



Drought-Tolerant Trees for South-Central Kansas

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Drought is a common occurrence affecting the health of trees in south-central Kansas. Property owners who notice wilting and scorched leaves (below) may wonder if trees will survive. Drought alone rarely kills well-established trees. But effects of extended drought, combined with other stressors, can be serious and irreversible. Lack of water limits a tree's ability to absorb nutrients, weakens natural defenses and leaves it vulnerable to heat, cold, insects, and pathogens. In some cases, the tree may die.

All trees have natural protection from ordinary seasonal drought, and some species are known for their ability to withstand severe, prolonged drought conditions. Even for trees that are not particularly drought-tolerant, a healthy and robust root system is remarkably efficient at extracting soil moisture for survival. Problems arise when the root system is compromised by poor soil quality, inadequate soil volume or compaction, or paved surfaces. Poor horticultural practices render even the most drought-tolerant tree helpless when soil moisture is insufficient.

It is impossible to control the weather, but you can drought-proof your landscape by following good horticultural practices and selecting your next tree from those listed on the back page. These species have proven to survive in south-central Kansas with only natural precipitation.



Steps to establish a drought-tolerant tree

- **Choose a healthy tree from a retail garden center.** A healthy tree with a robust root system will establish rapidly, reducing transplant shock and stress. To learn more, see [Selecting and Planting a Tree \(L870\)](#).
- **Locate a suitable planting site.** Ensure adequate soil volume for the selected species. This allows the root system to spread and improves access to soil, water, nutrients, and oxygen. The root zone should contain fertile, well-drained soil free of pests, diseases, and foreign debris. Avoid any location that collects or holds water for a long time. This deprives roots of oxygen, and reduces root growth and overall plant health.
- **Plant properly and at the right time of year.** Many tree failures can be traced to poor planting practices. Here are our tips on [Planting Ornamental Trees and Shrubs \(MF402\)](#).
- **Maintain soil moisture until established, about two growing seasons.** Tree roots need water and oxygen. Moist, but not wet, soil promotes growth. Overwatering hinders root growth by displacing oxygen from the soil. It takes about two years to establish an adequate root system. To learn more, see [Watering Newly Planted and Young Trees and Shrubs \(MF2800\)](#).
- **Inspect trees monthly for pests or diseases and to ensure adequate irrigation.** Watch for leaf-chewing insects, borers, or diseases that can weaken the tree. Adjust irrigation to match weather patterns. Gauge soil moisture by probing the ground with a long screwdriver. Moist soil is easy to penetrate; dry soil is considerably more difficult.

Top: Eastern redbud is a small, spring-flowering tree native to the eastern half of Kansas.

Left: Sugar maple tree showing signs of drought.

Horticulturists at the K-State John C. Pair Horticultural Center have been evaluating trees and shrubs in south-central Kansas for more than 40 years. During that time, certain species have proven themselves worthy of a spot in residential landscapes. While no tree is guaranteed against the environmental extremes of Kansas, the species in this list have proven themselves year after year. Visitors to the center ask about the best trees for spring-summer flowers and fall color. Here are our top recommendations in each category.

Spring-Summer Flowers



1.

Crabapples brighten spring landscapes with flowers in white and a spectrum of pinks and reds on rounded, columnar, weeping, or dwarf trees.



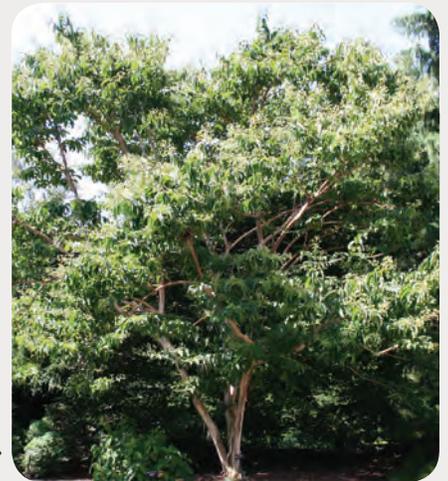
5.

Amur maackia may be one of the best trees – and one of the least familiar. White flowers cover the tree in mid-summer.



6.

Northern catalpa is a large tree with giant leaves and impressive panicles of white flowers in early summer.



7.

Seven-son flower blooms just when the season is almost over. Look for this small tree to be covered with white flowers and all types of pollinators the first week of September.



11.



12.



13.

2.



Chinese fringetree is adorned with white blooms in late spring. It is truly a unique tree that deserves more attention.

3.



Texas redbud presents an impressive display of early spring flowers that is brighter and more intense than our native eastern redbud. Glossy leaves add summer interest.

4.



Goldenrain tree makes an impact with large panicles of bright yellow flowers in midsummer.

Fall Color

8.



'John Pair' sugar maple is one of the best shade trees for bright-red fall color. It is reliable and striking every year.

9.



Texas red oak is one of the most drought-tolerant trees on the list. It offers deep-red fall color that lasts through late November.

10.



Shantung maple is a graceful tree, perfect for suburban landscapes, with fall color that begins orange and finishes deep red.

14.



11. Chinese pistache is one tough tree with fall color that ranges from yellow to red. Purchase in the fall when you can pick the color you like best.

