

# Annuals and Perennials

## General Considerations

### ■ Definitions

Herbaceous ornamentals are mainly the plants we commonly call ‘flowers’ in our landscapes. An herbaceous ornamental is a plant that does not develop persistent woody tissue. These plants do not form a woody skeleton that remains above ground all year and from which new growth develops. An oak tree, white pine, or a lilac are examples of woody ornamentals. Herbaceous ornamentals collapse for a portion of the year, either dying completely or re-emerging from some type of underground storage structure.

Herbaceous ornamentals are divided by their life cycle and are categorized as either annual, biennial, or perennial.

Realize that these life cycle definitions can be geographic. A plant may live only one year in Illinois so we call it an annual, while in Florida it returns year after year and is classified a perennial. True annuals live for a portion of the year regardless of where they grow. Most commonly, the term ‘annual’ is used for a plant that cannot survive extremes of hot or cold. Either the summers are too hot or the winters are too cold. Many tender perennials which are not winter hardy in Illinois, but flower quickly from seed, are treated as annuals. Examples are coleus, lantana, impatiens, vinca, geranium, and snapdragon.

### ANNUAL

The term “annual” when applied to garden flowers refers to plants that complete their life cycle in one year. The seed germinates; the plant grows, flowers and sets seed and then it dies regardless of temperatures or other growing conditions.

### TYPES OF ANNUALS

Annuals are often classified as **hardy**, **half-hardy**, or **tender**. These classifications refer to the temperature range that annuals need in order to germinate and grow successfully. A plant’s hardiness does not refer to its overall strength or vigor, but to its specific ability to withstand cold. This should not be confused with winter hardiness of woody trees and shrubs.

**Hardy** annuals can stand the most cold and can tolerate light frosts without being killed or badly damaged.

**Half-hardy** annuals can tolerate long periods of cold, wet, damp weather but can be damaged or killed by frost. **Tender** annuals need warm soils to germinate and grow properly, and warm air temperatures to

Table R-1. Hardiness of select annuals.

Hardy	Half-Hardy	Tender
Flowering cabbage	Ageratum	Begonia
Pansy	Geranium	Coleus
Snapdragon	Dianthus	Celosia
Sweet alyssum	Gazania	Portulaca
Strawflower	Lobelia	Verbena
Calendula	Marigold	Zinnia
Cornflower	Nicotiana	Browallia
Dusty miller	Petunia	Gladiolus
	Salvia	Sunflower
		Vinca
		Cosmos

produce the best flower display. Tender annuals will not tolerate frosts and can be damaged by cool air temperatures above freezing (Table R-1.).

### BIENNIAL

A biennial is a plant that completes its life cycle in 2 years. A biennial produces leaves the first year of its life and then flowers, forms fruit and seeds and dies the second year. Common foxglove (*Digitalis purpurea*) and money plant (*Lunaria annua*) are biennials. *Myosotis sylvatica*, woodland forget-me-not, is a biennial but its ability to reseed leads many to consider it perennial. Several species of hollyhock, *Alcea* sp., are biennial.

### PERENNIAL

A perennial is a plant that lives three or more years. Perennials are subdivided into two classes: woody and non-woody. By definition, herbaceous perennials are plants that are non-woody and whose above-ground parts usually die to the ground each winter. These plants survive winter weather by means of vigorous root systems, bulbs, corms, rhizomes, tubers, or other root/stem modifications. Roses and tree peonies, though technically not fitting the definition, are included as herbaceous perennials. Refer to chapter T for more information on roses.

Herbaceous perennials can be further subdivided into hardy and tender based on the plant’s ability to survive the winter. Examples of hardy perennials include tulip, lily, daylily, peony, and chrysanthemum. Tender perennials include dahlia, gladiolus, and canna. While it may seem a misnomer to classify a non-hardy plant as a perennial, the presence of a storage organ (corm, tuber, tuberous root) allows the plant to be classified in the herbaceous perennial category.

