

Ornamental plants

Ornamental plants are plants that are grown for decorative purposes in gardens and landscape design projects, as houseplants, cut flowers and specimen display. The cultivation of ornamental plants is called floriculture, which forms a major branch of horticulture. Ornamental plants are grown for the display of aesthetic features including: flowers, leaves, scent, overall foliage texture, fruit, stem and bark, and aesthetic form. In all cases, their purpose is for the enjoyment of gardeners, visitors, and the public institutions.

Foliage plants

Foliage plant is usually used to describe green plants with ornament-like leaves. Given that our modern day lives leave us craving for clean air quality, foliage plants are a great addition to improve the air quality of our homes, making foliage plants popular among indoor plant options.

Rose

A rose is a woody perennial flowering plant of the genus *Rosa*, in the family Rosaceae. There are over three hundred species and thousands of cultivars. They form a group of plants that can be erect shrubs, climbing, or trailing, with stems that are often armed with sharp prickles. Flowers vary in size and shape and are usually large and showy, in colours ranging from white through yellows and reds. Most species are native to Asia, with smaller numbers native to Europe, North America, and northwestern Africa. Species, cultivars and hybrids are all widely grown for their beauty and often are fragrant. Roses have acquired cultural significance in many societies. Rose plants range in size from compact, miniature roses, to climbers that can reach seven meters in height. Different species hybridize easily, and this has been used in the development of the wide range of garden roses.

Scientific Name: Rosa

Family: Rosaceae

Botany

The leaves are borne alternately on the stem. In most species they are 5 to 15 centimetres (2.0 to 5.9 in) long, pinnate, leaflets and basal stipules; the leaflets usually have a serrated margin, and often a few small prickles on the underside of the stem.

The flowers of most species have five petals, with the exception of *Rosa sericea*, which usually has only four. Beneath the petals are five sepals (or in the case of some *Rosa sericea*, four). There are multiple superior ovaries that develop into achenes. Roses are insect-pollinated in nature.

The aggregate fruit of the rose is a berry-like structure called a rose hip. Many of the domestic cultivars do not produce hips, as the flowers are so tightly petalled that they do not provide access for pollination. The hips of most species are red, but a few (e.g. *Rosa pimpinellifolia*) have dark purple to black hips. Each hip comprises an outer fleshy layer, the hypanthium, which contains 5–160 "seeds" embedded in a matrix of fine, but stiff, hairs. Rose hips of some species, especially the dog rose (*Rosa canina*) and rugosa rose (*Rosa rugosa*), are very rich in vitamin C,

among the richest sources of any plant. The hips are eaten by fruit-eating birds which then disperse the seeds in their droppings.

The sharp growths along a rose stem, though commonly called "thorns", are technically prickles, outgrowths of the epidermis (the outer layer of tissue of the stem), unlike true thorns, which are modified stems. Rose prickles are typically sickle-shaped hooks, which aid the rose in hanging onto other vegetation when growing over it.



Pictures showing 1. Rose plant; 2 Rose stem showing prickles commonly called thorns; 3. L.S. of flower; 4. Rose hip

Cultivation:

Cutting is considered to be one of the best methods for propagating rose plants. Roses prefer well drained soil that is rich in organic matter and oxygen. Roses can be grown well in the soil of pH range of 6 to 6.5. Cuttings are planted in the 65 to 75 cms deep pits. Removing all the broken and bruised leaves while planting is important in rose farming. Roses require atleast 8 hours of direct sunlight for the growth. The best season to plant the rose is between September to October. The rose plant needs cutting/trimming from time to time. Soil loosening on beds is required after 4 to 6 months , there is a chance that soil becomes hard and it has to be loosened for effective irrigation so that the flower yield is high. It requires organic matter which includes Farmyard Manure (FYM) and some

fertilizers at the time of planting. The rose plants should be irrigated daily until they establish properly and thereafter once a week. Pruning in the rose garden is done during March and October.



Pictures showing Sprouted Rose cuttings

Uses:

Roses are best known as ornamental plants grown for their flowers in the garden and sometimes indoors. They have been also used for commercial perfumery and commercial cut flower crops.

