



Herbaceous ornamentals: annuals, perennials, and ornamental grasses

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YOU ARE A SHORT-SEASON, HIGH-ALTITUDE GARDENER IF:

- You live in Idaho at an elevation above 4,500 feet, **OR**
- Your USDA hardiness zone is 4 or lower, **OR**
- You have a frost-free growing season of 110 days or less

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INTRODUCTION

The short-season, high-altitude gardening series was created in response to a noteworthy lack of information about designing landscapes and caring for gardens in the harshest of Idaho’s climates. This publication outlines steps for choosing and caring for annuals and perennials in these short-season locales.

By definition, herbaceous ornamentals are annual or perennial flowers and foliage plants that die back to the ground each fall. Ornamental grasses and bulbs are not always classified as herbaceous, but will be included in this publication.

Trees and shrubs form the backbone of landscapes, but herbaceous ornamentals provide the beauty and accent that mark the difference between routine and spectacular. They give a garden color, interest, and character. In the short-season, high-altitude regions of Idaho, our choices for hardy woody plants are severely restricted, making herbaceous plants more important than ever.

Annuals are those plants that live and bloom for only one year. They die at the end of the growing season and must be replanted or allowed to reseed themselves for the following season. The effort and expense of replacing plants each year are major drawbacks to using annuals in the garden. On the positive side, annuals are unmatched in their variety, color, summer-long bloom period, and adaptability. There is an annual plant for every situation in the landscape and this compensates for the extra effort involved in establishment.



The colors of annuals and perennials complement the form of trees and shrubs.



Adapted ornamental plants must be able to withstand spring and fall frosts.

Annuals grow fast and bloom quickly so as to set seed and reproduce. Consequently, most need consistently good growing conditions to be at their best.

Perennials are defined as non-woody plants that live and flower for three or more years. Perennials, including bulbs and grasses, provide one advantage over annuals in that they need not be replanted every spring. Some will last in the garden for only a few years while others provide decades of value and interest. Many perennials are very hardy and can thrive in situations that present us with problems for other types of plants. They are good candidates for adding color or interest to sloped areas, water conserving gardens, locations with poor soils, and native plantings. The one disadvantage of perennials is that many bloom for only a few weeks during the growing season. Overcome this deficiency by planting perennials with complementary bloom periods to ensure that some plants are in flower at any given time.

Herbaceous ornamentals can be used to achieve many effects in the landscape. In addition to traditional beds, rock gardens, and borders, they can be used in window boxes, containers, and hanging baskets. This increases opportunities for maintaining color in a short-season, high-altitude landscape.

PLANT SELECTION

Succeeding with herbaceous ornamentals in a short-season, high-altitude garden means selecting plants that can flourish in wildly fluctuating temperatures, cool nighttime temperatures, high light intensity, and poor soils. Another common limiting factor in Idaho gardens is untimely late spring and early fall frosts. These harsh conditions decrease the number of adapted plants that are suitable for planting in landscapes. However, there are still many beautiful species from which to choose. If you are willing to put forth the extra effort, you can employ season-extending methods to increase the selection of plants that can be grown in Idaho's harsh climates. See Introduction to Short-Season Gardening in Idaho (<http://info.ag.uidaho.edu/pdf/BUL/BUL0857.pdf>) for a description of these methods.



Snapdragons are frost hardy. They start blooming early in the season and continue for a long time

As a rule, plants acclimated to USDA hardiness zones 2, 3 and in some regions, zone 4, will thrive in high-altitude growing conditions. They must also be able to remain attractive after exposure to spring and fall frost. There are a sufficient number of plants adapted to cold climates to allow creation of any preferred garden style. Among hardy plant species, there are those with round flowers, spiky flowers, early bloomers, and late bloomers. The bloom colors span the entire color spectrum, and leaf color and shape are varied enough such that the design opportunities are limited only by imagination.

Tables in this publication contain lists of annual and perennial flower species recommended for gardens in Idaho's short-season, high-altitude regions.

HARDY ANNUALS

Frost-tolerant annuals are irreplaceable in Idaho's short-season, high-altitude landscapes because they provide the best options for season-long color. They also lend themselves to flexibility and allow you to creatively alter the landscape from season to season. Annuals are considered to be fully hardy if moderate (not lower than 25°F) spring and fall frosts do not disrupt growth. Half-hardy annuals are those that are not killed by light frost (down to 28°F), but may experience a delay in growth and bloom. Most half-hardy annuals are adapted to cool climates but many also remain attractive through summer heat. Popular hardy and half-hardy annuals adapted to short-season, high-altitude Idaho gardens are shown in table 1.