### ■ Planting Considerations

Is the garden area brand new or is it an older bed that needs some care? The time to analyze the growing conditions and make necessary adjustments is before

planting. An older garden is going to take more time and energy to amend. The planting site is one of the most crucial aspects of flower gardening. Considerations include soil texture and structure, existing vegetation, the quantity of sunlight and moisture present. Once determined you can select the plants that fit the growing site.

### STARTING A GARDEN IN A NEW LOCATION

If the flowers are going to be planted in an area that has not previously been used for flower gardening, some additional preparation is needed. A good first step is to have a soil test done. Follow directions from the Soils and Fertilizers chapter. Begin preparing the soil during the fall preceding planting. All of the vegetation should be killed to prevent grass and weeds from becoming a problem later. This is especially true when growing perennials. Use a non-selective grass/weed killer (e.g. glyphosate) according to label directions. After 2 weeks, remove the sod or turn it under to add organic matter. An alternative is to cover the area with black plastic or heavy newspapers the summer before to kill the vegetation. The following spring, spade the soil again, just before planting. Be certain the bed is level and rake the area smooth after the final spading. Remove all rocks, stones, clods, old stems, etc.

### REVITALIZING AN OLDER GARDEN

Often an older flower garden starts to decline as trees mature and cast more shade on the area, and their roots start to encroach while competing for moisture. Aggressive plants may have spread and/or reseeded. Plants that need to be divided can no longer support healthy growth and blooms. Weeds have grown throughout the garden.

Does the soil need to be amended? What is the sun situation? Analyze the garden and determine what is worth keeping and what needs to be removed. In order to entirely rebuild the soil, plants need to be removed. Plant them in a temporary holding area. All remaining vegetation needs to be removed or killed. Hand remove or use a non-selective grass/weed killer (e.g. glyphosate) according to label directions. Once cleared of old plants and undesirable vegetation, have the soil tested and start to add amendments.

### RIGHT PLANT/RIGHT PLACE

#### SITE SELECTION

Much of the success in flower gardening relates to choosing plants that fit the growing site. While many flowers adapt to a site, maximum growth and flowering is achieved when the site is suited for the plant and vice-versa. In other words, attempting to grow a plant that needs a loose, well-drained soil in one composed of a large proportion of clay will result in poor growth and possible failure. Select annuals and perennials that:

- grow and perform under the conditions of the site
- offer as few maintenance headaches as possible
- offer a long display of color with flowers and/or foliage

- provide color at various times of the year (early bulbs, ornamental grasses, late flowering plants, etc.)

In addition to reviewing various listings (refer to the sections on Growing Annual Flowers and Growing Perennial Flowers) to help narrow down the selection process, visit local gardens and take notes on the plants and combinations used. Be sure to visit trial gardens where you can see how different plants perform under local conditions. Also, keep in mind that ‘Mother Nature’ can be fickle. The varieties that do well one season may not do well the next. It’s all part of the gardening experience.

### ■ Growing Conditions

#### SOIL TYPE

One of the most important elements in creating a flower bed is that of soil preparation. Not enough emphasis can be placed on preparing the soil properly *prior* to planting. Time spent in this area will pay dividends in having an attractive planting. Plants have three basic needs that are fulfilled by good soils: moisture, air, and nutrients. Each of these components is critical to good plant growth.

#### DRAINAGE

Most annuals and perennials prefer a soil that is rich and well-drained. Many of our soils tend to be heavy clay that is poorly drained and aerated. Anything that can be done to improve this will benefit the plants. This is especially true for perennials that will be in the garden a long time. Late winter/early spring when snow melts and we get April showers, wet, poorly drained soils are a detriment to many perennials. It is at this time that well-draining soils are critical for certain perennials such as lavender, gaillardia and ornamental blue fescue. It also is important for annuals that are grown in part to fully shaded moist sites.

#### ORGANIC MATTER

One of the best ways to improve the soil is through regular additions of organic matter. Organic matter added to clay soils improves soil structure to create better drainage and aeration. Added to sandy soils, organic matter helps increase its ability to retain moisture and nutrients.

