Hibiscus** See *Hibiscus moscheutos*, page 30.

**Helenium** Plant in full sun in well-drained average soil. Space 18-24" apart. Keep plants well watered. Avoid dry conditions. Pinch plants back in late spring to encourage a sturdy compact plant. Deadhead spent blooms to promote reblooming. Grows 30-36" tall. Blooms midsummer to first frost. Hardy in zones 4-9.

**Helianthus** Plant in an open, sunny spot in sandy soil. This is a drought-tolerant plant. Plant entire root system 1/2" below the soil line. Pack soil tightly around the roots and water thoroughly. Limit transplanting as they do not like to be moved. Grows 7' tall. Blooms August-October. Hardy in zones 6-9.

**Helleborus** (*Lenten Rose, Christmas Rose*) Plant in deep, rich, moist, slightly alkaline soil in full sun to partial to full shade. Space 18-24" apart. Very long-lived perennial that does not like its roots disturbed. Divide in fall only when necessary. Roots are brittle and easily damaged. All parts of the plant are poisonous if ingested. Wear gloves when handling the plant; susceptible people may get dermatitis from contact with the plant. Grows 8-30" tall. Blooms Dec.-May, depending on variety. Hardy in zones 4-8.



**Hemerocallis** (*Daylily*) Plant in fertile, well-drained loam in full sun to light shade. Daylilies will grow in most soil types with adequate drainage. Space 24" apart. One of the easiest perennials to grow. Fertilize lightly in spring when plant begins to grow. Water deeply once a week in hot weather. Deadhead daily to keep the plant looking neat. Divide in spring or fall when clumps become overcrowded, usually in 3-4 years. There are hundreds of varieties of daylilies that grow in a range of colors (except blue and pure white), forms and sizes. By choosing at least several that bloom at different times, and with different colors and heights, you can have a colorful garden from late spring to fall. Grows 12-48" tall. Blooms June to fall, depending on variety. Hardy in zones 3-9.

**Heuchera** (Coral Bells) Plant in well-drained soil enriched with a lot of organic matter. In areas with hot summers plant in partial shade. Space 24" apart. In cold climates, mulch after the ground has frozen to control heaving of the roots. Divide in spring when bloom diminishes and crown becomes woody, usually every 4-5 years. Grows 12-20" tall. Blooms May-September, depending on variety. Hardy in zones 3-10.

**Heucherella** A hybrid between Heuchera and Tiarella. Combines the flowering habits of the Heuchera with the heart-shaped, low-growing Tiarella foliage. Plant in partial shade, away from hot midday sun. Use a humus-rich soil in a well-drained area. Plant the crown of the plant even with the soil line and water regularly to initiate growth. Excellent plant for rock gardens or woodland ground cover. Grows 12-20" tall. Blooms April-May. Hardy in zones 4-9.

**Hibiscus moscheutos** (Hardy Hibiscus, Rose Mallow) Plant in moist, rich soil in full sun to very light shade. Space 36" apart. Grows 36-48" tall. Blooms (with huge flowers) July-August. Hardy in zones 5-9.

**Hollyhock** See *Althea rosea*, page 26.

**Hollyhock, Miniature** See *Sidalcea*, page 36.

**Hosta** (*Funkia*, Plantain Lily) Plant in moisture-retentive, humus-rich soil in dappled shade. Few varieties tolerate sun while most will grow in full shade. Space 24-36" apart. A very long-lived perennial that rarely needs to be divided. Grown for their handsome foliage, hostas are the backbone of most shade gardens. Grows 18-36" tall, depending on variety. Blooms summer. Hardy in zones 3-9.

**Iris** Iris can be divided into two major types; bulbous and rhizomatous types. See Iris in the "Bulb" section for culture of the bulbous types. The rhizomatous types can further be divided into three groups as listed above.

**Iris chrysographes** (Black Iris) Plant in neutral to slightly acid soil enriched with moisture-retentive humus in full sun to lightly dappled shade. Space 36" apart. Water deeply in periods of drought. Divide in late summer or fall when clumps become crowded. Grows 12-24" tall. Blooms June. Hardy in zones 4-9.

**Iris dardanus** See instructions for *Iris oncocyclus*, pg 32.

**Iris, Dwarf** See *Iris pumila*, page 32.

**Iris ensata** (Japanese Iris) Plant in slightly acid to neutral, moisture-retentive soil in full sun to partial shade. This Iris is happy in shallow standing water during the summer months. It cannot tolerate hot, dry conditions. Plant rhizomes with the eyes just below the soil and 18-24" apart. Divide every 3-4 years as plants become crowded. Divide after flowering or in fall. Replant the divisions immediately; do not let them dry. Grows 24-36" tall. Blooms July, the last of the Iris to bloom. Hardy in zones 4-9.



## Iris Types

**Bearded Iris (German Iris)** Characterized by broad leaves, fleshy rhizomes and a beard or pattern of hairs on the falls (turned down petals). This group includes Bearded Iris (German Iris), dwarf, border, flag and Louisiana Iris.

**Beardless Iris** Characterized by having narrower leaves, thick rhizomes, and smooth falls. Included are Siberian Iris, Japanese Iris and many species Iris.

**Crested (Evansia) Iris** Characterized by their slender rhizomes and dramatic crests on the falls. Included are *Iris cristata* and *Iris tectorum*.

**Iris foetidissima** (Coral Iris) Plant in spring in dry to damp soil in full sun to shade. Amend the soil with a bit of lime and humus. Space 24" apart. Water deeply during periods of drought. Grown for its showy seed pods in fall. Evergreen foliage is malodorous when crushed. Grows 18-30" Blooms June. Hardy in zones 3-9.