Table 1: Hardy Annuals

SCIENTIFIC NAME	COMMON NAME(S)	RELATIVE HARDINESS	BLOOM PERIOD
<i>Achillea ptarmica</i> 'Gypsy'	Yarrow	FH	Su/Fa
<i>Agrostemma githago</i>	Corncockle	FH	Su/Fa
<i>Anagallis monelli</i>	Pimpernel	FH	Sp/Su/Fa
<i>Anchusa capensis</i>	Anchusa	FH	Su
<i>Angelonia angustifolia</i>	Angelonia	HH	Su/Fa
<i>Antirrhinum majus</i>	Snapdragon	FH	Su/Fa
<i>Arctotis</i> hybrids	African Daisy	FH	Su/Fa
<i>Argyranthemum</i> hybrids	Marguerite Daisy	FH	Sp/Su/Fa
<i>Bidens ferulifolia</i>	Bidens	HH	Su/Fa
<i>Brachycome iberidifolia</i>	Swan River Daisy	FH	Su/Fa
<i>Brassica oleracea</i>	Ornamental Cabbage	FH	Fa
<i>Calendula officinalis</i>	Calendula	FH	Su/Fa
<i>Calibrachoa</i> hybrids	Million Bells	FH	Sp/Su/Fa
<i>Centaurea cyanus</i>	Cornflower, Bachelor's Button	FH	Sp/Su/Fa
<i>Chaenorrhinum minus</i>	Dwarf Snapdragon	FH	Su/Fa
<i>Cleome sesquiorrygalis</i>	Spider Flower	HH	Su/Fa
<i>Convolvulus sabatius</i>	Ground Morning Glory	HH	Su/Fa
<i>Consolida ambigua</i>	Larkspur	FH	Su
<i>Cosmos bipinnatus</i>	Cosmos	HH	Su/Fa
<i>Dianthus caryophyllus</i>	Carnation	HH	Su/Fa
<i>Dianthus chinensis</i>	Dianthus, China Pink	FH	Su
<i>Diascia</i> spp.	Twinspur	HH	Su/Fa
<i>Euphorbia marginata</i>	Snow-on-the-mountain	HH	Fol
<i>Eustoma grandiflorum</i>	Lisianthus	HH	Su/Fa
<i>Gaillardia pulchella</i>	Gaillardia, Annual Blanketflower	HH	Su/Fa
<i>Gazania rigens</i>	Gazania	HH	Su/Fa
<i>Godetia</i> spp.	Godetia	FH	Su/Fa
<i>Helianthemum</i> hybrids	Rock Rose	HH	Su/Fa
<i>Lantana</i> spp.	Lantana	FH	Su/Fa
<i>Lathyrus oderatus</i>	Sweet Pea	FH	Su/Fa
<i>Limonium sinuatum</i>	Statice	FH	Su/Fa
<i>Linaria maroccana</i>	Baby Snapdragon	FH	Su/Fa
<i>Lobelia cardinalis</i>	Cardinal Flower	HH	Su/Fa
<i>Lobularia maritime</i>	Alyssum	FH	Su/Fa
<i>Mimulus</i> hybrids	Monkey Flower	HH	Su/Fa
<i>Nemesia</i> hybrids	Nemesia	HH	Su/Fa
<i>Nemophila</i> spp.	Baby Blue Eyes	FH	Su/Fa
<i>Nicotiana x sanderae</i>	Flowering Tobacco	HH	Sp/Su/Fa
<i>Nigella</i> spp.	Love-in-a-Mist	FH	Sp/Su/Fa
<i>Osteospermum</i> hybrids	South African Daisy	HH	Su/Fa
<i>Papaver nudicaule</i>	Iceland Poppy	FH	Su
<i>Papaver rhoeas</i>	Shirley Poppy	FH	Su
<i>Petunia</i> spp.	Petunia	HH	Su/Fa
<i>Phlox drummondii</i>	Phlox	HH	Su/Fa
<i>Portulaca grandiflora</i>	Moss Rose	HH	Su/Fa
<i>Primula auricula</i>	Primrose	FH	Sp
<i>Rudbeckia hirta</i>	Rudbeckia	HH	Su/Fa
<i>Schizanthus x wisetonensis</i>	Butterfly Flower	FH	Su/Fa
<i>Senecio cineraria</i>	Dusty Miller	FH	Fol
<i>Sutera cordata</i>	Bacopa	HH	Su/fa
<i>Verbena</i> hybrids	Verbena	FH	Su/Fa
<i>Viola cornuta</i>	Viola	FH	Sp/Su/Fa
<i>Viola wittrockiana</i>	Pansy	FH	Sp/Su/Fa

Relative Hardiness designation: FH=fully hardy, HH=half-hardy.

Bloom Season: Sp=spring, Su=summer, Fa=fall, Fol=grown for season-long attractive foliage.



Ornamental cabbages develop intense colors in cool climates.



Several species of hardy geraniums can be found at nurseries.

Some of the listed annuals are exceptional for adaptation and utility. For example, alyssum varieties (*Lobularia maritima*) are very low growing, bloom constantly, and make excellent low companions for other border plants. Ornamental cabbages (*Brassica oleracea*) tend to prefer cooler climates and are at their best in high altitude areas, where they exhibit bright colors. Pansies and violas come in a variety of colors and can bloom in extremely adverse weather. In areas with heavy snow cover, some may survive to bloom multiple years.

Most annuals bloom much of the summer season and need conditions that support constant flowering. With some exceptions, they require full sun, high levels of soil fertility, and plenty of water.

HARDY PERENNIALS

Developing a perennial garden is a form of art, and the final appearance is a very personal expression of the designer. Every perennial garden will be different, and all potentially beautiful.

The best perennials remain attractive after spring and fall frosts, but additionally survive the brutal winters of Idaho's coldest climates. Perennials, like woody plants, are rated for hardiness based on the USDA zone system. To consistently survive in Idaho's short-season climates, they should be rated for zone 4 or lower (zone 3 or lower in the harshest climates). When making decision about which perennials to purchase, be sure to ask about specific varieties because within each species some varieties are much harder than others.

Perennials can be found that meet almost any landscaping need. They can be tall or short, or bloom in spring, summer or fall in all colors of the rainbow. There are those that can grow in shade or sun, in damp or dry soil. A little homework will pinpoint perennials that will complement any part of your garden. Popular hardy perennials that will survive Idaho's short-season, high-altitude regions are listed in table 2.

Table 2: Hardy Perennials

SCIENTIFIC NAME	COMMON NAME	HARDINESS ZONE	EXPOSURE	PLANT HEIGHT	BLOOM SEASON
<i>Achillea</i> spp.	Yarrow	2	FS	Tall	Su
<i>Aconitum carmichaelii</i>	Monkshood	3	FS,PS	Tall	Su/Fa
<i>Agastache rupestris</i>	Anise Hyssop	4	FS	Medium	Su/Fa
<i>Ajuga reptans</i>	Bugleweed	4	PS	Short	Sp/Su
<i>Alcea rosea</i>	Hollyhock	3	FS	V Tall	Su
<i>Alchemilla mollis</i>	Lady's Mantle	3	FS,PS	Medium	Sp/Su
<i>Alyssum saxatile</i>	Alyssum	4	FS	Short	Sp
<i>Anacyclus depressus</i>	Mt. Atlas Daisy	2	FS	Short	Sp/Su
<i>Anchusa azurea</i>	Forget-Me-Not	3	FS	Medium	Su/Fa
<i>Anemone multifida</i>	Windflower	2	FS, PS	Medium	Su/Fa
<i>Antennaria dioica</i>	Pussytoes	4	FS	Short (GC)	Sp/Su
<i>Anthemis tinctoria</i>	Golden Marguerite	3	FS	Short	Sp/Su/Fa
<i>Aquilegia</i> spp.	Columbine	3	FS,PS	Tall	Sp/Su
<i>Arabis caucasica</i>	Rockcress	3	FS	Short	Sp

Exposure: FS=full sun, PS=partial shade, SH=full shade.

Plant height: Short (GC)=ground cover, Short=less than 18 inches, Medium=18 inches to 3 feet, Tall=3 feet to 5 feet, V. Tall=over 5 feet.

Bloom Season: Sp=spring, Su=summer, Fa=fall, Fol=grown for attractive foliage.

Table 2: Hardy Perennials (cont.)

