

Best Management Practices

Southern Pine Beetle

Background

The Southern Pine Beetle (SPB), *Dendroctonus frontalis*, is the most destructive of the bark beetles that attack pine trees in the southern U.S. Pine engravers and the black turpentine beetle are common, but less aggressive than SPB. The preferred host trees for SPB are loblolly pines. As stands of these pines have increased in size and maturity, the outbreaks of SPB have become more severe, especially in the Georgia/Florida regions. Applications of insecticides may be used to prevent bark beetle attacks on high value pines. To be economically feasible, the insecticide must be effective over an extended period.

Description

Bark beetles are small, rarely seen insects that usually live beneath the bark in the trunks and branches of trees. While most bark beetles attack dead and dying branches and trees, SPB is a notable exception to this general behavior. While they can be present for several years as scavengers of dead or dying trees, periodic population explosions occur in which thousands of SPB infest and kill healthy trees. Distributed from Virginia to Texas and Florida, and continuing down into Central America, SPB damage amounts to many millions of dollars in lost trees. The occurrence of SPB coincides roughly with the distribution of loblolly pines, although the beetles will infest and kill all species of pine.

The adult SPB is a reddish brown to black cylindrical beetle about 1/8 inch long. There are continuing overlapping generations in Florida. Females initiate the attacks on trees and emit a pheromone that attracts males and additional females. Within days thousands of beetles colonize the tree, which often exhibits hundreds of pitch tubes on the outer bark. SPB feed on phloem tissue, where they construct winding S-shaped galleries. These galleries can effectively girdle the tree, causing its death. The beetles also introduce fungi into the tree known as blue-stain fungi, which colonize and block water-conducting tissue.

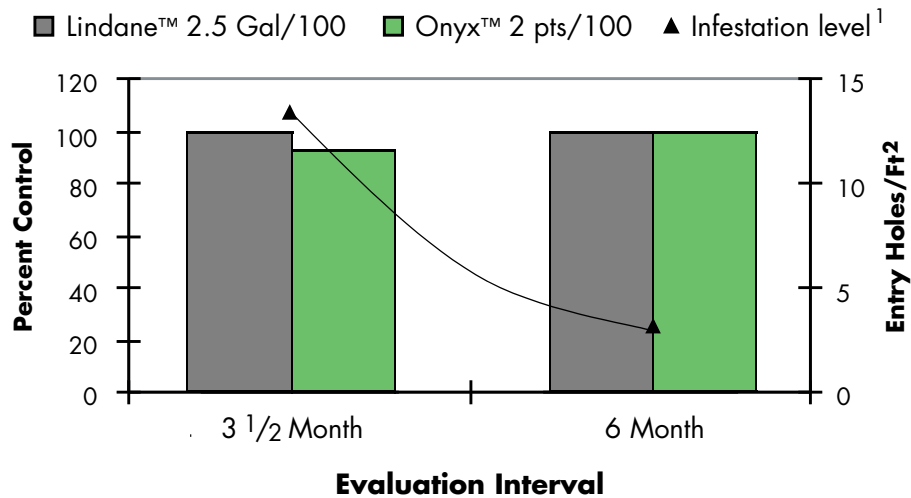
Management

The key to SPB control is early detection of nearby SPB infestation, known as "spots." Early indications of infestation include brownish-orange boring dust and tiny white pitch pellets accumulating at the base of the tree. The presence of many popcorn-sized lumps of pitch on the outer bark may also be seen. When a part of the inner bark is exposed beneath these pitch tubes, the characteristic S-shaped galleries that cross one another are the most diagnostic sign of SPB infestation. Often the first noticeable indication of SPB attack is foliage discoloration. Crowns of dying pines change color from green to yellow to red before turning brown. Another sign of possible SPB activity is the presence of clear shot-like holes about 1 mm in diameter on the outer bark surfaces. These are SPB emergence holes. SPB has a relatively short life cycle averaging about 35 days, but infestations may move rapidly through infested stands. Typically SPB infestations become inactive during their overwintering period, affording an opportunity to treat nearby trees with an approved, appropriate protectant insecticide.

Treatment

High value residential and commercial trees in urban or rural areas should be protected with Onyx™ insecticide in late winter prior to adult flight or when the threat of SPB attack is imminent. Use Onyx as a preventive spray before adult beetles have laid their eggs. Apply a mixture of 1-2 pints of Onyx/100 gallons of water to the trunk of the tree and ensure spray coverage at least halfway into the live crown. Spray until the bark is thoroughly wetted by the spray. Use the 2-pint rate for areas that expect heavy infestations and for longest residual effectiveness. As shown below, Onyx has provided six months of preventive control of SPB in university trials, and is the preferred insecticide for protecting trees from borers and bark beetles.

Preventive Control of Southern Pine Beetle Infesting Loblolly Pine



¹Infestation level expressed as entry holes/Ft² on untreated bolts

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