1.Ornamental plants: The majority of ornamental roses are hybrids that were bred for their flowers. A few, mostly species roses are grown for attractive or scented foliage (such as *Rosa glauca* and *Rosa rubiginosa*), ornamental thorns (such as *Rosa sericea*) or for their showy fruit (such as *Rosa moyesii*).

2.Cut flowers: Roses are a popular crop for both domestic and commercial cut flowers. Generally they are harvested and cut when in bud, and held in refrigerated conditions until ready for display at their point of sale.

In temperate climates, cut roses are often grown in greenhouses, and in warmer countries they may also be grown under cover in order to ensure that the flowers are not damaged by weather and that pest and disease control can be carried out effectively. Significant quantities are grown in some tropical countries, and these are shipped by air to markets across the world.

Some kind of roses are artificially coloured using dyed water, like rainbow roses.

3. Perfume: Rose perfumes are made from rose oil (also called attar of roses), which is a mixture of volatile essential oils obtained by steam distilling the crushed petals of roses. An associated product is rose water which is used for cooking, cosmetics, medicine and religious practices. The oil is transparent pale yellow or yellow-grey in colour. The weight of oil extracted is about one three-

thousandth to one six-thousandth of the weight of the flowers; for example, about two thousand flowers are required to produce one gram of oil.

4. Food and drink: Rose hips are occasionally made into jam, jelly, marmalade, and soup or are brewed for tea, primarily for their high vitamin C content. They are also pressed and filtered to make rose hip syrup. Rose hips are also used to produce rose hip seed oil, which is used in skin products and some makeup products.

Rose water has a very distinctive flavour and is used heavily in Middle Eastern, Persian, and South Asian cuisine—especially in sweets such as barfi, baklava, halva, gulab jamun, gumdrops, kanafeh, nougat, and Turkish delight.



Gulab jamun made with rose water

Rose petals or flower buds are sometimes used to flavour ordinary tea, or combined with other herbs to make herbal teas.

In France, there is much use of rose syrup, most commonly made from an extract of rose petals. In the Indian subcontinent, Rooh Afza, a concentrated squash made with roses, is popular, as are rose-flavoured frozen desserts such as ice cream and kulfi.

Rose flowers are used as food, also usually as flavouring or to add their scent to food. Other minor uses include candied rose petals.

Rose creams (rose-flavoured fondant covered in chocolate, often topped with a crystallised rose petal) are a traditional English confectionery widely available from numerous producers in the UK.

5. Medicine: The rose hip, usually from *R. canina*, is used as a minor source of vitamin C. The fruits of many species have significant levels of vitamins and have been used as a food supplement. Many roses have been used in herbal and folk medicines. *Rosa chinensis* has long been used in Chinese traditional medicine. This and other species have been used for stomach problems, and are being investigated for controlling cancer growth .

6. Art and symbolism: The long cultural history of the rose has led to it being used often as a symbol. In ancient Greece, the rose was closely associated with the goddess Aphrodite. In the *Iliad*, Aphrodite protects the body of Hector using the "immortal oil of the rose

The second-century AD Greek travel writer Pausanias associates the rose with the story of Adonis and states that the rose is red because Aphrodite wounded herself on one of its thorns and stained the flower red with her blood.

Book Eleven of the ancient Roman novel *The Golden Ass* by Apuleius contains a scene in which the goddess Isis, who is identified with Venus, instructs the main character, Lucius, who has been transformed into a donkey, to eat rose petals from a crown of roses worn by a priest as part of a religious procession in order to regain his humanity.

Bougainvillea

Bougainvillea is a genus of thorny ornamental vines, bushes, or trees. The inflorescence consists of large colourful sepallike bracts which surround three simple waxy flowers. It is native to South America from Brazil west to Peru and south to southern Argentina.