SCIENTIFIC NAME	COMMON NAME	HARDINESS		EXPOSURE	PLANT HEIGHT	BLOOM SEASON
		ZONE				
<i>Arenaria montana</i>	Sandwort	3		FS	Short	Sp/Su
<i>Armeria maritime</i>	Sea Thrift	4		FS	Short	Su
<i>Artemisia schmidtiana</i>	Wormwood	3		FS	Short	Fol
<i>Aruncus dioicus</i>	Goat's Beard	3		FS,PS	Med/tall	Sp/Su
<i>Aster</i> spp.	Aster	3,4		FS,PS	Tall	Sp/Su/Fa
<i>Baptisia</i> spp.	False Indigo	3		FS	Tall	Sp
<i>Bellis perennis</i>	English Daisy	4		FS,PS	Short (GC)	Sp
<i>Boltonia asteroides</i>	Boltonia	3		FS,PS	Medium	Fa
<i>Brunnera macrophylla</i>	Siberian Bugloss	3		PS,SH	Medium	Sp/su
<i>Callirhoe involucrata</i>	Poppy Mallow	4		FS	Medium	Su
<i>Campanula</i> spp.	Bellflower	3		FS,PS	Medium	Su/Fa
<i>Centaurea montana</i>	Cornflower	3		FS	Medium	Sp/Fa
<i>Centranthus ruber</i>	Jupiter's Beard	4		FS	Medium	Sp
<i>Cerastium tomentosum</i>	Snow-in-Summer	4		FS	Short (GC)	Su/Fa
<i>Ceratostigma plumbaginoides</i>	Leadwort	4		FS,PS	Short	Fa
<i>Chrysanthemum x morifolium</i>	Chrysanthemum	4		FS	Medium	Fa
<i>Cimicifuga racemosa</i>	Bugbane	3		PS	Tall	Su/Fa
<i>Coreopsis</i> spp.	Tickseed	3,4		FS,PS	Short-Tall	Sp/Su
<i>Delosperma nubigenum</i>	Iceplant	3		FS	Short (GC)	Sp/Su
<i>Delphinium</i> spp.	Larkspur	4		FS	V Tall	Su
<i>Dianthus</i> spp.	Sweet William	3,4		FS	Short-Tall	Sp/Su
<i>Dicentra</i> spp.	Bleeding Heart	3		PS	Med -Tall	Sp/Su
<i>Dictamnus albus</i>	Gas Plant	3		FS,PS	Tall	Su
<i>Digitalis purpurea</i>	Foxglove	4		PS	Tall	Su
<i>Echinacea purpurea</i>	Purple Coneflower	3		FS	Tall	Su/Fa
<i>Echinops ritro</i>	Globe Thistle	3		FS	Medium	Su/Fa
<i>Erigeron</i> spp.	Fleabane	3		FS	Short/Med	Su/Fa
<i>Euphorbia</i> spp.	Spurge	4		FS,PS	Short-Med	Sp/Fa
<i>Filipendula</i> spp.	Meadowsweet	3		FS,PS	Tall	Su
<i>Fragaria</i> hybrids	Strawberries	3		FS,PS	Short	Sp/Su/Fa
<i>Gaillardia grandiflora</i>	Blanket Flower	4		FS	Medium	Su/Fa
<i>Galium odoratum</i>	Sweet Woodruff	3		FS,PS	Short	Sp
<i>Geranium</i> spp.	Geranium	4		PS	Medium	Sp/Su/Fa
<i>Geum</i> spp.	Geum	4		FS,PS	Medium	Sp/Su
<i>Glaucium flavum</i>	Horned Poppy	4		FS	Short	Sp
<i>Gypsophila</i> spp.	Baby's Breath	4		FS	Short-Tall	Su
<i>Helenium autumnales</i>	Sneezeweed	3		FS	Tall	Su/Fa
<i>Helianthemum nummularium</i>	Rock Rose	4		FS	Short	Su
<i>Heliopsis helianthoides</i>	False Sunflower	3		FS	Tall	Su
<i>Hemerocallis hybrida</i>	Daylily	3,4		FS	Tall	Sp/Su/Fa
<i>Hesperis matronalis</i>	Dame's Rocket	3		FS,PS	Tall	Su
<i>Heuchera sanguinea</i>	Coral Bells	4		FS,PS,SH	Medium	Fol/Su

Exposure: FS=full sun, PS=partial shade, SH=full shade.

Plant height: Short (GC)=ground cover, Short=less than 18 inches, Medium=18 inches to 3 feet, Tall=3 feet to 5 feet, V. Tall=over 5 feet.

Bloom Season: Sp=spring, Su=summer, Fa=fall, Fol=grown for attractive foliage.

Table 2: Hardy Perennials (cont.)

SCIENTIFIC NAME	COMMON NAME	HARDINESS		PLANT HEIGHT	BLOOM SEASON
		ZONE	EXPOSURE		
<i>Heucherella alba</i>	Heucherella	4	FS,PS,SH	Medium	Su
<i>Hibiscus</i> hybrids	Rose Mallow	4	FS	Tall	Su
<i>Hosta</i> spp.	Plantain Lily	3	PS,SH	Med-Tall	Su
<i>Hypericum calycinum</i>	St. Johnswort	4	FS	Medium	Sp
<i>Iberis sempervirens</i>	Candytuft	3	FS	Short	Sp
<i>Lamium maculatum</i>	Deadnettle	4	PS,SH	Short (GC)	Su
<i>Lathyrus latifolius</i>	Sweet Pea	3	FS,PS	Tall	Su/Fa
<i>Leucanthemum superbum</i>	Oxeye Daisy	3,4	FS,PS	Medium	Su
<i>Liatris spicata</i>	Gayfeather	3	FS	Medium	Su
<i>Linum perenne</i>	Flax	4	FS	Tall	Sp
<i>Lobelia cardinalis</i>	Cardinal Flower	3	FS,PS	Tall	Su/Fa
<i>Lupinus</i> spp.	Lupine	4	FS	Medium	Su
<i>Lychnis chalconica</i>	Maltese Cross	4	FS,PS	Tall	Su
<i>Mertensia virginica</i>	Virginia Bluebell	4	PS	Medium	Sp
<i>Monarda</i> spp.	Bee Balm	4	FS,PS	Tall	Fa
<i>Myosotis sylvatica</i>	Forget-Me-Not	4	FS,PS	Short	Sp
<i>Nepeta siberica</i>	Catmint	3	FS	Tall	Sp/Su
<i>Oenothera</i> spp.	Evening Primrose	4	FS	Medium	Sp/Su
<i>Osteospermum barberae</i>	Hardy Sun Daisy	4	FS	Medium	Su
<i>Paeonia lactiflora</i>	Peony	3	FS,PS	Tall	Sp
<i>Papaver</i> spp.	Poppy	3	FS	Short/Med.	Sp/Su
<i>Penstemon</i> spp.	Penstemon	4	FS,PS	Tall/Med	Su/Fa
<i>Perovskia</i> spp.	Russian Sage	4	FS	Tall	Fa
<i>Persicaria</i> spp.	Fleeceflower	4	FS,PS	Tall	Su/Fa
<i>Phlox</i> spp.	Phlox	4	PS	Short/Med.	Su/Fa
<i>Physostegia virginiana</i>	Obedient Plant	3	FS,PS	Tall	Su/Fa
<i>Platycodon grandiflorus</i>	Balloon Flower	4	FS,PS	Medium	Fa
<i>Polemonium caeruleum</i>	Jacob's Ladder	2	FS,PS	Tall	Sp/Su
<i>Potentilla verna</i>	Potentilla	4	FS	Short	Su/Fa
<i>Prunella vulgaris</i>	Self heal	4	PS	Short	Su/Fa
<i>Pulmonaria saccharata</i>	Lungwort	3	PS,SH	Medium	Sp
<i>Pyrethrum</i> spp.	Painted Daisy	3	FS	Tall	Su
<i>Rudbeckia</i> hybrids	Gloriosa Daisy	4	FS	Tall	Su/Fa
<i>Salvia</i> spp.	Sage	3	FS,PS	Medium	Su
<i>Saponaria ocymoides</i>	Soapwort	3	FS	Short (GC)	Su
<i>Scabiosa caucasica</i>	Pincushion Flower	4	FS	Medium	Su/Fa
<i>Sedum</i> spp.	Stonecrop	4	FS	Medium	Fa
<i>Sempervivum</i> spp.	Hen and Chicks	3	FS	Short	Fol
<i>Stachys byzantina</i>	Lamb's Ear	4	FS	Short	Fol
<i>Stokesia laevis</i>	Stokes' Aster	3	FS	Medium	Su
<i>Tanacetum parthenium</i>	Feverfew	4	FS	Medium	Su/Fa
<i>Thymus</i> spp.	Thyme	3	FS	short	Sp/Su
<i>Tiarella</i> spp.	Foamflower	4	PS,SH	Medium	Sp
<i>Trifolium repens</i>	White Clover	3	FS	Short	Su
<i>Veronica gentianoides</i>	Speedwell	3	FS,PS	Medium	Sp/Su
<i>Vinca minor</i>	Periwinkle	4	PS	Short	Su

