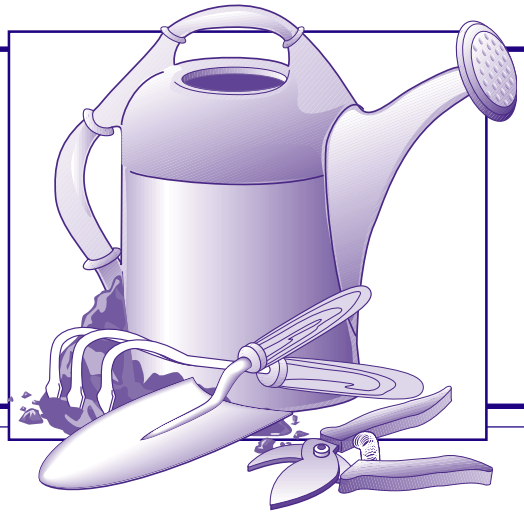
GARDEN CENTER GUIDE

Peonies in the Garden



"June . . . The peony is the month's crown, the focus, the highlight of all that is beautiful in the garden picture."

—James Kelway

The common herbaceous peony is very hardy and thrives in a wide range of soils and climate. They need little care and survive the harshest Kansas winters. Peonies are the backbone of the perennial garden and make nice cut bouquets in the home or for carrying to the cemetery.

The peony began its role as a favored flower centuries ago, and the curtain has not yet fallen on its performance. In mythology, the peony first enchanted Leto, mother of Apollo, who gave the plant to the physician Paeon to cure Pluto's wound from the Trojan War. The Chinese adopted the peony as the principle flower in the Chinese Imperial Palace Gardens, calling it 'Sho Yo', meaning "most beautiful."

In the 8th century, its charm captivated the Japanese, who developed more than 300 varieties. Much later in the early 19th century, European gardens began to feature the peony. Today, gardeners throughout Europe, Asia and North America regard the peony as one of the easiest, most rewarding plants to grow.

There are two groups of peonies: tree peonies and herbaceous peonies. Tree peonies grow to eye-level on woody stems with few branches. The stems of these peonies stay alive through the winter and bloom early. The flowers of tree peonies come in a broad spectrum of colors from yellow, black, and purple to the typical range in shades of red, pink and white. Tree peonies are less common in home gardens due to their higher cost and care requirements.

Herbaceous peonies are more commonly grown and do well in a wide range of soil types and climates. Their bushy green, pink or red stems grow from two to four feet tall and turn green by the time they are cut down in the fall. Each cultivar has leaves of a particular shade of green / red and a shape ranging from broad to grass or fernlike. Flower colors include white, yellow, cream, pink, rose and deep red varieties.

The flowers are grouped into five primary types according to the shape of the petals: single, Japanese, anemone, semi-double, double and the secondary bomb form.

Single peonies have five or more broad petals in one or two rows surrounding a center of golden, pollen-bearing stamens and carpels.

Japanese peonies have five or more guard petals and a center of broadened filaments and very large anthers creating structures which are feathery in appearance.

Anemone peonies have five or more outer guard petals in several rows with the filaments of the stamens having become quite broad and appearing as narrow petals filling the center of the bloom. The anthers have completely disappeared.

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Semi-double peonies have five or more outer petals and a center of numerous petaloids of varying, and greatly increased widths, throughout which, pollen-bearing stamens are intermixed.

Double peonies have five or more outer petals with the central stamens and carpels transformed into petaloids that make up the main body of the large, full flower. The central petaloids are largely indistinguishable from the outer guard petals.

Bomb peonies are often considered a sub category of the double form. They are characterized by a row of outer guard petals surrounding a pompon tuft of dense petals. The central petaloids have become very broad but can still be distinguished from the outer row of guard petals.

All types do well in Kansas flower gardens, though the double types are the most popular.