Scientific Name : *Bougainvillea*

Family: Nyctaginaceae

Botany

The vine species grow anywhere from 1 to 12 m (3 to 40 ft.) tall, scrambling over other plants with their spiky thorns. They are evergreen where rainfall occurs all year, or deciduous if there is a dry season. The leaves are alternate, simple ovate-acuminate, 4–13 cm long and 2–6 cm broad. The actual flower of the plant is small and generally white, but each cluster of three flowers is surrounded by three or six bracts with the bright colours associated with the plant, including pink, magenta, purple, red, orange, white, or yellow. *Bougainvillea glabra* is sometimes referred to as "paper flower" because the bracts are thin and papery. The fruit is a narrow five-lobed achene.



Pictures showing 1. *Bougainvillea* flowers having showing bracts, 2 *Bougainvillea* leaves

Cultivation and Uses:

Bougainvillea are popular ornamental plants in most areas with warm climates, such as Florida and South Carolina and across the Mediterranean Basin.

Although it is frost-sensitive and hardy in USDA Hardiness Zones 9b and 10, bougainvillea can be used as a houseplant or hanging basket in cooler climates. In the landscape, it makes an excellent hot season plant, and its drought tolerance makes it ideal for warm climates year-round. Its high salt tolerance makes it a natural choice for colour in coastal regions. It can be pruned into a standard, but is also grown along fence lines, on walls, in containers and hanging baskets, and as a hedge or an accent plant. Its long arching thorny branches bear heart-shaped leaves and masses of papery bracts in white, pink, orange, purple, and burgundy. Many cultivars, including double-flowered and variegated, are available.

Many of today's bougainvillea are the result of interbreeding among only three out of the eighteen South American species recognised by botanists. Currently, there are over 300 varieties of bougainvillea around the world. Because many of the hybrids have been crossed over several generations, it is difficult to identify their respective origins. Natural mutations seem to occur spontaneously throughout the world; wherever large numbers of plants are being produced, bud-sports will occur. This had led to multiple names for the same cultivar (or variety) and has added to the confusion over the names of bougainvillea cultivars.

The growth rate of bougainvillea varies from slow to rapid, depending on the variety. They tend to flower all year round in equatorial regions. Elsewhere, they are seasonal, with bloom cycles typically four to six weeks. Bougainvillea grow best in dry soil, in very bright full sun and with frequent

fertilisation; but they require little water once established, and in fact will not flourish if over-watered. They can be easily propagated via tip cuttings.

Bougainvillea is also a very attractive genus for Bonsai enthusiasts, due to their ease of training and their radiant flowering during the spring.^[7] They can be kept as indoor houseplants in temperate regions and kept small by bonsai techniques.

B. × buttiana is a garden hybrid of *B. glabra* and *B. peruviana*. It has produced numerous garden-worthy cultivars.

Bougainvillea are relatively pest-free plants, but they may be susceptible to worms, snails and aphids. The larvae of some Lepidoptera species also use them as food plants, for example the giant leopard moth (*Hypercompe scribonia*).

China Rose

Hibiscus rosa-sinensis, known colloquially as, **China rose**, is a species of tropical hibiscus, a flowering plant of the family Malvaceae. It is widely cultivated in tropical and subtropical regions, but is not known in the wild, so that its native distribution is uncertain. It is widely grown as an ornamental plant in the tropics and subtropics. *Hibiscus rosa-sinensis* was named in 1753 by Carl Linnaeus in his *Species Plantarum*. The Latin term *rosa-sinensis* literally means "rose of China", though it is not closely related to the true roses.

Scientific Name:Hibiscus rosa-sinensis

Family:Malvaceae

Botany:

Hibiscus rosa-sinensis is a bushy, evergreen shrub or small tree growing 2.5–5 m (8–16 ft) tall and 1.5–3 m (5–10 ft) wide, with glossy leaves and solitary, brilliant red flowers in summer and autumn. The 5-petaled flowers are 10 cm in diameter, with prominent orange-tipped red anthers.

The flowers are large, conspicuous, trumpet-shaped, with five petals and their colors can be white to pink, red, orange, peach, and yellow or purple that are 4–18 cm broad. The flowers from various cultivars and hybrids can be either a single flower or a double flower.