Some sources of organic matter are:

- mushroom compost
- peat moss
- animal manures (aged)
- composted leaves
- grass clippings

For a new bed, spread approximately 3 to 6 inches of organic matter over the surface and till it into the top 6 to 12 inches of soil. Fall is the best time to work organic matter into the soil, but anytime is better than

not at all. Adding organic matter and tilling in the fall exposes the soil to greater freezing and thawing action, which helps to improve soil structure and tilth.

### RAISED BEDS

Where the soil has extremely poor drainage, it may be advisable to use raised beds. In addition to providing better drainage, raised beds are:

- filled with amended soil which can be advantageous to good root growth
- attractive and 'show off' the flowers
- easier to maintain
- easier to access

Raised beds can be created by mounding the soil, thereby raising the level, or by building more permanent structures with cinder blocks, lumber, or some other material.

### PH

The ideal soil pH for most perennials and annuals is slightly acidic (between 6.0 and 6.8). If the pH is too low or too high (as determined by a soil test), adjust it at the same time fertilizer is applied. To raise the pH (make it more alkaline) add ground limestone as recommended by the soil test report. To lower the pH, add sulfur as recommended by the soil test report.

### FERTILITY

Maintaining fertility levels in the soil keeps plants growing vigorously. Prior to planting, work in a general purpose fertilizer (i.e. 13-13-13, 5-10-5) or a comparable organic fertilizer, at a rate of 1.5 to 2 pounds per 100 square feet, unless soil test results indicate otherwise.

### LIGHT LEVELS

Annuals and perennials are grouped according to four sunlight requirements:

- *full sun*—receives sun for 6 or more hours each day
- *partial sunlight*—3 to 5 hours of sun each day
- *partial shade*—no more than a few hours of dappled sun
- *full shade*—absence of direct sunlight

It should be noted that full shade plants still must receive some light, though it may be filtered. Few plants can grow in the full shade of a forest or grove of trees. Also, plants growing near trees and shrubs will compete for nutrients and moisture. Consider that certain trees, such as black walnut, produce a chemical in their roots that is toxic to many plants and this is called an allelopathic response. Some trees such as red maple have a shallow root system that competes with plants for moisture.

### SHADE GARDENING

Gardening in the shade often presents a challenge to gardeners. Although the variety of plants that toler-

ate shade is much smaller than those that grow best in full sun, there is still a wide selection of annuals and perennials from which to choose. Below is an abbreviated listing of the most common annuals and perennials for shaded areas. For more extensive listings, refer to the tables at the end of this unit.

Some plants limit surrounding plant growth due to physical characteristics. Norway maples produce a dense shade that, coupled with a shallow root system, also limits growth beneath the trees. Many shallow rooted trees such as sweet gums and silver maples limit the ability of many plants to establish a root system.

It may be possible to thin out branches of certain trees and shrubs to allow more light for plant growth. Do this carefully so as not to destroy the shape of the tree or encourage insect or disease problems. More light may benefit the plants you are trying to grow, but it will also benefit weeds that might not have grown before.

#### Some annuals for shaded areas

Wax begonia  
Browallia  
Torenia  
Lobelia

#### Some perennials for shaded areas

Hosta  
Pulmonaria  
Astilbe  
Sweet woodruff  
Virginia bluebells

### WEED COMPETITION

A plant out of place is a weed. That out-of-place plant will compete for fertilizer, sunlight, moisture, and space with desirable plants. Reducing weed competition benefits plant health and overall aesthetics in the garden. Hand removal, tilling, or covering with plastic during the heat of summer will eliminate most weeds. Applying a non-selective herbicide (e.g. glyphosate) will also take care of weeds before planting and during bed preparation. Glyphosate should be used about 4 weeks before planting and only when all of the vegetation is to be killed in a bed prior to soil preparation.

