

Current Season Needle Necrosis

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Current-season needle necrosis (CSNN) is a foliar condition affecting true firs. Symptoms are most severe on young noble and grand firs grown at low elevation sites. Eurasian firs (Nordmann, Turkish, Trojan) are also sometimes affected.

CSNN appears on the current season growth starting after shoot elongation in the spring. Initial symptoms are light tan to brown colored bands, often only on half of the needle. By mid summer, affected needles turn reddish brown. Symptomatic needles on noble fir tend to remain attached to the shoot, while considerable defoliation of symptomatic needles on grand and Eurasian firs can occur during late June and early July.



It is unclear what the main cause of CSNN is. Symptoms only develop on new shoot growth that is exposed to the sun. While the incidence and severity of CSNN varies from year-to-year, this appears to be due to yearly differences in climatic conditions during the early stages of shoot development and not tree-to-tree spread. The fungus *Sydowia polyspora* is associated with symptomatic foliage, but it is a weak pathogen that is commonly found as an endophyte in asymptomatic foliage. Shading and repeated foliar applications of calcium to developing needles are the only treatments that have been found to affect the development of CSNN. One theory is that cool conditions following bud break reduce transpiration, which limits calcium uptake and reduces cell wall integrity within the needles, making them more prone to damage when higher temperatures occur later in the spring.

Unfortunately, no practical and effective treatment has been found to reduce the impact of CSNN. Foliar applications of some types of calcium have reduced symptom development, but at the rates used they are often phytotoxic and injure the needles. There is some evidence of genetic variation in susceptibility to CSNN, with some seed sources having lower susceptibility. In sites that are conducive to CSNN, there are often a few trees within the field which consistently have moderate to severe CSNN. Because these trees are unlikely to ever be marketable, it is recommended that they be removed early in the rotation to reduce the amount of money that is spent on them.

<https://pnwhandbooks.org/plantdisease/host-disease/fir-true-abies-spp-current-season-needle-necrosis>