

Flowers



After a long winter, Alaska gardeners are especially ready for the color and fragrance flowers provide. The desire to grow flowers often motivates the novice to take up gardening and moves the experienced gardener to become a specialist. Annuals, biennials and perennials offer variety and interest to gardens of all styles.

Not so long ago, flowers were separated from other parts of the garden. Masses of colorful annuals and herbaceous perennials filled park and home display beds. Garden design now seeks to provide visual interest for as much of the year as possible by intermixing spring-flowering bulbs, containers of annual flowers, herbs for cooking or tea, and grasses for fall and early winter texture with herbs, vegetables, and evergreen and deciduous shrubs.

Plants in contemporary gardens are selected not only for their flowers but also for aroma, leaf form, foliage texture and color, and edibility. Flowers remain important, but the gardening world is taking advantage of new possibilities offered by an enormous range of ornamental herbaceous plants. These include annuals, biennials and perennials.



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Types of flowers

Annual flowers

Annual flowers live one year. They germinate, grow, bloom and go to seed in one season. Because they die each fall, they must be replanted the following spring. Annuals are long-blooming and produce flowers from early summer until they set seed or are killed by frost. Most annuals are easy to grow and make colorful window boxes, container plantings and hanging baskets. Their quick growth from seeds or transplants is gratifying for young gardeners.

Some annuals reseed and come up from the previous year's plants. These include the bird's eye, pansies, poppies and monkey flower. Cottage-style gardens often benefit from these self-seeding annuals. On the other hand, formal gardens require a precise layout. Volunteer seedlings are best removed when using this style of design.

Annuals in our climate provide a long season of bloom and a huge variety of colors and sizes. Table 1 provides information on some of the common annuals grown in Alaska.

Biennial flowers

Biennial flowers often confuse gardeners. They usually require 2 full years to complete their growth cycle. The first year they develop foliage but do not flower. The second year, they flower and go to seed. Foxgloves (*Digitalis purpurea*) and canterbury bells (*Campanula medium*) are biennials. It is important to be able to identify first year foliage to avoid pulling the plants as weeds before they flower.

Perennial flowers

Unlike annuals, *perennial* flowers live year after year. Trees and shrubs are *woody perennials*. Mature garden, park and arboretum landscapes often are composed primarily of woody perennial plants.

Many familiar garden flowers are perennials.

Favorites in Alaska include peony (*Paeonia*), delphinium (*Delphinium elatum*), globeflower (*Trollius*), columbine (*Aquilegia*), Alaska wild iris (*Iris setosa*) and Asiatic lily (*Lilium*). These plants are *herbaceous perennials* because they do not form permanent woody branches as shrubs and trees do. Trees and shrubs are *woody perennials*. Mature garden, park and arboretum landscapes are often composed primarily of woody perennials. The focus of this chapter is herbaceous perennials while Chapter 11 focuses on woody perennials.

Hardy perennials live through winter. Their roots send up new shoots in the spring. Some hardy perennials are considered short-lived and survive only a few years before requiring replacement. The Iceland poppy (*Papaver nudicaule*) is a short-lived perennial, but it also self-sows. Others, such as peonies (*Paeonia*), can persist for decades, long outliving the gardener who planted them. Table 2 lists perennial flowers and vines—their height, color and where in Alaska they are hardy.

Tender perennials won't survive outdoor winter conditions even with protection. They must be lifted before frost, stored and replanted in spring. Dahlia, gladiolus, fuchsia, tuberous begonia and geranium (*Pelargonium*) are tender perennials in Alaska (see Table 3). We grow these plants as annuals or bring them inside to overwinter. In a location without cold winter temperatures, these plants would be able to survive the winter without having to be brought indoors. For information on how to store tender perennials through the winter, see UAF Extension publication *Growing and Overwintering Fuchsia, Geranium, Dahlia and Tuberous Begonia*, HGA-00333.

Whether a perennial is tender or hardy in a particular region depends on winter temperature, length of winter and the *microclimate* where they are planted. Microclimates are small areas that have slightly a different climate than the surrounding area. Understanding and recognizing microclimates is important in garden design.

Table 1. —Annual flowers and vines.

Common name	Scientific name	Height	Color
Ageratum	<i>Ageratum houstonianum</i>	4-24 in	purple, pink, white
Aster	<i>Callistephus chinensis</i>	8-30 in	pink, red, yellow, purple, lavender, white
Baby blue eyes	<i>Nemophila menziesii</i>	6 in	blue with white, black with white
Bachelor's button	<i>Centaurea cyanus</i>	12-30 in	blue, pink, white, maroon
Bacopa	<i>Sutera cordata</i>	Trailing, 14-30 in	white, pink, lavender
Begonia, wax	<i>Begonia semperflorens-cultorum</i>	6-14 in	pink, red, white; foliage can be green, bronze, reddish, yellow spotted
Blanket flower	<i>Gaillardia pulchella</i>	15-24 in	red and gold bicolor
Butterfly flower	<i>Schizanthus pinnatus</i>	10-12 in	pink, magenta, red, purple, lavender, all with white
Calendula	<i>Calendula officinalis</i>	10-36 in	orange, apricot, yellow, yellow with red tinge
Calibrachoa	<i>Calibrachoa hybrids</i>	Trailing, 18-30 in	pink, magenta, red, orange, yellow, terracotta, purple, lavender, white, black, bicolor
Candytuft	<i>Iberis umbellata</i>	6-10 in	magenta, lavender, white
Cerithe	<i>Cerithe major</i>	14-30 in	calyxes an odd purple
Cockscomb	<i>Celosia argentea*</i>	10-18 in	red, orange, yellow, gold
Coleus	<i>Solenostemon scutellarioides*</i>	14-18 in	variegated in incredible colors
Coreopsis	<i>Coreopsis grandiflora</i>	18 in	golden yellow
Cosmos	<i>Cosmos bipinnatus</i>	20-50 in	magenta, lavender, white
Cosmos	<i>Cosmos sulphureus*</i>	20-36 in	red, orange, yellow
Dusty miller	<i>Senecio cineraria</i>	6-10 in	silver foliage
Dusty miller	<i>Tanacetum ptarmiciflorum</i>	6-10 in	silver foliage
Fanflower	<i>Scaevola aemula</i>	Trailing, 12-18 in	lavender, pink, white
Flowering cabbage, flowering kale	<i>Brassica oleracea</i>	18-24 in if not flowering	green leaves with white or lavender centers
Godetia, satin flower	<i>Clarkia amoena</i>	8-24 in	pink, magenta, lavender, white
Heliotrope	<i>Heliotropium arborescens*</i>	12-14 in	purple, white
Impatiens	<i>Impatiens wallerana</i>	6-14 in	pink, magenta, red, orange, lavender, white
Johnny-jump-up	<i>Viola tricolor</i>	6-12 in	single colors or mixes of pink, red, peach, purple, blue, yellow, white
Lavatera	<i>Lavatera trimestris</i>	20-36 in	pink, white
Licorice plant	<i>Helichrysum petiolare</i>	Stiff trailing, 12-18 in	foliage silver or chartreuse
Livingstone daisy	<i>Dorotheanthus bellidiformis</i>	3-6 in	pink, magenta, orange, peach, yellow, lavender, white
Lobelia	<i>Lobelia erinus</i>	Trailing, 12-18 in; compact, 3-6 in	purple, blue, rose, magenta, white, some with a white eye
Love-lies-bleeding	<i>Amaranthus caudatus</i>	24-36 in	maroon
Malva	<i>Malva sylvestris</i>	48-96 in	purple