### ■ General Care

### WATERING

Annuals and perennials generally need an inch of water per week during the growing season. More may be required during bloom or during the hot summer months. Deep, infrequent watering is better than frequent, light watering. The foliage should be kept dry if possible to avoid the spread of disease. Soaker hoses work best for this. The hoses can be placed within the bed, just under the mulch and near the root system of the plants. When run at low pressure, they provide adequate moisture. Soaker hoses with holes can be used by placing the holes on the bottom side. It may take 3 to 4 hours to do a thorough soaking. If overhead irrigation

must be used, water early enough in the day so the foliage and flowers have a chance to dry before night.

### MULCHING

After planting, add a 2 to 3 inch layer of mulch over the entire planting bed. Organic materials such as compost, shredded bark, hulls of various types, or dry grass clippings help reduce weed growth and conserve soil moisture. The following year, the mulch can be incorporated into the soil before planting to improve the soil structure. This works best with fine-textured materials as opposed to something like wood chips that would take a while to decompose. When incorporating mulch back into the bed, additional nitrogen should be applied to compensate for the nitrogen used during decomposition of the mulch. Annual additions of basic maintenance levels of fertilizer should satisfy the needs of annuals and perennials.

The choice of mulch material depends on:

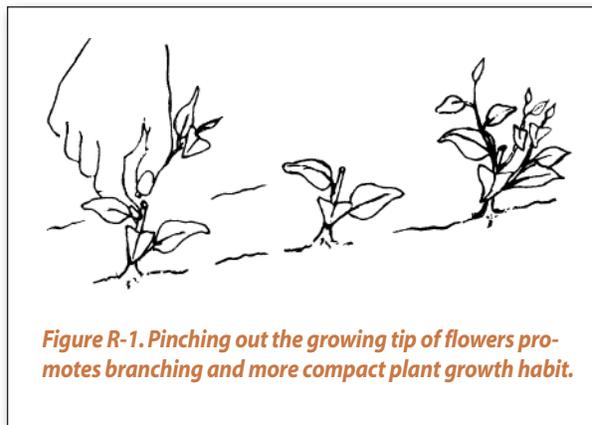
- What you like – there are too many types out there to recommend one type only. Bark products or shredded slow-decomposing wood mulches are recommended.
- What is readily available – matching mulch in the future may be an issue if you purchase a one-time deal of some off-brand mulch. Stick with the basic mulch products so you won't face this situation.
- What you can afford – face it.... cocoa mulch looks great but can cost more than mulch from your local municipality. If it is in your budget great – if not, don't run out of cash on mulch.... buy plants!

### DEADHEADING

Many annuals and perennials need little care once they are planted. Their flowers fall off cleanly and don't need to be manually removed. Others such as marigolds, geranium, zinnia, dahlia, Shasta daisy, and gaillardia, need to have faded flowers removed. This process, called **deadheading**, keeps the plants attractive, keeps them from going to seed, helps prevent disease, and increases flower production. Deadheading can be done with pruning shears or by simply pinching off the old flowers with your fingers.

### PINCHING

Some flowers benefit by being pinched back right after planting or after the first flush of bloom, to keep them compact and producing more flowers. Certain annuals (i.e. petunia, snapdragon, pansy) and perennials (*Coreopsis*, *Gaillardia*, silver mound *Artemisia*) benefit from pinching/cutting back after the first flowering. This promotes new foliage to replace weather-worn leaves and forces the plant to produce new flowers. It also encourages branching from the base, thus adding weight lower in the plant rather than at the tips which could bend under the weight (Figure R-1). Many of the newer hybrids being offered branch freely and don't require this maintenance chore.



