

Flame retardants prove ineffective on fresh-cut Christmas trees

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This Christmas season, think twice about spending money on a commercial flame retardant for your Christmas tree. The good, old-fashioned method—keeping your tree in a container of fresh water—is probably all you need to keep your tree green and healthy. Researchers have determined that some flame retardants don't work on cut Christmas trees; in fact, in several cases the chemical retardants sped up the drying process and made trees more flammable.

Drs. Gary Chastagner, professor of plant pathology at Washington State University's Puyallup Research Center, and Eric Hinesley, professor of horticulture at North Carolina State University, tested two flame retardants on Douglas-fir and Fraser fir, two of the favorite Christmas tree species in the United States.

According to Chastagner, many cities and municipalities require that chemical flame retardants be used on cut Christmas trees displayed in public buildings. However, the assumption that all flame-retardants are effective on Christmas trees had not been proven. Additionally, there is little information available about the effect of flame-retardants on the quality of trees or boughs. Chastagner and his colleagues wanted to determine if two particular flame-retardants reduced the potential for fire, and find out what effect the chemicals had on the quality (needle retention and moisture status) of the trees.

Surprisingly, neither product tested in the study showed any benefit to the quality or life of the trees. In fact, the chemical used on Douglas-fir

caused the branches to dry much faster than non-treated branches. Because ignition from a small source, such as a match, only occurs below a certain moisture level, branches treated with the flame retardant became a fire hazard quicker than non-treated branches.

Because freshly cut Douglas-fir and Fraser fir Christmas trees are almost impossible to ignite and burn when exposed to a small flame, tests were conducted on branches that were not placed in water and allowed to dry naturally. The tests showed that fresh branches placed in water actually absorb more water than they contained before they were cut, and were therefore less susceptible to catching fire.

Results of the research raises questions about the effectiveness of flame retardants on Christmas trees and confirms previous findings that the best method for preserving freshness and reducing fire hazard of Christmas trees is to keep them in a stand with adequate, fresh water. Maintaining high moisture levels by keeping trees and conifer boughs in water is the most-effective and least-expensive way to reduce fire hazards in homes and public spaces.

The complete study and abstract are available on the ASHS HortScience electronic journal web site: hortsci.ashspublications.org/content/abstract/43/1/203

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