Exposure: FS=full sun, PS=partial shade, SH=full shade.

Plant height: Short (GC)=ground cover, Short=less than 18 inches, Medium=18 inches to 3 feet, Tall=3 feet to 5 feet, V. Tall=over 5 feet.

Bloom Season: Sp=spring, Su=summer, Fa=fall, Fol=grown for attractive foliage.



Asters and daisies add color during summer and fall.

Perennials are often at their best in Idaho's short-season, high-altitude landscapes, where their bloom and beauty can fill the summer season. Many have interesting and unusual flowers, such as balloon flower (*Platycodon grandiflorus*), bee balm (*Monarda* spp.), columbine (*Aquilegia* spp.), gas plant (*Dictamnus albus*), globe thistle (*Echinops ritro*), Maltese cross (*Lychnis chalcidonica*), and purple coneflower (*Echinacea purpurea*). Deadnettle (*Lamium maculatum*), pussytoes (*Antennaria dioica*), and snow-in-summer (*Cerastium tomentosum*) have excellent groundcover qualities, and deadnettle will thrive in heavy shade. Coral bells (*Heuchera*) come in myriad forms with intriguing leaf colors and textures.

Penstemons are a diverse group with forms and flower colors that create outstanding naturalized landscapes. Many new varieties of yarrow (*Achillea* spp.) are less invasive than their predecessors, have bright colored flowers, and bloom for a long period during the summer.

When you begin choosing perennials one of the most important considerations is the amount of sunlight they require. They are generally categorized as requiring full sun, part shade, or tolerant of full shade. If a plant needs full sun, plant it in a place where the sun shines directly on the leaves for at least 8 hours each day. Avoid situations where full-sun plants are in the shade during mid-day or early afternoon. Pick plants adapted to part shade if the location gets less than 8 hours of sunlight and especially if there is afternoon shade. Full shade plants can take shade most of the day, but very few flowering plants can tolerate the deep shade of a spruce tree or the north side of a building. For these situations, you may want to select the most shade tolerant plants such as hosta or deadnettle.

Many perennials are drought tolerant and adapted to poor soil conditions and for these reasons can be used as accents in difficult locations. However, even the toughest perennials will thrive in good growing conditions that come through proper soil, irrigation, and fertility management.

High altitude locations with routinely cold winter temperatures do not necessarily put you at a disadvantage for growing perennials. High elevation is usually associated with early, heavy snow cover. Perennials die back to the ground at the end of the growing season and snow provides insulation that increases their odds of survival.

Table 3: Hardy Bulbs

SCIENTIFIC NAME	COMMON NAME	HARDINESS		
		ZONE	PLANT HEIGHT	BLOOM SEASON
<i>Allium</i> spp.	Ornamental Onion	3,4	Tall	E Su
<i>Camassia leichtlinii</i>	Camassia	3	Tall	L Sp
<i>Chionodoxa forbesii</i>	Glory-of-the-Snow	3	Short	E Sp
<i>Crocus</i> spp.	Crocus	4	Short	Sp,Fa
<i>Eranthis cilicium</i>	Winter Aconite	4	Short	VE Sp
<i>Eremurus himalaicus</i>	Himalayan Desert Candle	3	Tall	Su
<i>Galanthus nivalis</i>	Snowdrops	4	Short	VE Sp
<i>Hyacinthus orientalis</i>	Hyacinth	4	Medium	Sp
<i>Leucojum aestivum</i>	Summer Snowflake	4	Medium	L Sp
<i>Muscari armeniacum</i>	Grape Hyacinth	4	Medium	Sp
<i>Narcissus</i> spp.	Daffodil	4	Medium	Sp
<i>Puschkinia libanotica</i>	Puschkinia	4	Medium	Sp
<i>Scilla siberica</i>	Squill	3	Short	Sp
<i>Tulipa</i> spp.	Tulip	3	Tall	Sp

Plant Height: Short= less than 8 inches, Medium=8 to 18 inches, Tall=taller than 18 inches.

Bloom Season: VE Sp=very early spring, E Sp=early spring, Sp=spring, L Sp=late spring, E Su=early summer, Su=summer, Fa=fall.



Tulips are a staple of the spring flower garden.



Crocuses and snow often come together.

HARDY BULBS

Bulbs are unsurpassed for supplying early spring color to the landscape. When considering bulbs, most of us think of the common spring blooming flowers, such as crocus, daffodils, and tulips. These are just a small part of what is hardy and available. There are many flowering bulbs, with bloom periods from early spring to late fall, that are adapted to Idaho's short-season, high-altitude climates. See table 3 for recommended bulbs.

Flowers from the earliest bulbs will chase away the winter blues, especially snowdrops (*Galanthus nivalis*) and winter aconite (*Eranthis cilicium*). If you are seeking eye-tantalizing color, it is hard to beat mass planted crocuses and tulips. The ornamental onions (*Allium* spp.) and Himalayan desert candle (*Eremurus himalaicus*) bring not only color but interesting form to summer landscapes.

