



Drought Tolerant Perennials: A Toronto Master Gardeners Guide

Perennials are plants that renew themselves each year growing from their hardy roots. Although there are woody perennials, such as trees and shrubs, the plants most people refer to as perennials are herbaceous plants that die back to the ground at the end of each growing season.

The life span of a perennial will vary with the individual species/variety; some live a few years, while others, like peonies, may live for decades.

People require drought tolerant plants for many reasons: climatic conditions, municipal watering restrictions, limited water supply from a well or cistern, water conservation preferences and lifestyle considerations, such as a cottage garden that must be left unattended for extended periods of time.



Lavender (*Lavandula* spp.) is one of many excellent choices for well-drained soil in full sun..

Photo: Helen Battersby

Characteristics

Drought tolerant perennials share many of the following characteristics that, when established, enable them to withstand periods of prolonged drought.

Many have silver or grey foliage, resulting from a coating of fine hairs on the surface of their leaves. These hairs reflect light and heat, and provide shade, thus reducing the amount of moisture lost to the atmosphere. Waxed or furry leaves, designed to keep plants cool and retain moisture, are also characteristics of many drought tolerant plants.

Leaf size also affects moisture loss. Many plants that have adapted to dry conditions have small or narrow leaves to minimize the amount of exposed leaf surface. Thick leaves are another common adaptation. For this reason, fleshy, succulent plants, such as *Sedum*, are popular choices for dry locations.

Root systems also affect drought tolerance. Perennials with large fibrous roots or deep tap roots are able to reach down into the soil to collect water and also store moisture for future use.

Most drought tolerant perennials grow in sunny locations and it is important to understand how light conditions are classified.

- Full sun – plants require at least 6 hours of direct, late-morning/afternoon sun
- Partial shade – plants need 3 to 6 hours of morning or afternoon sun, but should be shaded from the hot, midday sun.
- Full Shade – plants can thrive with less than 3 hours of sun. A bright location that receives no direct sun would be classified as full shade.

Uses for Perennials

Perennials may be used alone, in mixed borders, or for container gardening. It is a common misconception that perennials bloom for the entire growing season, like annuals. While there are some perennials that will bloom for many weeks, most are in flower for an average of three to four weeks.

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The challenge of planning a perennial garden is to choose a combination of plants that will collectively give colour throughout the growing season. Gardeners are naturally drawn to plants that are in bloom. Because many perennial plant purchases are made in the spring, this attraction can result in a garden filled with blooms only until the end of June, unless care is taken to also select plants that come into bloom later in the growing season.

It is important to take note of the mature height of your perennials when planning the layout of your perennial beds. In a traditional border, the tallest plants are placed at the back of the bed, moving down in height to the lowest perennials at the front. If planting an island bed, which is viewed from all sides, the tallest perennials should be in the centre, with height decreasing outwards to the perimeter of the bed.

Given that most perennials only bloom for a relatively short time, attractive foliage that lasts throughout the growing season is a very desirable feature. Combining perennials that provide contrast in form and texture is important. Texture mainly refers to the foliage of plants (e.g. the thickly corrugated heart-shaped leaves of some hostas compared to the highly serrated leaves of some cutleaf Japanese maples) and form refers to the overall shape of a plant, such as conical, upright, spreading or vase-shaped. Focusing on plants that will provide interesting textural contrast as well as attractive flowers will provide a more pleasing result throughout the entire growing season.

Considerations

When selecting perennials, it is important to check that they are hardy in our climate. The hardiness zone, usually located on the plant's tag, indicates the minimum winter temperature the plant can tolerate.

Choose plants suited to the growing conditions of your site. This is always preferable and more successful than attempting to change the site to suit the plant. Plants growing in their preferred locations are much more likely to be healthy than plants growing in less than optimal conditions. A healthy plant is far more likely to be able to withstand disease and pest problems than is a plant that is under stress.

When choosing a plant, consider the following: the amount of available sun/shade, the acidity or alkalinity of the soil, soil texture (e.g. primarily clay, loam or sand), the proximity of other plants, and associated root competition. Another important, but often missed consideration, is the perennial's size at maturity. Checking its mature height and spread will tell you the amount of space the perennial will require in your garden for optimum growth.

Begin by selecting plants that are well suited to the existing growing conditions. Native plants are usually a good choice. Also, look for disease resistant varieties. When planting, be sure to give the plants plenty of space to grow to their mature size. Overcrowded plants become stressed competing with neighbouring plants for light, nutrients and moisture. As a result, they are more susceptible to diseases, especially those that are encouraged by poor air circulation.

Drought tolerant perennials, in particular, should be planted away large trees and shrubs, so that their roots do not have to compete for nutrients and water. As well, a sheltered location is best. This will help protect the perennials and soil

from excessive moisture loss caused by warm, summer winds.

Soil Preparation

Soil should be amended with generous amounts of organic matter, such as peat moss and compost, in order to improve nutrient content and drainage (to prevent rot). These amendments are added to the soil surface, allowing existing microorganisms to incorporate the additions naturally, while preventing disturbance of the natural soil profile as much as possible. Perennials that grow in drought conditions do not need a lot of fertilizer and do best when they receive their nutrients from natural sources, such as an annual application of manure or compost. Remember, however, to check for specific nutrient requirements.

Once perennials are well established, after two or three years, they can usually survive with the water they receive naturally through rainfall. However, until that point, they must be watered regularly.

Regular weeding is necessary to prevent weeds from taking over the perennial bed. A layer of mulch, 2 inches thick, will help suppress weeds.