Marguerite daisy	<i>Argyranthemum frutescens</i>	12-24 in	pink, magenta, yellow, lavender, white
Marigold, African	<i>Tagetes erecta</i>	12-34 in	gold, yellow, orange, cream
Marigold, French	<i>Tagetes patula</i>	6-14 in	gold, yellow, orange, maroon
Marigold, signet	<i>Tagetes tenuifolia</i>	14-18 in	yellow, orange, maroon
Monkey flower	<i>Mimulus x hybridus</i>	6-12 in	gold, yellow, often with red blotches, reddish-orange
Moss rose	<i>Portulaca grandiflora*</i>	4-8 in	rose, magenta, yellow, orange, salmon, lavender, white
Nasturtium	<i>Nasturtium majus</i>	Trailing, 36-50+ in; compact, 12-20 in	orange, golden yellow, pale yellow, red
Nemesia	<i>Nemesia strumosa</i> , <i>N. fruticans</i>	8-14 in	pink, magenta, purple, blue, lavender, orange, yellow, gold, white
Nicotiana	<i>Nicotiana glauca</i> , <i>N. glauca</i>	12-40 in	pink, rose, red, white, cream, green
Osteospermum	<i>Osteospermum ecklonii</i>	Flopping, 12 in; upright, 12-14 in	pink, rose, magenta, peach, orange, yellow, gold, purple, lavender, white
Pansy	<i>Viola sp.</i>	8-10 in	clear colors, mixed colors, many with black faces, purple, blue, pink, red, yellow, orange, white, black
Petunia	<i>Petunia x hybrida</i>	Trailing, 12-30 in; upright, 6-10 in	pink, magenta, red, yellow, purple, blue, lavender, white, bicolor, picotee
Phlox, annual	<i>Phlox drummondii</i>	6-14 in	rose, magenta, red, purple, lavender, peach, white or with a white eye
Pincushion flower	<i>Scabiosa atropurpurea</i>	18-32 in	lavender, maroon, white
Poppy, California	<i>Eschscholzia californica</i>	10-14 in	golden yellow, orange, red, white
Poppy, Shirley	<i>Papaver rhoeas</i>	14-24 in	red, pink, peach, white, picotee-
Rudbeckia	<i>Rudbeckia hirta</i>	12-36 in	gold with black or green eye; orange, maroon
Salvia, blue	<i>Salvia farinacea</i>	18-30 in	blue, cream
Salvia, painted	<i>Salvia viridis</i>	18-24 in	pink, purple, cream
Salvia, red	<i>Salvia splendens*</i>	14-18 in	red, maroon, peach, cream
Snapdragon	<i>Antirrhinum majus</i>	6-36 in	pink, rose, magenta, yellow, orange, peach, purple, lavender, white, bicolor
Statice	<i>Limonium sinuatum</i>	24-30 in	rose, pink, yellow, purple, blue, lavender, white
Strawflower	<i>Helichrysum bracteatum</i>	10-50 in	gold, orange, red, maroon, pink, white
Sunflower	<i>Helianthus annuus</i>	18-84+ in	gold, yellow, maroon, white
Swan River daisy	<i>Brachycome iberidifolia</i>	8-12 in	lavender, pink, white, yellow
Sweet alyssum	<i>Lobularia maritima</i>	4-6 in	white, purple, lavender, magenta
Twinspur	<i>Diascia barberae</i>	12-14 in	pink, rose, salmon, coral, lavender
Velvet flower	<i>Salpiglossis sinuata</i>	14-20 in	magenta, red, maroon, yellow, purple, lavender with contrasting venation
Verbena	<i>Verbena x hybrida</i>	Sprawling, 12-18 in	pink, magenta, red, purple, lavender, some with a white eye

Table 1.—Annual flowers and vines (continued).			
Zinnia	<i>Zinnia angustifolia</i>	12-18 in	orange, cream, gold
Zinnia	<i>Zinnia elegans</i> *	6-30 in	pink, magenta, red, yellow, orange, purple, lavender, white, cream, green
Annual vines			
Canary bird vine	<i>Tropaeolum majus</i>	48-72+ in	yellow
Sweet pea	<i>Lathyrus odoratus</i>	24-72+ in	pink, rose, red, purple, blue, lavender, maroon, white, bicolor, picotee
Rhodochiton	<i>Rhodochiton atrosanguineum</i>	Trailing down or twining up to 36 in	brown flowers with dusty rose calyxes
Black-eyed Susan vine	<i>Thunbergia alata</i>	Trailing down or twining up, 24-72 in	golden yellow, orange, peach; often with a black throat
Scarlet runner bean	<i>Phaseolus coccineus</i>	Twining up, 48-72+ in	orangey-red, white-scarlet bicolor

Table 2.—Perennial flowers and vines.				
Common name	Scientific name	Height	Color	Growing area
Spring blooming				
Bergenia	<i>Bergenia cordifolia</i>	12-18 in	pink, magenta, white	INT, SC, SE
Bluebells	<i>Mertensia paniculata</i>	12-15 in	blue	INT, SC, SE
Crocus	<i>Crocus</i>	6-8 in	white, yellow, purple	SC, SE
Cushion spurge	<i>Euphorbia polychroma</i>	24 in	chartreuse	(INT), SC, SE
Daffodils	<i>Narcissus</i>	6-15 in	yellow, white	(INT), SC, SE
Dwarf bleeding heart	<i>Dicentra formosa</i>	12-18 in	pink, white	SC, SE
Globeflower	<i>Trollius europeaus</i>	24 in	yellow, orange	INT, SC, SE
Glory-of-the-Snow	<i>Chionodoxa</i>	6 in	blue, white	SC, SE
Leopard's bane	<i>Doronicum orientale, D. caucasicum</i>	24-30 in	yellow	INT, SC, SE
Lungwort	<i>Pulmonaria saccharata, P. longifolia, P. hybrids</i>	12-20 in	blue, pink, white; foliage of some blotched with silver	(INT), SC, SE
Primroses	<i>Primula</i>	6-18 in	yellow, white, pink, magenta, purple, lavender, orange, green	(INT), SC, SE
Puschkinia	<i>Puschkinia scilloides</i>	6-8 in	white with blue	(SC), SE
Rockcress	<i>Arabis caucasica</i>	6 in	white, pink	INT, SC, SE
Shooting star	<i>Dodecatheon pulchellum</i>	12-15 in	magenta, white	INT, SC, SE
Siberian squill	<i>Scilla siberica</i>	6-8 in	blue, white	INT, SC, SE
Snow-in-summer	<i>Cerastium tomentosum</i>	2-8 in	white	(INT), SC, SE
Solomon's seal	<i>Polygonatum biflorum</i>	12-30 in	white	INT, SC, SE
Tulips	<i>Tulipa</i>	6-30 in	yellow, white, pink, red, maroon, purple, lavender, bicolor	SC, SE

