



K-STATE
Research and Extension

Conifer Trees for Kansas

A Guide to Landscape Evergreens

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Evergreen plants continue to be an important part of the landscape in Kansas and throughout the Great Plains. They offer year-round color, screen unsightly views, provide wildlife habitat, and serve as windbreaks. Maintaining healthy evergreen plantings in Kansas requires proper planning, knowledge, skill and follow-up care. Environmental stress factors increase susceptibility to disease and insect infestation.

In Kansas, soil moisture should be managed year-round, particularly during the winter. On sunny winter days, the leaves warm and plants begin to lose moisture through transpiration. Desiccation or winter burn occurs when ground is frozen or soil moisture is inadequate. Watering conifers during a warm spell in the winter is recommended. Extended drought or elevated temperatures during the summer months are other times to consider irrigation. Avoid overwatering because conifers do not tolerate saturated soils. Apply a thin layer of mulch to protect the root system from rapid fluctuations in soil moisture and temperature.

Check frequently for disease and insect problems. Many pests of conifers can be controlled and cause little damage if treated early. Observe foliage closely for the diseases mentioned. If symptoms appear, consult with your local extension agent, certified arborist, or nursery professional for proper treatment. Conifer evergreens are needed throughout Kansas, both for their aesthetic beauty and practical reasons. The following information focuses on medium to large evergreen plants for screening and windbreaks.

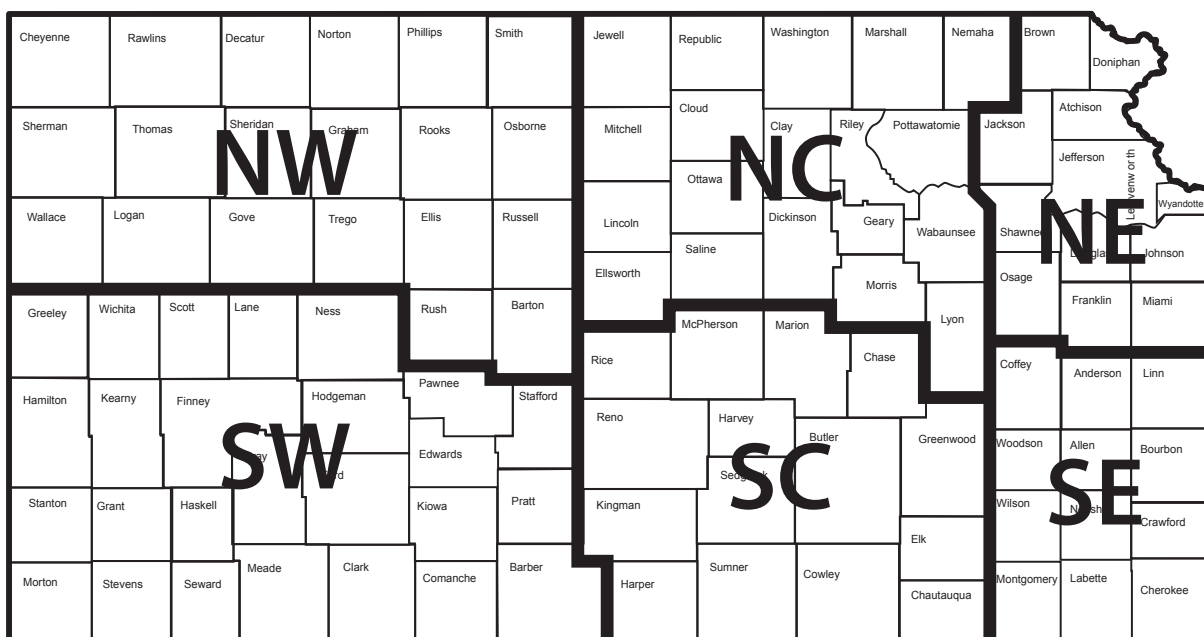
How to use this guide

The guide describes evergreen conifers suitable for specific regions in Kansas. Given the climate, soils and hydrology across the state, and the microclimates of individual sites, it would be impossible to list all of

the conifers that can be grown in Kansas. This guide focuses on the most common species and cultivars, but these plants are not recommended for all locations. For instance, a species might perform well as a screen in a suburban or urban landscape in eastern Kansas, but might not survive in a farmstead windbreak in central or western Kansas. When in doubt, ask your local extension agent or nursery professional for a recommendation.

Plant descriptions provide the following details:

- **Botanical name** currently accepted and the most frequently used **common name**.
- **Region(s)** where the species can be expected to perform well with normal care and maintenance.
- **Estimated height and width.** Individual plants can exceed or fall short of these measurements, depending on site conditions.
- **Growth rate** — slow, medium, or fast — relative to other cultivars. These are general guidelines. A plant can grow faster or slower depending on environmental factors, and a tree's growth slows as it gets older.
- **Significant pest problems** – plants are exposed to many types of pests and diseases. Those most commonly associated with the species are listed. Many diseases are not listed, which can affect plants in a particular year or location.
- **Comments** reflect the authors' personal observations or experiences with the species, and cultural notes of interest.
- **Significant cultivars** – although many species have numerous cultivars, only those of commercial importance in Kansas are listed. Dwarf, weeping, and contorted cultivars, although interesting, were left out as they typically are not used as screening or windbreak plants.