**Iris germanica** (Bearded or German Iris) Plant in late summer or fall, in free-draining soil, in full sun or partial shade. Plant horizontal rhizomes so that the top 1/2-3/4 is above the soil level. In hot areas, plant the rhizomes just below the surface and grow in light shade. Space 12-24" apart. Water deeply during periods of drought. After the flowers have faded, cut back the flowering stem and trim the foliage into a fan shape about 12" tall. Grows 30-36" tall. Blooms May. Hardy in zones 4-10.

**Iris, Japanese** See *Iris ensata*, at left.

**Iris Louisiana** Louisiana Irises require normal to moist soil and benefit from a yearly gift of fertilizer. They are native to the southeastern part of the country and are best grown in full sun to part shade. In the past it was believed they would only grow well in acid soil, but they do equally well under slightly basic conditions. Space approx 24" apart. Hardy in zones 4-10.





## Dividing Bearded Iris

Most bearded Iris need to be divided every 3-5 years.

**A.** Prune Iris in late summer or early fall when the foliage starts to fall over (if this has not been done earlier). With a sharp knife, cut the foliage 8-10" above the soil level. Trim the plant into a fan shape.



**B.** Carefully dig up the old clumps. Divide rhizomes with a sharp knife. To avoid spreading disease, dip the knife in rubbing alcohol or a 20% solution of household bleach between each cut. Discard the oldest (center)

part of the rhizome. Check for evidence of disease or borers. Destroy (do not compost) any infested rhizomes.

**C.** Make sure each new division has a strong root section and a single fan of leaves. Dust the cut surface with powdered sulfur and allow to dry for 1-2 days. The sulfur acts as a fungicide and helps avoid problems with disease and pests.



**D.** Replant the horizontal rhizome with the top  $\frac{1}{2}$ - $\frac{2}{3}$  of the rhizome showing above the soil. Plant with the fan of the leaves pointing in the direction you want the plant to grow.



## Iris Basics

Several basic dos and don'ts apply to most of the rhizomatous Iris. Exceptions are noted in each variety description.

- Plant Iris in full sun.
- Plant Iris in well-drained soil.
- Plant the rhizomes horizontally; leaves go up, roots go down. Fertilize lightly in the early spring.
- Never plant rhizomes more than 1" deep.
- Do not mulch over the rhizomes.
- Do not apply fertilizer directly to the rhizome.

***Iris pallida*** Plant in well-drained soil in full sun or partial shade. Space 24" apart. Grown as much for their striking variegated foliage as their fragrant blooms. To divide, follow instructions (page 31) for bearded Iris. Grows 18-24" tall. Blooms June. Hardy in zones 4-9.

***Iris oncocyclus*** Plant the rhizomes in late summer or fall in full sun in well-drained fertile soil. Place the rhizomes horizontally so the top  $\frac{1}{2}$  is above the soil line, similar to bearded Iris. Space 12-24" apart. After the flowers have faded, cut back the flower stem and trim the foliage into a fan shape about 12" tall. Grows 24" tall. Blooms April-May. Hardy in zones 3-9.

***Iris pumila*** (Dwarf Iris) Plant in well-drained, limy soil in full sun or partial shade. Space 12" apart. Avoid high-nitrogen fertilizer. To divide, follow instructions (previous page) for bearded Iris. Grows 8-16" tall. Blooms April-May. Hardy in zones 4-9.

***Iris siberica*** (Siberian Iris) Plant in neutral to slightly acid soil enriched with moisture-retentive humus in full sun to lightly dappled shade. Space 36" apart. Water deeply in periods of drought. Divide in late summer or fall when clumps become crowded. Grows 36-42" tall. Blooms June-July. Hardy in zones 3-9.

***Iris spuria*** Choose a sheltered, warm location with well-drained, neutral to slightly alkaline soil in full sun to partial shade. Plant the rhizomes horizontally, about 2" deep. Fall planting is preferable, and spring planting is all right. Do not disturb the rhizomes once planted. Dividing the rhizomes is rarely needed, and it takes several years for the plants to recover from any disturbance. Fertilize by mulching with well-rotted manure or compost. Grows 18-20" tall. Blooms June-July. Hardy in zones 5-9.

***Jacob's Ladder*** See *Polemonium caeruleum*, page 35.

***Japanese Anemone*** See *Anemone japonica*, page 26.

***Japanese Iris*** See *Iris ensata*, page 30.

***Joe Pye Weed*** See *Eupatorium*, pg 28.

***Keys of Heaven*** See *Centranthus*, page 27.

***Kniphofia uvaria*** (Red Hot Poker) Plant in good, well-drained soil enriched with humus in full sun. Plant 2-3" deep and 24" apart. Protect from intense sun. Once established, it does not like to be disturbed. It rarely requires division; when necessary, divide in spring. In cold areas, use a heavy winter mulch of leaves or salt hay, or protect the plant by tying the foliage over the crown. Grows 24-30" tall. Blooms June-July. Hardy in zones 6-9.

***Lavatera*** Plant in average garden soil in full sun. Lavatera can tolerate dry, sandy soil, wind, and salty air, making it suitable as a seaside planting. Space 36-48" apart. Grows 4-5' tall. Blooms June-frost. Hardy in zones 5-10.

***Lenten Rose*** See *Helleborus*, page 29.

***Leucanthemum superbum***

See *Chrysanthemum*, page 27.