Bulbs are typically grown in well-manicured beds with fertile, heavily-amended soils. Surprisingly, they can also thrive in places with much less ideal conditions, such as meadows or water-conserving gardens.



Small clump grasses like fescues add accent to beds and borders.

ORNAMENTAL GRASSES

Ornamental grasses are becoming a staple in Idaho landscapes. They provide line, form, and interest better than nearly any other plants. Many remain beautiful in the winter in places where heavy snow cover does not press them flat. Several species of ornamental grasses are hardy enough to survive and thrive in the short-season, high-altitude regions.

Unfortunately, if you are looking for a tall, majestic specimen plant among the ornamental grasses, you may be out of luck. The tallest grasses such as pampas grass and most of the *Miscanthus* maiden grasses are either too tender to survive zone 3 and 4 winters or they may fail to produce their beautiful flower spikes in our short, cool summers. On the other hand, there are many medium and small-sized grasses that are well adapted to short-season climates. Table 4 lists ornamental grasses that do well in Idaho's harsh climates.

The tallest grasses adapted to our short-season, high-altitude regions are feather reed grass (*Calamagrostis x acutifolia*) and switchgrass (*Panicum virgatum*). Both make excellent winter specimens as a bonus to their interesting summer form. Many varieties of both species can be found in nurseries and garden catalogs. Korean feather reed grass (*Calamagrostis brachytricha*) is not quite as tall as the more common Japanese feather reed grass, but has more open, feathery spikes. Outstanding mid-sized grasses include blue oat grass (*Helictotrichon sempervirens*) and tufted hairgrass (*Deschampsia caespitosa*). The fescues are excellent small accent grasses. One of the best is large blue fescue (*Festuca amethystina*) with its reddish colored flower stalks.

Most of the ornamental grasses, even those rated for hardiness zone 4, should do well even if you live in one of the harshest, high altitude climates. Winter snow cover provides

excellent protection from winter injury and desiccation. Grasses need full sun to be at their best. They can tolerate wind and many do well in alkaline soils.

CARING FOR HERBACEOUS AND GRASS ORNAMENTALS

Good instructions for maintaining healthy annuals, perennials, bulbs, and grasses can be found in many books, bulletins, and web sites. No effort will be made to duplicate that information. Instead, this section will provide techniques and ideas that enhance common gardening practices specifically for short-season, high-altitude gardeners.

Every species of ornamental plant has unique growing requirements, so few techniques will have universal application. However, some general rules can help guide cultural management decisions. For example, annuals and bulbs generally do best with deep, fertile soil and relatively high inputs of fertilizer and water. Perennials and ornamental grasses are more of a mixed bag, but generally do well on poor soils and with less care. In fact, some perennials and grasses look better and live longer if they are given less water and fertilizer.



Tall grasses such as "Dallas Blues" switchgrass can provide texture and interest in wintertime.

Table 4: Ornamental Grasses

SCIENTIFIC NAME	COMMON NAME	HARDINESS ZONE	PLANT HEIGHT
<i>Andropogon gerardii</i>	Big Bluestem	3	36-60 in
<i>Bouteloua curtipendula</i>	Sideoats Grama	3	36 in
<i>Bouteloua gracilis</i>	Blue Grama	3	15 in
<i>Briza media</i>	Quakinggrass	4	30 in
<i>Calamagrostis brachytricha</i>	Korean Feather Reed	4	48 in
<i>Calamagrostis x acutifolia</i>	Feather Reed Grass	4	60 in
<i>Carex</i> spp.	Sedge (many forms)	3,4	6-24 in
<i>Deschampsia caespitosa</i>	Tufted Hairgrass	4	48 in
<i>Elymus canadensis</i>	Canada Wildrye	3	15 in
<i>Elytrigia elongata</i>			
'Jose Select'	Tall Wheatgrass	3	36 in
<i>Eriophorum angustifolium</i>	Common Cottongrass	3	24 in
<i>Festuca amethystina</i>	Large Blue Fescue	4	20 in
<i>Festuca glauca</i>	Blue Fescue	3	15 in
<i>Festuca idahoensis</i>	Idaho Fescue	3	15 in
<i>Festuca punctoria</i>	Hedgehog Fescue	4	5 in
<i>Festuca valesiaca</i>	Volga Fescue	4	10 in
<i>Helictotrichon sempervirens</i>	Blue Oat Grass	3	40 in
<i>Molinia caerulea</i>	Purple Moorgrass	4	36 in
<i>Panicum virgatum</i>	Switchgrass	3	60 in
<i>Schizachyrium scoparium</i>	Little Bluestem	3	40 in
<i>Sesleria autumnalis</i>	Autumn Moor Grass	4	20 in
<i>Sesleria heufleriana</i>	Blue-Green Moor Grass	4	15 in
<i>Sporobolus heterolepis</i>	Prairie Dropseed	4	30 in



Growing flowers from seed increases options for flower selection.

PLANTING

The planting process begins with site selection and soil preparation. The first step is to ensure proper drainage. Water should not collect in or around beds because flooding or frost heaving can kill overwintering plants. Locations that experience heavy runoff from roofs or snowmelt can be especially problematic. Land should be graded to remove low spots and to create exit routes for surface water. If water cannot be practically drained from a property, channel water to areas in the yard where moisture-loving trees and shrubs are planted. If the soil in beds is heavy clay, and water stands on the surface of the soil, add gravel and/or organic matter to improve drainage.

Another strategy for managing water drainage is to construct berms. Berms prevent water from saturating the soil around sensitive plants. However, they may be detrimental to proper irrigation during the warm summer months because the slope of a berm encourages water to run off instead of soaking into the soil. Solve this problem by installing drip irrigation or pulse irrigating—water in a series of short intervals, 3 to 5 minutes each, every time the berm is irrigated.

Once you are satisfied that drainage is adequate, soil amendment becomes the next logical step. The ultimate goal for a mixed bed that includes annuals and bulbs is 12 to 14 inches of high quality topsoil. This may require addition of topsoil, particularly in areas with stony soils. Regardless of soil type, amend the existing soil by adding 4 to 8 inches of compost, manure, or other organic matter. Next, add a complete fertilizer such as a 5-10-5 at the equivalent of 3 lbs nitrogen per 1000 sq. ft (carefully follow the directions on the bag). The fertilizer should be high in phosphorus and should preferably include sulfur. The final step is to till the soil to a depth of at least 12 inches.

Most perennials can withstand, and some even prefer, leaner soils than annuals. For this reason, perennial beds may not require extensive amendment but may still benefit from the



Properly hardened plants will grow rapidly after transplanting.

addition of organic matter. More important is ensuring soil permeability because most perennials and grasses will not survive in a consistently wet soil. If your soil is heavy and damp, add gravel, create a raised bed, or consider drilling holes down through the soil and filling them with sand or gravel to improve drainage.