Summer blooming				
Alaska wild iris	<i>Iris setosa</i>	18-30 in	purple, white	INT, SC, SE
Artemesia	<i>Artemesia ludoviciana</i>	24+ in	silver foliage	INT, SC, SE
Asiatic lily	<i>Lilium</i>	18-40+ in	white, yellow, orange, pink, magenta, red, maroon, bicolor	INT, SC, SE
Astilbe	<i>Astilbe</i>	10-24 in	white, pink, magenta, red	(INT), SC, SE
Bee balm	<i>Monarda didyma</i>	10-36 in	white, pink, magenta, red, purple	(SC), SE
Bellflower	<i>Campanula</i>	6-48 in	purple, white, pink	INT, SC, SE
Bitter root	<i>Lewesia tweedyi</i>	6-8 in	white with a yellow overcast and a tinge of salmon	INT, SC, SE
Bleeding heart	<i>Dicentra spectabilis</i>	18-30 in	pink, white	INT, SC, SE
Blue oat grass	<i>Helictotrichon sempervirens</i>	24-36 in	steel blue foliage	SC, SE
Blue sage	<i>Salvia nemerosa</i>	18 in	purple	(INT), SC, SE
Catmint	<i>Nepeta</i>	10-48 in	blue, sometimes pink or white	SC, SE
Columbine	<i>Aquilegia</i>	8-30 in	bicolors, yellow, red, purple, brown, pink, white	INT, SC, SE
Coral bells	<i>Heuchera sanguinea</i>	12-24 in	pink, white, red; also grown for colorful foliage in shades of purple and gold	(INT), (SC), SE
Creeping Jenny	<i>Lysimachia nummelaria</i>	1-2 in tall; trailing to 30 in	yellow; foliage green or chartreuse	INT, SC, SE
Daylily	<i>Heemerocallis</i>	18+ in	yellow, orange, maroon	INT, SC, SE
Dead nettle	<i>Lamium maculatum</i>	6-10 in	pink, white; foliage of some blotched with silver or white	INT, SC, SE
Delphinium	<i>Delphinium</i>	30-84 in	blue, white, purple, pink	INT, SC, SE
Dianthus	<i>Dianthus</i>	6-20 in	white, pink, magenta, red	INT, SC, SE
Forget-me-not	<i>Myosotis (biennial)</i>	8-14 in	blue, white, pink	(INT), SC, SE
Goatsbeard	<i>Aruncus dioicus</i>	3-4 feet	white	(INT), SC, SE
Hardy geranium	<i>Geranium</i>	8-36 in	purple, blue, white, pink, magenta	INT, SC, SE
Himalayan blue poppy	<i>Meconopsis</i>	30 in	blue, purple, white	(INT), SC, SE
Jacob's ladder	<i>Polemonium caeruleum</i>	12-36 in	blue, white	(INT), SC, SE
Lady fern	<i>Athyrium filix-femina</i>	18+ in	green foliage	(INT), SC, SE
Lady's mantle	<i>Alchemilla mollis</i>	12-15 in	chartreuse	(INT), SC, SE
Ligularia	<i>Ligularia przewalskii, L. stenocephala</i>	48-72+ in	yellow	INT, SC, SE
Lily of the valley	<i>Convallaria majalis</i>	6-10 in	white, sometimes pink	INT, SC, SE
Maltese cross	<i>Lychnis chalcedonica</i>	24-48 in	orange red, pink, white	INT, SC, SE
Masterwort	<i>Astrantia major</i>	30 in	pink, white, maroon	SC, SE
Meadow rue	<i>Thalictrum aquilegifolium</i>	48-60 in	lavender, white	(INT), SC, SE
Meadow rue	<i>Thalictrum rochebrunianum</i>	60+ in	lavender	(INT), SC, SE
Oriental poppy	<i>Papaver orientale</i>	18-36 in	orange, red, salmon, pink, white	(INT), SC, SE

Table 2.—Perennial flowers and vines (continued).				
Ostrich fern	<i>Matteuccia struthiopteris</i>	30+ in	green foliage	INT, SC, SE
Painted daisy	<i>Tanacetum coccineum</i>	24-36 in	pink, white, magenta	(INT), SC, SE
Peony	<i>Paeonia</i>	24-40 in	white, pink, magenta (known as red), coral, yellow	INT, SC, SE
Pink plumes, bistort	<i>Persicaria bistorta, P. affine</i>	10-30 in	pink, turning red, magenta, white	INT, SC, SE
Saxifrage	<i>Saxifraga</i>	6-12 in	white, pink, red	INT, SC, SE
Siberian iris	<i>Iris siberica</i>	18-36 in	pink, purple, white	INT, SC, SE
Silver brocade artemesia	<i>Artemisia stelleriana</i>	4-12 in	silver foliage	(INT), SC, SE
Snow-in-summer	<i>Cerastium tomentosum</i>	2-8 in	white	(INT), SC, SE
Speedwell	<i>Veronica</i>	1-48 in	pink, rose, purple, white	INT, SC, SE
Stonecrop	<i>Sedum</i>	3-20 in	yellow, white, pink, red, purple	INT, SC, SE
Tulip	<i>Tulipa</i>	6-30 in	yellow, white, pink, red, maroon, purple, lavender, bicolor	SC, SE
Yarrow	<i>Achillea millefolium</i>	20-30 in	yellow, gold, white, pink, magenta, lavender, red, terracotta	INT, SC, SE
Late summer blooming				
Bugbane	<i>Cimicifuga racemosa</i>	30-48+ in	white	(INT), (SC), SE
Culver's root	<i>Veronicastrum virginicum</i>	48-72 in	white, pink, lavender	INT, SC, SE
Globe thistle	<i>Echinops ritro</i>	24-36 in	steely blue	(INT), SC, SE
Meadowsweet	<i>Filipendula vulgaris</i>	30-48 in	cream	(INT), SC, SE
Monkshood	<i>Aconitum napellus</i>	30-60 in	white, purple, pink	(INT), SC, SE
Phlox	<i>Phlox paniculata</i>	30-36 in	white, pink, lavender	SC, SE
Plantain lily	<i>Hosta</i>	6-30 in	white, lavender; foliage often variegated green with white or yellow	INT, SC, SE
Prairie gayfeather	<i>Liatris spicata</i>	12-18 in	purple	(INT), SC
Perennial vines				
Ground clematis, upright virgin's bower	<i>Clematis recta, C. recta purpurea</i>	Strong vigor	white	SC, SE
Hardy kiwi	<i>Actinidia kolomikta</i>	Strong vigor, woody	flowers insignificant, both male and female needed for fruit production, older plants have leaves with a pinkish-white splash	SC, SE
Jackman clematis	<i>Clematis x Jackmanii</i>	Medium vigor	white, pink, purple	SC, SE
Siberian clematis	<i>Clematis macropetala</i>	Strong vigor	purple, blue, pink, white	(SC), SE
Solitary clematis	<i>Clematis integrifolia</i>	Grows to 4 feet, needs support, does not twine	purple, pink	INT, SC, SE
Trumpet honeysuckle	<i>Lonicera sempervirens</i>	Medium vigor, woody	pink or orange with yellow	SE
Virginia creeper	<i>Parthenocissus virginiana</i>	Medium to strong vigor, woody	flowers insignificant, burgundy fall color	(SC) SE
Yellow clematis	<i>Clematis tangutica</i>	Strong vigor	yellow	INT, SC, SE

