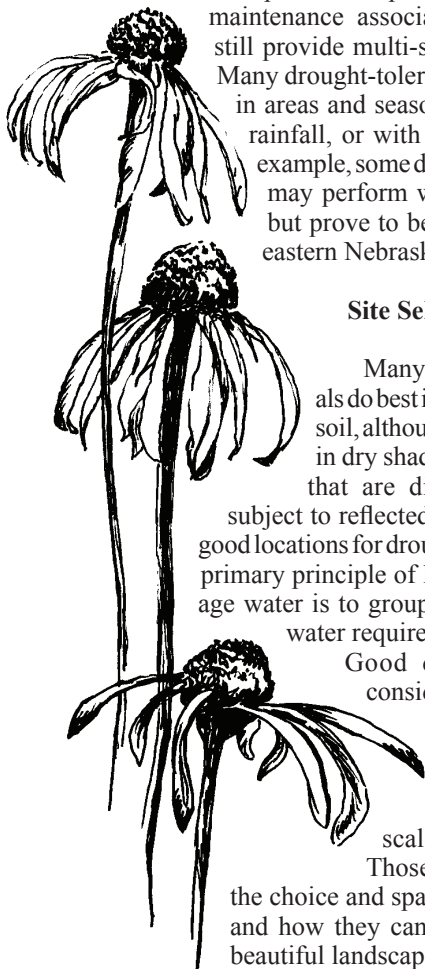


Perennials In Water-Wise Landscapes

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This NebGuide discusses choosing, establishing and maintaining perennial flowers in water-wise landscapes.

Drought-tolerant perennials are plants that persist for three or more years with little or no supplemental watering. There are both native and introduced herbaceous plants that are drought-tolerant. Using these plants in Nebraska landscapes will help conserve water, reduce the maintenance associated with watering, and still provide multi-season color and interest. Many drought-tolerant plants perform poorly in areas and seasons of high humidity and rainfall, or with excessive irrigation. For example, some drought-tolerant perennials may perform well in western Nebraska but prove to be less than satisfactory in eastern Nebraska.



Coneflower

Site Selection and Design

Many drought-tolerant perennials do best in full sun and well-drained soil, although a limited number thrive in dry shade. Areas of the landscape that are difficult to water, or are subject to reflected heat and light, are often good locations for drought-tolerant perennials. A primary principle of landscape design to manage water is to group plants that have similar water requirements.

Good design also takes into consideration the cultural requirements of each plant, microclimate, the background or setting for the landscape, and the scale or size of the space. Those major factors influence the choice and spacing of individual plants, and how they can best be combined for a beautiful landscape.

Size, Spacing and Form—The size of your planting space will influence the choice of plants. Make sure perennials are spaced for their mature size—it is easy to put them too close together when you purchase them as small plants. Some perennials grow larger than the size listed on the label,

especially when grown in ideal conditions. Good spacing allows air circulation, which is essential to allow the foliage of drought-tolerant plants to dry adequately and reduce the possibility of disease.

The form of many perennials changes as the season progresses. Plants with bold, contrasting forms can be used as individual focal points, while others are best planted in groupings or drifts of three or more. This deliberate use of contrast and similarity will create both variety and continuity in your landscape.

Texture and Color—The color, timing, and duration of the flowers is an important consideration, but foliage color also contributes to the overall design. Many drought-tolerant perennials have silver or gray foliage, which shines in low light and acts as a foil for brighter colors. Warm colors attract attention, and make spaces seem smaller and hotter. Cool colors and pastels are tranquil.

Unique leaf structure helps many drought-tolerant perennials reduce water loss through transpiration and adds textural interest. Fine, lacy foliage with reduced leaf surface; thick, waxy succulent foliage; or broad, fuzzy leaf blades can reduce water loss from plants and provide many options for using the texture of perennials to extend the visual interest of the landscape well beyond the bloom period.

