Conifer Tree Disease, Disorder, Insect and Mite Treatment Options - 2026

South Dakota State University Extension

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Any management options, including those identifying specific active ingredients, are for the convenience of the reader. The active ingredients mentioned in this publication are those that are most commonly available in pesticides used in South Dakota for Turf & Ornamentals and the inclusion of an active ingredient shall not be taken as an endorsement or the exclusion of one labeled for use a criticism regarding effectiveness. Please read and follow all label instructions. The label is the final authority for a product's use on a particular pest or plant. Not all active ingredients listed are available throughout the state. Some require a commercial pesticide license. It is the reader's responsibility to determine if they can legally apply any active ingredient or product identified in this publication.

CONIFER DISEASES AND DISORDERS			
NAME	**HOSTS**	**SYMPTOMS**	**MANAGEMENT**
Cedar-apple rust *Gymnosporangium juniperi-virginianae*, **cedar-hawthorn** rust – *G. globsum*. a fungus.	Eastern redcedar and Rocky Mountain juniper. Occurs statewide	The reddish-brown galls form on two-year-old branches. The mature galls produce orange-gelatinous tendrils (horn) during moist spring weather. Infested cedar branches may become swollen, and the branch end beyond the gall dies.	Treatments are not applied since the disease usually does little harm to its juniper host and the treatment window too wide for effective treatments.
Cytospora canker – *Valsa kunzei*, a fungus.	Colorado blue spruce. Black Hills spruce may also become infected. Occurs statewide	The infection is usually in the lower third of the canopy. The needles on infected branches turn brown in the spring. These branches have spots or streaks of bluish white resin. Black fruiting bodies may be found beneath the resin patches.	Prune infected branches before the spring rains or postpone till summer. Propiconazole (Cambistat) as a soil drench can reduce symptoms.
Diplodia tip blight – *Diplodia pinea* (*Sphaeropsis pinea*), a fungus.	Austrian and ponderosa pine, but also may also occur on Scotch, and mugo pine. Occurs statewide.	Symptoms present in late spring with new shoots and needles becoming stunted Small black fruiting bodies may be found at the needle base beneath the papery sheaths and on cone scales in autumn. Symptoms often occur first on the lower branches. Trees may be infected without presenting symptoms until they are affected by drought, hail, or other stressors.	Chlorothalonil, copper, mancozeb, myclobutanil or thiophanate-methyl applied just as the buds are opening (usually early May) and repeat just before the needles completely emerge and again in 10 days. Propiconazole can be injected into trunks in late autumn to protect the new candles the following spring.

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Dothistroma needle blight – *Dothistroma septospora* (*Mycosphaerella pini*) a fungus.	Austrian, mugo and ponderosa pine are the most common species infected by this disease. Occurs statewide.	Symptoms present in late summer or autumn and are first seen on the lower crown and older needles. Needles have yellow and tan, often resin-soaked, spots that develop yellow halos. The base of infected needle remains green. Small black fruiting bodies may be seen in the spring erupting through the needle. Yellow to tan banding is also a common symptom for infected ponderosa pines in the Black Hills.	Copper or mancozeb fungicides applied as the new growth expands (mid-May) and repeated in late June.
Juniper blight - caused by one of three fungi: *Phomopsis juniper-ovora, Pseudo-cercospora juniperi* or *Kabatina juniperi*.	Phomopsis and kabatina occur on eastern redcedar and Rocky Mountain junipers as well as the savin and creeping junipers. Rocky Mountain juniper is susceptible to kabatina. Cercospora is most common in windbreaks of Rocky Mountain juniper planted east of Hwy 281. Diseases occur statewide.	Phomopsis and Kabatina blight affects shoot tips, and these turn yellowish-brown to red, eventually becoming gray. Phomopsis symptoms appear from May to July as the newly expanding shoots become infected. Kabatina symptoms appear on previous season's shoots in April and May with the brown tissue dropping by June. Cercospora blight symptoms appear in summer with the oldest needles on the lower, inside branches turning bronze or red. Symptoms are limited to the interior needles.	Phomopsis can be treated with copper, mancozeb, propiconazole, or thiophanate-methyl at 14-day intervals beginning in mid-May and continuing until growth ceases or dry weather begins. Kabatina is difficult to effectively control as it enters through a wound, which occurs in the autumn. Thiophanate-methyl is labelled for treatment of Kabatina Copper or mancozeb applied three times - early June, early July, and mid-July - for Cercospora.
Lirula needle cast – *Lirula macrospora*, a fungus.	Black Hills spruce is the most susceptible. Occurs statewide.	Yellow bands on second- and third-year interior needles turn purplish brown. Infected needles may stay attached for several years due to the fungus disrupting the abscission zone.	A treatment of chlorothalonil when the new needles are about half-size, repeat three weeks later.