***Liatis*** (Gay Feather, Blazing Stars) Plant in fertile, sandy, well-drained soil in full sun to partial shade. Will not tolerate wet soil in winter. Drought resistant. Space 12-18" apart. Divide in early spring. Grows 24-30" tall. Blooms July-August. Hardy in zones 3-9.

***Ligularia*** Plant in deep, rich, moist soil in full sun. In hot areas, grow in partial shade. Well suited for a bog garden, yet can grow in ordinary garden soil if kept moist. Do not let the soil dry out. Water deeply during periods of drought. Keep well mulched with organic material; this serves as a natural fertilizer. Grows 36-48" tall. Blooms July-August. Hardy in zones 4-9.

***Lily of the Nile*** See *Agapanthus*, page 25.

***Lily-of-the-Valley*** See *Convallaria*, page 27.

***Lily, Plantain*** See *Hosta*, page 30.

***Lilyturf*** See *Liriope spicata*, below.

***Liriope spicata*** (Blue Lilyturf/Lilyturf) Plant in fertile, moist soil amended with organic matter in full sun to partial shade. Space 18" apart. Cut back the grasslike foliage in early spring to encourage new growth. Divide in spring when necessary. Grows 10-15" tall. Blooms Aug.-Sept. Evergreen foliage. Hardy in zones 4-10.

***Lobelia fulgens*** (Cardinal Flower) Plant in rich, moist soil in full sun to partial shade. Grows well planted by a stream or pond. Space 12" apart. Grows 24" tall. Blooms June-August. Zones 4-9. 'Russian Princess' is hardy in zones 3-9, using a good winter mulch.

***Louisiana Iris*** See *Iris louisiana*, page 30.

***Lungwort*** See *Pulmonaria*, page 35.

***Lupine*** See *Lupinus*, below.

***Lupinus*** (Lupine, Blue Bonnet) Plant in rich, well-drained, slightly acid soil in full sun to partial shade. Space 12-18" apart. Mulch well to conserve moisture. Lupine is not tolerant of hot summers. Water deeply during periods of drought. Stake tall-growing varieties. Cut back spent flower stalks to encourage a second bloom. Once planted, lupine does not transplant

well. Grows 12-36" tall, depending on variety. Flowers May-June. Hardy in zones 4-8.

***Lysimachia clethroides*** (Gooseneck Loosestrife) Plant in moist soil in full sun to partial shade. To control invasive tendency, plant in drier soil. Space 36" apart. Grows 36-48" tall. Blooms July-August. Hardy in zones 4-10.

**Mallow** see *Malva*, below.

**Malva** (Mallow) Easily grown in full sun to partial



shade and may be planted in either spring or fall. Suitable for any well-drained soil and is very drought tolerant. Self-sows readily. Space plants 24-36" apart. Grows 24-36" tall and as wide. Blooms July through first fall frost. Hardy in zones 3-9.

**Masterwort** See *Astrantia*, page 26.

**Meadow Rue** See *Thalictrum*, page 36.

**Meadowsweet** See *Filipendula purpurea*, page 28.

**Mertensia** (Virginia Bluebells) Plant with the eyes just below the soil in acidic, humus-rich soil in partial to full shade. Space 18" apart. The foliage dies back in the heat of the summer. Grows 18-24" tall. Blooms April-May. Hardy in zones 3-8.

**Monarda** (Bee Balm) Plant in rich, moisture-reten-

tive soil in full sun to partial shade. Space 18" apart. Foliage is fragrant when touched. Divide in spring every 2-3 years. Cut plants back hard in the fall. Grows 36-48" tall. Blooms July-August. Hardy in zones 4-10.

**Monk's Hood** See *Aconitum*, page 25.

**Muhlenbergia capillaris** (Cotton Candy Grass) Late-summer flowering grass which tolerates heat, humidity, drought and wet conditions. Best planted in full sun. Grows 24-36" tall. Space 24-36" apart. Hardy in zones 6-10.

**Nepeta** Catmint forms a mounded clump of green, aromatic foliage. This fast growing perennial is highly floriferous. Cut back directly after the first flush and it will flower again in late summer! Plant the roots with the sprouts just below the soil. Best planted in full sun in a well-drained soil. Hardy in zones 3-8.

**Nymphaea** (Water Lilies) Plant in a 6" or larger open container such as an open wire pot or a plastic netted pot. Use a heavy, humus-rich potting medium. Cover entire root with potting medium and cover top of pot with approximately 1/2" of gravel to keep the medium in the pot once it is submerged into the pond. Water thoroughly after planting. It may be a good idea to keep the pot above water until you see some growth develop. Once there is a sprout of 1" or more, the pot is ready to be submerged into the pond. Do not place the pot deeper than 24". Once the water lily has been placed in the pond, it can stay in the same spot during the winter. Fertilize with special water plant tablets which can be purchased at your local garden supply store. Hardy in zones 4-8.

**Obedient Plant** See *Physostegia virginiana*, page 35.

**Oenothera** (Evening Primrose, Sundrop) Plant in well-drained, ordinary garden soil in full sun to partial shade. It will not tolerate rich or poorly drained soil. Space 24" apart. The varieties that flower during the day are sundrops. Others, which open in the evening and close in the morning, are evening primroses. Divide in spring when necessary. Grows 6-10" tall. Blooms June-September. Hardy in zones 5-10.

**Omphalodes** (Starry Eyes) Plant in the spring or fall in partial shade in moist, humus soil. Will tolerate dry, shaded locations. Space plants 10" apart. Grows 10" tall and as wide. Blooms April-August. Hardy in zones 3-6.