Species	Kansas Region							Disease								Other						
	State	NW	NC	NE	SE	SC	SW	Diplodia	Dothistroma	Pine Wilt	Kabatina	Cercospora	Rust	Bot Canker	Cytospora	Seiridium	Bagworm	Mites	Pine Tip Moth	Pitch Moth	Pine Sawfly	
<i>Abies concolor</i> (White Fir)		•	•	•	•	•																
<i>Calocedrus decurrens</i> (California Incense Cedar)				•	•	•											•					
<i>Cedrus atlantica</i> (Atlas Cedar)			•	•	•	•											•					
<i>Cedrus deodara</i> (Deodar Cedar)					•	•											•					
<i>Cedrus libani</i> (Cedar of Lebanon)			•	•	•	•											•					
<i>Chamaecyparis thyoides</i> (Atlantic White Cedar)			•	•	•	•											•					
<i>Cupressus arizonica</i> (Arizona Cypress)					•	•	•									•						
<i>Juniperus chinensis</i> (Chinese Juniper)	•	•	•	•	•	•	•				•						•					
<i>Juniperus scopulorum</i> (Rocky Mountain Juniper)		•					•				•	•	•	•			•					
<i>Juniperus virginiana</i> (Eastern Red Cedar)	•	•	•	•	•	•	•				•				•		•	•				
<i>Picea abies</i> (Norway Spruce)			•	•	•													•				
<i>Picea glauca</i> var. <i>densata</i> (Black Hills Spruce)		•	•	•	•	•												•				
<i>Picea omorika</i> (Serbian Spruce)			•	•	•	•																
<i>Picea pungens</i> (Colorado Spruce)		•	•	•	•	•									•			•				
<i>Pinus bungeana</i> (Lacebark Pine)		•	•	•	•	•																
<i>Pinus edulis</i> (Pinyon Pine)		•	•			•	•			•										•		
<i>Pinus flexilis</i> (Limber Pine)		•					•			•												
<i>Pinus heldreichii</i> (Bosnian Pine)			•	•	•	•				•												
<i>Pinus nigra</i> (Austrian Pine)	•	•	•	•	•	•	•	•	•	•											•	
<i>Pinus ponderosa</i> (Ponderosa Pine)	•	•	•	•	•	•	•	•	•												•	
<i>Pinus strobiformis</i> (SW White Pine)	•	•	•	•	•	•	•															
<i>Pinus strobus</i> (Eastern White Pine)			•	•						•												
<i>Pinus sylvestris</i> (Scots Pine)	•	•	•	•	•	•	•			•												•
<i>Pinus taeda</i> (Loblolly Pine)					•	•														•		
<i>Platycladus orientalis</i> (Oriental Arborvitae)	•	•	•	•	•	•	•									•						
<i>Pseudotsuga menziesii</i> (Douglas Fir)			•	•	•																	
<i>Thuja 'Green Giant'</i> (Green Giant Arborvitae)		•	•	•	•	•											•	•				
<i>Taxodium distichum</i> (Bald Cypress)	•	•	•	•	•	•	•										•	•				
<i>Metasequoia glyptostroboides</i> (Dawn Redwood)				•	•	•																

Abies concolor

(White Fir)

Kansas region: **NW, NC, NE, SE, SC**

Height: **40 ft** Width: **30 ft** Growth rate: **Medium**

Significant pest problems

None

Comments

Foliage displays a bluish cast on the new growth that is very attractive. The species is relatively drought tolerant once established, but may require additional moisture during warm spells in the winter months. Avoid using in heavy clay soils. Select seed sources from the southern Rocky Mountains when possible.

Significant cultivars

Dwarf and weeping white fir selections are popular among conifer collectors. Selections have been made for improved blue foliage color. In Kansas, most of the white fir originated from seedlings, not cultivars.



John C. Pair Horticultural Center, Haysville, Kansas

Calocedrus decurrens

(California Incense Cedar)

Kansas region: **NE, SE, SC (worthy of statewide trial)**

Height: **40 ft** Width: **15 ft** Growth rate: **Medium**

Significant pest problems

None, although bagworms can be a problem in specific years. Dead branches can be found occasionally, but have not been linked to an insect or disease. Prune to remove them.

Comments

Tall and narrow with graceful foliage and excellent fragrance. Drought and heat tolerant once established. Foliage on lower branches thins as the tree matures and bottom branches become shaded. This tree grows relatively slowly until established. No significant pest problems. Appears to be more tolerant of a variety of soils than other conifers.

Significant cultivars

No commercially important cultivars available at this time. Some variegated and gold forms can be found in botanical gardens.



John C. Pair Horticultural Center, Haysville, Kansas

Cedrus atlantica

(Atlas Cedar)

Kansas region: NC, NE, SE, SC

Height: **40 ft** Width: **30 ft** Growth rate: **Medium**

Significant pest problems

None, although bagworms can be a problem in specific years.

Comments

Typically, *var. glauca* (blue atlas cedar) is found as a landscape ornamental. However, the species grows into an outstanding ornamental conifer tree with a characteristic conical shape when young. The foliage is a lustrous green, and it is cold and drought tolerant enough to survive in much of Kansas.

Significant cultivars

Numerous cultivar selections are available, many for improved blue color of the needles. Some variegated forms are not as vigorous as the species. Many selections for weeping, and at least one columnar (*fastigiata*) form.



Sedgwick County Extension Education Center, Kansas

Cedrus deodara

(Himalayan or Deodar Cedar)

Kansas region: SE, SC

Height: **30 ft** Width: **30 ft** Growth rate: **Medium**

Significant pest problems

None, but watch for bagworms.

Comments

One of the most beautiful of the cedars. Unfortunately, it is also the least cold hardy. Can be grown in the southeastern and south central portions of Kansas. Cold injury may occur during unusually cold years. Like all cedars, this species prefers a location with full sun and soil that is dry more often than moist.