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Pine wilt – *Bursaphelenchus xylophilus*, a nematode.	Austrian and Scotch pines, occasionally Swiss mountain pines (the upright forms of mugo pine). Ponderosa pine is not affected. Occurs statewide.	Symptoms begin in midsummer with foliage yellowing then browning. Infected trees die that same fall with the gray needles hanging from the branches. The wood in the dead, infected trees will be blue-stained. Pine wilt disease typically infects trees more than ten feet tall. Nematodes may not be detectable from samples until mid-summer.	Sawyer beetles carry the nematode to host trees, remove and burn infested trees before the beetles emerge, usually early April. Infected trees must be cut level to the ground as even a slight stump may harbor the nematode. High value trees can be injected with abamectin in early spring (April).
Rhizosphaera needle cast – *Rhizosphaera kalkhoffi*i, a fungus.	Colorado blue spruce and white spruce. Occurs statewide.	Symptoms present by midsummer with the previous season needles on lower branches turning yellow then purplish brown by late winter. Small black fruiting bodies with smooth margins emerge from the needle stomates in the spring.	Chlorothalonil or mancozeb with the first application when new needles are half-sized and repeat two weeks later. Treat lower two-thirds of canopy.
Stigmina needlecast, Stigmina *lautii*, a fungus.	Colorado blue spruce and white spruce. Occurs statewide.	Symptoms are like Rhizosphaera needlecast, purplish-brown needles that drop prematurely, but this needlecast can spread to the upper canopy. Small dark fruiting bodies with spider-like margins can be found on the needle's stomates.	Same treatments and schedules as Rhizospheaera. Stigmina not listed on most labels but may use any product labeled for controlling needle diseases on spruce.
Western gall rust – *Endocronartium harknessii*, a fungus.	Ponderosa pines are infected. The disease is common in the Black Hills but is found across the state.	A round gall on the branches of the tree. These woody galls will produce masses of orange spores each spring.	Resistance varies from tree to tree. The galls may be pruned from small, infected trees but once a tree is infected, repeated infections are likely.
Winterburn (browning)	All evergreens but arborvitaes, firs, and yews are most susceptible.	Needles turning brown or reddish brown. This is desiccation due to the needles transpiring during mild, windy winter conditions when water uptake is limited by cold or frozen stems or soils.	Plant susceptible plants such as yews in areas where they will not be exposed to winter sun or wind. Make sure that evergreens do not undergo moisture stress in late summer/early fall.
Winter kill	All evergreens.	Needles turning brown or reddish brown. The inner bark of twigs and branches may also have brownish streaks.	-

CONIFER INSECTS AND MITES			
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Cedar bark beetle - *Phloeosinus spp.*	Junipers (cedars) but may infest arborvitae. Occurs statewide.	Foliage on individual twigs wilts, dies, and breaks off, occasionally may affect entire tree. Small holes found in the trunk with galleries beneath. Larvae are white and legless and smaller than rice grains. Larval galleries run across the grain and at right angles to egg galleries.	Remove and burn infested branches and trees. Treat trees with carbaryl or permethrin by early June. Only treat if an infestation is present.
Pine bark beetles – Engraver beetle *Ips calligraphus, I. grandicollis* **and** *I, pini.* **Mountain pine beetle** - *Dendroctonus ponderosae* **Red turpentine beetle** - *D. valens*.	Ponderosa pine. All pine bark beetles occur in the Black Hills region. Engraver beetles may also be found throughout the state along with turpentine beetles. Mountain pine beetles do not occur outside of the Black Hills region.	Pine engraver beetle: insects typically infest the canopies of pines so common symptoms are browning needles in the upper canopy. Boring dust may be seen around the base of infested trees. Mountain pine beetle: needles on infested trees turn reddish-brown, boring dust may be found at base of tree. Pitch tubes (small masses of pitch) can be found along the trunk from three to 40 or 50 feet for mountain pine beetle attacks. Trees die within a year of attack by mountain pine beetles. Red turpentine beetle: pitch tubes are found on the lower trunk from ground level to three to five feet. Infested trees are usually already stressed by construction or fire.	Treat tree susceptible to engraver beetle attack, typically drought-stressed or fire-scarred trees with bifenthrin, carbaryl or permethrin labeled specifically for bark beetles in mid-April about the time apple leaf buds are opening. If appropriate, treat trees for mountain pine beetles or turpentine beetles with the same insecticides but apply by early June.
Pine needle scale – *Chionaspis pinifoliae* **(an armored scale)**	All pines and spruce. Occurs statewide.	Look for white teardrop shaped (1/2") scale adults on discolored needles. Heavy infestations give the needles a pale "snowy" look. Crawlers are small (10x lens) and are reddish-brown. Two generations per year.	Treat with horticultural oil or dinotefuran or pyriproxyfen when common lilac is blooming and a second application when hydrangea blooms. Dinotefuran can be soil injected in late May.
Pine sawfly - *Neodiprion spp.*	Ponderosa, Scotch, and Austrian pine. Occurs statewide.	Tufts of dry, straw-like needles or only stubs of needles. Yellow-green larvae found feeding in clusters on the previous season's foliage.	Azadirachtin, carbaryl, insecticidal soap or spinosad when larvae are seen, usually late April.