**Oriental Poppy** See *Papaver Orientale*, page 34.

**Paeonia** (Herbaceous and Itoh Peonies)

Plant in deep, well-drained soil enriched with plenty of well-rotted manure or compost in full sun. In warmest areas, shade the plants from intense summer sun. Thrives in areas with long, cold winters and mild summers. Space 24-36" apart. Plant the fleshy roots so that the eyes are no more than 1-2" deep. Support plants and their heavy





blooms with hoop-type stake. You may notice ants on the flower buds; it is a symbiotic relationship and does not hurt the plant. Water deeply in periods of drought. Grows 36-48" tall. Blooms May. Hardy in zones 3-9.

***Paeonia suffruticosa*** (Tree Peony) Not a perennial, but a small shrub. Plant in deep, well-drained, slightly alkaline, sandy loam enriched with abundant organic matter in light shade to full sun. Midday sun can quickly fade the flowers. Shelter from wind. Space 36-48" apart. Prepare soil to a depth of 24". Look at the plant; where the branch meets the root system should be even with the soil surface. The woody stem should be above the soil line. Mulch with organic material in hot, dry areas. Avoid mulch in humid areas as it may encourage fungus diseases. Branches laden with flowers may need support. Grows 3-6' tall with an equal spread. Blooms May-June. Hardy in zones 3-9.

***Painted Daisy*** See *Chrysanthemum*, page 27.

***Papaver Orientale*** (Oriental Poppy/Poppy) Plant in

deep, rich, fertile, very well-drained soil in full sun to partial shade. It is especially important that the soil is not waterlogged in winter; that spells death to the roots. Space 18-24" apart. Once planted, do not disturb. The long taproots can easily break. Intolerant of hot, humid conditions; thrives in areas with cool summers. For best effect, plant in groups of no more than three. Foliage dies back soon after plant flowers. Grows 26-36" tall. Blooms May-June. Hardy in zones 3-7.

***Pardancanda norisii*** (Candy Lily) Plant in sunny location in sandy soil. Plant entire rootstock about 1/2" below the soil line. Space 12" apart. Water after planting. Iris-like foliage. Perennial plant will produce flower stalks of 24-36" tall with flowers of many different color combinations. Blooms summer; heads seeds of interest in summer and fall. Hardy in zones 5-9.



***Pasque Flower*** See *Pulsatilla vulgaris*, page 35.

***Penstemon*** Prefers full sun to partial shade and fairly rich, light, free-draining soil. Benefits from the addition of mason sand or leaf mold to heavy soils. Allow 18" to 24" between plants. Hardy in zone 3-9.

***Penstemon glaber*** Plant in spring or fall in full sun and well-drained soil. It is important that the soil is well drained, otherwise roots will rot. Space plants



36-48" apart. Grows 48-60" tall and just as wide. Blooms June to first fall frost. Hardy in zones 5-9.

**Peony** See *Paeonia*, page 33.

**Periwinkle** See *Vinca minor*, page 37.

**Perovskia** (*Russian Sage*) Plant in well-drained, ordinary garden soil in full sun. Space 18-24" apart. Stake plant to keep it from sprawling. Cut plant to ground level each spring to encourage strong stems and good flowering. Grows 2-5' tall, depending on variety. Blooms August-September. Hardy in zones 5-9.

**Persicaria** (*Red Dragon*) Should be grown in cool, fertile, moist soil in sun or partial shade, and may crowd out other plants, so take care when selecting a site. *P. virginiana* 'Painter's Palette' is particularly susceptible to slug and snail damage, so it would be wise to take the necessary precautions against these pests. In addition, this variety should be grown in a location with shelter from strong wind. To propagate, divide plants in spring, removing any old or diseased growth. Grows 20-25" tall. Blooms July-August. Hardy in zones 4-10.

**Peruvian Lily** See *Alstroemeria*, page 26.

**Phlomis tuberosa** Plant in either spring or fall in full sun to part shade in a well-drained, sandy loam soil that is low in fertility. Plants grown in rich soil will have weak stems. Space plants 4-6' apart. Remove spent flowers after blooming. Grows 6' tall and 4-5' wide. Blooms July-August. Hardy in zones 4-10.

**Phlox paniculata** (*Giant/Tall Hardy Phlox*) Plant in humus-enriched, moist, well-drained soil in full sun to partial shade. Space 24" apart. In spring, thin new shoots to 4-6 stems. Deadhead to keep the plant vigorous. Water deeply during periods of drought. Avoid wetting the foliage; plant is susceptible to powdery mildew. Divide plants every 2-3 years in early fall. Replant only small, strong outer divisions. Grows 36-60" tall. Blooms June-September. Hardy in zones 3-8.

**Physostegia virginiana** (*Obedient Plant*) Plant in moist, slightly acidic soil in full sun to partial shade. In partial shade, plant in drier soil. Space 18" apart. Divide every 2-3 years. Grows 24-36" tall. Blooms August-September. Hardy in zones 4-9.

**Pincushion Flower** See *Scabiosa*, page 36.

**Pink Black-Eyed Susan** See *Echinacea*, page 28.

**Plantain Lily** See *Hosta*, page 30.

**Platycodon grandiflorus** (*Balloon Flower*) Plant in moist, well-drained soil in full sun to partial shade. Space 12" apart. Slow to start growing in the spring. Be sure to mark its location so you do not accidentally dig it up during spring cleanup. Grows 24-36" tall. Blooms late spring to early fall. Hardy in zones 3-9.