**Figure R-1. Pinching out the growing tip of flowers promotes branching and more compact plant growth habit.**

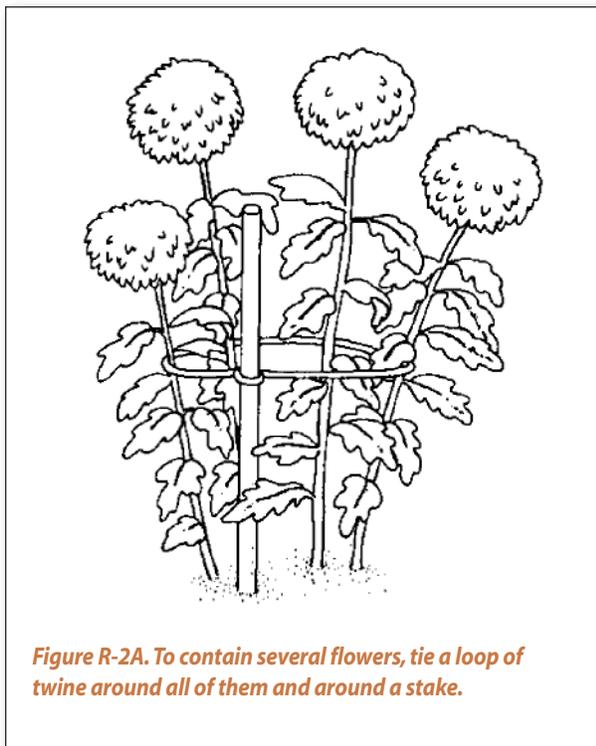
Pinching or cutting back before bloom to prevent a plant from flopping is often used with chrysanthemums, asters, sedum 'Autumn Joy', and Joe-Pye weed. If left alone, some of the late-season plants get too tall and gangly by the time they bloom. Sedum 'Autumn Joy' produces large heavy flowers and often looks like a blooming doughnut lying on the ground. When plants reach  $\frac{1}{3}$  to  $\frac{1}{2}$  their mature height, you should remove about half the growth, making sure that lower buds (nodes) remain. This encourages branching lower on the plant rather than at the growing tips. The center of gravity is lower on the plant, reducing the chance of flopping. Heavier branching will produce more flowers that are smaller. The overall color affect is the same, but the flowering texture is different. Butterflies and bees don't know the difference and will still enjoy the late summer blooms.

### DISBUDDING

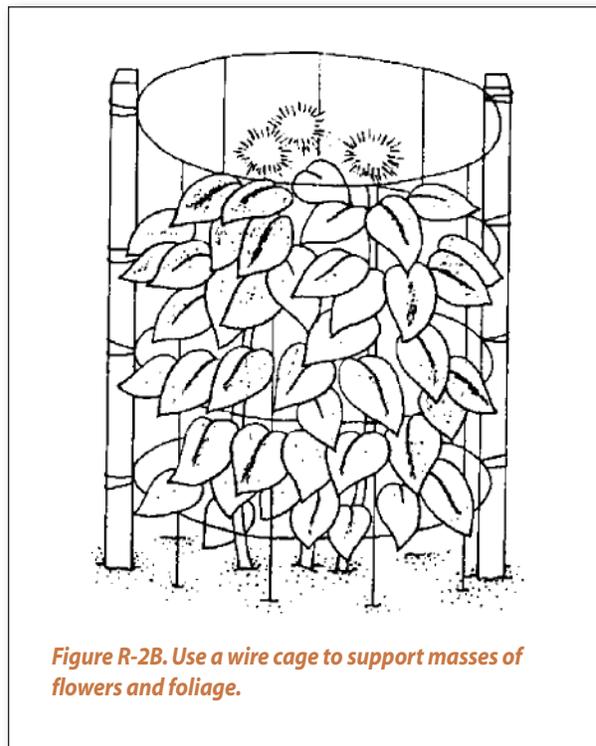
Disbudding is a procedure that increases the size of some flowers. To disbud, remove the side buds as they develop. Avoid removing the terminal (top) bud. All the energy will go into this terminal flower bud, resulting in a larger flower. Chrysanthemums, peonies, and dahlias respond well to disbudding.