Significant cultivars

Several cultivars exist. Many valued for improved form or improved 'blue' color of the needles. Some selections are recommended for improved cold hardiness. 'Karl Fuchs' is noted for improved hardiness, which has proven true in Kansas trials thus far. A long-term field test will determine whether this cultivar is truly hardy.



John C. Pair Horticultural Center, Haysville, Kansas

Cedrus libani
(Cedar of Lebanon)

Kansas region: **NC, NE, SE, SC**

Height: **40 ft** Width: **30 ft** Growth rate: **Slow**

Significant pest problems

None, although bagworms can be a problem in specific years.

Comments

The variety *stenocoma* (photo) is widely regarded as more cold hardy than the variety *libani*, and is therefore preferred in Kansas. This species is very drought tolerant once established. In fact, the tree probably will not thrive in frequently irrigated soil. This tree can be difficult to find in a nursery, but the effort will be rewarded over time.

Significant cultivars

No commercially important cultivars available yet. Some dwarf and weeping selections can be found at botanical gardens.



Anthony, Kansas

Chamaecyparis thyoides
(Atlantic White Cedar)

Kansas region: **NC, NE, SE, SC**

Height: **40 ft** Width: **20 ft** Growth rate: **Medium / Fast**

Significant pest problems

None that are serious, although bagworms can be a problem in specific years.

Comments

Atlantic white cedar is a native wetland species along the east coast, but a wide variety have done well in Wichita for several years when irrigated only as needed. The species is both cold hardy and heat hardy in Kansas, but tolerance to high pH soils has yet to be determined. The species should perform well in a typical landscape setting with minimal maintenance.

Significant cultivars

There has been increased interest in Atlantic white cedar cultivars in recent years. A selection and evaluation study is currently underway for improved growth habit of large specimens with variations of blue foliage.



John C. Pair Horticultural Center, Haysville, Kansas

Cupressus arizonica

(Arizona Cypress)

Kansas region: **SE, SC, SW**

Height: **40 ft** Width: **30 ft** Growth rate: **Medium to Fast**

Significant pest problems

Seiridium canker

Comments

A long-forgotten conifer that deserves more use in Kansas. Very drought tolerant once established. Wide variation in foliage color among seedlings has led to some cultivars. Cold hardiness can be an issue in the northern half of Kansas, and seed source selection may offer a solution. Intolerant of wet soils.

Significant cultivars

'Blue Ice' – a nice selection with blue-colored foliage (*photo*).

'Blue Pyramid' – similar to 'Blue Ice.' Nice pyramidal form and good blue foliage.

Cookes Peak – a seed strain collected from Cookes Peak, New Mexico. Nice blue foliage with improved cold hardiness. This is not a true clonal cultivar because plants originate from seed. Probably the best choice for Kansas.



John C. Pair Horticultural Center, Haysville, Kansas

Juniperus chinensis

(Chinese Juniper)

Kansas region: **Statewide**

Height: **40 ft** Width: **20 ft** Growth rate: **Fast**

Significant pest problems

Kabatina tip blight, bagworms

Comments

The most disease-resistant juniper species. Very drought tolerant. Many cultivars with a wide range of growth habits are available. Maintains a good green color during winter. Taxonomy of the cultivars is unclear. Determination as to which cultivar belongs to which species is inconsistent in the literature.

Significant cultivars

'Hetzii Columnaris' – a fast growing upright form with dense foliage.

'Keteleeri' – a fast-growing upright pyramidal form (often listed as *J. virginiana*).

'Robusta Green' – upright, informal growth habit with heavy fruit set in fall (often listed as *J. virginiana*).

'Spartan' – most popular upright form, very dense, good winter color (*photo*).



Wichita, Kansas

Juniperus scopulorum
(Rocky Mountain Juniper)

Kansas region: NW, SW

Height: 30 ft Width: 15 ft Growth rate: **Medium**

Significant pest problems

Kabatina tip blight, Cercospora needle blight, cedar apple rust, Botryosphaeria canker, bagworms

Comments

Selections for columnar growth habit and blue foliage exist. Best suited to the far western portions of Kansas. Disease problems limit its use in the eastern half. Cultivars of this species are often confused with *J. virginiana*. Beautiful specimens can be found throughout Garden City, Kansas.

Significant cultivars

'Blue Arrow' – a relatively narrow selection with excellent blue colored foliage. There is debate whether this cultivar belongs to Rocky Mountain juniper or Easter red cedar (*photo*).

'McFarland' – a very narrow columnar selection. Several specimen plants can be found in Western Kansas.

'Skyrocket' – the standard for narrow columnar junipers (often listed as *J. virginiana*)

'Wichita Blue' – an upright selection with nice blue colored foliage. Found in Wichita.



Wichita, Kansas

Juniperus virginiana (Eastern Redcedar)

Kansas region: **Statewide**

Height: **40 ft** Width: **20 ft** Growth rate: **Fast**

Significant pest problems

Kabatina tip blight, cedar apple rust, Cytospora canker, bagworms, spider mites

Comments

Arguably the best evergreen available for a 'plant it and forget it' windbreak. Although several diseases can make the plant unsightly, few plants succumb to disease entirely. Volunteer seedlings of this native conifer frequently sprout in adjacent fields. Many cultivars to choose from for ornamental characteristics. For an outstanding description of the species and many cultivars see, "Eastern red cedar, *Juniperus virginiana* – A common, overlooked tree with hidden potential" by JC Raulston in the March 1989 issue of the *Friends of the Arboretum Newsletter*; JC Raulston Arboretum of North Carolina State University.