**Polemonium caeruleum** (*Jacob's Ladder*) Plant in cool, moist soil in partial shade. Grow in full sun only in areas with moderate summers. Space 24" apart. Divide carefully in spring when necessary; avoid dam-aging the brittle stems. Grows 18-30" tall. Blooms May-June. If the weather is cool, the blooming period may extend well into summer. Hardy in zones 4-8.

**Polygonatum** (*Solomon's Seal*) Plant in moist, humus-rich, woodland-type soil in partial to full shade. Space 12-24" apart. Blooms May-June. Hardy in zones 4-9.

**Polygonum** Plant in moist, fertile soil in full sun to partial shade. Grow in full sun only in areas with cool summers. Space 24" apart. Keep well watered to encourage long period of flowering. Grows 36-48" tall. Blooms July-October. Hardy in zones 5-9.

**Poppy** See *Papaver orientale*, page 34.

**Potentilla** (*Cinquefoil*) Plant in lean soil in full sun. Tolerant of a wide range of soils, it thrives in dry, infer-tile soil. Rich soil results in unwanted, soft, leafy growth. Space 12-24" apart. Grows 12-24" tall, depending on variety. Blooms April-September. Hardy in zones 3-7.

**Prairie Mallow** See *Sidalcea*, page 36.

**Pulmonaria** (*Lungwort*) Plant in cool, moist soil in partial to full shade. Grows well under deciduous trees. Intolerant of full sun. Space 18" apart. Grows 9-24" tall. Flowers throughout the spring, depending on variety. Hardy in zones 3-8.

**Pulsatilla vulgaris** (*Pasque Flower*) Plant in the spring or fall in full sun and well-drained, fertile soil. It is one of the earliest perennials to bloom in the spring. In warmer climates, it will benefit from additional water and partial shade. Fairly tolerant of drought in cooler climates. Space plants 12-14" apart. Remove spent flowers after blooming. Grows 9-12" tall and 12" wide. Blooms in March-April. Hardy in zones 5-7.

**Quamash** See *Camassia*, page 9.

**Red Hot Poker** See *Kniphofia uvaria*, page 32.

**Rose Mallow** See *Hibiscus moscheutos*, page 30.

**Rudbeckia** (*Black-Eyed Susan*) Plant in moderately fertile, well-drained soil in full sun to partial shade. Space 18" apart. Divide in spring every 3-4 years. Grows 24-36" tall. Blooms July-September. Hardy in zones 3-9.

**Russian Sage** See *Perovskia*, see above.

**Salvia nemerosa** Plant in well-drained, fertile soil in full sun. Space 18-24" apart. Divide only when the center of the plant begins to look thin. Grows 18-24" tall and blooms June-frost, depending on variety. Hardy in zones 3-9.



**Sanguisorba** (Bottlebrush Plant) A 24-26" tall perennial with soft pink, caterpillar-like flowers atop slender stems. Best planted in full sun in well-drained soil where it will bloom in early to midsummer. Cut back foliage after blooming if it gets tired-looking. Plant the roots with the sprouts just below the soil. Space 18-24" apart. Hardy in zones 4-9.

**Saponaria** (Cote d'Azur Pinks, Rock Soapwort) Plant in average, well-drained soil in full sun. Space 36" apart. Semi-evergreen, trailing foliage on *Saponaria ocymoides*. 'Alba Plena' has an upright habit. Shear hard after flowering to encourage neat habit and new growth. Grows 4-10" tall, depending on variety. Blooms May-June. Hardy in zones 3-7.

**Scabiosa** (Pincushion Flower) Plant in well-drained, slightly alkaline soil in full sun. Will not tolerate hot, humid climates. Space 12-24" apart. Will continue to flower if faithfully deadheaded. Divide when flowering becomes sparse. Grows 12-18" tall. Blooms summer to frost. Hardy in zones 3-9.

**Sea Holly** See *Eryngium*, page 28.

**Sedum** Plant in lean, fast-draining soil in full sun. May tolerate light, dappled shade. Water sparingly. Drought tolerant.

**Shasta Daisy** See *Chrysanthemum*, page 27.

**Siberian Iris** See *Iris siberica*, page 32.

**Sidalcea** (Hollyhock, Miniature, Prairie Mallow) Plant in deep, fertile, loamy soil in full sun to shade. Space 12-18" apart. For best effect, plant in groups of 5-7 or more. Stake tall-growing varieties. Cut back after flowers fade to encourage a second flush of bloom. Grows 24-36" tall. Blooms June-October. Hardy in zones 5-9.

**Snakehead** See *Chelone obliqua*, page 27.

**Soapwort** See *Saponaria*, this page.

**Solomon's Seal** See *Polygonatum*, page 35.

**Speedwell** See *Veronica*, page 37.

**Spiderwort** See *Tradescantia*, below.

**Spirea** See *Astilbe*, page 26.

**Stokesia** (Aster Stokes, Blue Danube) Plant in average, well-drained soil or sandy loam in full sun. Cannot tolerate wet soil in winter. Space 12-18" apart. Mulch lightly in winter in cold areas. Divide in spring when necessary. Grows 12-24" tall. Blooms July-fall. Hardy in zones 5-9.

**Stonecrop** See *Sedum*, above.

**Sweet William** See *Dianthus*, page 28.

**Tall Hardy Phlox** See *Phlox paniculata*, page 35.

**Thalictrum** (Meadow Rue) Plant in moist, well-drained, humus-enriched soil in full sun to partial shade. In hot climates, shade and mulch plants. Space 18-24" apart. May need staking in unprotected areas. Grows 60" tall. Blooms summer. Hardy in zones 3-5.

