Growing Annuals

Annuals quickly provide more color in the landscape for longer periods of time than any other garden plants. They are versatile, sturdy and inexpensive.

An annual flower bed with zinnias, salvia and petunias.
Karen Russ, ©2007 HGIC, Clemson Extension

Growth Rate
True annuals sprout from seed, flower, set seed and die within one season. Many flowers that are not hardy such as begonias, impatiens and geraniums are also grown as annuals. Biennials complete their life cycle in two growing seasons. In South Carolina many can be planted as seed in summer or fall to bloom the following spring or summer. A practical definition of annuals could be plants that must be replaced every year in the garden.

Annuals are commonly grouped as hardy, half-hardy or tender. Hardy annuals - such as pansies and ornamental kale - are grown for color in cool and cold seasons. They are usually planted in the fall. Most decline or die with the onset of summer heat.

Half-hardy annuals - such as allysum and dianthus - can tolerate light frost and are usually planted in early spring for spring and early summer color. They usually decline in summer heat but may bloom again in the fall.

Tender annuals - such as vinca, zinnia and impatiens - cannot tolerate freezing temperatures. They should be planted in the spring after all danger of frost is past.

Landscape Use
Most annuals need full sun for at least 4 to 6 hours a day to flower well. Choose shade-tolerant species such as impatiens, coleus or begonias for locations that receive less sun.

Avoid planting in areas where water stands after a heavy rain. Also avoid areas near large trees and shrubs that may have many thirsty feeder roots.

Soil Preparation
Good bed preparation is essential for good performance of annuals. Deeply spade the beds to a depth of 6 to 10 inches. Amend clay soils by mixing in at least 2 inches of pine bark humus, compost, leaf mold or small pea gravel to improve drainage and aeration. Improve water retention in sandy soils by mixing in 2 to 3 inches of pine bark humus, composted leaf mold or peat moss. Good soil drainage is critical to the success of most annuals. Raised beds can be used to ensure adequate drainage.

Base fertilizer and lime applications on the results of a soil test for best results. In the absence of a soil test, add either a complete fertilizer such as 10-10-10 at the rate of 1 pound per 100 square feet of bed area, or add either a complete slow-release fertilizer.
or complete organic fertilizer following label directions. In coastal counties, such as Horry, Charleston, and Beaufort, that have soils with more than adequate phosphorus, use ¾ pound of a 15-0-15 fertilizer per 100 square feet of bed area. For most fertilizers, a pint is a pound.

A pH of 6.0 to 6.5 is ideal for most annuals. Most South Carolina soils are very acidic (except for some areas along the coast) and require the addition of lime to correct pH. In the absence of a soil test, add 4 pounds of pelletized lime (3 pints) per 100 square feet of bed area. Incorporate lime and fertilizer into the top 4 to 6 inches of soil after mixing in the soil amendments. Rake the soil surface smooth. For more information about how to test the soil, please see HGIC 1652, Soil Testing.

Avoid working soil while it is wet since this can cause lumping and shallow "pans," which resist air, water and root penetration. Soil that is ready for cultivation holds its shape when squeezed, but crumbles easily.

**Planting**

Most annuals are grown from seed. They can be direct-seeded in prepared beds, started indoors for transplanting outside later or purchased as ready-to-plant transplants.

The recommended seeding date, depth and spacing are usually listed with other information on the seed packet. Some annuals that are listed for late winter or early spring sowing can be planted in late fall in the warmest parts of the Coast. Most outdoor-sown annuals should be thinned to a recommended spacing when they develop the first pair of true leaves.

If seed is sown indoors for later transplant, seedlings must be located close to a light source for at least 16 hours daily. Insufficient light will result in weak, spindly seedlings. The light height above the seedlings may need to be adjustable as the seedlings grow.

Most summer annuals can be seeded indoors 6 to 8 weeks before the last frost. Seeds should be sown according to label directions in a sterile soilless mix. Seedling flats should provide good drainage.

**Watering**

Once transplanting is complete, water the plants thoroughly. Pay especially close attention to watering the first few weeks while plants develop their root systems. Adequate moisture is essential for the growth of flowering annuals. Most annuals need at least 1 to 1 ½ inches of water per week from rain or irrigation. More may be needed during very hot weather.

To promote deep root growth, water thoroughly and deeply. Allow the soil surface to dry before watering again. Soaker hoses and drip irrigation are ideal watering methods since they save water and avoid wetting leaves and flowers.

Mulch flower beds with 2 to 3 inches of pine bark or pine straw to help conserve soil moisture and reduce weed growth. Mulches shade weed seeds and prevent their germination, eliminating or reducing the need for hand or chemical weed control. Do not apply pre-emergence herbicides.
onto the soil immediately after planting. These herbicides work by stopping root development, and are likely to harm the new transplants. However, these pre-emergence herbicides may be applied around established (well-rooted) annuals to prevent weed seeds from germinating.