In dry locations, mulch is very important. Mulch forms a barrier which reduces evaporation from the soil below it. The rough surface traps water preventing runoff, and allows the moisture to drain slowly down into the ground. A mulch of straw can be also helpful when over-wintering tender, or newly-planted perennials.

Perennials should be dead-headed regularly to keep their appearance tidy, and to encourage plants to put their energy into flower production, rather than seeds.

Pests and Diseases

Perennials, in general, are easy to grow. Common pests, such as aphids, may be controlled by targeted water sprays from your garden hose. Slugs may be controlled with a shallow container of beer buried at the surface level of the soil, or with mechanical barriers, such as diatomaceous earth or copper. As a last resort, insecticidal soap sprays can be used. Caterpillars will be butterflies or moths soon enough – learn to love the natural cycle in your garden!

Fungal diseases, such as powdery mildew and rust, can be a problem in our hot, humid summer weather. A constant supply of moisture deters these diseases, but in dry-land gardens, that is not always possible, so it is important to mulch well and select drought and disease resistant plants. Ensuring good air circulation around your plants is also very helpful for avoiding or minimizing most fungal diseases.

Sanitation

Good sanitation practices are important to maintain healthy plants. It is necessary to clean up decaying plant material and remove any weeds as they appear. Diseased plant material, including diseases leaves shed by trees in the fall, should be removed and disposed of, never composted in your home compost. Municipal composting facilities usually reach sufficiently high temperatures to kill plant pathogens.

Pruning out diseased branches or plant stems promptly will deter the spread of disease. Proper sterilization of your gardening tools, especially when working

with diseased plants, will also help stop the spread of disease.

Recommended Species/varieties/cultivars

For Full Sun:

- *Achillea* (Yarrow)
- *Alyssum* (Madwort, Perennial Alyssum)
- *Anacyclus* (Mount Atlas Daisy)
- *Anaphalis* (Pearly Everlasting)
- *Antennaria* (Cat's-paw, Pussytoes)
- *Anthemis* (Perennial Marguerite Daisy)
- *Arabis* (Wall Cress, Rock Cress)
- *Arenaria* (Sandwort)
- *Armeria* (Thrift, Sea Pink)
- *Asclepias* (Milkweed)
- *Aster* (Aster, Michaelmas Daisy)
- *Aurinia* (Perennial Alyssum)
- *Baptisia* (False Indigo, Wild Indigo)
- *Catananche* (Cupid's Dart)
- *Centaurea* (Perennial Cornflower)
- *Centranthus* (Red Valerian)
- *Cerastium* (Snow-In-Summer)
- *Coreopsis* (Tickseed)
- *Coronilla* (Crown Vetch)
- *Crambe* (Seakale)
- *Delosperma* (Hardy Ice Plant)
- *Dianthus* (Pinks, Carnations)
- *Echinacea* (Coneflower)
- *Erigeron* (Fleabane Daisy)
- *Erodium* (Heronsbill)
- *Eryngium* (Sea Holly)
- *Erysimum* [Cheiranthus] (Wallflower)
- *Gaillardia* (Blanket Flower)
- *Gazania* (Hardy Gazania)
- *Goniolimon* (German Statice)
- *Gypsophila* (Baby's Breath)
- *Helianthemum* (Rock Rose, Sun Rose)
- *Knautia* (Scabious)
- *Lathyrus* (Sweet Pea)
- *Lavandula* (Lavender)
- *Leontopodium* (Edelweiss)
- *Lewisia* (Lewisia)
- *Liatris* (Blazing Star)
- *Linum* (Flax)
- *Lotus* (Bird's Foot)
- *Lychnis* (Campion)
- *Nepeta* (Catmint)
- *Oenothera* (Evening Primrose, Sundrops)
- *Origanum* (Oregano)

Recommended Species/varieties/cultivars

Full Sun to Part Shade

- *Acaena* (Sheepburr, New Zealand Burr)
- *Agastache* (Anise-hyssop, Licorice Mint)
- *Aquilegia* (Columbine)
- *Artemesia* (Wormwood, Artemesia)
- *Calamintha* (Calamint)
- *Campanula carpatica* (Carpathian Bellflower)
- *Chamaemelum* (Chamomile, Camomile)
- *Draba* (Draba, Whitlow Grass)
- *Eupatorium* (Boneset)
- *Euphorbia* (Spurge)
- *Fragaria* (Strawberry)
- *Gaura* (Gaura)
- *Geranium* (Cranesbill)
- *Geum* (Avens)
- *Glechoma* (Ground Ivy, Creeping Charlie)
- *Hemerocallis* (Daylily)
- *Heuchera* (Coral Bells, Alumroot)
- *Hypericum* (St. John's-Wort)
- *Iberis* (Candytuft)
- *Iris* (Iris, Flag)
- *Lupinus* (Lupine, Lupin)
- *Oxalis* (Wood Sorrel)
- *Phlox douglasii* (Moss Phlox, Douglas' Phlox)
- *Phlox subulata* (Moss Phlox, Creeping Phlox)
- *Pulsatilla* (Pasque-flower, Prairie Crocus)
- *Sedum* (Stonecrop)
- *Stachys* (Lamb's-ears)
- *Teucrium* (Germander)
- *Veronica* (Speedwell)

Part Shade

- *Mertensia* (Bluebells)

Part Shade to Full Shade

- *Epimedium* (Bishop's Hat, Barrenwort)
- *Lamiastrum* (False Lamium, Yellow Archangel)
- *Lamium* (Creeping Lamium, Spotted Dead Nettle)
- *Pachysandra* (Japanese Spurge)
- *Symphytum* (Comfrey)

References

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2. Bennet, Jennifer. *Dry Land Gardening*. Willowdale, Ontario: Firefly Books Limited, 1998.
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