**Tiarella** (Foam Flower) Plant in well-drained, humus-rich garden soil in full to partial shade. Space 18-24" apart. Provide even moisture. Tiarella do not perform well in overly wet conditions. Grow in 55% shade in the north and 80% shade in the south. Grows 8" tall. Blooms early spring to early summer. Foliage lasts all winter long. Hardy in zones 4-9.

**Toad Lily** See *Tricyrtis*, page 37.

**Tradescantia** (Spiderwort) Plant in well-drained, ordinary to poor soil in full sun to partial shade. Space 18-24" apart. Water only as needed. Drought tolerant. To control excess growth, starve the plant. Never fertilize. Cut back hard in summer to encour-



age a tidy growth habit and flowering in fall. Grows 18-24" tall. Flowers June-October. Hardy in zones 3-9.

**Tree Peony** See *Paeonia suffruticosa*, page 34.

**Tricyrtis** (Toad Lily) Plant in slightly acidic, deep, moist, humus-rich soil in part to full shade. In colder areas, plant in sun to guarantee blooming before frost. Space 18-24" apart. Never let the roots dry out. Mulch well to conserve moisture. Water deeply during hot weather. Divide only when necessary. Does not like to be disturbed. Grows 18-36" tall. Blooms August-September. Hardy in zones 5-9.

**Trollius** (Globeflower) Plant in moist soil in full sun to partial shade. Good for boggy areas. Space 12" apart. Grows 18-24" tall. Blooms June-August. Especially long blooming if kept deadheaded. Hardy in zones 3-10, depending on variety.

**Turtlehead** See *Chelone obliqua*, page 27.

**Uvularia grandiflora** (Bell Worts) Plant in partial to full shade in moist, rich, organic soil, 1" deep and space 1' apart. Uvularias have a creeping rootstock, forming nice clumps. Grows 20" tall. Blooms April-June. Hardy in zones 4-9.

**Veronica** (Speedwell) Plant in average, moist, well-drained soil in full sun to partial shade. Space 12-18" apart. Do not plant in rich soil or plant will become weak and sprawl. Divide every 3-4 years. Grows 12-24" tall. Blooms June-September, depending on variety. Hardy in zones 4-9.

**Vinca minor** (Periwinkle) Plant in well-drained, fertile soil in sun or shade. Space 12" apart. Keep watered throughout the growing season. Grows 4-10" tall. Blooms early summer, but grown for its evergreen foliage as a vigorous groundcover. Hardy in zones 4-9.

**Water Lilies** See *Nymphaea*, page 33.

**Yarrow** See *Achillea*, page 25.

**Yucca filamentosa** This plant does best in a warm spot in the garden planted in full sun. Plant a single root or a small group of 2 or 3, spacing the roots 3' apart, in well-drained, sandy soil. Grows 25-30" tall. Blooms June-August. Hardy in zones 5-10.



# FRUITS & VEGETABLES

Eat the fruits of your labor.

There is nothing more rewarding than growing your own fruits and vegetables and being able to eat the fruits of your labor. Once your package has arrived, open it immediately and remove any plants from plastic bags. If any items have plastic around the root balls, leave this on until planting because it helps preserve moisture. These are live plants and proper care must be taken to ensure health until ready for planting. Keep the plants moist and cool. Our fruits and vegetables are shipped in a dormant form so they can be transplanted outdoors once the soil can be worked in the spring. Light frosts will not damage the plants. If you are unable to plant immediately, the plants can be stored for a short period of time in a cool, dark location that will not freeze. They should also be kept moist, but not wet. An unheated garage, refrigerator, or cold cellar are ideal locations.



## Varieties

**Asparagus** Plant in well-drained, neutral soil in full sun. Asparagus grows in the same place for many years, so proper preparation of the asparagus bed is essential. Till the soil to a depth of 24", mixing in as much organic matter (compost and well-rotted manure) as possible. Dig a trench 8-10" deep and 10-12" wide. Space the crowns 12" apart with their roots well splayed out at the bottom of the trench. Cover with several inches of soil. Once the shoots begin to emerge, add more soil to the trench until, as the stems grow, the trench is filled. Mulch with 4-6" of organic material to conserve moisture and provide nutrients. Each spring, fertilize with a balanced, organic fertilizer. Once established, asparagus needs only moderate watering during the growing season. As tempting as it may be, do not harvest any asparagus stalks the first year. The second year harvest just a few stalks. The third and subsequent years, harvest stalks until they start thinning to less than 1/2" in dia. Always cut the stalks; do not break them off or risk injuring the crowns. In areas of the country with cold winters, wait to cut down the plants until early the following spring. In warmer areas, cut back the foliage when it browns. Hardy in zones 2-8.

**Blackberries** All brambles require deep, well-drained soil high in organic matter. Choose any sunny location that has good air circulation and water drainage. Keep the roots moist until planting time. Cut plants back to 6" and place them in a hole at the same depth they grew in the nursery. Space blackberries 2' apart in rows 7' apart and provide a trellis for the trailing types. Water heavily and mulch to reduce weeds. Do not let the canes produce fruit the first year. These summer-bearing berries produce fruit on the second-year canes. In the fall of the second year, prune spent canes to the ground and thin others to 4 canes per foot of row. Cut off suckers that grow outside the rows. Trim the remaining canes to 7'. This is a woody rambling vine that can be trained on an arbor or support. Generally hardy in zones 7-10, although some varieties are more cold hardy.