**Maintenance**

Weed control should usually be done by hand-weeding or with the use of herbicides to avoid damaging shallow roots. Read and follow label directions before using any herbicide. Do not apply pre-emergence herbicides around newly planted annuals, as these products will stop root growth.

Maintenance fertilization should be based on the results of a soil test. In the absence of a soil test, apply a complete, slow-release fertilizer, such as a 12-6-6, at the rate of 1 to 2 pounds per 100 square feet of bed area just before planting in spring. For additional growth, repeat the fertilizer application at 6 week intervals. Alternatively, complete organic fertilizers may also be used. However, if a soil test reveals that the soil pH is above 6.5, use an acid-forming, complete fertilizer instead, such as an azalea & camellia fertilizer, or use an acid-forming, complete organic fertilizer. Avoid touching any emerging leaves with fertilizer to avoid leaf damage. Alternatively, apply 4 to 7 pounds of a complete organic fertilizer, such as Espoma Garden-tone (3-4-4) per 100 square feet.

As flowers fade, remove them before seeds are formed to keep plants looking attractive and encourage continuing flowering. Heavy pruning can invigorate some species. For instance, petunias can be cut back in midsummer to within a few inches of the ground, fertilized and heavily watered, and they will be full and attractive again in just a few weeks.

**Problems**

Annuals vary in their insect and disease susceptibility. Some are virtually trouble-free in the landscape while others require considerable care to look their best.

Choose insect-and disease-resistant species and cultivars when possible. Keep the garden clean and weed-free, and be alert for early signs of trouble to reduce the need for pesticides. To prevent the spread of leaf diseases, avoid overhead watering if possible and water early in the morning to allow the plants to dry quickly. Overwatering can lead to root rot.

A variety of insect pests attack annuals. The most common are aphids, spider mites, white flies and caterpillars. Infestations are more easily controlled early, before the population has a chance to expand.

There are a number of pesticides available for controlling insects and diseases of annuals. Accurate identification of the insect or disease is the first step. Misuse of pesticides may cause injury to desirable plants. All pesticide applications should be made as late in the evening as possible to reduce the impact on pollinating insects. Always read the label carefully.

**Annuals for Hot, Dry Locations**

All annuals will need additional watering while becoming established. However, these are the most likely to survive some neglect once well rooted.

African Daisy (*Dimorphotheca* or *Osteospermum*) – seed in early spring.

Annual Vinca (*Catharanthus roseus*)

Black-eyed Susan (*Rudbeckia hirta*)

Cosmos (*Cosmos species*)

Creeping Zinnia (*Sanvitalia procumbens*)

Dusty Miller (*Senecio cineraria*)

![African Daisy (*Osteospermum 'Summertime White*').](image)

Joey Williamson, ©2015 HGIC, Clemson Extension
Globe Amaranth (*Gomphrena globosa* 'Strawberry Fields').
Joey Williamson, ©2015 HGIC, Clemson Extension

Gaillardia (*Gaillardia pulchella*)
Globe Amaranth (*Gomphrena globosa*)
Gold Medallion (*Melampodium paludosum*)
Moss Rose or Purslane (*Portulaca grandiflora*)
Mulla Mulla (*Ptilotus exaltatus*)
Pentas (*Pentas lanceolata*)
Pepper (*Capsicum annuum*)
Silvery Plectranthus (*Plectranthus argentatus*)
Snow-on-the-Mountain (*Euphorbia marginata*)
Spider Flower (*Cleome hasslerana*)
Strawflower (*Bracteantha bracteata*)
Summer Snapdragons (*Angelonia angustifolia*)
Tickseed (*Coreopsis tinctoria*)
Trailing Petunia (*Calibrachoa x hybridus*)
Verbena (*Verbena species*)
Zinnia (*Zinnia species*)

**Annuals That Thrive in Heat**
These annuals will also tolerate very hot weather, but do best with additional soil moisture.
Blue Daze (*Evolvulus glomerata*)
Castor Bean (*Ricinus communis*)
Cockscomb (*Celosia argentea*)
Cypress Vine (*Ipomoea quamoclit*)
Dahlia (*Dahlia* species and hybrids)
Fan Flower (*Scaevola aemula*)
Flowering Tobacco (*Nicotiana* species)
Four o'clock (*Mirabilis jalapa*)
Hyacinth Bean Vine (*Dolichos lablab*)
Joseph's Coat (*Amaranthus tricolor*)
Mexican Bush Sage (*Salvia leucantha*)
Mexican Heather (*Cuphea hyssopifolia*)

Silk Flower (*Abelmoschus manihot*)
Starflower (*Pentas lanceolata*)
Sunflower (*Helianthus annuus*)

**Annuals for Shade or Part Shade**
Most annuals need at least 6 hours of sun to flower well, although many will tolerate shade in the afternoon, if they have had a full morning of sun. These annuals will bloom with less sun, although all will need some sun for flowering. Those marked with an * will tolerate the most shade.