Foliage and seed heads of many drought-tolerant perennials can be left in place well into the winter with a backdrop of ornamental grasses or evergreens, providing an extended season of interest. Leaving the foliage in place until spring holds leaves and snow as insulation, protecting the roots of plants from winter injury. However, care should be taken to keep this material from sitting on the crowns of plants, because good air circulation and drainage are essential to survive through winter.

Site Preparation for Establishment

A well-drained, friable (loose) soil is essential for the survival of drought-tolerant plants. This structure will allow the roots of water-conserving plants to extend deeply into the soil. Most drought-tolerant plants in the home landscape benefit from the addition of organic matter to the soil. Organic matter loosens the soil and adds nutrients. Sandy soils, which drain very quickly, benefit from the addition of organic matter by improved nutrient- and water-holding capacity, and reduced runoff of nitrogen and pollutants. If the soil is very poorly drained, small rocks, pebbles, or coarse sand may be added to improve conditions for the most drought-tolerant plants.

Loosen existing soil to a depth of at least 12 inches to break up any sites severely compacted by construction or traf-

fic. Thoroughly mix organic matter such as coarse compost, shredded leaves, or a combination of these materials, into the loosened soil at a ratio of approximately one part organic matter to four parts soil. For example, use 3 inches of organic matter on a soil loosened to a depth of 12 inches.

Maintenance

Even the most drought-tolerant perennials require supplemental water until they are established, as well as during periods of extended drought. The smaller the root system, the more frequently you will need to water newly installed perennials. Check the soil beyond the root zone as well, and apply one-half inch to 1 inch of water weekly inclusive of rainfall. Gradually reduce the amount of supplemental water, but continue to monitor the condition of the plants.

Mulch new and established perennials with a layer of material 1 to 2 inches deep to retain soil moisture, suppress weed growth, and reduce erosion. Organic mulches are recommended for all but the most drought-tolerant plants. Medium-textured wood chips, shredded bark, chopped leaves or a combination of these materials look natural and improve the soil composition as they decompose. Inorganic mulches like rock or gravel hold heat and reflect light, and may damage the plants they are intended to protect.

Fertilize drought-tolerant perennials only when the plants show signs of diminished vigor or chlorosis. The breakdown

of organic mulches adds nutrients to the soil, but fertilizer may eventually be needed if mulches or compost are not regularly replenished.

Most drought-tolerant plants will perform well for years without division and may actually be destroyed if they are disturbed. Others will respond to overcrowding by dying out in the center, becoming spindly or failing to produce vigorous blooms. Drought-tolerant perennials may be divided and replanted as soon as the soil is workable in the spring or in late August to early September. Gently lift the old clump, and remove dead pieces with a sharp knife or spade. Split the plant into two or more sections, and place each section in a new planting hole at the same depth or slightly higher than the original plant. Backfill with soil that is consistent with the surrounding area, and water until the soil is saturated. Do not tamp the soil or otherwise compact it.

Following is a list of perennials that have demonstrated a tolerance of Nebraska moisture conditions, including soil moisture stress, when planted in well-drained soils.

The list includes native and non-native or adapted plants that are not invasive. The most drought-tolerant plants are indicated with an asterisk. Bloom times are approximate, since they are influenced by climate factors and microclimate. Exposure refers to the amount of sun that each plant prefers; many plants will tolerate more or less than an ideal exposure, but habit and bloom may be affected. Only a few of the many cultivars that may be available are listed.