OBTAINING PLANTS

Many of the plants sold at mass merchandizing stores are not adapted to Idaho's short-season, high-altitude regions. Mail-order catalogues are a good source of unique, adapted plants, but often include incorrect hardiness designations. Local nurseries on the other hand can offer a wealth of information about species and varieties that are likely to succeed in your area.

The options for establishing plants in the landscape include: 1) direct seeding, 2) producing transplants from seed, 3) purchasing transplants, or 4) obtaining divisions or cuttings from existing plants.

Direct seeding—In a short-season climate direct seeding should be done only for those plants that grow and bloom at a rapid rate. Slow developing annual plants may not reach their potential in the landscape before being damaged by frost. Many perennials may not bloom the first year if planted from seed. Direct seeding perennial species may also preclude planting desirable varieties because many do not breed true-to-type. These are usually propagated using cuttings or divisions and available only as plants. However, some situations may make direct-seeding the only viable option. In some



Nurseries produce healthy plants under ideal greenhouse conditions.

cases, plants simply do not transplant easily. Economics also comes into play, such as when establishing a large naturalized wildflower garden or meadow.

Indoor seeding and transplanting—Learning to self-produce transplants allows you to obtain and plant rare and unique plants and varieties while still taking advantage of a fast spring start. The objective of growing transplants is to produce healthy, vigorous, acclimated plants, which is not easy unless you own a greenhouse. Provide new seedlings with the equivalent of full sunlight for at least 10 hours each day (12 to 14 hours is better). Although placing seedlings in a window with a southern exposure is a good start, you are likely to need supplemental artificial lighting. Temperatures should be kept at around 65 to 75°F during the day and about 20°F cooler during the night. Alternating the day/night temperature is not always possible inside a house, but the closer you come to matching these conditions, the better the plants will do.

The last step in producing good transplants is the hardening-off process. This is a stepwise acclimatization of plants to outdoor conditions. This is done prior to planting by setting the transplants outside (near the intended planting location is best) for a few hours each day over a period of 1 to 2 weeks. During this time, return the plants indoors if inclement weather or frost is forecast. This hardening-off procedure will help reduce transplant shock, improve survival, and increase the early growth rate once the plants are placed in the garden.

Purchasing plants—The simplest way to obtain plants is to purchase them from a reputable nursery. Nurseries have good facilities for producing compact, vigorous transplants. The disadvantage is that the plants in a greenhouse facility become acclimated to ideal conditions, so they must become adapted to a harsh outdoor climate in the first 2 to 3 weeks after purchase. To remedy this problem, take the plants home and subject them to the same hardening-off process described for self-produced transplants.

Scrounging for starts—It is possible to propagate many perennials and nearly all bulbs and grasses by using divisions or cuttings. This means you can multiply attractive plants already growing in the landscape or obtain new plants from neighbors. This process requires more work than purchasing plants but provides the advantage of assuring proven adaptability and beauty at minimal cost.

Consider a few precautions before trying to propagate bulbs and perennials. First, inspect the source plant to make sure it is healthy and free of visible disease. Then read up on the best methods and procedures for propagating that particular species, including identifying the proper time of year. Here is a description of the most commonly used propagation methods:

Division—Many perennial and bulb plants develop large multiple crowns or bulb offsets as they age. Separate the crowns to create new plants. Do this by digging up the plant, dividing it into pieces and replanting each separately. For grass plants, use a sharp spade to cut a portion from the side of a plant while the original plant is left in place, then plant the separated segment. This method minimizes disturbance of the original plant. Perennials and grasses are usually divided in early spring. Flowering bulbs are usually divided in the fall, although they can be separated in late spring after flowering.

Stem cuttings—Many perennials will rapidly grow roots on cut stems and this can be used to produce new plants. Rooting of stem pieces is usually done in pots. Cleanly remove a tip or middle segment of a healthy, green shoot from the desired plant and poke it into sterile, moist growing medium. Some species will root better following application of a rooting hormone. Keep the new cutting out of direct sunlight and cover it with clear plastic (clear plastic cups work well if only a few cuttings are being rooted) to prevent moisture loss. In 2 to 3 weeks the cuttings should develop new roots and in several more weeks be ready to transplant. Stem cuttings are usually made in the spring or summer, just before or after flowering.

Root cuttings—Propagate perennials with thick, fleshy roots by removing a portion of the root. Do this by digging up a root, cutting it into segments, and replanting each piece. Usually, the larger the root cutting the faster the new plant will grow and bloom. As a rule, root cuttings should be taken when plants are dormant, usually in early spring or late fall.



In dry Idaho climates proper irrigation is essential to producing beautiful flowers.

FERTILIZATION

In a short-season, high-altitude climate, plants have only a short time to complete their life cycle and may not benefit from large or frequent applications of fertilizers. For herbaceous ornamentals, the best fertilization strategy is to make a single application of fertilizer at the optimum time. For annuals, the optimum time to fertilize is spring, usually at the time of planting. Use a complete, high-phosphorus fertilizer (such as 5-10-5) at a rate of 2-4 pounds of nitrogen per 1,000 square feet. For bulbs, perennials, and ornamental grasses, fertilize in the fall after frost has stopped growth. High phosphorus fertilizer is best and should be applied at a rate of 2-3 pounds of nitrogen per 1,000 square feet for bulbs and 1-2 pounds nitrogen per 1,000 square feet for herbaceous perennials and ornamental grasses. Organic compost worked lightly into the soil can be used in bulb, perennial and grass beds to supplement or substitute for chemical fertilizers. The compost will help hold moisture in the soil during dry periods, and make nutrients available to the plants during the summer. One word of caution: do not maintain a layer of compost over plant crowns during the winter because some species will develop crown rot and may die.

IRRIGATION

The water needs of landscapes in Idaho's short-season, high-altitude regions are so variable as to make any single recommendation meaningless. It is important to meet water demands in order to ensure the uninterrupted growth and flowering that is essential for short-season gardening success. If you live in a high desert climate, plan to irrigate at least weekly during the hottest part of the summer. In mountainous regions, water demand will depend on the frequency of rain and how fast the soil drains. Mountain soils can be difficult to irrigate properly. They are often porous and hold little



Caterpillars are voracious eaters and can damage leaves of many plants.

water, or they are clay pockets on top of bedrock and easily become saturated. It is best to irrigate these soils on demand by occasionally digging in the flowerbeds and watering only when the top inch of soil is dry.

For perennials, bulbs, and ornamental grasses, proper fall irrigation is essential to winter survival. A good practice is to cease watering at about the time the first fall frosts occur. This procedure will help plants to go dormant and prepare for winter. Three to four weeks later apply one last seasonal application of water sufficient to wet the soil to a depth of 2 to 3 feet.