Significant cultivars

'Burkii' – a broad columnar selection with attractive blue foliage. This clone is commonly listed as a male selection, and therefore seedless. The authors have noted several plants with abundant seed production.

'Canaertii' – a columnar shape with picturesque horizontal branches.

'Glauca' – a cultivar describing narrow columnar forms with silver hues; several clones are probably grown under this name.

'Hillspire' – a symmetrical conical form with bright green foliage.

Prairie Pillar – a narrow columnar selection with a blue cast to the foliage.

'Taylor' – a tall slender columnar form (from Taylor, Nebraska) comparable to *J. scopulorum* 'Skyrocket'

Too many cultivars to mention here. For further reading, see 'Comments' above.



Fort Scott, Kansas

Picea abies

(Norway Spruce)

Kansas region: **NC, NE, SE**

Height: **40 ft** Width: **30 ft** Growth rate: **Medium**

Significant pest problems

Can get mites

Comments

A tall tree with horizontal branches and hanging branchlets to provide a unique outline. Prefers a moist and cool soil. Outstanding specimens are rare, but can be found. May be more tolerant of heavy soils than many spruce.

Significant cultivars

Some dwarf and weeping selections can be found in nurseries.



Topeka, Kansas

Picea glauca var. densata

(Black Hills Spruce)

Kansas region: **NW, NC, NE, SE, SC**

Height: **30 ft** Width: **20 ft** Growth rate: **Slow**

Significant pest problems

Mites can be a nuisance.

Comments

Although one of the best spruce trees for Kansas, it will need some attention to watering during establishment, during dry winters, and during periods of drought. Reported as drought tolerant at higher elevations where cool night temperatures prevail. Avoid planting where it will be exposed to drying southwestern winds.

Significant cultivars

None



Nebraska City, Nebraska

Picea omorika
(Serbian Spruce)

Kansas region: NC, NE, SE, SC

Height: 40 ft Width: 20 ft Growth rate: **Medium**

Significant pest problems

None

Comments

A narrow pyramidal tree with excellent, dark green foliage. Tolerates full sun.

Significant cultivars

Several dwarf ornamentals to choose from.



Johnson County Extension Office, Olathe, Kansas

Picea pungens
(Colorado Spruce)

Kansas region: NW, NC, NE, SE, SC

Height: 30 ft Width: 20 ft Growth rate: **Slow**

Significant pest problems

Mites and Cytospora canker can be problematic. Rhizosphaera needle cast can affect plant appearance. Mature specimens often show signs of a general decline as a result of environmental stress.

Comments

Best if used in northwest Kansas or if sited properly in other situations. Prefers good airflow, organic soil, and protection from afternoon sun and drying southwestern winds. This species is prone to drought and wind desiccation in Kansas. Regular summer and winter watering during dry periods improves overall plant health. Reported as drought tolerant at higher elevations where cool night temperatures prevail. This species grows in Kansas, but it is best suited to Colorado.

Significant cultivars

'Fat Albert' – upright growth habit with excellent blue color, semi-dwarf.

'Hoopsii' – dense upright growth with excellent blue color. Perhaps the best blue.

f. glauca – this is the form most people think of as Colorado blue spruce.



Denver, Colorado

Pine (*Pinus*) species in this section have been grown successfully in Kansas. Although pine species native to the U.S. have been less affected by pine wilt disease than exotic species, it is best to avoid widespread use or overuse of pines. The following pine species should be used with caution.

Pinus bungeana
(Lacebark Pine)

Kansas region: NW, NC, NE, SE, SC
Height: 40 ft Width: 30 ft Growth rate: **Medium**

Significant pest problems

None significant. Most are stress induced.

Comments

Very slow growing, but the exfoliating bark makes this a highly ornamental tree and well worth the effort. Once established the tree is quite drought tolerant yet intolerant of heavy soils.

Significant cultivars

'Rowe Arboretum' - selected for its more uniform and compact growth.



Kansas State University, Manhattan, Kansas

Pinus edulis
(Pinyon Pine)

Kansas region: NW, NC, SC, SW
Height: 20 ft Width: 10 ft Growth rate: **Slow**

Significant pest problems

Pine tip moth, Dothistroma needle blight

Comments

Pinyon Pine is very slow growing. The species is often too slow for the average homeowner and reserved for the conifer connoisseur. Those who are patient are rewarded with a beautiful dense pine tree. Ideal for hot and dry sites with marginal (dry/rocky) soil. Can be difficult to find. Intolerant of wet or irrigated soils. Native to arid regions of the U.S.

Significant cultivars

None



Kansas City, Kansas

Pinus flexilis
(Limber Pine)

Kansas region: NW, SW

Height: 50 ft Width: 30 ft Growth rate: Fast

Significant pest problems

Dothistroma needle blight can be significant in eastern Kansas.

Comments

Similar to Southwestern white pine in many ways. Native to arid regions of the U.S. We have seen an established windbreak devastated by Dothistroma, but still consider this a viable pine species with proper maintenance.

Significant cultivars

‘Vanderwolf’s Pyramid’ – an upright form with good growth rate and an attractive blue-green hue to the foliage. Resistant to Dothistroma thus far. Can be used statewide. Disagreement among plant enthusiasts as to whether this cultivar belongs to *P. flexilis* or *P. strobiformis* (photo).