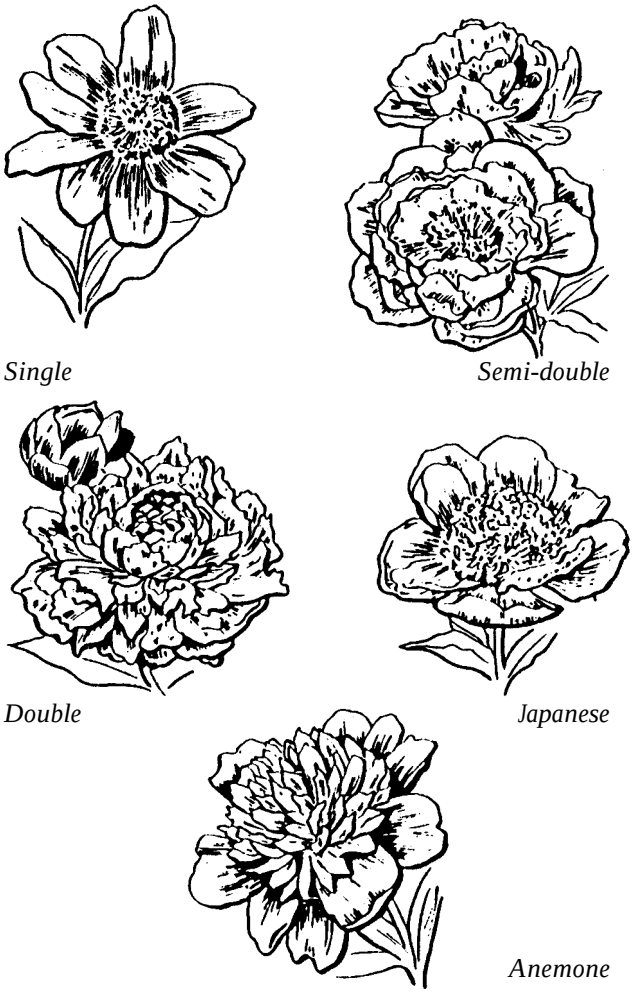


Figure 1. Types of peonies.

How Peonies Grow

Peonies grow from an underground crown and have either pointed or large and bulky roots. As the ground begins to thaw in late winter to early spring, the elongating stem of a crown bud or "eye" emerges and then splits, allowing a leafy shoot to grow. The new shoots grow rapidly. Flowers are terminal with one to three lateral buds.

In Kansas, peonies bloom in May and June. At blooming time, peony plants are fully expanded and will not add any new stem or leaf growth. The post-bloom, summer season is spent forming stem buds, or eyes, at the base of the stems and storing food reserves for next spring's growth. These buds are the source of new stems next spring.

Peonies have finished their tasks for the year by late August and are ready for dormancy. Peony tubers begin sending out new feeder roots in mid to late fall. An extensive network of root hairs is developed before the ground is frozen. These roots begin to grow again as the ground begins to thaw. The crown buds, or eyes, have a chilling requirement to overcome dormancy and allow the new shoots to grow. The length and temperature requirement to break dormancy varies with species and cultivar. Soil temperatures at the crown below 46 degrees for 480 to 900 hours is generally considered sufficient to break shoot dormancy.

Purchasing Peonies

The best season to purchase and plant peonies is in the fall. Fall planting allows the plant to initiate root growth and build root structure before the ground freezes. Buy peony roots that have three to five eyes. Roots with only one or two eyes lack substance and may take three to five years to produce more than a few small blooms. Roots with more than five eyes often have difficulty producing the large root structure required to support the resulting top growth and yield smaller flowers for the first few years after planting. Such large root crowns should be cut and divided into three- to five-eye pieces.

When selecting among three- to five-eye roots, take care to choose a root crown that has two to three roots each one-half inch or larger in diameter. These roots should be six to eight inches long and free of any root rot or evidence of fungal or me-

chanical damage. The roots should be succulent and not appear shriveled from drying.