**Blueberries** Blueberries must be planted where they have full sun for most of the day, with well-drained, sandy, and acidic soil (pH of 4.5 to 5.5) that is high in organic matter. Plants have shallow root systems; keep the roots cool and moist. Space plants 4' apart in rows that are 7' apart and set plants at the same depth they grew in the nursery. Plants benefit greatly from a heavy mulch to conserve moisture and a yearly pruning of the mature plants. Southern types are hardy in zones 7-10 while Northern types are hardy in zones 3-7.

**Garlic** Plant in humus-rich, fertile, slightly acidic, well-drained soil in full sun. Bulbs grown in shade will be smaller. Break garlic into individual cloves and plant in the early fall or early spring. Plant 2-3" deep with pointed end up, allowing 3-6" between bulbs. Fertilize with compost tea or fish emulsion. Keep plant well watered and mulched.

In summer, when the foliage begins to yellow, stop watering. Break the tops over at the base to speed up the drying process. When the plant tops are brown and dry, gently pull the bulbs from the ground. Dry in the sun for several days. Braid or tie the garlic bulbs in bundles and dry them in a dark area with good ventilation. In the spring, shoots and flower stems can be used like chives. This is a perennial bulb that is best planted in fall for harvest in spring. Hardy in zones 3-9.

**Grapes** Grapes prefer fertile, well-drained soil and a site that offers full sun, good air circulation, with protection from wind, and late-spring frosts. Grapes like a moderately acidic soil (pH 5.5 to 6.0), with fair amounts of organic matter or compost. Set plants 8' apart in rows that are 10' apart. After planting, grapes should be fertilized every 3-4 weeks with a well-balanced fertilizer. Pruning should be done in winter when plants are dormant, but not when it becomes too cold. Canes that have borne fruit should be pruned back sharply. Remove the old canes coming from the main stem and leave 4 new canes. The new canes should be cut back to 6-8" and 3 or 4 buds. These buds will produce the new shoots that bear leaves and grapes the following summer. Four of these new shoots will be used to repeat the same fruiting and pruning process the following winter. This is a woody vine. Hardy in zones 3-5, although some varieties are more heat tolerant.

**Horseradish** Plant in the spring as early as the soil can be worked. Soil should be prepared in the fall so that it is deeply dug, loose and amended with organic matter. Place the roots 18-24" apart in shallow trenches, with the top end slightly elevated. Cover with a 4-5" deep ridge or mound of soil. Plants grow 2-2½' tall, and the roots make their greatest increase in size during the cooling weather of fall. Water thoroughly if plants wilt during hot weather, especially in late summer-early fall.

Harvest the roots as needed anytime from late fall, after a hard frost, until growth starts in the spring. Production is better if the plants are divided and replanted yearly, but plants will survive indefinitely without any care. Small, pencil-sized roots may be saved from harvesting and replanted in the spring. Hardy in zones 2-7. Although it will survive warmer regions, it is not a great performer in those regions.

**Onion Sets** Plant onions in rich, well-drained, pliable soil in full sun. Plant sets 1" deep, spaced 2" apart. As they grow, thin out every other one. Use the thinnings as scallions (actually true scallions are bunching onions). Keep well weeded, watered and fertilized for maximum bulb production.

Pull onions to use fresh as you need them. To store onions, allow the tops to fall over naturally, then gently bend over any other upright stalks. After 2 days, pull the onions and set them on the ground to dry. If the weather is wet, bring them into a dry, well-ventilated space and place them on mesh or old screens to dry. Onions that still have green stems should be used first as they will not keep. Once onions have thoroughly dried, either braid the bulbs and hang or store in mesh bags (old pantyhose work well) or ventilated boxes. This is an annual plant. Hardy in zones 3-9.

**Onion Plants** Plant immediately upon arrival. Do not leave root bare. Plant in good garden soil with optimal drainage. Plant in rows, 2-3" apart. Press soil very tightly around roots. Water thoroughly after planting. This is an annual plant. Hardy in zones 3-9.

**Potatoes** Early, midseason and late varieties may be planted in early spring when soil has dried and warmed. One of the earliest vegetables to be planted in the spring, do not be in a hurry to plant in March. Potatoes will rot if weather turns cold and wet after planting. Soil should be rich in organic matter and deeply worked in the fall prior to spring planting.

Plant seed pieces, making sure each piece has at least one good "eye," 3-4" deep in furrows and 10-12" apart. Cover seed pieces with soil. Rows should be 24" apart. After the potatoes break the surface, gradually build up a low ridge of loose soil by cultivation and hoeing toward the plants. This ridge, which may become 4-6" high by summer, reduces the number of green tubers, which are not edible.

Harvest potatoes after the vines have died. Because tubers develop 4-6" beneath the soil surface, a shovel or spading fork is suggested for digging potatoes. Be careful not to spear or cut the potatoes during harvest. In early summer, small "new" potatoes may be dug while the main harvest will be in late August or September.

Store potatoes in a dark, humid room with a temperature between 38-40°F. Check periodically for spoilage. Temperatures below 38°F cause internal damage. Potatoes can be grown in zones 3-9. Gardeners in zones 3-5 should plant in spring 2-3 weeks before the last frost. Gardeners in zones 6-7 should plant in late winter and gardeners in zones 8-9 should plant in fall and harvest in spring.





**Raspberries** Raspberries are a bramble fruit and should be treated the same as blackberries. Plants are more erect than blackberries so they do not require support. Space red and yellow varieties 2' apart in rows that are 4-5' apart. The black and purple varieties should be spaced 3' apart in rows 7-8' apart. Plant the black and red varieties 300' apart to prevent the spread of disease.