Common name	Scientific name	Height	Color
Fuchsia	<i>Fuchsia</i> hybrids	Trailing to 24 in	pink, red, purple, lavender, white, bicolor
Fuchsia, upright	<i>Fuchsia</i> ‘Gartenmeister’	18 in+	salmon with maroon foliage
Geranium, ivy	<i>Geranium peltatum</i>	Trailing, 12-24 in	pink, magenta, red, orange, lavender, white
Geranium, zonal	<i>Geranium x hortorum</i>	Upright, 12-24 in	pink, magenta, red, orange, white
Geranium, regal (Martha Washington)	<i>Geranium x domesticum</i>	Upright, 12-18 in	pink, magenta, red, maroon, purple lavender, white
Begonia, tuberous	<i>Begonia</i> cultivars	Trailing to 24 in; upright 18-25 in	pink, red, yellow, orange, white, picotee
Dahlia, tuberous	<i>Dahlia</i> hybrids	12-60+ in	pink, red, yellow, orange, maroon, purple, lavender, bicolor
Gladiolus	<i>Gladiolus</i> hybrids	30-40 in	pink, red, yellow, peach, purple, lavender, green, bicolor

Key: INT=Interior Alaska, SC=Southcentral, SE=Southeast, ()= not winter hardy in all locations

Non-hardy perennial flowers grown as annuals

A recent trend in Alaska is to use perennials that are not hardy and are not easily overwintered indoors. These non-hardy perennials are treated as annuals. Plants in this category include some of the ornamental grasses, *Rudbeckia* and *Coreopsis grandiflora*. Color, texture and form make these plants valuable in the landscape and in containers, even though they are not hardy enough to withstand an Alaska winter.

Conversely, some hardy, colorful perennials are sold in nurseries as “basket stuffers,” intended to be used in container plantings and disposed of in the fall. Common perennials used as basket stuffers include deadnettle (*Lamium*) and creeping Jenny (*Lysimachia nummularia*). These plants, though winter hardy in much of Alaska when planted in the ground, add interest to seasonal container plantings. Most perennials do not survive the winter above ground in containers.

Native Flowers

Most gardens contain some flowers native to Alaska, which are mixed in with other perennials or planted in a low maintenance part of the yard. A list of popular selections can be seen in Table 4. One of the most versatile is wild iris. It will thrive in the garden and persist with neglect, and in the winter it survives frozen in ice in its natural habitat. Chocolate lily is also easy to grow. It forms large clumps when grown in full sun but is happy on the north side of a house with little water. A true bulb, chocolate lily is named for its brown blossoms, not the fragrance of its flowers, which smell like dirty socks.

Perennials native to Alaska should be grown from seed and not dug up from natural areas. Very little fertilizer is usually needed. Well-fertilized plants get too large and flop open in the center. Remove seed heads if you don’t want plants to spread. Information on propagating native perennials is available from the UAF Cooperative Extension Service and the Georgeson Botanical Garden. See references at the end of this chapter.

Table 4.—Native flowers.

Alaska wild iris	<i>Iris setosa</i>
Arctic poppy	<i>Papaver radicum</i> subsp. <i>alaskanum</i> (perennial)
Bluebells	<i>Mertensia paniculata</i>
Bride's feathers	<i>Aruncus dioicus</i>
Bunchberry dogwood	<i>Cornus canadensis</i>
Fairy slipper	<i>Calypso bulbosa</i> (shade)
Chocolate lily	<i>Fritillaria camschatcensis</i>
Eastern pasque-flower	<i>Pulsatilla patens</i>
Fireweed	<i>Chamerion angustifolium</i> (<i>Epi- lobium angustifolium</i>)
Forget-me-not	<i>Myosotis alpestris</i>
Jacob's ladder	<i>Polemonium acutiflorum</i> , <i>P. boreale</i> , <i>P. pulcherrimum</i>
Larkspurleaf monks- hood	<i>Aconitum delphiniifolium</i>
Pale poppy	<i>Papaver alboroseum</i>
Pussytoes	<i>Antennaria</i> sp.
Red baneberry	<i>Actaea rubra</i> (very poisonous)
Sedge	<i>Carex gmelini</i>
Shooting star	<i>Dodecatheon pulchellum</i> , <i>D. frigidum</i>
Tall bluebells	<i>Mertensia paniculata</i>
Twinflower	<i>Linnaea borealis</i>
Western columbine	<i>Aquilegia formosa</i>
Wild geranium	<i>Geranium erianthum</i>

Flowers grown from bulbs, corms, rhizomes, tubers and tuberous roots

Many garden plants are classified botanically as bulbs, corms, rhizomes, tubers or tuberous roots. All of these underground structures store food for the plant. Figure 1 illustrates flowers of several types of bulbs and corms.

Bulbs are composed of a thin, flattened stem surrounded by fleshy leaf bases called scales. Roots grow from a basal plate. Onions, narcissus, tulips and lilies are examples of plants that form bulbs. Slicing an onion vertically and observing the interior is a good way to see a bulb's anatomy.

Corms have solid interiors, developed from swollen stems. If you cut one open, you see a homogenous mass inside. Roots form at the base. Some examples of plants that form corms are crocus, gladiolus and anemone.

Tubers are swollen, modified, underground stems. They don't have basal plates where roots originate. Tubers come in various shapes and include *Caladium*. *Tuberous roots* are composed of root tissue. Dahlias and tuberous begonias are examples of plants with tuberous roots. *Rhizomes* are specialized stems that grow horizontally at or just below the soil surface. Lily of the valley has rhizomes.

Like other herbaceous ornamentals, bulbs, corms and tubers are classified as hardy or tender. Most *hardy* bulbs and corms are planted in fall for early spring and summer bloom. Daffodils and tulips define spring for many people. Lilies, which bloom in early or midsummer, should be planted in the spring. In Interior Alaska, where daffodils and tulips are not hardy, gardeners should try the late tulip (*Tulipa tarda*), and Siberian squill (*Scilla siberica*).

Tender bulbs, tubers and corms generally bloom mid- to late summer. Examples are dahlias, tuberous begonias and gladiolus. These tender perennials don't survive severe winter cold, so they must be dug in the fall before freezing. Store them in a frost-free location.

Invasive plants

Some attractive flowers that may be commercially available are actually *invasive* and will spread to surrounding natural areas. Gardeners can help stop the spread of invasive species by familiarizing themselves with which plants are invasive in Alaska. For more information on invasive plants in Alaska, consult Chapter 20, Weed Management. For the most up-to-date information on invasive species in Alaska, visit the Alaska Exotic Plant Information Clearinghouse (<http://aknhp.uaa.alaska.edu/botany/akepic/>).