Common Name	Scientific Name	Select Varieties	Bloom Color	Ht/Spr.	Bloom	Sun	Remarks
Allium, Ornamental	<i>Allium senescens</i>	'Glaucum'	Lavendar	12"—12"	July-Sept	S	Long bloom season
Apple-blossom Grass, Gaura	<i>Gaura lindheimeri</i>	'Siskiyou Pink'	Pink	36"—36"	June-Sept	S	Short-lived
Artemisia, Fringed *	<i>Artemisia frigida</i>		Silver foliage	30"—30"	No bloom	S	Native
Artemisia, Southernwood	<i>Artemisia abrotanum</i>		Gray-green foliage	36"—36"	No bloom	S/Psh	Semi-woody
Artemisia, White Sage	<i>Artemisia ludoviciana</i>	'Silver King,' 'Valerie Finnis'	Silver foliage	36"—48"	No bloom	S/Psh	Aggressive
Arum, Painted	<i>Arum italicum</i>	'Pictum'	Green	12"—12"	May	Psh/Sh	Summer dormancy, semi-evergreen
Aster, Dwarf	<i>Aster x dumosus</i>	'Prof. Kippenburg,' 'Woods'	Pink, purple, white	12"—18"	Sept-Oct	S/Psh	Dwarf, attract butterflies
Aster, Fendler's	<i>Aster fendleri</i>	'My Antonia'	Purple, white	6"—12"	July-Sept	S	Native, good drainage
Aster, New England	<i>Aster novae-angliae</i>	'Alma Potschke,' 'Purple Dome'	Pink, purple, white	48"—36"	Sept-Oct	S/Psh	Taller, attract butterflies
Baby's Breath	<i>Gypsophila paniculata</i>	'Fairy Perfect,' 'Bristol Fairy'	White	24"—24"	June	S	Best on higher pH soils
Barrenwort, Red	<i>Epimedium x rubrum</i>		Red	9"—18"	Apr-May	Psh/Sh	Semi-evergreen
Bergamot, Wild	<i>Mondarda fistulosa</i>		Pink-lavendar	18"—18"	June-Aug	S/Psh	Colonizes
Blackberry Lily	<i>Belamcanda chinensis</i>	'Hello Yellow'	Orange, yellow	18"—36"	July	S/Psh	Can be weedy/seeds itself
Black-eyed Susan	<i>Rudbeckia hirta</i>		Yellow-orange	24"—24"	July	S	
Black-eyed Susan, Goldsturm	<i>Rudbeckia fulgida</i>	'Goldsturm'	Yellow-orange	24"—24"	July-Sept	S/Psh	Seeds itself
Blanket Flower *	<i>Gaillardia aristata</i>	'Baby Cole,' 'Goblin,' 'Burgunder'	Yellow-red, red	18"—24"	June-Sept	S	Seeds itself, can be short-lived
Blue Flax	<i>Linum perenne</i>	'Saphir,' 'Album'	Blue, white	24"—18"	May-June	S	Flowers close in heat
Bluets, Mountain	<i>Centaurea montana</i>		Blue	24"—18"	May-July	S	Best central/west
Boltonia	<i>Boltonia asteroides</i>	'Snowbank'	White	60"—48"	Aug-Sept	S	Self-supporting
Butterfly Milkweed	<i>Asclepias tuberosa</i>		Orange	24"—24"	June-July	S	Native, attracts butterflies
Calamint, White Cloud	<i>Calamintha nepetoides</i>	'White Cloud'	White	12"—18"	June-July	S	Fragrant foliage
Candy Lily	<i>Pardancanda norrisii</i>	'Dazzler'	Mixed	18"—18"	July-Sept	S	Unusual flowers
Catmint	<i>Nepeta x faassenii</i>	'Walkers Low,' 'Six Hills Giant'	Blue	18"—24"	May-Sept	S	Shear for repeat bloom
Comfrey	<i>Symphytum grandiflorum</i>	'Hidcote Blue'	Blue	12"—12"	May	Psh/Sh	Coarse texture in shade
Coneflower, Grayhead Prairie	* <i>Ratibida pinnata</i>		Yellow	48"—24"	July-Sept	S	Native, attracts butterflies

