

## Woody Plant Management during Drought

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Trees produce shade, a valuable asset in the intense sunlight and heat of Colorado summers. The large trees in cities and towns required years to grow and would take just as long to replace if damaged or killed by lack of watering or drought. In times of water shortage, many communities prioritize tree assets for watering over other landscape plants that can be more quickly and easily replaced.

The following practices will help keep trees and shrubs healthy while conserving water.

### Selecting low water use trees and shrubs

- Select trees and shrubs for the landscape that are tolerant of low water applications. For example, if a large evergreen tree is desired, plant pines that require less water than spruce.
  - Plant trees and shrubs with the same water needs together.
  - Irrigate to meet their low-water requirements.
  - Irrigate low water use trees and shrubs separately than other parts of the landscape and on their own irrigation zone.

### Large Deciduous Trees

- Common hackberry (*Celtis occidentalis*)
- Kentucky coffeetree (*Gymnocladus dioica*)
- Bur oak (*Quercus macrocarpa*)

### Small Deciduous trees

- Russian hawthorn (*Crataegus ambigua*)
- Cockspur hawthorn (*Crataegus crusgalli*)
- Panicked goldenraintree (*Koeleruteria paniculata*)
- Gambel oak (*Quercus gambelii*)

### Large Shrubs

- Nanking cherry (*Prunus tomentosa*)
- Blueleaf honeysuckle (*Lonicera korolkowii*)
- Siberian peashrub (*Caragana arborescens*)
- Smooth sumac (*Rhus glabra*)
- Staghorn sumac (*Rhus typhina*)
- Wayfaringtree viburnum (*Viburnum lantana*)

### Medium Shrubs

- Apache plume (*Fallugia paradoxa*)
- Japanese barberry (*Berberis thunbergii*)
- Russian sage (*Perovskia atriplicifolia*)
- Threeleaf sumac (*Rhus trilobata*)

### Small Shrubs (less than 4 feet)

- Alpine currant (*Ribes alpinum*)

- Littleleaf mockorange (*Philadelphus microphyllus*)
- Blue-mist spirea (*Caryopteris spp.*)
- Western sand cherry (*Prunus besseyi*)

### Water wise irrigation practices for trees and shrubs

- Use sprinklers that apply large droplets of water at a low angle. Fine spray mists and sprinklers that throw water high into the air often waste water from evaporation.
- If you do not have an automatic sprinkler system, use a bubbler at the end of a hose to apply water at a low rate at several locations beyond the drip line. Remember the roots on established trees extend 3 to 5 times the height of the tree.
- Do not try to save water by installing a drip irrigation system around the base of an established tree; tree death will likely result.
- Water deeply and infrequently; this will increase the plant's drought tolerance.
- Apply water at a rate that allows maximum infiltration of the soil but limits runoff.
- Water the entire root zone.
  - Roots of established trees spread to reach two to three times the width of the tree branches.
  - The roots of shrubs also extend wider than the above-ground plant.
- Check moisture in root balls of newly transplanted trees weekly to maintain adequate moisture.
- Water trees and shrubs thoroughly in the fall to ensure they go into the winter in a moist condition.
- All landscape areas should be watered thoroughly in late fall to ensure there is sufficient moisture in the soil to provide their water needs until spring.
- Water monthly during winters when little snow is present to avoid winter drought death of parts of tree and shrub root systems.

### Other water-wise landscape care practices for trees and shrubs

- Do not apply nitrogen fertilizer just prior to the heat of mid-summer; severe stress would result in more frequent applications of water
- Apply a three to four inch thick layer of mulch extending a minimum of two feet outward all around the trunk
  - Keep the mulch two inches away from the trunk.
- Use organic mulch such as bark or wood chips; avoid the use of stone or rock as mulch near plants as this increases air temperatures and moisture loss from leaves and stems.
- Fertilizing too early in the fall can reduce the plant's ability to acclimate for winter conditions and could result in more winter injury. Do not fertilize with nitrogen after mid-July.
- Wrap trunks of newly planted deciduous trees during the winter for the first two years; November through April.

### When limited water is available:

- Continue to irrigate, soaking the root system once every 4-6 weeks.
- Be sure a mulch layer is in place. Mulch 3-4 inches deep and avoid placing mulch immediately next to the trunk, as this can harbor insect pests and diseases that may harm the trees.
- Kill turf near trunks of trees and shrubs with a herbicide such as glyphosate following label directions. After the grass is killed and has dried, apply a layer of mulch. Mulch the area around trees and shrubs out as far as possible with an organic mulch layer. Place landscape fabric material (not solid polyethylene) under the mulch first if desired.
- Avoid planting new trees or shrubs, even drought tolerant ones because new plantings need more water to establish.

### When there is no water:

- Restrict traffic over the root zone of established trees and shrubs if possible.
- Extend the mulch layer over as much of the root zone as possible.
- As dieback occurs, prune out deadwood. Avoid cutting into living wood, even if this means leaving temporary stubs.

- Deadwood serves as a source of infection by disease organisms and may attract insect pests which then invade the rest of the tree. Cutting into live wood increases the chance for tissue dehydration. Leaving a short stub will help prevent dehydration. The stub will need to be removed at a later date when irrigation water is again available.

**When water is available after a period of shortage:**

- Begin irrigation, soaking the root system once every 4-6 weeks.
  - It is a natural tendency to over-water and over-fertilize plants that are observed having problems. This practice will generally only create additional stress.
- Do not attempt to make up for the drought by watering too often. Keeping the soil too wet will cause root rot and other related problems.
- Water monthly in dry winters to keep roots healthy.