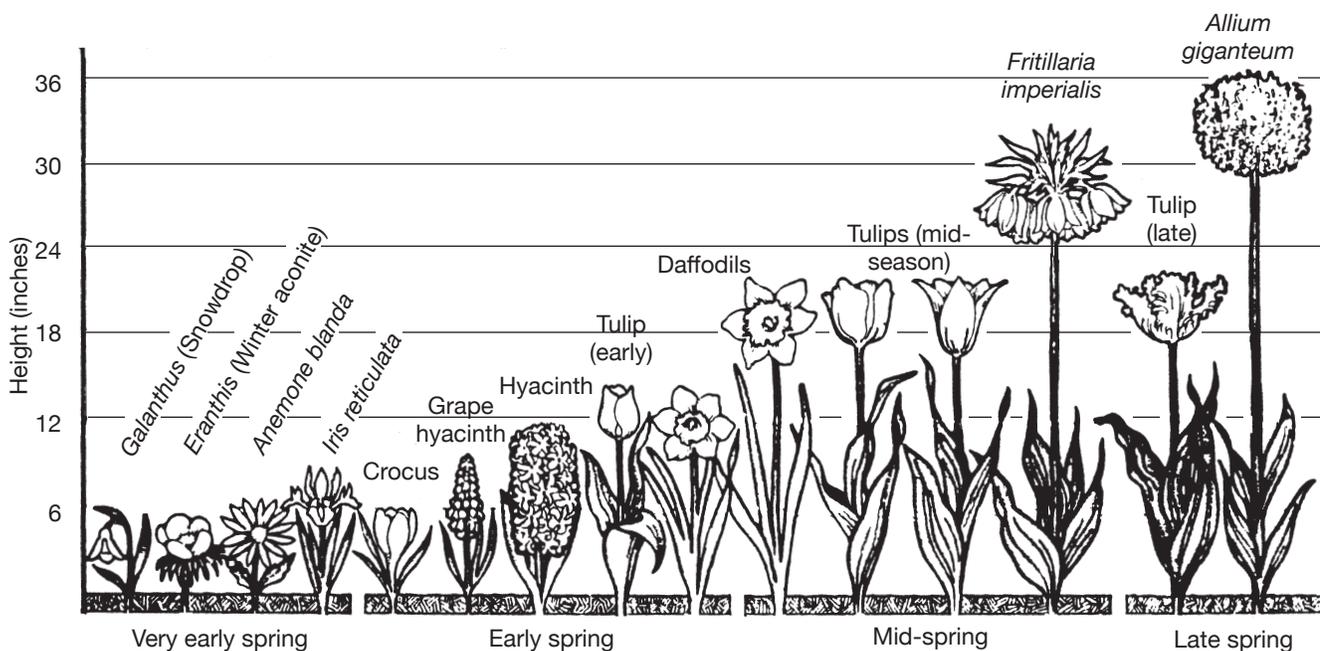


Figure 1.—Bulbs and corms offer a variety of blossoms. (Source: Netherlands Flower-bulb Institute.)

Plant Selection, Planting, and Care

Plant Selection

Select flowers for the best possible growth qualities. The popularity of flower gardening encourages growers to offer hybridized plants with more vigor, larger flowers, longer bloom periods and more attractive leaves. For instance, pansies have been selected for color and form, producing pink flowers, orange/purple combinations (*Viola x wittrockiana* ‘Jolly Joker’) and diminutive yellow forms, as well as the familiar, large, purple-whiskered faces.

When a design specifies a particular plant, look for cultivars that may have improved characteristics. Often hybridized varieties have improved characteristics. Recall from Chapter 1, Botany Basics, that an x in between the genus and specific epithet indicates the species is a hybrid. Recently, there has been a surge in interest in heirloom varieties. One of the benefits of

growing heirloom varieties is that you can easily save your own seeds.

With lilies, tulips and daffodils, larger bulbs yield larger blossoms. Some bargain bulbs are not worth the price, no matter how inexpensive, because they are too small to bloom well. Purchase hardy bulbs in the fall. If you can’t plant bulbs immediately, keep them cool and dry. Temperatures between 35° and 55°F are best for storage. Use paper sacks rather than plastic bags, since mold may develop if moisture accumulates inside the package.

It’s easy to find rare and unique varieties on the Internet, but you may want to consult with local gardeners, garden clubs or your Extension office to first determine what varieties grow best in your location. When buying plants locally, select healthy, vigorous growing plants. Avoid buying plants that show signs of insect or disease problems. If blooming, make sure the entire plant looks healthy.

Soil preparation

If you follow some basic steps when preparing the soil you will have good results.

First, get rid of weeds, especially perennial weeds. If you are fortunate to garden in an area with good topsoil, dig thoroughly, loosening the soil to at least 12 inches. Spread 3 to 4 inches of organic material across the soil surface and dig it in well. This addition will help increase the soil's water-holding capacity and improve root penetration and aeration. Commercial compost, homemade compost, chopped or composted leaves and composted manure make good amendments. Be wary of introducing weed seeds when using composted manure that has not been sterilized.

Building raised garden beds is one way to warm the soil and make your gardening easier. Plants benefit from the deeper soil provided by beds built up from the existing grade. In addition, drainage is improved and the soil warms faster in the spring. Use good-quality topsoil and amend with organic ingredients such as composted manure, garden compost or whatever weed-free organic material you have available.

Recognize that many perennials form large, heavy root structures, which can rot if the site isn't well-drained. If you face this situation, improve drainage or choose plants suitable for damp conditions. Soil testing is helpful when starting a garden on an unfamiliar site or when expanding an existing garden. Many herbaceous perennials grow well in slightly acid soil, but some need supplemental lime if the soil pH is below 6.0.

Crocus, narcissus, tulips and lilies must have excellent drainage or they will rot. Remove all weeds before planting, making sure to get perennial weeds by their roots. Add organic amendments such as compost.

For perennial gardens, adequate soil preparation will ensure strong future growth for the life of the perennials. Later applications of fertilizer

can't compensate for poorly prepared soil. This is the most important component of starting a successful garden.

Almost all gardeners have room for container plantings. Containers allow even those with a limited space, such as a rooftop, balcony or front stoop, to enjoy gardening. With containers, gardeners can rotate their prettiest blooming plants to choice areas.

Plant roots must get sufficient air. If the soil is too dense, it packs down and contributes to root rot or other difficulties. Be sure to use a potting material that contains perlite, vermiculite, sphagnum moss or some other amendment that holds water and provides aeration. Garden soil doesn't work well in containers because it compacts and reduces available oxygen.

Choose a container suited to your plant's eventual size, and be sure it has enough drainage holes in the bottom. Soak new clay pots before planting. Do not add a layer of gravel or other material to the bottom of the pot. Old pots can be reused after scrubbing them clean. Potting mixes can also be reused. Add additional perlite or vermiculite if necessary.