CONTROLLING PESTS

Numerous insects and diseases are potentially damaging to herbaceous landscape plants. It is beyond the scope of this publication to list control methods for each pest. General categories of pests and control techniques will be discussed.

Insect pests—Control methods for insects are usually based on the ways they feed and cause damage to plants. Categories include sucking insects, chewing insects, borers, and slugs.

Sucking insects—Aphids are the most common sucking insects, although some beetles will also feed on plant sap. Colonies of these insects are usually directly visible on the new, tender growth, but they can also cause symptoms in the form of curled leaves or malformed stems. They can be controlled by protecting or releasing beneficial insects, washing the aphids from the plant with a hard stream of water, using insecticidal soaps, or applying one of numerous effective organic or traditional insecticides.

Chewing insects—Many types of insects chew on stems and leaves of landscape plants, including grasshoppers, caterpillars, beetles, and weevils. Damage is easy to recognize because it takes the form of obvious holes in the



Control of insects is partially a result of preserving beneficial insects such as this praying mantis.

leaves or chewed-off stems. If numbers are limited, large insects can be removed from plants by hand. Severe infestations often require the application of an organic or traditional insecticide.

Borers—Borers are usually more problematic on woody plants. However a few, including the leaf-boring insects known as leafminers, will damage stems and leaves of flowers. Stem borers can be recognized by holes in the stems, weak stems that may break in the wind, or wilting of the top portion of a stem. Leafminers create whitish serpentine trails as they feed inside the leaves. The best control is to remove and destroy the infested tissues. In severe cases, a systemic insecticide may be needed.

Slugs—Technically not insects, slugs can be serious pests in moist flower beds where they chew away leaf and stem tissues. They are difficult to control and the best practice is to eliminate moist surface mulches and space plants to encourage drying of the soil surface. Slug baits may also be helpful.

Diseases—Most plant diseases are caused by one of three types of pathogens: fungi, bacteria, or viruses. Control methods are unique for each group of diseases.

Fungi—The fungal diseases include powdery mildews, leaf spot diseases, and wilts. Most fungi need moist conditions to infect plants. To control fungal diseases, allow plants to dry between irrigations, space plants to allow good air-flow, and avoid over-fertilization. At the end of each season, plant residues that harbor diseases should be removed and destroyed. When the above options fail, you may need to apply a labeled fungicide. Wilt diseases are difficult to control and may require that you avoid planting susceptible plants.



It is important to protect perennial plants from the ravages of winter.

Bacteria—The most common symptoms of bacterial diseases are slime rots of crowns, stems, and occasionally leaves. All require moist conditions to become active. There are no effective pesticides for bacterial diseases. Control these diseases by allowing foliage and the soil surface to dry between water applications. Severely damaged plants should be removed and destroyed.

Viruses—Symptoms of viruses are often difficult to recognize and include leaf yellowing, mottling, or crinkling. These are usually accompanied by a distinct lack of vigor. There are no direct methods to control viruses. Most viruses are spread by other organisms, such as insects, called vectors. Control of the vector will often slow the spread of a virus. The only other effective control method is to remove infected plants so the disease does not spread to nearby healthy plants.

PROVIDING WINTER PROTECTION

Most perennials, bulbs and ornamental grasses will benefit from some form of winter protection in short-season, high-altitude gardens. Start winter preparations in the fall by cutting stems back to a height of 3 to 4 inches (except those that provide some winter interest, like some of the tall grass species). This will create a more attractive winter landscape, but more importantly, will simplify coverage of beds with a layer of mulch. Use bark, wood chips, or other loose organic matter applied to a depth of 3 to 6 inches between all plant crowns. Avoid using leaves for winter protection, unless shredded, as they tend to compact into a layer that seals the soil surface.



Plant containers come in many sizes, colors, and shapes.

CONTAINER GARDENING

Gardening in containers can provide many advantages for the short-season, high-altitude gardener. Container plants can extend the growing season, provide color to drab areas of the landscape, and allow production of plants that are marginally hardy. Herbaceous ornamentals are ideal specimens for containers. Nearly any annual flower can be successfully grown in a container. Many perennials will also thrive in containers, although they may not live as long as they would in the garden.

CONTAINER SELECTION

Before selecting a container, carefully consider such factors as size, shape, appearance, and structural material. From an aesthetic point of view, the container should fit nicely in the intended space, complement the surrounding architecture and landscape, and be attractive. Containers can be made from many materials, including clay, plastic, metal, concrete, or wood. They may be purchased or homemade. Containers can also be created from objects designed for other purposes, such as washtubs, troughs, or whiskey barrels. From the standpoint of plant health, containers made of thicker materials will insulate and protect roots better than thin-walled pots.

Containers should have drainage holes in the bottom; otherwise the soil will become saturated and eventually cause root rots. If the drain holes are large, prevent soil loss by covering them with nylon netting, large gravel, or pieces of broken clay pots before filling the container with potting soil.

There are two major approaches to container gardening. One is to use containers as temporary features, in which case they are emptied at the end of the summer or moved inside in the fall to protect tender plants from harsh weather. In this case, the pots need to be of a manageable size. The other approach is to use containers as permanent landscape features. If you take this last approach the containers should be large enough



Containers can add beauty to any part of the landscape.

to provide good long-term growing conditions. There should be enough soil to hold moisture through the winter and to buffer the daily swings in temperature.

In general, small plants can grow in smaller containers, and large plants need larger containers. Use the following guidelines, based on plant size and type, to determine acceptable minimum container size.

Small annual plants (3-8 inches tall)	1 gallon pot
Medium annual plants (9-18 inches tall)	2 gallon pot
Large annual plants (more than 18 inches tall)	5 gallon pot
Small perennial plants (3-10 inches tall)	2 gallon pot
Large perennial plants (more than 10 inches tall)	5 gallon pot

SOIL MIXES

The best media for container gardening are those called 'soiless mixes' or potting soils. These are combinations of peat moss, sand, vermiculite, and perlite and do not contain actual garden soil. Soiless mixes are lighter in weight, hold more water, and provide more nutrients, than garden soil. This is very important for sustained growth in the limited space of a container.

CONTAINER PLACEMENT

Plants in containers have the same growth requirements as those in the garden. They need adequate light and a non-stressful environment. Place containers with sun-loving plants where they will receive at least 8 hours of sun each day. Place shade-loving plants where they will have dappled, rather than complete, shade for at least part of the day. Because of root exposure, plants in containers are much more susceptible to injury from heat or drying winds than plants growing in the garden. Take care to provide some protection from these damaging factors by placing containers where heat and wind are minimal. You can prevent the roots from overheating by shading the pot while keeping the plant in sunlight.