12. Ginkgo trees are attractive year round, but their bold, golden-yellow fall color may be their best attribute.

13. American smoketree fall color is vibrant with large leaves in varying shades of orange and red.

14. Bald cypress trees are large and graceful. Needles turn reddish-brown (rust) color in fall to provide truly outstanding color.

Drought-Tolerant Trees for South-Central Kansas

*Indicates the species is native to Kansas.

Tall Deciduous Trees (over 40 feet)

Miyabe Maple	<i>Acer miyabei</i>
'Legacy' Sugar Maple*	<i>Acer saccharum</i> 'Legacy'
Oregon Trail Sugar Maple*	<i>Acer saccharum</i> Oregon Trail
'John Pair' & 'Autumn Splendor' Sugar Maple*	<i>Acer saccharum</i> 'John Pair' & 'Autumn Splendor'
Pecan*	<i>Carya illinoensis</i>
Northern Catalpa*	<i>Catalpa speciosa</i>
Common Hackberry*	<i>Celtis occidentalis</i>
Ginkgo	<i>Ginkgo biloba</i>
Thornless Honeylocust*	<i>Gleditsia triacanthos</i> var. <i>inermis</i>
Kentucky Coffeetree*	<i>Gymnocladus dioicus</i>
Sweetgum	<i>Liquidambar styraciflua</i>
London Planetree	<i>Platanus x acerifolia</i>
Sawtooth Oak	<i>Quercus acutissima</i>
Swamp White Oak*	<i>Quercus bicolor</i>
Texas Red Oak	<i>Quercus buckleyi</i>
Shingle Oak*	<i>Quercus imbricaria</i>
Bur Oak*	<i>Quercus macrocarpa</i>
Water Oak	<i>Quercus nigra</i>
Nuttall Oak	<i>Quercus nuttallii</i>
Willow Oak	<i>Quercus phellos</i>
English Oak	<i>Quercus robur</i>
Northern Red Oak*	<i>Quercus rubra</i>
Shumard Oak*	<i>Quercus shumardii</i>
Japanese Pagodatree	<i>Styphnolobium japonicum</i>
Bald Cypress	<i>Taxodium distichum</i>
American Elm*	<i>Ulmus americana</i>
Lacebark Elm	<i>Ulmus parvifolia</i>
Hybrid Elms	<i>Ulmus</i> spp.
Japanese Zelkova	<i>Zelkova serrata</i>

Medium Deciduous Trees (20-40 feet)

Trident Maple	<i>Acer buergerianum</i>
Hedge Maple	<i>Acer campestre</i>
Shantung Maple	<i>Acer truncatum</i>
European Hornbeam	<i>Carpinus betulus</i>
Southern Catalpa	<i>Catalpa bignonioides</i>
Persimmon*	<i>Diospyros virginiana</i>
Hardy Rubber Tree	<i>Eucommia ulmoides</i>

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Goldenrain Tree	<i>Koeleruteria paniculata</i>
Amur Maackia	<i>Maackia amurensis</i>
Osage Orange*	<i>Maclura pomifera</i>
Mulberry*	<i>Morus alba</i>
Chinese Pistache	<i>Pistacia chinensis</i>
Ornamental Pear	<i>Pyrus calleryana</i>
Chinkapin Oak*	<i>Quercus muehlenbergii</i>
Western Soapberry*	<i>Sapindus drummondii</i>
Japanese Elm	<i>Ulmus davidiana</i> var. <i>japonica</i>

Small Deciduous Trees (under 20 feet)

Tatarian Maple	<i>Acer tataricum</i>
Amur Maple	<i>Acer tataricum</i> subsp. <i>ginnala</i>
Eastern Redbud*	<i>Cercis canadensis</i>
Texas Redbud	<i>Cercis canadensis</i> var. <i>texasensis</i>
Chinese Fringetree	<i>Chionanthus retusus</i>
American Smoketree	<i>Cotinus obovatus</i>
Smoketree	<i>Cotinus coggygia</i>
Russian Hawthorn	<i>Crataegus ambigua</i>
Green Hawthorn 'Winter King'	<i>Crataegus viridis</i> 'Winter King'
Winterberry Euonymus	<i>Euonymus bungeanus</i>
Seven-son flower	<i>Heptacodium miconioides</i>
Crabapple	<i>Malus</i> spp.
Japanese Tree Lilac	<i>Syringa reticulata</i>
Chitalpa	<i>x Chitalpa tashkentensis</i>

Evergreen Trees

Incense Cedar	<i>Calocedrus decurrens</i>
Atlas Cedar	<i>Cedrus atlantica</i>
Arizona Cypress	<i>Cupressus arizonica</i>
Juniper*	<i>Juniperus virginiana</i>
Chinese Juniper	<i>Juniperus chinensis</i>
Southern Magnolia	<i>Magnolia grandiflora</i>
Lacebark Pine	<i>Pinus bungeana</i>
Pinyon Pine	<i>Pinus cembroides</i>
Limber Pine	<i>Pinus flexilis</i>
Austrian Pine	<i>Pinus nigra</i>
Ponderosa Pine	<i>Pinus ponderosa</i>
Southwestern White Pine	<i>Pinus strobiformis</i>
Oriental Arborvitae	<i>Platycladus orientalis</i>

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