Ageratum (*Ageratum houstonianum*)
Begonia (*Begonia* species)
Caladium (*Caladium* species)*
Coleus (*Solenostemon scutellarioides*)

Mexican Sunflower (*Tithonia rotundifolia*)
Moon Vine (*Ipomoea alba*)
Morning Glory (*Ipomoea* species)
Moss Rose or Purslane (*Portulaca grandiflora*)
Pepper (*Capsicum annuum*)
Salvia (*Salvia* species)
Forget-me-not (*Myosotis sylvatica*)
Impatiens (*Impatiens* species)*
Edging Lobelia (*Lobelia erinus*)
Monkey Flower (*Mimulus hybridus*)*
New Guinea Impatiens (*Impatiens* species)*
Woodland Tobacco (*Nicotiana sylvestris*)
Pansy (*Viola x wittrockiana*)
Wishbone Flower (*Torenia fournieri)*

Annual Ageratum (*Ageratum houstonianum*).
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**Annuals for Moist Soil**
No annuals will grow in water-logged soil, but the following will tolerate damper conditions than others.

- Forget-me-not (*Myosotis sylvatica*)
- Monkey Flower (*Mimulus hybridus*)
- Blue Woodruff (*Asperula orientalis*)
- Caladium (*Caladium* species)

Annual Vinca (*Catharanthus roseus*)
Calliopsis (*Coreopsis tinctoria*)
Cockscomb (*Celosia argentea*)
Cornflower (*Centaurea cyanus*)
Cosmos (*Cosmos* species)
Four o'clock (*Mirabilis jalapa*)
Gaillardia (*Gaillardia pulchella*)
Gold Medallion (*Melampodium paludosum*)
Joseph's Coat (*Amaranthus tricolor*)
Mexican Sunflower (*Tithonia rotundifolia*)
Moss Rose (*Portulaca grandiflora*)
Nasturtium (*Tropaeolum majus*)
Purple Fountain Grass (*Pennisetum setaceum*)
Spider Flower (*Cleome hasslerana*)
Verbena (*Verbena* species)
Hardy & Half-Hardy Annuals
Those marked with a * can be sown as seed in the fall. The others are planted as transplants either in the fall, late winter or early spring.

Allysum (*Lobaria maritima*)
Annual Lobelia (*Lobelia erinus*)
Annual Phlox (*Phlox drummondii*)
Cornflower (*Centaurea cyanus*)
Delphinium (*Delphinium species*)
Dianthus (*Dianthus species*)
English Daisy (*Bellis perennis*)
Flowering Cabbage and Kale (*Brassica oleracea*)
Foxglove (*Digitalis purpurea ‘Foxy’*)
Johnny-jump-up (*Viola tricolor*)
Larkspur (*Consolida ambigua*)
Monkey Flower (* Mimulus hybridus *)
Nasturtium (*Tropaeolum majus*) – seed in early spring.
Pansy (*Viola x wittrockiana*)

Biennials
Plant seed in late summer or early fall for spring bloom.
Foxglove (*Digitalis purpurea*)
Hollyhock (*Alcea rosea*)
Sweet William (*Dianthus barbatus*)
Wallflower (*Erysimum species*)

Annuals That May Reseed Year After Year
Alyssum (*Lobaria maritima*)
Calliopsis (*Coreopsis tinctoria*)
Cornflower (*Centaurea cyanus*)

Poppy (*Papaver species*)
Pot Marigold (*Calendula officinalis*)
Snapdragon (*Antirrhinum majus*)
Stocks (*Matthiola incana*)
Sweet Peas (*Lathyrus odoratus*)
Cosmos (Cosmos species)
Flowering Tobacco (Nicotiana species)
Forget-me-not (Myosotis sylvatica)
Four O’clock (Mirabilis jalapa)
Hollyhock (Alcea rosea)
Impatiens (Impatiens species)
Johnny-jump-up (Viola tricolor)
Larkspur (Consolida ambigua)
Morning Glory (Ipomoea tricolor) – may become invasive.
Moss Rose (Portulaca grandiflora)
Petunia (Petunia species and hybrids)
Poppies (Papaver species)
Silk Flower (Abelmoschus manihot)
Snow-on-the-Mountain (Euphorbia marginata)
Spider Flower (Cleome hasslerana)
Zinnia (Zinnia species)