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Pine tip moth - *Rhyacionia spp*.	Ponderosa, Austrian, or Scotch pine. Occurs statewide.	Symptoms are dead and dying new shoots with expanded needles. Brown to orange larvae (3/8") found in pitch masses near the tips of shoots during the summer.	Treat with imidacloprid or permethrin or spinosad just as needles begin to expand in May. Several generations per year so additional treatments may be needed in late June and July.
Pine tortoise scale – *Toumeyella parvicornus,* a soft scale A related species, striped pine scale *Toumeyella pini*, is found in the Black Hills.	All pines but most common on mugo and Scotch pines. Striped pine scale is also found on ponderosa pine in the Black Hills.	Look for sooty mold, a black powdery substance, and honeydew on needles and twigs. At the base of these needles there will be small (1/8-inch) reddish-brown global scale insect. These adults are not mobile. The mobile crawlers are only visible with a 10x hand lens.	Imidacloprid or dinoterfuran as a soil injection in early June. Acephate or malathion sprayed in early June when black locust are in bloom and repeated 10 days later to kills the crawlers.
Spruce bud scale – *Physokermes piceae*, a soft scale	All spruce but most common on Black Hills and Norway spruce. Occurs statewide.	Small (1/8-inch) red-brown globular scales in clusters at the base of twigs. They resemble buds so they are often overlooked. Often associated with dying lower branches. There will be some honeydew and sooty mold present.	Treat trees when lindens begin to bloom (late June) with carbaryl. Dinotefuran or imidacloprid can be used as a soil or trunk injection in early June.
Spruce needleminer – *Endothenia albolineana*	All spruce, but most common on Colorado blue spruce. Occurs statewide.	Small clusters of discolored needles webbed tightly together and flattened against the branch. Needles are hollowed out with a small hole near their base. Larvae are 1/3-inch long, light green with a yellow-brown head. Symptoms usually begin on the lower one-third of the tree.	Treat trees with carbaryl or permethrin in early April and late June. Use high-pressure water to knock the nest off in early spring then rake and burn debris.

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Spruce spider mite - *Oligonychus ununguis*	Primarily spruce, especially the dwarf Alberta spruce, but also a problem on junipers. Occurs statewide.	Yellowish to rusty-brown needles are common symptoms of infestations but do not appear until mid-summer after the mite has become inactive. Silken webs may also be seen lacing across needles. Mites may be detected early in the season by shaking a branch over a white sheet of paper; the tiny slow-moving black or gray-green spots are spruce spider mites. Spruce spider mite is a cool season mite, so it starts becoming active when silver maple leaves are expanding. Another period of activity is when the maples begin their fall color change.	Treat with abamectin, bifenazate, hexythiazox, or spiromesifen, two applications six to 10 days apart beginning when silver maples leaves begin to form. Pesticides containing tau-fluvalinate may be used for suppression only. Horticultural oil also shows promise (but will remove the blue coloration on spruce). Insecticidal soaps may be used but have limited effectiveness against this mite as soaps rarely penetrate the webbing. This can also be a problem with oils.
Zimmerman pine moth – *Dioryctria spp.*	Austrian, ponderosa, and Scotch pine. *D. ponderosae* found mostly in the Black Hills region while *D. zimmermani* and *D. tumicolella* are found statewide.	Infested branches bend or break at the trunk. Masses of reddish pitch near where branch attaches to the trunk. Larvae are creamy white for *D. ponderosae*, *D. zimmermani* larvae are greenish-brown while *D. tumicolella* is brownish. Larvae overwinter beneath the bark for only for *D. ponderosae*, the others hibernate in a web on the bark over the winter	Drench trunk and branches with bifenthrin or permethrin. *D. tumicolella* and *D. zimmermani* should be treated in the middle of August and the end of April. Treatment for D. ponderosae is first week in June and repeated four weeks later.

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