Wichita, Kansas

Pinus heldreichii
(Bosnian Pine)

Kansas region: NC, NE, SE, SC

Height: 40 ft Width: 20 ft Growth rate: Slow

Significant pest problems

Dothistroma needle blight

Comments

A dense pine that is quite drought tolerant once established. Well-adapted to high soil pH. Stiff needles are characteristic of this species. May be difficult to find at your local nursery, but worth the effort.

Significant cultivars

None



John C. Pair Horticultural Center, Haysville, Kansas

Pinus nigra
(Austrian Pine)

Kansas region: **Statewide**

Height: **50 ft** Width: **40 ft** Growth rate: **Fast**

Significant pest problems

Diplodia tip blight, Dothistroma needle blight, pine wilt, pine pitch moth

Comments:

A large pine tree that serves as an excellent screen. Diplodia tip blight has been especially rough on this species in recent years. To reduce Diplodia occurrence, airflow should be improved around trees. Trees planted in close proximity to each other are more likely to become infected with Diplodia tip blight. The species is susceptible to pine wilt. However, it appears less susceptible than Scots pine. Use this tree, and all pines, with caution.

Significant cultivars

‘Arnold Sentinel’ – an upright columnar form from the Arnold Arboretum



Belle Plaine, Kansas

Pinus ponderosa
(Ponderosa Pine)

Kansas region: **Statewide**

Height: **60 ft** Width: **30 ft** Growth rate: **Medium / Slow**

Significant pest problems

Diplodia tip blight (especially in eastern Kansas), Dothistroma needle blight, pine tip moth is problematic when the tree is young.

Comments

A tough tree with an open growth habit when mature. Tends to lose lower branches with age. May be better suited to a naturalistic area or park than the home landscape. Sometimes referred to as western yellow pine.

Significant cultivars

None



St. John, Kansas

Pinus strobiformis

(Southwestern White Pine)

Kansas region: **Statewide**

Height: **60 ft** Width: **30 ft** Growth rate: **Fast**

Significant pest problems

None of significance

Comments

Many pine diseases are a direct result of a weakening of a plant's defense systems due to environmental stress. Southwestern white pine is more stress tolerant than the closely related eastern white pine and therefore preferred. The species does not perform well in heavy clay soils.

Significant cultivars

None



Overland Park Arboretum, Overland, Kansas

Pinus strobus

(Eastern White Pine)

Kansas region: **NC, NE**

Height: **60 ft** Width: **30 ft** Growth rate: **Fast**

Significant pest problems

Diplodia tip blight, pine wilt

Comments

Eastern white pine would prefer exactly that...to be in the East. The species prefers moist acidic soils and cool temperatures, particularly cool night temperatures in the summer. Iron chlorosis can be an issue on high pH soil. Probably the pine tree most tolerant of moist to wet sites. Beautiful specimens of 'Fastigiata' in the parking area of Overland Park Arboretum.

Significant cultivars

Many dwarf, weeping, and contorted cultivars are available, but few are applicable here.



Nebraska City, Nebraska

Pinus sylvestris

(Scots Pine, Scotch Pine)

Kansas region: **Statewide**

Height: **40 ft** Width: **40 ft** Growth rate: **Medium**

Significant pest problems

Diplodia tip blight, pine wilt, pine sawfly, brown spot (Christmas tree plantings), western gall rust

Comments

Warning: Do not plant Scots Pine!

It is a prime target for pine wilt disease.

Significant cultivars

Many dwarfs, uprights, and weepers, however, none of significance for Kansas.



John C. Pair Horticultural Center, Haysville, Kansas

Pinus taeda

(Loblolly Pine)

Kansas region: **SE, SC**

Height: **60 ft** Width: **50 ft** Growth rate: **Fast**

Significant pest problems

None of significance, but pine tip moth can be problematic on young trees.

Comments

Because of its fast growth and a straight trunk, this species is the standard for the forestry industry in the southeastern U.S. This species can have two growth flushes per year. As a result, there are numerous breeding lines but no cultivars of ornamental value. Foliage is lighter green than most pines. Cold hardiness can be an issue except for the southern portion of Kansas. Needle tip burn is common after a harsh winter. Beautiful specimens can be found at the Bartlett Arboretum and Riggs Arboretum. Some hybrids created with pitch pine (*P. rigida*) have improved hardiness. Thus far, they have proven to be excellent trees in the Wichita area and are performing well throughout eastern Kansas as far west as Salina.

Significant cultivars

None



Anthony, Kansas

Platycladus orientalis **(Oriental Arborvitae)**

Kansas region: **Statewide**

Height: **20 ft** Width: **15 ft** Growth rate: **Medium**

Significant pest problems

Seiridium canker

Comments

Perhaps one of the best medium- to small-sized windbreak species for Kansas. Finding a straight species can be difficult because of the dominance of ornamental cultivars. The Kansas Forest Service usually makes this species available for windbreak plantings. It can still be found in some of the oldest windbreaks across the state. Iron chlorosis can be a problem on high pH soils. Previously listed as *Thuja orientalis*.

Significant cultivars

'Blue Cone' – an upright dense pyramidal form with flattened braches and a blue cones.

'Berckman's Gold' – a dense, compact form that will eventually reach a height of 10 feet. Golden to light-yellow green foliage. Some other dwarf or variegated cultivars exist, but they are not applicable for this publication.



Fort Hays State University, Kansas

Pseudotsuga menziesii **(Douglas Fir)**

Kansas region: **NC, NE, SE**

Height: **40 ft** Width: **20 ft** Growth rate: **Slow**

Significant pest problems

None of significance.