At the bottom of every hibiscus bud is the calyx which is green in color. The pointed ends of the calyx are the sepals. When the hibiscus begins to bloom, the petals begin to grow which contains multiple petals and multiple colors. The ovary and other female parts of the flower lie in the main structure of the hibiscus, the pistil, which is long and tubular. The hibiscus has both male and female parts on the same flower. The five hairy red spots on the top of the flower is the stigma (female part) of the flower. The stigma is located at the end of the style branch. At the top of the pistil is known as the stigma, where pollen is collected, and in the middle is the style, which is the section that the pollen travels down to the ovary. The ovary lies at the bottom of the blossom and the hibiscus has only one ovary which is superior.



Picture showing Hibiscus plant

The male part (stamen) of the flower consists of stem-like filaments and each filament ends with the pollen-producing anther. The anthers, which release the pollen, sits on the filament and these two organs make up the stamen, the male part of the flower. Together, these organs make up the male part of the flower known as the stamen. The hibiscus has hundreds of stamens. Overall, the hibiscus is a dicot, solitary (axillary), complete, perfect, has a superior ovary, regular symmetry, and axile placentation. It has 5 carpels, 5 locules, 5 sepals, and the amount of stamens may vary.

The root is a branched tap root. The stem is aerial, erect, green, cylindrical and branched. The leaf is simple, with alternate phyll otaxy and is petiolate. The leaf shape is ovate, the tip is acute and margin is serrated. Venation is unicostate reticulate. (Venation is branched or divergent.) Free lateral stipules are present.

Cultivation:

It is widely grown as an ornamental plant throughout the tropics and subtropics. As it does not tolerate temperatures below 10 °C (50 °F), in temperate regions it is best grown under glass. However, plants in containers may be placed outside during the summer months or moved into shelter during the winter months.

Numerous varieties, cultivars, and hybrids are available, with flower colors ranging from white through yellow and orange to scarlet and shades of pink, with both single and double sets of petals. The cultivar 'Cooperi' has gained the Royal Horticultural Society's Award of Garden Merit.

Uses

The flowers of *Hibiscus rosa-sinensis* are edible and are used in salads in the Pacific Islands. The flower is additionally used in hair care as a preparation. It is also used to shine shoes in certain parts of India. It can also be used as a pH indicator. When used, the flower turns acidic solutions to a dark pink or magenta color and basic solutions to green. It is also used for the worship of Devi, and the red variety is especially prominent, having an important part in tantra. In the Bengal area of eastern India, the red variety of this flower is used to worship Kali. In Indonesia, these flowers are called "kembang sepatu", which literally means "shoe flower". In several countries the flowers are dried to use in a beverage, usually tea.

Hibiscus rosa-sinensis is considered to have a number of medical uses in Chinese herbology. Traditional uses in China have been to make a black shoe-polish from its crushed flower petals, or to make a woman's black hair dye. The flowers are also used in China to color various intoxicating liquors. The plant may have some potential in cosmetic skin care; for example, an extract from the flowers of *Hibiscus rosa-sinensis* has been shown to function as an anti-solar agent by absorbing ultraviolet radiation.

Asparagus

Asparagus, or garden asparagus, folk name sparrow grass, scientific name *Asparagus officinalis*, is a perennial flowering plant species in the genus *Asparagus*. Its young shoots are used as a spring vegetable.

It was once classified in the lily family, like the related *Allium* species, onions and garlic. However, genetic research places lilies, *Allium*, and asparagus in three separate families—the Liliaceae, Amaryllidaceae, and Asparagaceae, respectively—with the Amaryllidaceae and Asparagaceae being grouped together in the order Asparagales. Sources differ as to the native range of *Asparagus officinalis*, but generally include most of Europe and western temperate Asia. It is widely cultivated as a vegetable crop.