Planting

Annuals and biennials are generally started from seed or purchased as transplants. Some annual seeds can be sown directly in the garden, depending on location. These include sweet peas, annual poppies, baby blue eyes and nasturtiums. With the short growing season in Alaska, it is often best to start with young transplants started indoors or purchased.

Many other annuals and biennials do best if started on a propagation mat or other heat source and then transplanted. Marigolds, sweet alyssum and sunflowers transplant well. Start seedlings indoors 4 to 6 weeks or more before they will be planted in the garden. Ample light is needed to grow stocky, healthy transplants. Beware of starting seedlings too early; they grow poorly

if left too long in low light and crowded indoor conditions. Grow seedlings in cool temperatures (55° to 65°F) if possible, with 14 or more hours of light. Seedlings can be successfully grown with window light, but most benefit from auxiliary fluorescent lights placed a few inches above the plants. Buying seedlings from nurseries is convenient, especially for annuals with very fine seeds, such as petunias, lobelia and impatiens. Unless you have excellent propagation facilities, these plants are more difficult to grow from seed.

Perennials grow more slowly than annuals, and many will not bloom the first year. You can start them from seed in a nursery bed and transplant them to a final location when they are sturdy enough to move. Perennials are often ready to transplant late in their first season.

As herbaceous perennials develop established root systems, many spread into large clumps and can be propagated by *division*. Divide perennials as part of your general garden maintenance. Growth and performance decrease when plants get crowded. Division rejuvenates plants and results in extra plants to share with friends or donate to plant sales. Some plants, such as native Alaska wild iris, perform better if divided regularly.

Dividing perennials when they are dormant or just beginning to grow is optimal since it allows a full season for root development. Time the division to allow for root development before the plant normally blooms. Dig the plant with a generous number of its roots intact. Select vigorous shoots from the outer part of a clump and discard the center. Then divide the plant into several sections of three to five shoots each. Make large divisions. Small pieces will not bloom much the first year. Before replanting, add compost or other organic materials to the soil.

Many plants can be propagated from either tip or *root cuttings*. Generally, *tip cuttings* are easier to grow than root cuttings. Take 2- to 6-inch-long tip cuttings from perennials such as candytuft (*Iberis sempervirens*). Remove all foliage from the lower one-third of the cutting. Insert

cuttings into a clean planting mix that contains perlite, vermiculite or peat moss.

Professional growers supply bottom heat and provide moisture through automatic misting systems that keep cuttings moist while roots develop, but home gardeners can still be successful. Cover cuttings with clear plastic to retain moisture and support the plastic to keep it from touching the foliage. Place the cuttings in an area with adequate light, but out of direct sun. High temperatures can build up under the plastic on warm days and kill cuttings.

When cuttings resist a slight tug, they have begun to root. Poke holes in the plastic to provide more air circulation. Remove the plastic altogether once the roots are formed. When the root systems are large enough, transplant cuttings to a nursery bed or container and begin fertilizing.

For spring-blooming bulbs, planting depth depends on soil conditions. Opinions vary on planting depth but many gardeners plant about three times the depth of the bulb. Tender bulbs should be started indoors by March or April and planted outside after they have been hardened off and all danger of frost is past. In most parts of the state, this is no earlier than Memorial Day weekend.

Fertilizing

Annuals need regular fertilizer. Well-prepared soil and organic mulch help make nutrients available to plants, but annuals grow so rapidly that supplemental fertilizer is needed to help maintain vigor. When planting, incorporate about 3 pounds per 100 square feet of 8-32-16 fertilizer or equivalent high-phosphorus (middle number) fertilizer into the soil. Then fertilize at regular intervals, about every 3 weeks. Be sure to water after fertilizing when using granular fertilizer. Water-soluble fertilizer is easier to apply but may be less economical. Be sure to follow the directions on the label for mixing.

Plants in containers need fertilizer approximately every week. Liquid or water soluble

fertilizers is easiest to use for containers. Avoid using too much nitrogen on plants being grown for bloom. Some commonly available fertilizers contain 20 percent nitrogen or more. If overused, they can reduce blooms.

Organic soil amendments such as alfalfa meal, rock phosphate, fish meal and bone meal are easiest to apply when preparing the soil and before planting. They increase long-term soil fertility. They can also be added around the base of plants during the growing season. Inorganic fertilizers can also be used. A high-phosphorus fertilizer such as 8-32-16 is recommended for flowers. Use a water-soluble fertilizer, mixed according to directions on the label, when transplanting and then again as needed. Most perennial gardens need fertilizing only once as they start growth each spring. Annuals need to be fertilized more regularly.

Fertilize spring bloomers when they are about an inch tall with a liquid fertilizer, though this may be unnecessary with good garden soil.

For bulbs that will return in subsequent years, add steer manure or compost in the spring. If you prefer to use processed fertilizer, 8-32-16 can be added at the rate of 3 pounds per 100 square feet.

Mulching

Mulch is any material used to cover the soil. Use compost (commercial or homemade), chopped or composted leaves, or other weed-free materials for mulching. Apply 2 to 3 inches or more in spring after weeding to retain soil moisture, suppress annual weed seeds and improve the bed's appearance.

Some gardeners mulch perennials and hardy bulbs with weed-free straw, leaves or even seaweed in the fall for winter protection once the ground has frozen. A winter mulch protects perennials and bulbs from freeze/thaw cycles that are common in parts of Alaska. Do not cover a perennial plant's crown (the central growing area

above the roots) with mulch; bring the mulch just up to the edge of the crown. Pull mulch off plants in early spring when weather warms to allow new plant growth to emerge.

Watering

Most annuals need regular water because they don't develop deep root systems. Containers and baskets dry out quickly and require the most frequent watering. They may need as much as a gallon of water per day. Be sure the pot drains well, and remove any attached saucers or decorative wrappers that might trap water against the plant's roots. Overwatering can cause roots to rot; water thoroughly but only when needed.

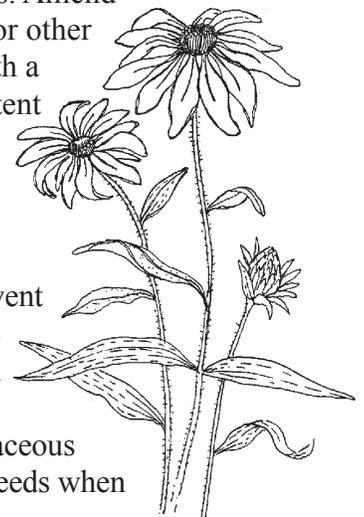
Perennials usually require less water than annuals because of their well-established root systems. Watering needs vary widely from area to area. Careful checking, even during periods of rainfall, is important. Do not allow herbaceous perennials to dry out, especially in their first season.

For spring-blooming bulbs, fall rains may provide enough moisture. But if the soil is dry when planting, water thoroughly. Make sure the soil remains moist but well drained. Roots continue to grow slowly into the winter until the ground freezes.

To use water most effectively, group plants according to water needs. Amend your soil with compost or other organic matter. Soils with a high organic matter content hold water much more efficiently.

Weeding

Weed regularly to prevent seeds from becoming established. A combination of hand weeding and mulch is effective. Herbaceous plants shade out some weeds when



mature, but extra vigilance is recommended while plants are small.