Peonies grown in pots may be purchased and planted anytime. Take care to purchase potted peonies with well-developed root systems. Peony roots potted in the winter and offered for sale in the spring often will have insufficient root development to hold the soil ball together and may shatter at planting. Select pots with three to five shoots. The shoots should be strong and sturdy with large healthy-looking foliage.

Planting

A peony, like most perennials planted by itself, contributes little to a quality landscape. Peonies are best planted in clusters of three plants, in mass plantings, or in lines forming the backbone of a flower bed. Planting all peony roots in a flower bed at the same time will enhance the uniformity of plant development and greatly improve the quality of appearance.

Plant in a location with full sunlight, away from the competitive effects of tree or shrub roots. A sheltered location where the peonies will be protected from high winds is preferable. Choose a permanent location, as peonies will live for more than 50 years.

Plant healthy roots and take care not to break off any eyes. Examine roots for fungal growth and cut off rotted parts. Keep roots moist until they are planted in the ground. If roots dry, soak them for several hours before planting.

Plant peony roots between September 1 and the time the ground freezes. Planting in early autumn provides time for new roots to develop and the ground to settle, making the plants less likely to suffer from the effects of alternate freezing and thawing of the soil over the winter. The greater the time between planting and ground freeze, the greater the development of feeder roots.

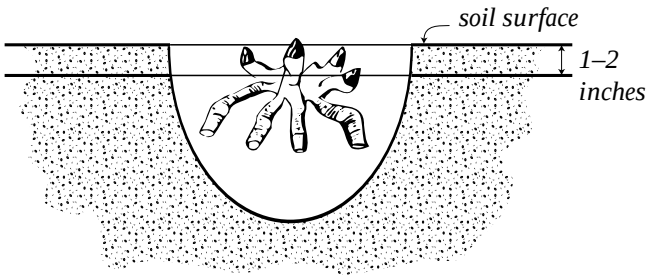


Figure 2. Planting peony roots.

Dig the hole about 18 inches across and 18 inches deep. Mix organic matter, compost or peat moss, with the soil removed from the hole in a ratio of one part organic to two parts soil. Never add any sand to the backfill soil. A half cup of blood meal and a half cup of bone meal may be added to this mixture to feed the new plant. Backfill the hole with this mixture to about half of its depth. Plant the peony crown so that the eyes are just below the surface level of the surrounding ground. Eyes on the crown of peony roots should never be covered by more than two inches of soil. Eyes planted deeper typically do not bloom.

Settling of the soil after planting can result in the eyes becoming too deeply planted. To help prevent settling, slightly firm the soil added to the hole, then add a gallon or two of water. The water helps to compact the soil and helps prevent the plant from settling.

Place the root crown and eyes to the correct depth. Do not plant the root upside down. Fill in around the roots with the backfill mixture until no voids are left below the crown or between the roots. Air pockets in the soil will dry the roots out, causing them to die. Firm the added soil well and fill in until the soil just covers the crown and eyes. Add water and let it settle, then fill in with loose soil. If the soil settles where the eyes will be too deep, reset the plant.

Plants should be spaced three to four feet apart. Closer spacing will result in crowding and require digging and dividing plants after several years of growth. Peonies are long-lived and perform best when left undisturbed.

Watering

While the peony will withstand dryness of the soil to the point of drought without succumbing, a reasonable amount of moisture is essential for the best plant development. Peonies should have a liberal supply of water during spring growth and especially while in bloom. When watering is required, apply the water slowly, for longer times, so that it will penetrate the soil to greater depths. Remember that peonies are developing roots in

the fall and again in early spring before shoot emergence. It may be necessary to water peonies during the fall and winter months.

Fertilization

Before adding fertilizer, always test the soil for nutrient content. Don't add any nutrient if it is not needed. Many "flower fertilizers" contain high concentrations of phosphorus (P). Phosphorus is generally not mobile in the soil and any amount not utilized by the plant is carried over. Continually adding fertilizers high in phosphorus can result in excessive build up in the soil. If a soil test shows sufficient phosphorus and potassium are present, then only a source of nitrogen such as blood meal or ammonium sulfate need be added.