Common Name	Scientific Name	Select Varieties	Bloom Color	Ht/Spr.	Bloom	Sun	Remarks
Coneflower, Narrow-leaf Purple	<i>Echinacea angustifolia</i>		Purple, white	36"—24"	June-July	S	Native, attracts butterflies
Coneflower, Pale *	<i>Echinacea pallida</i>		Purple-pink	30"—24"	June-July	S	Native, most drought-tolerant species
Coneflower, Purple	<i>Echinacea purpurea</i>	'Magnus,' 'Cygnet White'	Purple, pink, white	36"—24"	June-Aug	S/Psh	Seeds itself, attracts butterflies
Coreopsis, Threadleaf	<i>Coreopsis verticillata</i>	'Moonbeam,' 'Zagreb'	Yellow	18"—36"	June-Sept	S/Psh	Long bloom season
Cranesbill, Bigroot Daylily *	<i>Geranium macrorrhizum</i> <i>Hemerocallis</i> spp.	'Bevan's Variety' Many	Pink Mixed	18"—24" Varies	May June-Oct	Psh/Sh S/Psh	Semi-evergreen Many rebloomers
Dwarf False Indigo	<i>Baptisia australis</i> var. <i>minor</i>		Blue	30"—30"	May	S/Psh	Interesting seed pods
False Indigo	<i>Baptisia australis</i>		Blue	48"—2"	May	S/Psh	Shrub-like proportions
Gayfeather, Dotted *	<i>Liatris punctata</i>		Rose-purple	24"—24"	July-Aug	S	Native, attracts butterflies
Gayfeather, Rough	<i>Liatris aspera</i>		Rose-purple	30"—24"	Aug-Oct	S	Native, best east/northeast
Gayfeather, Spike	<i>Liatris spicata</i>	'Kobold,' 'Floristan White'	Rose-purple, white	30"—24"	June-July	S	Native, good cut flower
Globe Thistle	<i>Echinops ritro</i>	'Taplow Blue'	Blue	24"—24"	June-Sept	S	Steel blue flowers
Goldenrod, Canada	<i>Solidago canadensis</i>	'Crown of Rays,' 'Golden Baby'	Yellow	18"—15"	July-Sept	S/Psh	Rebloom if cut back
Goldenrod, Stiff *	<i>Solidago rigida</i>		Yellow	36"—24"	July-Sept	S/Psh	Native, good cut flower
Hens and Chicks *	<i>Sempervivum</i> spp.	Many	Mixed	6"—12"	July	S	Rock garden plants
Hollyhock	<i>Alcea rosea</i>	'Chater's Double,' 'Nigra'	Mixed	36"—72"	June-Aug	S	Can be short-lived; reseeds
Horehound, Roundleaf *	<i>Marrubium rotundifolium</i>		Green-silver foliage	6"—18"	No bloom	S	Unusual foliage; rock wall plant
Hosta	<i>Hosta</i> spp.	Many	White, lavender	Varies	Aug-Sept	Psh/Sh	Compete well with tree roots
Hummingbird Mint, Sunset Hyssop *	<i>Agastache rupestris</i>		Orange-purple	18"—18"	Aug-Sept	S	Short-lived, best in central/west