Little thinning is needed until plants have been in the ground a few years. When thinning brambles, leave the thickest canes and remove the thinnest. Prune the red and yellow varieties back to 8-12 buds on a cane, leaving the thickest canes at least 4-6" apart in the spring. Remove the fruiting canes after the harvest. Prune black and purple varieties when new growth starts in the spring, leaving 10-15 buds per cane and 4-5 canes per clump. Encourage branching by pinching back the tips of black raspberry plants in late summer. With the reds, remove suckers rather than canes from the original plants. This is a woody rambling vine that can be trained on an arbor or support. Hardy in zones 2-7, although some varieties are more heat tolerant.

**Rhubarb** Plant the hardy perennial roots in full sun in early spring, as soon as the soil can be worked, with the crown bud 2" below soil surface. Soil should be prepared in the fall prior to spring planting by incorporat-

ing organic matter in the soil and loosening the soil to a depth of 10-12", and making sure it drains well. Space plants 36-48" apart with rows 3-4' apart. Keep watered during periods of drought and mulch to keep weeds down and conserve soil moisture. Fertilize with a high-nitrogen fertilizer in late June.

Do not harvest during the first year after planting. Harvest sparingly the second year, and by the third year, a full harvest may be enjoyed. To harvest, pull the leaf stalks from the plant and trim off the leaf blades. Do not eat the leaf blades as they contain large amounts of oxalic acid. Remove only 1/3 of the leaf stalks from a plant at any time. Remove flower stems during spring and summer to extend the harvesting season. Once they flower, do not harvest until the following year. This is a perennial plant. Hardy in zones 3-8. Although it will survive warmer regions, it is not a great performer in those regions.

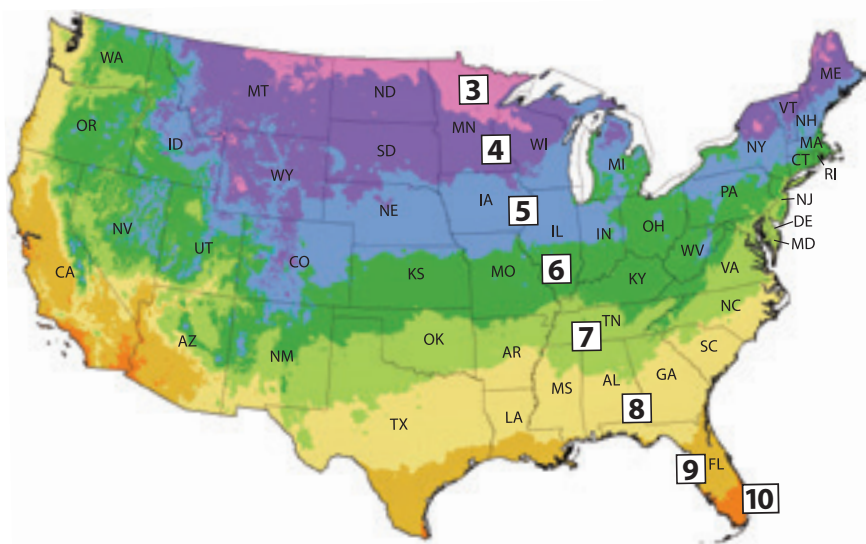
**Shallots** Plant in rich, humus-rich, well-drained soil in full sun. In spring, 2-4 weeks before last frost date, plant sets directly in the garden, 1" deep, allowing 4-6" between bulbs. Mulch and water regularly to promote good bulb formation. Side-dress with compost or well-rotted manure. Each set will form 8-10 shallots.

The first year, prune off all spring flowers of garden strawberries. For everbearing varieties, let the fall flowers go to fruit. Garden strawberries spread by runners. For larger berries, prune back all but a few runners. You do need some runners to fill in as older plants die.

In cold climates, cover strawberries with a heavy straw mulch for the winter. Do not remove mulch until after the last hard freeze.

Garden strawberries need to be picked every day as they ripen. Overripe berries will simply rot on the vine. Pluck strawberries so the stem and cap remain attached. A mature strawberry plant can yield about 1 pint of berries per season. Hardy in zones 3-9. In cool regions strawberries should be planted in spring. In warm regions, they should be planted in fall for spring harvest.

## Hardiness Zone Map



## USING THE ZONE MAP

Plant hardiness is very important to growing success. Check the map to determine which hardiness zone you live in and use that number as a reference when choosing plants. You will find zone designations at the end of each plant description in the catalog. A variety marked Zones 3-8 should grow and thrive in Zones 3, 4, 5, 6, 7 and 8.

Map Color	Zone
	3
	4
	5
	6
	7
	8
	9
	10

Abyssinian Gladiolus.....8	Bleeding Hearts .....27	Crambe .....28	Gaura .....29
Acanthus .....25	Bletilla.....9	Cranesbill .....28	Gay Feather .....29
Achillea .....25	Blood Lily .....9	Crinum .....10	General Information .....2-3
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Aconitum .....25	Blueberries .....38	Crocus .....10, 22	Geranium .....29
Actaea .....25	Blue Sea Holly.....27	Crown Imperial.....10	German Iris.....29
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Agapanthus .....25	Brimeura.....9	Cyrtanthus .....10	Globeflower .....29
Agastache .....25	Brodiaea .....9	Daffodils .....10	Globe Thistle .....29
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**HARDINESS  
ZONE MAP**  
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## NOTES

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