Three to four ounces of a 1-1-1 ratio fertilizer (10-10-10 or 13-13-13) per plant per year is adequate for plant growth and flower production. Apply one-half of the amount in the fall after the plants have gone dormant and have been cut back. The second half is applied in the spring shortly after the new shoots have emerged. Timing of the fertilizer application is important. The fall application feeds new root development and the spring application fuels the bulk of the plants vegetative growth. At the time of bloom, almost all of a peony's vegetative growth has been completed. No new shoot or leaf growth occurs. Nutrients must be present when needed or plant growth and flower development will be compromised.

Never apply fertilizer directly over the center of the crown of peony plants for this may burn the eyes (buds). Apply the fertilizer in a band around the plant beginning at about eight inches and extending out to 18 inches from the center of the plant.

Weeding

Peonies develop a strong system of feeder roots near the surface of the soil, so any weed control cultivation must be done with great care to avoid injuring the shallow roots. Use a hoe with caution in keeping down the weeds. Do not cultivate deeper than one inch near the crown and two inches further out.

Woven landscape weed barriers and mulches prevent weed growth and have the added benefit of restricting soil splash from rain and irrigation on foliage and flowers. However, they must be used with care. A peony's feeder roots are near the surface and require a high degree of aeration. Weed barriers and mulches are barriers to gas exchange between the soil and the atmosphere. Also remember that peonies are planted very shallow. Any weed barrier or mulch used around peonies must be thin enough to not compromise the plants' needs.

Staking

Peonies are grown for their glorious floriferousness, the visual impact of their floral display. Unfortunately, windy or rainy conditions may cause peonies to lay over and droop until the massive double flowers fade. Planting in locations protected from the wind helps, as does planting varieties with strong stems. Sometimes these efforts are not enough, and plants must be provided a means of supporting their large flowers.

The problem can be avoided by routinely staking the plants each spring. A single pass of twine, placed about a foot below the flower buds will be enough on some strong-stemmed cultivars. A second pass of twine may be placed about a foot below the upper loop. A 2-by 2-inch stake hidden behind the plant will provide extra support to the twine loops. A green twine will be less obvious. Painting the stake a shade of green to match the foliage or using several smaller green bamboo stakes will detract less from the peony's floriferousness.

Do not use the tomato rings commonly offered for sale. They are usually not strong enough to support the weight of a mature peony in bloom. Even worse, the open metal ends of these supports are too close together. When inserted into the ground they will pierce the peony's crown and cause severe damage. A heavy-duty two-ring thick-gauge metal support has been specifically designed to support peonies. These peony supports are 30 inches high with an 18-inch diameter top ring with a 14-inch lower ring. Unfortunately, these supports are not readily available and may only be found through specialty garden suppliers.

Disbudding

If you desire large specimen flowers you may want to disbud your plants. By removing all the

lateral flower buds and allowing only the main terminal bud on each stem to remain, you will produce a larger and more perfectly shaped bloom. Remove the lateral (side) buds by rolling them sideways when they are just large enough to distinguish. The earlier they are removed, the better the results. If you prefer your peony plant to appear as a mound of bloom, you may remove the terminal bud and allow all of the lateral buds to develop and bloom. You will have many more flowers, but individually they will be smaller in size. The earlier you remove the terminal bud, the larger the laterals will be. The third option is to not disbud anything and let nature take its course.

Insects

While insects are seldom a problem on peonies, a couple of general feeding insects do occasionally visit the plants. Thrips often go unseen because of their very small size. Their feeding damage is often unnoticed because of the plentiful amount of petalage in the large flowers.

Rose chafers are small beetles about a half-inch long with tan-colored bodies and reddish-brown heads and thoraxes. They emerge from the soil in late June and July and feed on the plant foliage. Rose chafers are not a major threat because they appear after the peony has bloomed and much of the growth for the year has been completed.