### STAKING

Summer winds make it difficult to grow tall flowering plants in Illinois. Some perennials, including delphinium and oriental lilies, are prone to wind damage and may need staking. Top heavy blooms can cause plants to open up in the center. Peonies will lay down their large flowers especially after a rain. They benefit from the placement of a grow hoop around them in early spring. The peony foliage covers the hoop while keeping the flowers from drooping. Primary intention is to stake as unobtrusively as possible. Surrounding a flower garden or border with shrubs not only reduces the wind problem, but also provides an ideal backdrop for viewing plants (see section on Design Considerations for more information). Stakes should be slightly shorter than the plant's height. Wood, plastic, or bamboo sticks are ideal. Tie plants to



*Figure R-2A. To contain several flowers, tie a loop of twine around all of them and around a stake.*



*Figure R-2B. Use a wire cage to support masses of flowers and foliage.*

the stake using a figure-8 or double loop method, with one loop around the plant and another loop around the stake. Use a flexible material such as old nylon stockings. Other types of support include tomato cages, poultry netting fences, or tree/shrub branches (Figures R-2A., R-2B. and R-2C.).

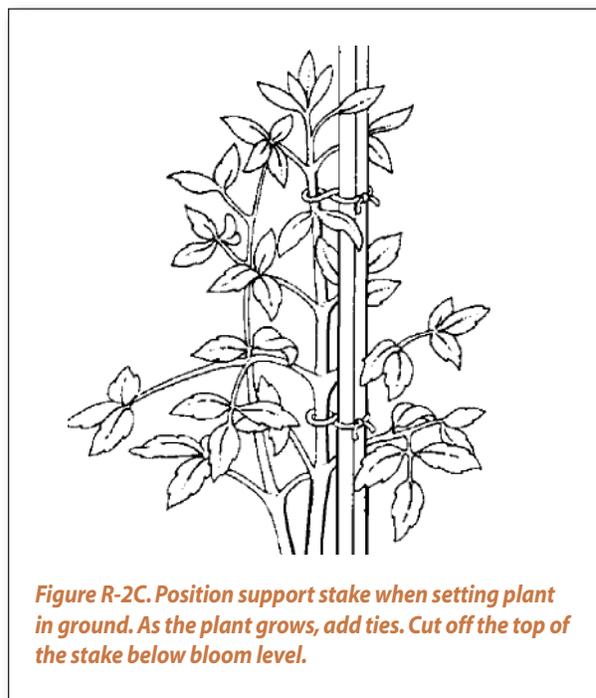
### ■ Pest Control

Most flowers have relatively few pests. Proper cultural practices do a good job of keeping pests under control. Prompt action with recommended controls will curb serious infestations. Below are descriptions of insects commonly found on annuals and perennials.

#### INSECTS

**Aphids** – Small, – soft-bodied insects, generally green or black, about one-eighth inch long, with or without wings. They suck plant juices and are found most often on young growing tips and flower buds. They can cause leaf and stem distortion. They secrete sticky honeydew which attracts ants and results in the formation of black sooty mold. Insecticides, insecticidal soaps, natural predators, and mechanical means afford good control. Lacewing larvae and ladybug adults and larvae are natural predators of aphids.

**Spider mites** – Very tiny, eight-legged animals that are usually found on the undersides of the foliage. Can be a problem at any time of the year. They suck juices from the plant and cause the foliage to become mottled and bronze in color. Webbing may be evident in heavy infestations. Miticides applied to the undersides of the leaves on a regular basis afford good control. Heavy



*Figure R-2C. Position support stake when setting plant in ground. As the plant grows, add ties. Cut off the top of the stake below bloom level.*

water spray directed toward the undersides of the leaves is also helpful, as is the use of insecticidal soaps.

**Cutworms** – Large, stout worms that cut off the plant near ground line. They do their work at night. Troublesome on seedling plants. Sprays or dusts directed towards the base of the plant or use of aluminum foil collars work well.

**Slugs** – Moist, soft-bodied animals. They feed mostly at night, leaving holes in the leaves and a silvery slime trail as they move. They hide under debris