Christmas Tree Pest Management in Florida

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A profitable Christmas tree operation in Florida demands intensive cultural management to produce well-shaped, high-quality trees over a short rotation (usually 4 to 5 years). The traditional northern conifer will not grow well in the Florida climate and certain native species, if tended properly, may provide a less expensive Christmas tree. Combating the few major diseases and insects of native Christmas tree species will reduce the likelihood of poor quality trees due to pest damage and increase the financial return and personal satisfaction from Christmas tree plantings.

Choosing the Proper Native Trees

Northern conifers such as Scots pine, balsam fir, and Norway spruce traditionally have been the preferred Christmas tree species. When energy costs were inexpensive, these trees could be grown over a long rotation (8 to 9 years), shipped to southern markets, and growers could still recognize substantial profits. However, with the increase in fuel and labor costs, it is now almost as expensive to ship a tree to Florida from northern and mid-western areas as it is to grow it. The increased prices of northern conifers have stimulated new interest in producing native trees in Florida for local markets.

Northern conifers managed for Christmas trees require long, cold winters during which the trees enter a period of dormancy as a part of their natural development. In Florida, the growing season may exist throughout the year and northern seedlings grown here fail to undergo dormancy. As a result, the desirable spring and summer flushes of foliage which are critical for shaping of high-quality trees do not occur. Certain native trees adapted for the Florida climate routinely produce the spring and summer foliage and may be managed for local Christmas tree production.

Four native tree species are recommended for Christmas tree production in Florida but care must be taken to match each species with the characteristics of the soil where each will be planted:

Sand pine — There are two varieties of sand pine in Florida. The Choctawhatchee variety occurs naturally in the western Florida panhandle and is preferred for Christmas tree production due to its straighter stem form and better outplanting survival than the Ocala variety. The needles are short and twisted, and when properly sheared, sand pines resemble the form of more traditional northern Christmas tree species. Choctawhatchee sand pine has evolved on deep, well-drained, infertile sandy soils and seedlings will not survive in appreciable numbers when planted on moist, fertile sites characteristic of other southern pine species.

Spruce pine — Spruce pine grows well on moist soils, particularly near stream terraces. Spruce pine needles are longer than those of sand pine but may still be shaped into a compact tree with lush foliage. This species will not survive on sandy soils indicative of the sand pine habitat.

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Virginia pine — This species does well in northern Florida on heavier-textured soils where the brief winter temperatures reflect its more northerly natural range. It is similar in growth form to sand pine but produces much heavier wood.

Eastern redcedar — This species is the most widely distributed conifer in the eastern U.S. and is adapted to a wide variety of climatic conditions and soils. In Florida, eastern redcedar grows best on moist, heavier-textured soils but may perform well on drier, sandy soils except on those soils characteristic of the sand pine habitat.

Major Diseases

Foliage blights — Lush, green foliage sheared to an attractive conical shape is characteristic of a high-quality Christmas tree. Certain fungal diseases may result in death and premature shedding of the needles (blighting) which may render the infected tree unfit for sale.

1. Coleosporium needle rust — In the spring, small pinkish-white ridges 1 to 2 mm high and several mm long may appear on sand, spruce and Virginia pine needles. These ridges are reproductive structures of several species of Coleosporium fungi which infect and kill developing needles. However, the likelihood of permanent foliar damage is slight since these needles are shed and replaced by new foliage. No evidence of the disease is present when trees are harvested for sale in the fall.

2. Brown spot — A fungus, Scirrhia aeciola, may infect Virginia pine foliage resulting in small, yellowish-brown lesions. If the infection is severe, diseased needle tissue may die and dead needles are cast, resulting in sparse foliage. Dead needles will continue to produce spores which sustain the disease on the same tree or nearby healthy trees. Brown spot should be chemically controlled to avoid progressive losses in the Christmas tree plantation and either Bordeaux mixture (8 lb copper sulfate and 8 lb hydrated lime in 100 gal of water) or Daconil 2787 (8.5 pt in 100 gal. of water) may be used as a foliar drench.