Use herbicides with great care in herbaceous plantings, if at all. Pre-emergent products, which prevent seeds from germinating, have limited use in flower gardens. Corn gluten is an organic pre-emergent now available at garden centers.

Staking

Many tall, herbaceous flowering plants must be staked or provided with another support system, especially in windy and exposed areas. Delphiniums may reach 8 feet with heavy stalks of bloom. Lilies, as well as some dahlias, also require support. Wind, rain or the weight of foliage and blossoms will bend or break these plants' stems and ruin the display.

Many short perennials, such as peonies, require support to keep flower heads upright. A plant that flops over onto adjoining plants may smother its neighbors and can destroy a garden's attractiveness.

Commercial systems such as grates with legs work fine, but you also can improvise supports from bamboo stakes, twigs or branches. Choose staking material about 6 inches shorter than the plant's ultimate height.

Whatever method you use, put support systems in place while plants are small and tie plants loosely to the stake as they grow (Figure 2). Rapid growth will hide the stakes, wire or string.

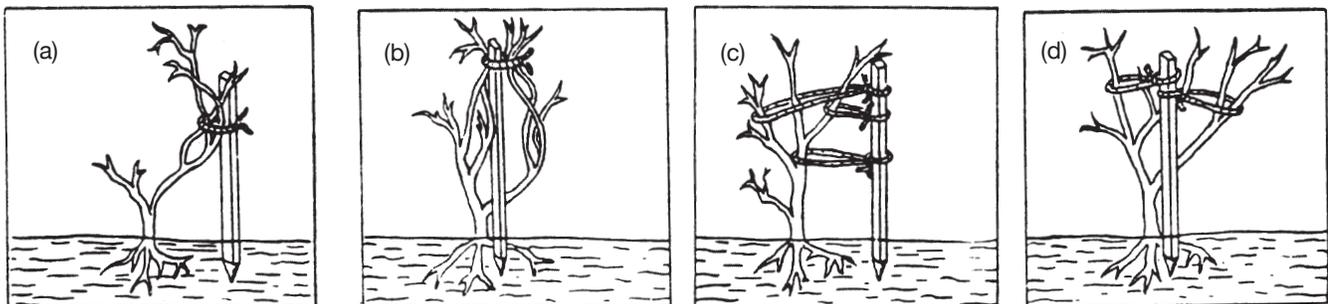


Figure 2.—Staking plants, (a) and (b). Plants are tied too tightly, (c) and (d). It is better to tie the principal branches loosely.

Deadheading

Regular maintenance for annuals includes removing flowers before they go to seed. This process is called *deadheading*. By preventing seed formation, you can extend the bloom period on many annuals, such as pansies, marigolds and petunias.

Deadheading perennials is a different story. Deadheading does not prolong the bloom period for most perennials, but it can improve a garden's appearance. There are a few early bloomers, such as *Trollius*, that may produce a second flush of flowers if spent flowers are removed. Some gardeners prefer to leave seed heads standing for the birds. Others find the dried flower heads of ornamental grasses attractive.

Plants such as dahlias produce larger flowers if *disbudded*. A stalk may have five or six buds. To disbud, snap off all but one or two on each stem.

Pest management

All flower gardens eventually have some pests or diseases. Learn to use the principles of integrated pest management (IPM) and concentrate on growing healthy plants (see Chapter 23, Integrated Pest Management). Strong plants are able to resist disease and insect problems better than those that are weak. The following practices reduce disease infestations and cut down on hiding places for insects and other pests such as slugs.

- Space plants properly to allow good air circulation.

- Clean up litter and dead leaves.
- Control weeds.

Several diseases commonly affect annuals, herbaceous perennials and bulbs. Powdery mildew attacks delphiniums, tuberous begonias, roses and many other flowering plants. When severe, it produces a gray, fuzzy coating on leaves and blossoms. Pruning out diseased plant parts can help control this disease.

White mold (*Sclerotinia*) is starting to become common in Alaska flower gardens, especially among highly susceptible plants such as petunias, lobelia and Iceland poppies. Affected plants will often exhibit a bright-white fungus growing out of cracked stems. Inside the mass of white mycelium, black, seedlike sclerotia are formed. These overwintering structures fall to the soil and are the source of next year's infection. Remove affected plant material from the garden immediately. Biological control of white mold is being researched in Alaska.

Gray mold (*Botrytis*) can be troublesome on just about any plant. It affects above-ground plant parts, resulting in dieback. In some situations a gray, fuzzy mold will be present. Gray mold can be devastating to lilies and peonies. Good air circulation is critical in preventing gray mold. Whenever possible, choose disease-resistant cultivars. Many new cultivars are being developed for resistance to common fungal problems.

Insects can damage a wide variety of flowers. Learn the life cycles of these garden pests and use broad-spectrum insecticides as little as possible to protect the beneficial insects. Aphids have many natural enemies, including lady beetles, lacewings, wasps and birds. Whenever possible, use organic-based products, such as insecticidal soap, to control pest problems.

Slugs are most damaging to plants mid- to late season. Hand picking, trapping and selective use of baits can help you manage them. Organic baits, such as beer poured in a shallow dish, can be very

effective. Slugs are drawn to the beer, fall in and drown. Iron phosphate baits are also effective.

Caterpillars, such as the delphinium defoliator, need to be controlled early in the season. *Bacillus thurengiensis* is a biological pesticide that can be applied as soon as caterpillars start feeding. Check your delphiniums for signs of the pest as soon as they start emerging. Identifying the problem is the first step in an integrated pest management program.

Moose are fond of many types of flowers.

Care in the Fall

Late fall tasks generally include cutting back dead stems of herbaceous perennials to 2 to 4 inches and pulling out or cutting back annuals after they are killed by frost. Some gardeners leave seed heads for birds or for fall and early winter interest.

Let the leaves of plants grown from bulbs die back naturally and don't pull them off or cut them until they are brown. It is important for bulbs to have time to store energy so they will bloom again the next season.

Dig tender tubers, such as dahlias, and store them in peat, vermiculite or perlite in a cool area. Check bulbs regularly and dampen the storage media if bulbs or tubers are starting to shrivel.

Flower garden design

A variety of flowers, foliage, grasses, vegetables, herbs and woody landscape plants provides limitless opportunities for creating a landscape that appeals to you — even in Alaska. Understanding the characteristics of annuals, perennials and bulbs will help you best incorporate them into your landscape design. Figure 3 illustrates how plants can be arranged according to height, while Figure 4 shows arrangement by season of bloom. Use this information as a preliminary guide only. Plant hardiness and bloom time will depend on both your zone and microclimate.

Annuals have the advantage of showy flowers and long bloom time, but they must be planted or bought each year and require more maintenance throughout the summer than perennials.

Because hardy perennials usually reappear year after year, they have the potential to be lower maintenance in the long term than annuals. These plants can fill space rapidly if grown under proper conditions. Many reach their mature size several years after planting, expanding gradually into large, showy clumps. There are hundreds of different perennials, each with a distinct texture, color, scent and form, making garden design an intriguing adventure.