Comments

Proper site selection is critical as drought can be an issue. See watering discussion on *Picea pungens*. Probably one of the most underutilized landscape conifers. Beautiful specimens can be found throughout the Kansas City area. Seed source can influence adaptability. Look for an inland plant source.

Significant cultivars

Some columnar (fastigiated), blue forms, and weeping selections can be found in the nursery industry.



Haysville, Kansas

Thuja 'Green Giant'

('Green Giant' Arborvitae)

Kansas region: **NW, NC, NE, SE, SC**

Height: **30 ft** Width: **15 ft** Growth rate: **Fast**

Significant pest problems

Mites and an unknown canker, both rare and ephemeral. Bagworms can do significant damage if not controlled.

Comments

A personal favorite that should be used with caution in Kansas. Preliminary trials look promising, but long-term observations continue. In the landscape, this species may need irrigation during a dry winter or during extended periods of drought, but should be fine otherwise. Use as a specimen plant in the landscape. This is a fast-growing plant that can quickly become pot-bound when grown in containers. Pot-bound plants can have difficulty establishing in a stressful Kansas landscape.

Significant cultivars

None



Derby, Kansas

Deciduous conifers

Taxodium distichum

(Baldcypress)

Kansas region: **Statewide**, with exceptions below

Height: **70 ft** Width: **30 ft** Growth rate: **Medium/Fast**

Significant pest problems

Spider mites, bagworms in years with high populations.

Comments

This species has captured interest in recent years with the release of new cultivars and several selections under evaluation. This is an excellent tree that tolerates both wet and dry soils as well as Kansas summer heat. Historically, this species has not been a viable option for western Kansas. Elevated soil pH frequently results in chlorotic trees that cannot tolerate environmental stresses. This problem can be alleviated through proper seed source selection. See below.

Significant cultivars

Recent dwarf and weeping selections are popular.

Frio River – This is not a true clonally propagated cultivar, but rather an ecotype grown from seed collected from the Hill Country of Texas. Plants have a typical baldcypress growth habit, but unlike the nursery standard, they are perfectly adapted to a soil pH of 8.0, and perhaps higher. This cultivar is worth the effort for those in regions of high soil pH.

‘Shawnee Brave’ – an outstanding narrow pyramidal growth habit.

‘Lindsey’s Skyward’ – a narrow, columnar selection.

Pondcypress (*Taxodium distichum* var. *imbricarium*) – previously listed as a separate species (*T. ascendens*) this variety is similar to Baldcypress except that the deciduous branchlets have an upright, or erect, habit. Overall Pondcypress is more upright and narrow than Baldcypress.



Dillon Nature Center, Hutchinson, Kansas

Metasequoia glyptostroboides

(Dawn Redwood)

Kansas region: **NE, SE, SC**

Height: **70 ft** Width: **30 ft** Growth rate: **Slow / Medium**

Significant pest problems

None significant

Comments

A graceful deciduous conifer that deserves a place in any landscape if you are lucky enough to have the right conditions. The species prefers cooler temperatures and more moisture than available in the typical Kansas landscape, but can succeed in a favorable microclimate. Dawn redwood has a fascinating history, if you are intrigued enough to look it up.

Significant cultivars

Of the few cultivars available, 'Ogon' is the only one that has generated interest in the nursery industry. It is a variegated selection that probably would not succeed in Kansas. A new selection from the Missouri Botanical Garden called 'Raven' has been selected for its superior formal growth habit.



U.S. National Arboretum, Washington, D.C.

Ongoing Field Research

Work to evaluate additional conifer species for adaptability to the southern Great Plains continues at the Kansas State University John C. Pair Horticultural Center near Wichita. In partnership with the Kansas Forest Service, researchers are taking a closer look at fir, spruce, cedar, cypress, and pine to identify species, cultivars, and ecotypes with potential to succeed in Kansas. Work includes an assessment of new seed sources for species included in this publication in an effort to find superior seed sources for Kansas. While it is too early to draw conclusions, the following species look promising.

Conifers to watch for in the future:

<i>Abies x borisii-regis</i> (Balkan Fir or King Boris Fir)	Dark-green needles with bright-white stomatal bands densely packed on branches. Overall, a very attractive young plant. Probably the top performing Mediterranean fir in trials at the research station.
<i>Abies cephalonica</i> (Greek Fir)	Native to the mountains of Greece. The species is closely related to Turkish Fir (see below) and has a similar dark green foliage.
<i>Abies koreana</i> (Korean Fir)	In use in southern Kansas by some adventurous landscape companies. Beautiful selections have been made that accentuate the bright white stomatal bands.
<i>Abies nordmanniana</i> (Turkish Fir)	Currently gaining popularity with Christmas tree growers in the upper Midwest. Beautiful, soft, green foliage; slow to establish.
<i>Picea engelmannii</i> (Engelman Spruce)	Widely distributed from British Columbia to the Mexican border. Selections for improved heat and drought tolerance are being evaluated.
<i>Picea meyeri</i> (Meyer Spruce)	Has outperformed other spruce in trials at the research center. Native to northern China but seems perfectly adapted to south-central Kansas.
<i>Picea omorika</i> (Serbian Spruce)	Often seen on landscape designs. Occasionally specimen trees can be found in southern Kansas, but this species is better suited to higher elevations or the northeastern portion of Kansas.

