



**CORNELL
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HOME GROWN FACTS

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An unadorned patio, deck, or balcony is a tantalizing invitation to garden in containers. Each summer, visitors to Cornell Plantations marvel at the colorful spectacle of container plantings assembled around the Lewis Education Center. The bold, sometimes flamboyant flowers and foliage evoke a sense of the tropics and mirror our warm summers. Container gardening is gaining popularity for small spaces, and as a way to accent existing gardens.

Selecting a container

Virtually anything that will hold water is a candidate for container growing. From a bag of soil with holes punched for planting and drainage to wooden tubs, old riding boots, milk cans, hanging baskets and fancy ornamental pots. You can choose the size, shape and cost to fit your needs and desires.

The deeper the pot the less watering it will need. Pots with a small soil volume will dry out faster and require more frequent watering. Unlike plants in the ground, plants in pots or hanging baskets in the yard, on the deck or on the windowsill are exposed on all sides to the drying effects of wind and sun. On hot, windy days you may have to water them more than once.

Darker colored containers will absorb more heat, which can get seeds and transplants off to a faster start, but these containers will need more watering if they are in direct sunlight. Lighter colored containers may be better for most gardeners.

Select a container that will give your plant's roots room to grow but not so much that it will not fill out the pot. Consider the mature size of the plants you will be growing, and follow the spacing recommendations on the seed packet or plant label. Plant leaves should grow to touch each other in a container, providing shade that will retain moisture in the pot. Because weeding will be minimal and you can easily reach into a pot, there is no need to plant in rows and you can space plants closer together in a container than in a garden.

Plastic vs. Clay containers

While unglazed clay containers, such as those made of terra cotta, may seem more "natural" or appeal to those who want a certain look, plastic containers offer an advantage if they are to be placed in the full sun. Unglazed clay pots are porous and water can quickly evaporate from them, while plastic containers do not 'breathe' and therefore they will not need watering as often as clay. If you like the look of clay, there are look-a-likes available in plastic.

Drainage is important

Be sure your container allows for drainage when you water. If the post doesn't have a drainage hole in the



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bottom, add one. If you don't want to put a hole in a decorative ceramic pot you can simply put a smaller pot inside the decorative one, being sure there is some room at the bottom for the water to drain out. This will provide a reservoir for the water to drain into. The soil has to drain water or the plants roots won't be able to breathe.

Soil Selection

Some gardeners are tempted to just dig up some garden soil and put it into a container. Generally, though you are better off buying a prepared soilless mix for container growing because it is free of weeds and often contains added nutrients to help plants grow. Choose a potting soil that will provide support for plants as they grow, and one that will help retain moisture. A peat and perlite or peat and vermiculite mixture is usually a good choice.

Planting Procedures

Thoroughly water the soil before planting. Water gently until water drains from the bottom of the pot. This way you can be assured that the entire mass is wet. If you are going to move the pots, you may want to move them before watering so they will not be as heavy as they will be after watering.

For seeds, follow the seed packet directions for spacing and whether or not to cover the seeds with soil. Keep the soil moist by gently misting or watering several times a day. When seedlings emerge keep them watered, and if you have too many plants thin them by plucking out the weakest looking ones.

For transplants, plant the top of the root ball even with the soil line and keep plants well watered as they get established.

A simple test as to whether or not to water is to stick your finger into the top inch of soil. If it feels damp there is no immediate need to water; if it feels dry then you should water until some water runs out from the bottom of the container.

Mulching Helps

Plants that will be grown outdoors in full sun in containers can benefit from a layer of mulch on top of the soil. Mulch will help retain moisture in the soil, discourage weed growth, and break the harshness of rain drops or watering from a hose or watering can. Shredded bark and gravel can act as mulches—choose one appropriate to the container and the plants.

Containers placed in semi-shady or shady areas do not need mulch as much as those planted in full sun, but it is never a bad idea.

Staking tall plants

Vining plants such as tomatoes, cucumbers, morning glories, thunbergia and others will need the addition of stakes or a small trellis to support them. Add the stakes to the trellis when you first plant the seeds or the transplants that you won't damage the roots by adding them at a later date.

When plants are large enough that you need to fasten them to the stakes or trellis, do not tie them tightly to the stake. Leave a big loop that will support the stem but not restrict it. For large-stemmed plants like tomatoes and melons. Strips of cloth are gentler than plastic or metal twist-ties. When fruits begin to get large, a cloth sling tied around the fruit and fastened to the stake can keep the fruit from falling off before it is ripe.