Figure 3 shows a garden design layout that uses the height of the flower to dictate placement. Most perennials bloom for a fairly short time, from 1 to 3 weeks, although some, such as yarrow (*Achillea*) and catmint (*Nepeta*), can bloom persistently for as long as 6 weeks. With careful perennial plant selection, you can have garden interest from early spring until fall (Figure 4).

Successful flower gardening depends on understanding your site's characteristics and matching them to the needs of individual plants. Flowers have been hybridized for centuries, chosen from wild plants originating in bogs, sunny prairies, alpine meadows, woodland shade and other growing conditions. Understand your garden environment before selecting herbaceous plants. Analyze the hours of daylight, soil texture, drainage, water availability and winter frost conditions. Choose plants whose cultural needs match your garden situation.

A common question asked by gardeners everywhere is which flowers will grow in the shade. The following ornamentals do well in full or part shade:

- Wax begonias, impatiens, Shasta daisy (annuals)

- Foxglove (biennial)
- Fuschia, tuberous begonias (perennials grown as annuals)
- Bluebells, bleeding heart, fairy slipper orchid, monkshood, some ferns, lily of the valley and hosta (perennials).

But most shade-loving perennials don't require shade in Alaska and can be grown in full sun as long as the plants receive enough water. Hosta actually performs better if not planted in full shade, as do many of the new coleus cultivars. Another factor is that at high latitudes

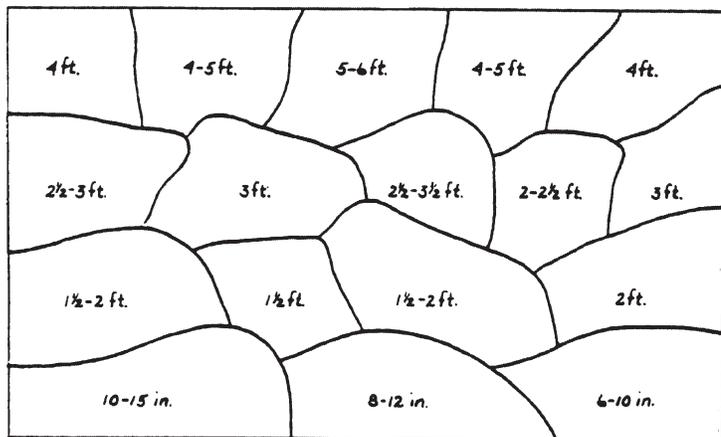


Figure 3.—Flower border divided into bold plant groupings according to height. Background: large groups of tall plants. Foreground: shallower, wider groupings of small plants.

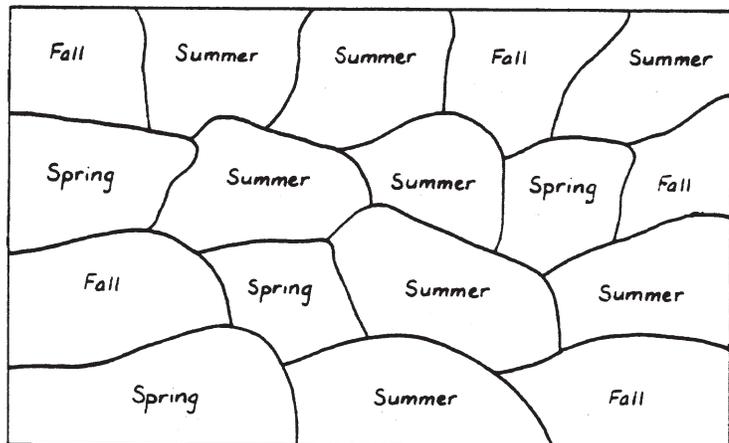


Figure 4.—Flower border designed for continuous bloom from spring through fall.

the north sides of buildings receive some direct sunlight during the growing season.

If low maintenance is your design objective, consider the following plant characteristics when designing a perennial garden:

- Does it grow vigorously while not overwhelming other plants?
- Will it bloom a long time?
- Is it attractive when not blooming?
- Is it generally pest-resistant?
- For perennials — is the plant long-lived (lasting at least four seasons)?

Peonies (*Paeonia*), globeflower (*Trollius*) and dwarf bleeding heart (*Dicentra formosa*) are among the many herbaceous perennials that meet these criteria in most gardens in Alaska.

Alaska's short gardening season can be lengthened by planting early spring-blooming bulbs. Once plants have flowered, the foliage will start to die back. To hide it, choose good “companion” perennials that will grow up through the browning foliage. Lady's mantle (*Alchemilla mollis*), peony, hosta and wild geraniums make good bulb companions.

Garden design uses harmonious color patterns, bloom sequence and intriguing texture to create a place of beauty. Which plants you utilize depends on your taste and the time and resources you have available for maintenance. Keeping an idea notebook when you visit gardens and nurseries, clipping photos from magazines or bookmarking photos or sites on the Internet will help you develop confidence in making design choices. Chapter 15, Sustainable Landscape Design, provides more detail on designing a landscape.

For more information

UAF Cooperative Extension Service publications

A “Starter Kit” of Edible Flowers for the Garden and Table, HGA-00137.

Invasive Garden Species: Don't Plant a Problem, FGV-00146.

Factors Affecting Cold Hardiness Development, FGV-00143.

Growing and Overwintering Fuchsia, Geranium, Dahlia and Tuberous Begonia, HGA-00333.

Native Plants of Alaska, HGA-00232A-J.

Seed Starting and Transplanting, HGA-00032.

UAF School of Natural Resources and Extension publications

<http://www.uaf.edu/snre/research/publications/>
Use the keyword search term “flowers” to find annual and perennial flower trials from 1999 to 2011 at the Georgeson Botanical Garden as well as a variety of other publications.

<http://georgesonbotanicalgarden.org/>
Click on the drop-down menu, “Research.” In the drop-down menu, choose “Alaska Native Plants,” “Annual Flowers,” “Peonies” or “Perennials” for relevant flower publications and research.

Other publications

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Websites

- Alaska Botanical Garden, www.alaskabg.org/
- Alaska Exotic Plants Information Clearinghouse, <http://aknhp.uaa.alaska.edu/botany/akepic/> (Use this website to determine if a plant is invasive in Alaska and its current distribution.)
- Alaska Peony Growers Association (APGA), www.alaskapeonies.org/
- American Primrose Society, Juneau Chapter, www.americanprimrosesociety.org/
- Cornell Herbaceous Perennials Database, http://aggie-horticulture.tamu.edu/ornamentals/cornell_herbaceous/
- Dave's Garden, Plant Files, <http://davesgarden.com/guides/pf/>
- Missouri Botanical Garden, Plant Finder, missouribotanicalgarden.org/plantfinder/plantfindersearch.aspx
- Perry's Perennial Pages, www.uvm.edu/~pass/perry/
- Plant Lust, Plant search, plantlust.com/
- Royal Horticultural Society, Plants, rhs.org.uk/plants
- USDA Plants Database, <http://plants.usda.gov> (Use this website to determine if a plant is native or introduced in Alaska.)