CONTAINER PLANT SELECTION

In a short-season, high-altitude environment, a major appeal of container gardening is the ability to grow plants that are otherwise off-limits. However, some plants are definitely more adapted to containers than others. The easiest plants to grow in containers are annual flowers. They supply quick, long-lasting color without the worry of winter survival. At summer's end, the plants can be allowed to die and the pots emptied, cleaned, and stored for the next season. Table 5 lists some annual flowers that are easy to grow in containers.

Perennials make great container specimens. However, they require both larger containers to meet long-term plant needs and attention to winter care to remain healthy during the dormant period. Here are some pointers for success with container perennials. To extend bloom, move tender perennials, such as begonias, dianthus, geraniums, impatiens, and lantanas indoors during freezing temperatures. Provide winter protection for hardy plants by moving them into an unheated structure, covering them with burlap or landscape fabric, or adding a layer of bark or loose organic matter. Do not place the containers in a place where temperatures are warm enough to allow early growth that will be damaged when the plants are moved outside in the spring. See table 6 for recommended perennials for container gardens.

Table 5: Hardy Annuals for Containers

SCIENTIFIC NAME	COMMON NAME
<i>Angelonia angustifolia</i>	Angelonia
<i>Bidens ferulifolia</i>	Bidens
<i>Browallia speciosa</i>	Browalia
<i>Calibrachoa</i> hybrids	Million Bells
<i>Lobelia erinus</i>	Lobelia
<i>Petunia</i> hybrids	Petunia
<i>Salvia</i> spp.	Salvia
<i>Sutera cordata</i>	Bacopa
<i>Tagetes</i> spp.	Marigold
<i>Tropaeolum majus</i>	Nasturtium
<i>Verbena</i> hybrids	Verbena
<i>Zinnia elegans</i>	Zinnia

Small to moderate-sized ornamental grasses make great container plants. They live and remain attractive for a long time under the stressful conditions imposed by pots. Grasses can be mixed with other plants to add texture. Appropriate grasses for containers are listed in table 7.

Bulbs are good candidates for container gardens. Being perennial, they can be overwintered in containers, if kept cold and moist (hardy bulbs) or harvested and stored (tender bulbs). Bulb plants that work well are listed in table 8.



With proper care, many types of plants will thrive in containers.

Table 6: Perennials for Containers

SCIENTIFIC NAME	COMMON NAME	SEASON OF BLOOM
<i>Aster novae-belgii</i>	New York Aster	Fall
<i>Aubrieta deltoidea</i>	False Rock Cress	Spring
<i>Aurinia saxatilis</i>	Basket of Gold	Spring
<i>Centranthus ruber</i>	Red Valerian	Summer
<i>Coleus x hybrida</i>	Coleus*	(foliage)
<i>Dahlia x hybrida</i>	Dahlia*	Summer
<i>Dendranthema x grandiflora</i>	Chrysanthemum	Fall
<i>Dicentra eximia</i>	Fringed Bleeding Heart	Fall
<i>Hemerocallis</i> spp.	Daylily	Summer
<i>Heuchera sanguinea</i>	Alumroot	Spring
<i>Lantana camara</i>	Lantana*	Summer
<i>Lobelia cardinalis</i>	Cardinal Flower	Summer
<i>Pelargonium x hortorum</i>	Geranium*	Summer
<i>Rudbeckia fulgida</i> var. <i>sullivantii</i>	Rudbeckia	Fall
<i>Scabiosa caucasica</i>	Pincushion Flower	Summer
<i>Sedum</i> spp.	Stonecrop	Summer
<i>Trollius europaeus</i>	Globeflower	Spring

*Tender perennial, damaged by frost.

Table 7: Ornamental Grasses for Containers

SCIENTIFIC NAME	COMMON NAME
<i>Arrhenatherum elatius</i>	Bulbous Oatgrass
<i>Calamagrostis x acutiflora</i>	Feather Reed Grass
<i>Carex</i> spp.	Sedge
<i>Chasmanthium latifolium</i>	Spangle Grass
<i>Deschampsia caespitosa</i>	Tufted Hairgrass
<i>Elymus glaucus</i>	Blue Wildrye
<i>Festuca</i> spp.	Blue Fescue
<i>Helictotrichon sempervirens</i>	Blue Oat Grass
<i>Imperata cylindrica</i>	Japanese Blood Grass*
<i>Molinia caerulea</i>	Purple Moorgrass
<i>Pennisetum</i> spp.	Fountain Grass*
<i>Phalaris arundinacea</i>	Reed Canarygrass

*Tender perennial, damaged by frost and requires special winter maintenance.

Table 8: Bulbs for Containers

SCIENTIFIC NAME	COMMON NAME	SEASON OF BLOOM
<i>Allium</i> spp.	Ornamental Onion	Spring/Fall
<i>Begonia</i> x		
<i>semperflorens-cultorum</i>	Begonia (Wax Leaf)*	Summer
<i>Brodiaea laxa</i>	Brodiaea*	Summer
<i>Caladium x hortulanum</i>	Caladium*	Foliage
<i>Chionodoxa luciliae</i>	Glory-of-the-Snow	Spring
<i>Convallaria majalis</i>	Lily-of-the-Valley	Spring/Summer
<i>Hyacinthus orientalis</i>	Hyacinth	Spring
<i>Narcissus</i> spp.	Daffodil	Spring
<i>Tulipa</i> spp.	Tulip	Spring

*Tender bulb, damaged by frost and requires special winter maintenance.

CONTAINER PLANT CARE

Principles for maintaining healthy plants in containers are no different than for plants in a garden. However, in practice, container plants require greater attention to detail. Limited soil volume and added stress create the need for frequent irrigation and fertilizer applications and for constant pest monitoring.

Irrigation—There is no easy way to schedule watering of container plants. During hot weather, irrigation may be needed every day, or in extreme cases multiple times in a day. However, it should be recognized that over-watering of container plants is the most common cause of poor performance or death. A rule of thumb is to let the top 1-2 inches of soil completely dry between irrigations. When applying water, add a sufficient quantity to allow some water to drain from the bottom of the pot.

Fertilization—Maintain a high level of fertility in containers to keep plants healthy and attractive. The two best methods for applying fertilizer are to 1) mix a slow-release granular fertilizer into the top few inches of soil in the spring and again in mid-summer, or 2) use a solution containing a complete fertilizer once each week when irrigating the containers.

Pest control—Container plants are more prone to insect and spider mite problems than garden-grown plants. Diseases also can become problematic, especially if plants are stressed. Inspect container plants frequently to identify pest problems before damage becomes severe. When required, use proper control measures. For many insect problems on container plants, application of an insecticidal soap is a very effective control method.

Find more gardening resources and publications online at extension.uidaho.edu/homegard.asp



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