Iris, Bearded *	<i>Iris</i> spp.	Many	Mixed	Varies	May-June	S	Protect tall varieties from strong wind
Knautia	<i>Knautia macedonica</i>	'Mars Midget'	Red	24"—24"	June-Oct	S	Long bloom season, unusual color
Lambsear, Helene von Stein *	<i>Stachys lanata</i>	'Helene von Stein'	Gray-green foliage	18"—24"	No bloom	S/Psh	Unusual standing water or snow on crown
Lavendar *	<i>Lavandula angustifolia</i>	'Provence,' 'Hidcote,' 'Munstead'	Lavendar blue	18"—18"	June-July	S	Semi-woody, shear for best form
Leadplant *	<i>Amorpha canescens</i>		Lavendar-blue	36"—36"	June-July	S	Native shrub useful in perennial beds
Lily-of-the-Valley	<i>Convallaria majalis</i>		White	6"—36"	May	Psh/Sh	Aggressive
Mother-of-thyme	<i>Thymus serpyllum</i>		Pink	6"—18"	July	S	Can be stepped on, will recover
New Jersey Tea	<i>Ceanothus americanus</i>		White	30"—36"	June-Aug	S	Native
Oregano, Ornamental	<i>Origanum laevigatum</i>	'Herrenhausen,' 'Rosenkuppel'	Rose-purple	18"—18"	Aug-Sept	S/Psh	Stems turn purple during season
Pasqueflower *	<i>Pulsatilla patens</i>		Purple	12"—12"	Apr-May	S	Native, attracts butterflies
Penstemon	<i>Penstemon digitalis</i>	'Husker Red'	Pink-white	24"—18"	May-June	S	Purple foliage; good seedheads
Penstemon, Rocky Mountain *	<i>Penstemon strictus</i>		Purple, salmon	24"—36"	June-July	S	Good drainage required
Penstemon, Shell-leaf *	<i>Penstemon grandiflorus</i>	'Prairie Snow,' 'War Axe'	Pink, white, purple	30"—18"	May-June	S	Good drainage required
Peony	<i>Paeonia lactiflora</i>	Many	Pink, white	36"—36"	May-June	S	Cage to hold flowers upright
Periwinkle, LaGrave	<i>Vinca minor</i>	'LaGrave'	Lavendar-blue	6"—18"	Apr-May	Psh/Sh	Competes well with tree roots
Phlox, Prairie	<i>Phlox pilosa</i>	'Eco Happy Traveler'	Pink	12"—12"	May-June	S/Psh	Native, strong bloomer
Pinks, Cheddar	<i>Dianthus gratianopolitanus</i>		Pink	6"—18"	May-June	S	Silver foliage, clove-scented flowers
Pitcher Sage *	<i>Salvia azurea</i>	'Nekan'	Blue	48"—24"	July-Sept	S	Native, unusual fall color
Poppy Mallow, Logan Calhoun *	<i>Callirhoe alcaeoides</i>	'Logan Calhoun'	White	12"—48"	June-Aug	S	Groundcover
Poppy Mallow, Purple *	<i>Callirhoe involucrata</i>		Maroon	12"—48"	June-Aug	S	Native, long bloom season