Scientific Name: *Asparagus*

Family: Asparagaceae

Botany:

Asparagus is a herbaceous, perennial plant growing to 100–150 cm (39–59 in) tall, with stout stems with much-branched, feathery foliage. The "leaves" are in fact needle-like cladodes (modified stems) in the axils of scale leaves; they are 6–32 mm (0.24–1.26 in) long and 1 mm (0.039 in) broad, and clustered four to 15 together, in a rose-like shape. The root system is adventitious and the root type is fasciculated. The flowers are bell-shaped, greenish-white to yellowish, 4.5–6.5 mm (0.18–0.26 in) long, with six tepals partially fused together at the base; they are produced singly or in clusters of two or three in the junctions of the branchlets. It is usually dioecious, with male and female flowers on separate plants, but sometimes hermaphrodite flowers are found. The fruit is a small red berry 6–10 mm diameter, which is poisonous to humans.



Picture showing 1, Asparagus plants; 2. Asparagus shoots

Plants native to the western coasts of Europe (from northern Spain north to Ireland, Great Britain, and northwest Germany) are treated as *Asparagus officinalis* subsp. *prostratus* (Dumort.) Corb., distinguished by its low-growing, often prostrate stems growing to only 30–70 cm (12–28 in) high, and shorter cladodes 2–18 mm (0.079–0.709 in) long. It is treated as a distinct species, *Asparagus prostratus* Dumort, by some authors.

Cultivation

Since asparagus often originates in maritime habitats, it thrives in soils that are too saline for normal weeds to grow. Thus, a little salt was traditionally used to suppress weeds in beds intended for asparagus; this has the disadvantage that the soil cannot be used for anything else. Some places are better for growing asparagus than others. The fertility of the soil is a large factor. "Crowns" are planted in winter, and the first shoots appear in spring; the first pickings or "thinnings" are known as sprue asparagus. Sprue has thin stems.

A breed of "early season asparagus" that can be harvested two months earlier than usual was announced by a UK grower in early 2011. This variety does not need to lie dormant and blooms at 7 °C (45 °F) rather than the usual 9 °C (48 °F).

Purple asparagus differs from its green and white counterparts in having high sugar and low fibre levels. Purple asparagus was originally developed in Italy, near the city of Albenga and commercialized under the variety name 'Violetto d' Albenga'. Since then, breeding work has continued in the United States and New Zealand, creating the 'Pacific Purple' variety.

Uses:

Only young asparagus shoots are commonly eaten: once the buds start to open ("ferning out"), the shoots quickly turn woody.

Water makes up 93% of asparagus's composition. Asparagus is low in calories and is very low in sodium. It is a good source of vitamin B6, calcium, magnesium, and zinc, and a very good source of dietary fibre, protein, beta-carotene, vitamin C, vitamin E, vitamin K, thiamin, riboflavin, rutin, niacin, folic acid, iron, phosphorus, potassium, copper, manganese, and selenium, as well as chromium, a trace mineral that regulates the ability of insulin to transport glucose from the bloodstream into cells. The amino acid asparagine gets its name from asparagus, as the asparagus plant is relatively rich in this compound.

White asparagus

White asparagus is very popular in Europe and western Asia. White asparagus is the result of applying a blanching technique while the asparagus shoots are growing. To cultivate white asparagus, the shoots are covered with soil as they grow, i.e. earthed up; without exposure to sunlight, no photosynthesis starts, and the shoots remain white. Compared to green asparagus, the locally cultivated so-called "white gold" or "edible ivory" asparagus, also referred to as "the royal vegetable", is believed to be less bitter and much more tender. Freshness is very important, and the lower ends of white asparagus must be peeled before cooking or raw consumption.

Only seasonally on the menu, asparagus dishes are advertised outside many restaurants, usually from late April to June. For the French style, asparagus is often boiled or steamed and served with

Hollandaise sauce, melted butter or olive oil, Parmesan cheese, or mayonnaise. Tall, narrow asparagus cooking pots allow the shoots to be steamed gently, their tips staying out of the water.

During the German Spargelsaison or Spargelzeit ("asparagus season" or "asparagus time"), the asparagus season that traditionally finishes on 24 June, roadside stands and open-air markets sell about half of the country's white asparagus consumption.