Extending the season

One of the special advantages of container growing is that you can extend the harvest or bloom season by moving pots indoors when the weather grows cold. When you move them indoors, put the containers in a location where they will receive maximum sunlight during the day. Eventually, winter's shorter daylight hours will take their toll and your plants will start to look scraggly. You may want to finally get rid of them but with the right exposure you can keep plants growing indoors for months after their usual outdoor life.

Other advantages of containers

Growing in containers gives you an opportunity to try something new on a small scale. If you have a shady area that you want to test to see how certain plants will grow, putting a few in a pot in that area will let you see how they will do without a lot of work. Of course you can do the same in a sunny location, too. By grouping several pots, each with a different selection, you can see which ones do better so that you can decide what to grow more of next year.

Container growing is such an excellent choice for introducing children to gardening. Containers are easy to tend and can be sized to the age and interest of the child. A child's favorite vegetable or cutting flowers are popular choices to get them started.

Design

Whether you are working with large containers that can accommodate several kinds of plants, or arranging multiple pots of individual plants, it is helpful to consider a few basic elements of design.

Color is what our eyes see first, so it is one of the most important qualities to consider when selecting and designing with plants. A combination of cool colors, such as blue and green, create a subdued, subtle effect, while red, orange, and yellow hues convey a sense of brightness and flamboyance. Monochromatic schemes are created when plants in various tints and shades of one color are combined. Complementary colors are opposite each other on the color wheel. When combined, these colors become more intense, and make for a vibrant planting scheme. Analogous schemes are created when three, four, or five adjacent colors on the color wheel are combined. For example: red, purple, and blue; or yellow, orange, red, and purple.



Form, or the three-dimensional shape of a plant, is another important

Form, or the three-dimensional shape of a plant, is another important consideration for creating satisfying plant compositions. There are five general categories of form - upright, rounded or mound forming, arching or rosette, prostrate or trailing, and irregular. Tall dense plants with upright, rounded, or irregular forms are often used as fillers, bridging the gap between arching and rosette forming plants that stop the eye as focal points in a composition. Plants with especially large, broad, or colorful leaves create bold accents that provide stunning punctuation in design. Shorter mound-formers are useful as edging plants, creating a solid formation from which taller plants emerge, and concealing their bare stems.

Texture, such as smooth, rough, velvety, or leathery, refers to the surface quality of the leaves. It can also be used to denote the relative size and number of leaves or flowers in relationship to the size of the plant as a whole. Fine textured plants are those with small and often numerous leaves or flowers. These are useful as edging plants. Conversely, coarse textured plants have relatively large and often fewer leaves and flowers, and result in a plant with a distinct sculptural quality, useful as an accent.



A container garden display which makes good use of color, line, form, and texture!

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Lines in plant compositions can be vertical or horizontal. Vertical lines are created by strongly ascending leaves and stems. These give the composition a sense of vitality and excitement. Horizontal lines of leaves and stems are calming and to ground or stabilize a composition. Weeping stems or lines created by arching foliage are elegant and restful.

Choosing Plants

Putting together a container collection that results in a season-long display of interesting combinations requires some individual creativity and imagination. It helps to choose from a variety of colorful foliage and flowering plants, and those with interesting textures and growth habits.

Tall plants with structural form add a strong vertical line. These plants can be effective singly in a container for dramatic effect, or used in mixed containers as a focal point.



Examples we use at the Plantations include: **Canna** (*Canna x generalis*): Fast growing, rhizomatous plant grown for its beautiful foliage and colorful clusters of gladiolus-like flowers. Foliage is huge and banana-like, often in bold, dark colors, sometimes striped; it remains beautiful until frost. Blooms throughout the summer.

New Zealand flax (*Phormium tenax* 'Purpureum'): Dramatic, structural foliage plant forming large clumps of deep purple/brown, sword-shaped leaves. Excellent as a specimen in a container, or in mixed arrangements as a focal point. Over-wintered plants will improve in stature in time.

Hibiscus (*Hibiscus acetosella* 'Red Shield'): Fast growing, shrubby plant grown for its exotic, brilliant bur-

Tall Plants: (Left) Red leaved amaranth (tallest plant) provides strong, vertical structure in this arrangement of warm, analogous colors. The bright yellow-striped foliage of Sanchezia provides a grounding accent. (Right) Canna 'Pretoria', with its orange flowers and purple stems, is a knockout of unlikely but fabulous

gundy, five-lobed leaves. Good vertical accent. *Hibiscus rosa-sinensis* is a tropical, ever-blooming shrub grown for its huge five-petaled flowers that bloom in every imaginable color. Good as a specimen, or focal point in mixed containers.