3. Cercospora and Phomopsis needle blights — Eastern redcedar, a popular southern Christmas tree, is subject to two serious needle blights. The development of the two diseases is distinctly different but either disease may ruin trees for sale if not curtailed. Cercospora sequoiae infects and kills the oldest and lowest foliage first. Cercospora blight develops upwardly and results in a progressive shedding of the lower foliage. Bordeaux mixture or Daconil is recommended as a control. Phomopsis juniperovora blight develops by the progressive death and shedding of younger needles. Eastern redcedars infected with this fungus lose needles in the upper crown first. Benomyl (1 lb per 100 gal of water) at 7 to 10 day intervals is recommended for control of Phomopsis blight. Note: Control of foliar diseases begins with proper weed control around the base of the trees. If weeds are left untended they may create areas of high relative humidity around the trees which encourage the development of foliar pathogens. Weeds should be kept mowed or else controlled by the careful use of herbicides.
Stem and branch galls — Globose swellings on stems and branches of sand, spruce and Virginia pine due to rust fungi of the genus Cronartium may eventually constrict host tissue and kill needles and twigs. Control of this disease is administered by pruning the affected portions as soon as these are recognized. Careful shearing may redirect foliar growth into bare areas left by pruning. Where stem infections occur, pruning must be performed as soon as possible to force a side branch to assume terminal growth. Globose swellings on stems or branches of eastern redecedar due to reproductive structures of Gymnosporangium species may also cause tissue mortality and should be pruned.

Root rots — All four Florida Christmas tree species may exhibit an overall decline in growth and appearance due to several fungi which infect the roots and may slowly kill affected trees. Reproductive structures of these fungi resemble mushrooms and may appear at the base of the stem or occur on the surface of the surrounding soil. No therapeutic methods are available to cure infected trees but after the infected trees are dead or harvested, the root systems should be dug up and discarded to retard spread of the disease to surrounding trees.

Resin flow from branches or stems — Sand and Virginia pine are susceptible to Fusarium moniliforme var. subglutinans, the fungus which causes pitch canker. Spores of the fungus are spread by wind currents to susceptible hosts or may be associated with feeding wounds caused by the deodor weevil. Young stems and branches may suffer a dieback of foliage and eventual mortality resulting in crown deformity. Careful pruning is the only current control as early infections must be removed to preserve acceptable tree shape.

Major Insect Pests

Bagworms — The evergreen bagworm, Thyridopteryx ephemeraeforsm, may attack pines and eastern redecedar in Florida. Larvae strip needles to form cocoons which hang from infested branches. Even minor infestations may result in spotty defoliation and the cocoons should be removed and burned. Severe infestations may be controlled by spraying with diazinon, malathion, carbaryl; or dimethoate (DeFend, Cygon). Formulations of a bacterium, Bacillus thuringiensis, may be used as a biological control.

Mites — Damage by mites is usually characterized by a chlorotic or “blond” appearance of pine foliage. Mite populations may flare up rapidly under cool, moist conditions of early spring. Treat affected foliage with dichofol or orthomite (1/2 to 1 lb of 50W in 100 gal of water). A gall-forming mite has also been associated with eastern redecedar in Florida but no recommendations for chemical control are available.

Pine tip moth — Pine tip moths (Rhyacionia spp.) are a potentially serious problem on Virginia, sand, and spruce pines. In the spring, eggs which have been deposited on needles and buds hatch and larvae bore into the base of developing needles and on into terminal growth or buds. Trees should be inspected for symptoms in February and March of the second growing season before the population numbers dramatically increase. Dimethoate (Cylon) or disulfoton (Di-Syston) are recommended for control if applied in the early spring.
Pales weevil — The pales weevil, *Hylobius pales*, is another potentially serious insect pest of young pine plantations. Adult weevils are attracted by the odor of fresh resin to recently cut-over areas and feed on the living inner bark of residual stumps and newly-planted seedlings. Feeding wounds may girdle the seedling stem causing wilting and mortality. Damage to planted seedlings may be avoided by delaying planting until death of the inner bark occurs which usually requires one full summer. If delayed planting is not an acceptable alternative then residual stumps may be sprayed with lindane (1 gal 20% EC in 40 gal of water), or seedling root systems may be dipped in phosmet (Imidan) or carbofuran (Furadan) prior to planting, or seedling foliage may be sprayed with chlorpyrifos (Dursban) at 5½ fl oz per gal of water after planting.

Pine webworm — In the late spring, larvae of the pine webworm, *Tetralopha robustella*, form brownish webs of silk and frass which enlace twigs, including the bases of adjacent needles. Localized defoliation may occur and although small seedlings are not usually killed, early growth may be retarded. The webs may be removed by hand and the seedlings sprayed with diazinon or trichlorfon when larvae appear.

Scale insects — Several species of scales occur on Christmas trees but the one of main concern in Florida is the pine tortoise scale, a soft scale whose sugary excretions promote subsequent sooty mold development. Chemical control of ants will protect trees from further pine tortoise scale infestations.

Note: The use of pesticides for control of fungi, insects, and weeds represents a potential plant and animal health hazard and requires extreme caution. Since chemical recommendations may change suddenly, the user should contact the local county extension agent for the most current recommendations. Manufacturer’s instructions for mixing and application of chemicals should be followed exactly.

This public document was promulgated at a cost of $99.56, or 6.2 cents per copy, to advise growers about potential pests and their damage to Christmas tree production in Florida. 8-1.6M-B4