Nematodes are small, almost microscopic worms that feed upon the plant roots. While they are most commonly found in light sandy soils, they can be a problem in most any soil where peonies are grown. The presence of nematodes is characterized by stunted or spindly plants with characteristic swellings or small galls on the plant roots.

Ants do not feed on peonies nor is their presence required for the flower bud to open. They are commonly found on the flowering buds of peonies because they are attracted to the sweet excretion emitted when the sepals begin to separate. After they have mined all of the excretion, and the sugary food source is gone, the ants are no longer attracted to the peony plants.

Diseases

Three disease organisms are of primary concern on peonies in Kansas. *Botrytis spp.* or blight is characterized by a sudden wilting of the shoots. Brown or black rot can be seen at the base of stems below ground, down to the root crown. Grayish fungal growth maybe visible on stems just above the soil line. Infected flowers turn brown, and large, irregular brown areas develop on leaves. Fungal growth may also develop on infected plant parts.

Another blight, *Phytophthora cactorum*, commonly found on peonies, is characterized by leathery, brown tissue on infected stems, leaves, blossoms and buds. Black cankers form on stems causing them to collapse.

Red spot or measles, *Cladosporium spp.*, appears as small, dark red, circular spots on leaves. These spots eventually coalesce to form dark purple blotches on the lower leaf surface.

Failure to Bloom

Peonies will not bloom if they have been planted too deep. Check the depth from soil surface to the top of the root crown. A depth greater than two inches will often prevent blooming. If your peonies have been planted correctly and they do not bloom, a mulch may be the problem. Mulches have the effect of increasing the depth of planting.

Too much shade and severe competition from tree or shrub roots may affect flowering. The peonies may need to be moved to a less competitive site.

Late freezes in the spring may also kill expanding flower buds.

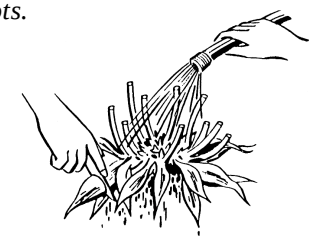
Dividing Peonies

Old peony clumps which are blooming well should not be dug and divided unless there is a special reason to do so. It generally takes three years after dividing and replanting for a peony to return to a desirable size and flower display.

Lift and divide the roots after the plants go dormant (September 1). Before lifting, cut the leaves and stems off to the ground. Carefully dig around and under the plants, taking care not to break off the roots or eyes. Wash off soil. Use a sharp, sterilized knife to cut the roots into divisions containing three to five strong buds and a generous portion of fleshy root. Shorten roots to four to six-inch stubs and remove the smaller, threadlike roots. Scarce or valuable cultivars may be cut into smaller pieces of

Figure 3. Dividing peony roots.

1. The tubers on established plants look like a collection of fat sweet potatoes.



2. Wash away all soil and cut away any damaged parts.

3. Cut roots into three- to five-eye divisions.

4. Shorten roots to four- to six-inch stubs.

one or two buds each. Such divisions should be placed in a cold frame for the first year. Too minute or too frequent division causes roots to lose vigor and delays bloom.

Cutting Flowers for Home and Cemetery

Peonies make wonderful cut flowers for the home or for taking to the cemetery. To maximize their vase life and insure that they open, it is important to cut peonies at the proper stage of flower bud development, the soft bud stage. The sepals should be completely separated and the colored surface petals should be exposed and beginning to separate slightly. When the bud is squeezed sideways, it should offer the resistance of a stale marshmallow.

Harvest long stems, but always allow a minimum of two leaves to remain below the cut. Removing more foliage will sacrifice future plant growth. Do not immediately put freshly harvested stems in water. Let the harvested stems sit at least 20 minutes. Flowers immediately placed in water may "blast," or open prematurely.

Recut the stems, removing about 1 inch of the stem, and place in water containing a floral preservative or food. Cut in the morning or in early evening when plant tissues are the coolest.