Annuals for Use as Cut Flowers

Annual Carnation (Dianthus caryophyllus)
Annual Phlox (Phlox drummondi)
Pot Marigold (Calendula officinalis)
African Daisy (Dimorphotheca or Osteospermum)
Cockscomb (Celosia argentea)
Cornflower (Centaurea cyanus)
Cosmos (Cosmos species)
Dahlias (Dahlia species and hybrids)
Dianthus (Dianthus species)
Larkspur (Consolida ambigua)
Marigold (Tagetes species and hybrids)
Snapdragon (Antirrhinum majus)
Statice (Limonium sinuatum)
Stocks (Matthiola incana)
Summer Snapdragons (Angelonia angustifolia)
Sweet Peas (Lathyrus odoratus)
Zinnia (Zinnia species)
**Fragrant Annuals**

- Alyssum (*Lobularia maritima*)
- Angel’s Trumpet (*Brugmansia* species)
- Dianthus (*Dianthus* species)
- Flowering Tobacco (*Nicotiana* species)
- Four o'clock (*Mirabilis jalapa*)
- Heliotrope (*Heliotropium arborescens*)
- Moonflower (*Ipomoea alba*)
- Nasturtium (*Tropaeolum majus*)
- Petunia (*Petunia* species)
- Stocks (*Matthiola incana*)
- Sweet Peas (*Lathyrus odoratus*)
- Sweet Sultan (*Centaurea moschata*)
- Sweet William (*Dianthus barbatus*)
- Thorn Apple (*Datura species*)
- Wallflower (*Erysimum* species)

**Large Bold Annuals**

- Castor Bean (*Ricinus communis*)
- Cosmos (*Cosmos species*)
- Hollyhock (*Alcea rosea*)
- Joseph's Coat (*Amaranthus tricolor*)
- Mexican Sunflower (*Tithonia rotundifolia*)
- Purple Fountain Grass (*Pennisetum setaceum*)
- Spider Flower (*Cleome hasslerana*)
- Sunflower (*Helianthus annuus*)
- Woodland Tobacco (*Nicotiana sylvestris*)

**Trailing Annuals**

- Blue Pimpernel (*Anagalis monellii*)
- Fan Flower (*Scaevola aemula*)
- Geranium, Ivy-leafed (*Pelargonium* species)
- Licorice Plant (*Helichrysum petiolatum*)
- Nasturtium (*Tropaeolum majus*)
- Petunias (Cascade and Wave series)
- Sweet Potato Vine (*Ipomoea batatas*)
- Trailing Lantana (*Lantana montevidensis*)
- Trailing Petunia (*Calibrachoa x hybrida*)
- Trailing Verbenas (*Verbena* species)
Petunia (Petunia 'PinkWave') & Trail Lantana (Lantana montevidensis) along with Dragon Wing Begonia (Begonia x argenteoguttata) in hanging baskets.
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Annual Vines
Black-eyed Susan Vine (Thunbergia alata)
Cardinal Vine (Ipomoea x multifida)
Cup and Saucer Vine (Cobaea scandens)
Cypress Vine (Ipomoea quamoclit)
Hyacinth Bean Vine (Lablab purpureus)
Love-in-a-Puff (Cardiospermum halicacabum)
Moonflower (Ipomoea alba)
Morning Glory (Ipomoea tricolor)
Nasturtiums (Tropaeolum majus)
Paradise Vine (Solanum wendlandii)
Purple Bell Vine (Rhodochitio atrosanguineum)
Scarlet Runner Bean (Phaseolus coccineus)
Spanish Flag (Mina lobata)
Sweet Pea (Lathyrus odoratus)
Sweet Potato Vine (Ipomoea batatas)

Annuals That Attract Hummingbirds & Butterflies
Annual Vinca (Catharanthus roseus)
Black-eyed Susan (Rudbeckia hirta)
Calliopsis (Coreopsis tinctoria)
Cosmos (Cosmos species)
Cypress Vine (Ipomoea quamoclit)
Dianthus (Dianthus species)
Dill (Anethum graveolens)
Four o'clock (Mirabilis jalapa)
Gaillardia (Gaillardia pulchella)
Globe Amaranth (Gomphrena globosa)
Heliotrope (*Heliotropum arborescens*)
Lantana (*Lantana species*)
Mexican Sunflower (*Tithonia rotundifolia*)
Morning Glory (*Ipomoea tricolor*)
Nasturtium (*Tropaeolum majus*)
Phlox (*Phlox drummondi*)
Salvia (*Salvia species*)
Starflower (*Pentas lanceolata*)
Verbena (*Verbena species*)
Zinnia (*Zinnia species*)

Pentas (*Pentas lanceolata*). Joey Williamson, ©2015 HGIC, Clemson Extension

Annual Verbena (*Verbena 'Temari Patio Blue*').
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