Common Name	Scientific Name	Select Varieties	Bloom Color	Ht/Spr.	Bloom	Sun	Remarks
Prairie Baptisia	<i>Baptisia leucantha</i>		White	48"—24"	June	S/Psh	Native, interesting form
Prairie Clover, Purple *	<i>Dalea purpurea</i>	'Stephanie'	Pink	18"—24"	June-July	S	Native, good drainage best
Prairie Clover, Silky	<i>Dalea villosa</i>		Pink	18"—24"	July-Aug	S	Native, best in central/west, sandy soils
Prairie Petunia *	<i>Ruellia humilis</i>		Lavendar-purple	12"—12"	June-Aug	S	Native, aggressive seeder
Prairie Smoke	<i>Geum triflorum</i>		Pink	12"—12"	Apr-May	S/Psh	Native, interesting seedheads
Primrose, Missouri	<i>Oenothera macrocarpa</i>	'Comanche Campfire'	Yellow	6"—24"	June-Aug	S	Native, stems and pods interesting
Puccoon *	<i>Lithospermum incisum</i>		Yellow	6"—12"	Apr-June	S	Best in central/west or well-drained soils
Pussytoes *	<i>Antennaria neglecta</i>		White, pink	2"—12"	May-June	S	Tiny groundcover for driest sites
Rabbit-brush *	<i>Chrysothamnus nauseosus</i>		Yellow	24"—24"	July-Sept	S	Best in central/west or well-drained soils
Rattlesnake Master *	<i>Eryngium yuccifolium</i>		Green-white	48"—24"	July-Sept	S	Unusual form, seeds itself
Rock-Cress, Wall	<i>Arabis caucasica</i>		Pink, white	4"—12"	Apr-May	S	Rock garden plant
Russian Sage	<i>Perovskia atriplicifolia</i>	'Filigran, 'Longin'	Blue	48"—36"	July-Aug	S	Semi-woody, can seed
Saltbrush, Four-winged *	<i>Atriplex canescens</i>		Silver foliage	24"—24"	NA	S	Best in central/west or well-drained soils
Sea Holly	<i>Eryngium amethystinum</i>		Blue	24"—18"	July-Aug	S	Interesting foliage and flowers
Sedum, Low Varieties *	Many	Many	Mixed	Varies	June-Oct	S/Psh	Versatile
Sedum, Tall Varieties *	Many	Many	Pink, red, white	Varies	June-Oct	S/Psh	Versatile
Shasta Daisy	<i>Leucanthemum x superbum</i>	'Becky,' 'Crazy Daisy'	White	24"—24"	June-Oct	S	Good cut flowers
Skull Cap, Helmet Flower	<i>Scutellaria scoridifolia</i>	'Mongolian Skies'	Blue-purple	6"—12"	May-June	S	Edger; good drainage required
Snakeroot, White	<i>Eupatorium rugosum</i>		White	30"—36"	Aug-Sept	Psh/Sh	Aggressive reseeder
Snow-in-Summer *	<i>Cerastium tomentosum</i>		White	4"—24"	Apr-May	S	Mat-former
Solomonseal, Variegated	<i>Polygonatum multiflorum</i>	'Variegatum'	Green-white	24"—36"	May	Psh/Sh	Colonizes
Spiderwort, Narrow-leaved	<i>Tradescantia tharpai</i>		Blue, pink, white	12"—12"	May	S/Psh	Best in central/west or well-drained soils
Spirea, Blue Mist	<i>Caryopteris x clandonensis</i>	'Dark Knight,' 'Arthur Simmonds'	Blue	36"—36"	Aug-Sept	S	Semi-woody, may winter kill
Statice, German	<i>Goniolimon tataricum</i>	'Woodcreek'	White	18"—18"	June-July	S	Tough, good cut flower
Sundrops, Yellow	<i>Calylophus serrulatus</i>	'Prairie Lode'	Yellow	6"—18"	May-July	S	Good edger
Sun-Rose *	<i>Helianthemum nummularium</i>	'Wisley Pink'	Pink, white, orange	6"—12"	May-June	S	Wall plant
Thrift	<i>Armeria maritima</i>	'Rubra'	Pink	6"—12"	May	S	Wall plant
Valerian, Red	<i>Centranthus ruber</i>	'Pretty Betsy,' 'Albus'	Red-pink, white	30"—30"	May-June	S/Psh	Good drainage, good wall plant
Veronica, Silver *	<i>Veronica incana</i>		Blue	12"—18"	June	S	Silver foliage
Virginia Mountainmint	<i>Pycnanthemum virginianum</i>		Green-white	24"—24"	July-Sept	S/Psh	Attracts butterflies, doesn't spread
Yarrow, Common *	<i>Achillea millefolium</i>	'Terracotta,' 'Paprika,' 'Snowsport'	White, red, orange	30"—24"	June-Aug	S	Versatile, like low fertility
Yarrow, Hybrids *	<i>Achillea</i>	'Moonshine,' 'Schwellenburg'	Yellow	24"—24"	June-July	S	Versatile, like low fertility
Yarrow, Serbian *	<i>Achillea serbica</i>		White	4"—12"	May	S	Tiny groundcover for driest sites
Yucca, Soapweed *	<i>Yucca glauca,</i> <i>Yucca filamentosa</i>		White	36"—36"	June	S	Native, semi-evergreen

S=Sun; Psh=Part Shade; Sh=Shade

Bloom times are approximate

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**Index: Horticulture
Ornamentals**

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