Elephant ear (*Alocasia esculenta*): Dramatic, tropical tuberous perennial with huge lush foliage arising from the base on long stems. Some cultivars, such as 'Protodora Shield' have enormous leaves, up to 3' long. We use 'Black Magic' for its striking velvety, purple-black leaves, which are up to 2' long.

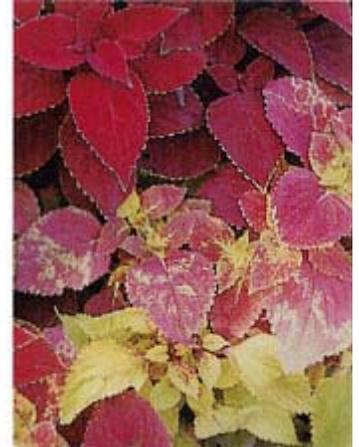
Others: Species and cultivars of palm lily (*Cordyline*), amaranth (*Amaranthus*), *Colocasia*, agave, and cycad; golden dewdrop (*Duranta erecta* 'Golden Edge'), and honey bush (*Melianthus major*).

Filler plants are useful for massing around structural plants in mixed containers, or by themselves as accent plants. Annuals and tender perennials that produce exotic and colorful foliage and/or flowers reliably add color and interest throughout the growing season. Examples we use at Plantations include:

Coleus (*Solenostemon scutellarioides*): For season-long interest, few plants provide as much variety of brilliantly colored foliage, leaf shape and plant form as coleus. Foliage ranges from velvety deep purple to multi-colored varieties, on plants that can be upright, bushy, or cascading.

Eucalyptus (*Eucalyptus cinerea*): Grown as an annual, the silvery-blue foliage provides an excellent accent and filler, contrasting well with almost any color scheme. By over-wintering the plant, it can become an architectural specimen with great effect.

Lantana (*Lantana camara*): A sprawling, tropical, floriferous shrub grown for its vibrant verbena-like flowers in bright and multi-colored hues. Depending on variety, they can be upright and shrubby or sprawling, weeping, or trailing. **Other:** Painted tongue (*Salpiglossis sinuata*), anise hyssop (*Agastache foeniculum*), plume flower (*Celosia*), firecracker plant (*Cuphea*), blood-leaf (*Iresine*), shiso (*Perilla frutescens*), gazania, and fuchsia.



Filler Plants: (Left) The elegance of a rolled-rim terracotta pot is enhanced by a monochromatic display featuring the taller anise hyssop (*Agastache* 'Apricot Sprite') and shorter orange gazanias. (Right) Coleus 'Alabama Sunset' (bottom) and 'Oxblood' (top)

Edging or cascading plants make excellent companions in mixed arrangements. These vigorous growers are climbing, trailing, or cascading-spilling down the sides of containers or weaving through the planting. Well chosen, these plants will tie the container together, soften the edges, and add layers of contrasting flowers and foliage. Examples we use at Plantations include:



Cascading Plants: (Left) An attractive arrangement of complimentary colors and contrasting textures in a wooden bin planter, including (upper left) a flowering maple, (upper right) a lime green and yellow coleus, and (lower right) sweet potato vine. (Right) A graceful cascade of *Petunia integrifolia*.

Christmas clover (*Alternanthera dentata* 'Rubiginosa'): Versatile and colorful plant with dark, burgundy-red leaves that weave through a planting. Good all-season color.

Licorice plant (*Helichrysum petiolare*): Vigorous trailing plant with silver foliage that quickly fills in every available space, softening the edges and forming a silvery frame around the container.

Silver plectranthus (*Plectranthus argentatus*): A vigorous grower with fuzzy, silvery leaves with a purplish cast to the stems. Good contrast color to compliment darker-foliaged plants.

Black-eyed Susan vine (*Thunbergia alata*): Vigorous yet delicate climber that twines through a container planting adding layers of flowers and foliage. The most common one has bright yellow flowers with dark, almost black

eyes; newer mixes now offer shades of red to purple.

Other: Species and cultivars of cup and saucer vine (*Cobea*), glory flower (*Eccremocarpus*), morning glory or sweet potato vine (both *Ipomea*); parrot's beak (*Lotus berthelotii*), million bells (*Calibrachoa*), and petuni.

The patio container garden of brilliant flowers and foliage, assembled at the Lewis Education Center and dedicated in June 2003, has been made possible through the generosity and thoughtfulness of the Cornell Class of '53.

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Information in this fact sheet was obtained from

<http://www.plantations.cornell.edu/collections/botanical/container.cfm>

And a 1993 Today's garden article from the National Gardening Bureau

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READ THE LABEL BEFORE APPLYING ANY PESTICIDE.

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