Storing Flowers

Harvest and treat flowers as above. After hydrating them for 20 minutes in the water containing the floral preservative, remove from water and be sure buds, stems and foliage are dry before wrapping in paper and placing horizontally on the refrigerator shelf. Peonies handled and stored in this manner will keep up to four weeks without significantly reducing vase life.

Recommended Cultivars

For extended periods of bloom, select cultivars from each of the early, mid and late-season blooming groups. Cultivars listed here are only a small number of those commercially available, many others will also perform well in Kansas flower gardens.

Herbaceous Peonies

Red

Kansas: double, midseason, strong stems, good cut flower, bred in Kansas

Shawnee Chief: double, midseason, vigorous, good cut flower, bred in Kansas

Bowl of Beauty: Japanese, mid to late season, rose colored guard petals surrounding creamy yellow center mass of staminoides

America: single, early season, brilliant scarlet, slightly fragrant

Bunker Hill: semi-double, midseason, fragrant

Comanche: Japanese, midseason, very vigorous, bred in Kansas

Herbaceous Peonies Continued

Paul M. Wild: double, midseason, vivid ruby-red

Philippe Rivoire: double, late season, rose-scented

Pink

Monsieur Jules Elie: double, early to midseason, fragrant, good cut flower

Albert Crousse: double, late season, salmon-pink, fragrant, free flowering

Fairy's Petticoat: double, early season, fragrant

David Kelway: double, mid to late season, spicy fragrance

Mrs. Franklin D. Roosevelt: double, midseason, fragrant, good cut flower

Salmon Dream: semi-double, midseason, strong stems

Sara Bernhardt: double, very late season, very large flowers, weak stems, good cut flower

Westerner: Japanese, midseason, orchid-pink guard petals surround pale-yellow staminoides, strong stems, bred in Kansas

First Arrival: semi-double, midseason, lavender-pink, vigorous, (Itoh intersectional hybrid)

White

Festiva Maxima: double, early season, fragrant,

Charlie's White: bomb, early season, slightly fragrant, good cut flower

Baroness Schroeder: double, mid to late season, fragrant, free-flowering

Duchesse de Nemours: double, early season, strong sweet fragrance, good cut flower

Snow Mountain: double, midseason, vigorous, good cut flower, bred in Kansas

Gardenia: double, midseason, sweet fragrance, strong stems

Elsa Sass: double, late season, dark green foliage

Yellow

Garden Treasure: semi-double, midseason, vigorous, (Itoh intersectional hybrid)

Prairie Moon: single, early season, fragrant

Yellow Heaven: semi-double, midseason, fragrant, strong stems, (Itoh intersectional hybrid)

Bartzella: semi-double, midseason, fragrant, (Itoh intersectional hybrid)

Tree Peonies

Red

Sang-no-Lorrain: semi-double, early, deep crimson-red petals with dark edges, very fragrant

Black Pirate: semi-double, midseason, mahogany-red petals, bright yellow stamens on dark red filaments, glossy foliage

Hephestos: semi-double, midseason, deep-red ruffled flowers, fragrant

Pink

Marchioness: single, midseason, apricot-colored petals with raspberry red flares

Companion of Serenity: semi-double, early, gold stamens on purple filaments

Leda: semi-double, midseason, mauve-pink flowers with wavy petals

Kishu Caprice: single, midseason, pale mauve flowers, golden anthers on purple filaments

White

Ice Storm: single, midseason, pure white flowers with yellow stamens, large flowers

Yellow

Alhambra: semi-double, midseason, golden-yellow petals with red flares

Canary: single, midseason, very bright yellow, vigorous, flowers borne well above the foliage

Goldfinch: single, midseason, pale-yellow, large flowers

Golden Hind: double, midseason, creamy yellow, very large flowers

L'Esperance: single, early, bright yellow with carmine-red edged petals, golden anthers and red filaments

Souvenir de Maxime Cornu: double, bright yellow petals edged with pink, slight fragrance

Tria: single, midseason, large, deep yellow flowers, long flowering period, three flowers per stem

"Peonies are like roses but without thorns and have flowers twice as large!"

—Anonymous

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