The shoots are prepared and served in a number of ways around the world, typically as an appetizer or vegetable side dish. In Asian-style cooking, asparagus is often stir-fried. Cantonese restaurants in the United States often serve asparagus stir-fried with chicken, shrimp, or beef. It may also be quickly grilled over charcoal or hardwood embers, and is also used as an ingredient in some stews and soups. In recent years, asparagus eaten raw, as a component of a salad, has regained popularity.

Asparagus can also be pickled and stored for several years. Some brands label shoots prepared in this way as "marinated".

Stem thickness indicates the age of the plant, with the thicker stems coming from older plants. Older, thicker stalks can be woody, although peeling the skin at the base removes the tough layer. Peeled asparagus will poach much faster. The bottom portion of asparagus often contains sand and soil, so thorough cleaning is generally advised before cooking.

Green asparagus is eaten worldwide, though the availability of imports throughout the year has made it less of a delicacy than it once was. In Europe, however, the "asparagus season is a highlight of the foodie calendar"; in the UK this traditionally begins on 23 April and ends on Midsummer Day. As in continental Europe, due to the short growing season and demand for local produce, asparagus commands a premium price.

Ferns

Ferns are the quintessential shade plant— delicate, feathery beauty and intriguing diversity . Their cultural requirements were appealing, too: ferns are adaptable, easy to grow, and require comparatively little care.

Botany:

Ferns consist of stems, leaves and roots. Ferns differ from seed plants in reproducing by spores produced inside sporangia. The main plant body sporophyte is free-living and only briefly dependent on the maternal gametophyte.

Stems: Fern stems are often referred to as rhizomes, even though they grow underground only in some of the species.

Leaf: The green, photosynthetic part of the plant is technically a megaphyll and in ferns, it is often referred to as a *frond*. New leaves typically expand by the unrolling of a tight spiral called a crozier or fiddlehead into fronds This uncurling of the leaf is termed circinate vernation. Leaves are divided into two types a trophophyll and a sporophyll. A trophophyll frond is a vegetative leaf analogous to the typical green leaves of seed plants that does not produce spores, instead only producing sugars

by photosynthesis. A sporophyll frond is a fertile leaf that produces spores borne in sporangia that are usually clustered to form sori.



Pictures showing 1. Fern plant; 2. Fern Leaf structure ;3. Fern young leaf (Fiddlehead)

Roots: The underground non-photosynthetic structures that take up water and nutrients from soil.

Cultivation:

The ideal place to grow ferns is in constantly moist, well-drained soil that is rich in humus. Ferns are actually quite adaptable provided there is adequate shade, some varieties tolerate summer drought. They may wilt and go dormant, but, if established, are likely to revive when rain returns in fall. Other ferns withstand poor drainage and very wet conditions. Whatever conditions they prefer, watering them during summer dry spells will keep them looking fresh. The best time to plant or transplant ferns are in spring, but if you buy them in pots, you can plant them any time.

Caring for ferns

- Most ferns like shade, though some thrive in sun if given adequate water.
- Moist, well-drained soil rich in organic matter suits most ferns.
- Spring planting is best.
- When moving or planting a fern, grip the plant by its roots rather than its fronds.
- Top off the soil with an organic mulch to shade and cool the roots, conserve water, and to provide fresh nutrients.

- It's best to water ferns during summer dry spells.
- Divide an overcrowded fern in early spring.

Uses:

Ferns are not of major economic importance, but some are used for food, medicine, as biofertilizer, as ornamental plants and for remediating contaminated soil. They have been the subject of research for their ability to remove some chemical pollutants from the atmosphere.

Some ferns are used for food, including the fiddleheads of *Pteridium*.

Ferns of the genus *Azolla*, commonly known as water fern or mosquito ferns are very small, floating plants that do not resemble ferns. The mosquito ferns are used as a biological fertilizer in the rice paddies of southeast Asia, taking advantage of their ability to fix nitrogen from the air into compounds that can then be used by other plants.

Many ferns are grown in horticulture as landscape plants, for cut foliage and as houseplants, especially the Boston fern. Ferns are the perfect plants for interior decoration. You can place them in any room