Conifer Diseases

Environmental stress contributes to many diseases of conifers in Kansas. Reducing stress will reduce the incidence of disease. Diseases mentioned in this publication are described briefly below. Also see:

- *Tree and Shrub Problems in Kansas: Disease, Insects, and Environmental Stresses* (MF3132).
- *Pine Disease in Kansas: Tip Blight, Dothistroma Needle Blight, and Pine Wilt* (L722).
- *Juniper Diseases* (C711).
- *Pine Wilt: A Fatal Disease of Exotic Pines in the Midwest* (MF2425)

These titles are available at www.bookstore.ksre.ksu.edu and through your local extension office. Also see, *Diseases of Trees in the Great Plains*, USDA and U.S. Forest Service, at www.fs.usda.gov/treesearch/pubs/53010.

Botryosphaeria Canker (on Junipers)

Affected junipers develop nondescript elongated, flattened, often resinous cankers. Cankers may occur anywhere on woody stems, but are commonly located near branch unions in the interior of the tree crown. The disease causes death of branches throughout the crown and gradual tree decline, but should not be confused with Kabatina tip blight, which affects only foliage and succulent branch tips. Remove diseased branches by selective pruning, or the entire tree in severe cases.

Rusts (Cedar-Apple, Cedar-Quince, and Cedar-Hawthorn on Junipers)

Cedar-apple rust and related rusts are the most striking and colorful diseases of juniper. The fungi responsible for the diseases spend part of their life cycle on rosaceous hosts such as hawthorn, pear, serviceberry, flowering crabapple, and apple. Another portion of the life cycle affects junipers. These rust fungi can cause considerable damage to the rosaceous plants as a result of premature defoliation and fruit distortion; however, the effects on junipers are normally minimal.

Both cedar-apple and cedar-hawthorn rusts produce reddish-brown galls on twigs of juniper. The woody galls of cedar-apple rust are typically ½ to 2 inches in diameter, while those of cedar-hawthorn rust are usually ¼ to ½ inches in diameter. Cedar-quince rust produces cigar-shaped cankers on the stem tissue of junipers. Galls of rust fungi begin to swell and produce orange gelatinous tendrils in April and remain active through May.

Although rust diseases typically are not considered serious on the juniper host, heavy infestations or repeated infestations can render a mature tree unsightly. Preventative fungicides can be applied to the juniper host late in the summer, but junipers and cedars are common throughout Kansas and localized protection will not prevent infection. This disease occurs from late spring to early fall and prevention is impractical in many situations.

Cercospora Needle Blight (on Junipers)

Potentially destructive in established juniper plantings. *Juniperus scopulorum* (Rocky Mountain Juniper) is commonly affected. Repeated infections over several years may result in defoliation and tree death. Symptoms of *Cercospora* needle blight first appears in late-summer and fall on inner branch needles and toward the lower portion of the tree. Needles turn dull brown or red and eventually drop. Infested trees lose their foliage on the lower portion of the tree. The disease is most severe in areas with high summer humidity and frequent rains in the eastern half of Kansas. Increasing air circulation will reduce disease occurrence. Preventative fungicides applied in early June and late July are effective at controlling this disease.

Cytospora Canker (on Spruce)

Symptoms appear throughout the canopy on spruce (*Picea*). Needles on diseased branches turn purple or brown and drop prematurely. Branch cankers commonly develop near the junction with the main trunk and often are covered with a white pitch that drips onto adjacent branches. Multiple branch cankers can result in mortality of most of the lower branches on a tree. Older spruce trees that are stressed are commonly infected. Adequate water and fertility are important to maintain vigor. Diseased branches can be pruned out to prevent further spread.

Diplodia (Sphaeropsis) Tip Blight and Canker (on Pine)

Tip blight is a fungal disease that affects many pines and is the most common symptom associated with the pathogen. The disease is most severe on mature trees (20 years or older) or in crowded windbreaks where air circulation is poor. Repeated infections over many years can kill large sections of trees or entire trees. Symptoms first appear in May to June and are visible when the new shoots fail to grow. Dead, stunted shoots and pine cones with black fruiting bodies on the back are characteristic for this disease. Symptoms typically start in the lower portion of a tree and work their way to the top. There have also been reports of outbreaks following severe hail damage, suggesting the disease may exploit a wound. The canker phase of the disease will most often be found in older branches of pine trees where it causes resin leakage.

Improving air flow around the trees can reduce infection rate and slow the spread, but infestations can only be managed with fungicide applications. One application toward the end of April and another in mid-May will help control this pathogen. In years with particularly heavy rainfall, a third application may be necessary. Rainfall will dilute the efficacy of the fungicide as well as spread the disease.

Dothistroma Needle Blight (on Pine)

A common and serious disease of pines in windbreaks and ornamental landscapes in the eastern half of Kansas.

Infected needles develop a band of dead tissue with a reddish-brown border that encircles the needle and spreads to the tip of the needle producing a half-needle scorch appearance. The disease causes premature needle drop the year after infection. Heavily infected trees lack foliage in the lower and interior portion of the tree. Repeated infection over many years can kill a tree. Scots and white pines are considered resistant. Characteristic black fruiting bodies develop in the needle spots around December to February.

Increased tree spacing to increase air flow helps, but fungicides will be necessary for good control. One application of a copper containing fungicide in mid-May followed by another in mid-June will help with control.

Kabatina Tip Blight (on Juniper)

Symptoms appear from late February to early May. The terminal 2 to 6 inches of diseased branches throughout the juniper first turn dull green, then red or yellow. The brown foliage eventually drops from the tree in late May or June. Foliar blighting occurs only in early spring; it does not continue through the summer. Blighting is also restricted to the branch tips and does not cause extensive branch dieback or tree death. Currently, there are no control measures for *Kabatina* tip blight other than pruning the dead shoot tips.

Pine Wilt (on Pine)

Caused by the pinewood nematode. The pine sawyer beetle, a long-horned borer, spreads the nematode. Nematodes feed and multiply in the tree's resin canals, causing wilting and death in several weeks to several months. The nematode and beetles spend the winter in the infected tree. Beetles emerge around May 1, carrying nematodes to new trees and continuing the cycle of infection.

The disease is common in the eastern half of the state. Scots, Austrian, and Japanese black pines are particularly susceptible, and pine plantings have been devastated in eastern Kansas. Western Kansas is less infested, but the disease has been confirmed in Dodge City, Garden City, Hays, Liberal, and Colby.

Seiridium Canker (on Various Species):

Caused by the fungus *Seiridium unicorne*, occurs on oriental arborvitae (*Platycladus*), baldcypress (*Taxodium*), Arizona cypress (*Cupressus*), and occasionally junipers. Symptoms of the disease are similar to *Botryosphaeria* canker. Nondescript elongated, flattened cankers form on small branches and main stems. Bleeding or resin formation in cankers may be observed. Multiple coalescing branch and stem cankers may cause branch dieback, or in some cases, tree death. *Seiridium* canker tends to be associated with trees suffering from winter damage, drought, or other environmental stresses. Suppress canker development by irrigation and protection

from winter desiccation. Prune cankered branches from the tree and destroy them.

Insect Pests of Conifers

Insects mentioned in this publication are briefly described below. For more information, see:

- *Tree and Shrub Problems in Kansas: Disease, Insects, and Environmental Stresses* (MF3132).
- *Common Insect Pests of Trees in the Great Plains*: www.fs.usda.gov/nac/publications/insects.shtml
- IPM (Integrated Pest Management) of Midwest Landscapes: <http://cues.cfans.umn.edu/old/ipmbook.htm>

Bagworms

Larva is easily recognized by the protective brown cocoon (bag) it encloses itself in. The pest is a voracious feeder and in some years can be found on any and all species of plants. Junipers and arborvitae are favorite hosts for bagworms. A heavy infestation can defoliate and kill a plant quickly. Small infestations can be removed by hand, however, heavy infestations typically require chemical control. Control is more effective and complete when the larvae are still small. Because of the protective bag, contact chemicals are less effective as the pests mature. Larvae hatch over a period of one month which requires persistence on the part of the homeowner.

European Pine Sawfly

The most common sawfly species to attack pines in Kansas. They overwinter as eggs in the previous year's needles. Larvae emerge early the next spring but are small and typically do not inflict noticeable damage. Their presence is usually detected when they have grown larger (by mid-April) and caused feeding damage. By early May, most larvae become mature and drop to the ground to form cocoons in the ground litter. Some larvae form cocoons on the host plant. Larvae pupate inside the cocoons. Adult sawflies (somewhat bee-like but not hairy) emerge in mid- to late-September, and mating and egg laying occurs soon after. There is one generation per year.

Red and Spruce Spider Mites

Because of their small size, mites often go unnoticed. Their presence is usually detected after sick plants have been closely examined. Confirmation of their presence may be done by placing a white sheet of paper beneath a branch, tapping the branch and then checking the paper for mites which will appear as tiny spots moving about.

Mites primarily feed on lower leaf surfaces, using their mouthparts to pierce cells and feed on the leaked cellular contents. A stippling appears on upper leaf surfaces. Severely damaged leaves may die.

Dormant oils can be applied in fall to control spider mite populations. During the growing season a horticultural oil can be used if beneficial insects are

present. Other miticides can be used during the growing season in cases of heavy pest populations.

Pine Bark Beetles (Ips Beetle)

Several species of Ips beetles occur in the Great Plains region. Stressed trees are most commonly attacked, whereas healthy vigorous trees offer some resistance.

Larvae are small, 'c'-shaped, and their feeding creates galleries under the bark. Extensive feeding by numerous larvae will girdle the tree. Adults are small beetles whose emergence from the tree leaves a small exit hole. The small exit holes, pitch masses on the bark, and boring dust in the bark crevices are early signs of infestation.

Maintaining tree health and sanitation are effective methods to control beetle spread. Newly infested trees can be treated with a systemic insecticide. However, systemic insecticides will be ineffective in heavily infested trees.

Pine Needle Scale

This pest can be found on various conifers including pine, spruce, hemlock, fir and yew. They appear as white specks on the needles. Heavy infestations may weaken and kill branches or entire trees.

Pine needle scales overwinter as eggs beneath the female scale cover. Bright red first-generation crawlers appear shortly after needle growth begins, typically May to early June. Second-generation crawlers appear about a month later in mid to late July.

Dormant oil applied in March will help control the pest. Otherwise, a wide range of products can control the crawlers. Regular scouting will be necessary to locate the crawlers.

Pine Pitch Moth

Larvae of the pine pitch moth will tunnel under the bark of pine trees typically where lateral branches join the main trunk. The tunneling will girdle the stem and lateral branches may break off as they weaken. Repeated infestations can kill the tree.

Symptoms of pine pitch moth include groupings of dead branches at the top of the trees. Excessive pitch production where these dead branches meet the main stem is another indication of pine pitch moth larvae activity.

Pine Tip Moth

Larvae of the pine tip moth cause damage when they burrow into and feed on the terminal bud. Symptoms are similar to tip blight with short, stunted dead shoots. Tip moth damage can be differentiated from tip blight by breaking off the dead shoots and checking to see if they are hollow. The larvae creates a hollow center in the dead shoot. Typically, this pest affects young two-needle pines to a greater extent than large trees. There can be three generations per year in Kansas.

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