

# THE PURDUE LANDSCAPE REPORT

## Tree-of-Heaven is not so Heavenly

By: Lenny Farlee, lfarlee@purdue.edu



Despite the sublime name, tree-of-heaven, *Ailanthus altissima*, is a particularly bad actor when it comes to trees encountered in the Midwest. This native of Asia was introduced to North America more than 150 years ago and has since become a widespread invasive pest. Rapid growth, extremely high seed production (hundreds of thousands from a mature female tree), and root sprouting that can turn one tree into dozens makes this a formidable competitor with our native plants. Tree-of-Heaven can sprout and grow almost anywhere, including cracks in streets and sidewalks or building foundations, resulting in infrastructure damage and increased costs of maintenance. It is also the preferred host for a new and destructive invasive insect pest, the spotted lantern fly.

Reducing tree-of-heaven numbers on the landscape is a worthy goal, but can be a difficult task. Seed is windblown and can disperse for hundreds of yards or further, producing new populations. Tree-of-heaven will produce dozens of root sprouts if the stem is cut or girdled, even when herbicides are applied to the cuts. Both seedlings and root sprouts can grow rapidly, outpacing the native trees. However, there are effective control methods and even a potential biological control agent, a native wilt fungus, on the horizon. If you have tree-of-heaven or know of

those who do, here are some methods to control this invasive tree.

Young seedlings and sprouts may be controlled with foliar applications of herbicides containing glyphosate during the summer growing season. Apply the herbicide and water mixture according to label directions, covering the entire leaf area. Pulling seedlings is an option, but any root fragments left in the soil may produce new sprouts.

Larger tree-of-heaven too tall for foliar spray may be controlled with a couple of other techniques. The basal bark technique applies an herbicide and oil mixture to the lower 15-18 inches of the stem of the tree. The oil carries the herbicide into the tree stem and kills the tree while also limiting the amount of root sprouting. This method is recommended for stems up to 6 inches in diameter, but larger stems have been controlled effectively with this approach. The best seasons for application are summer to winter, but avoid days where temperature is over 85 degrees F as the herbicide and oil mix can volatilize and damage non-target plants. Also discontinue applications if stems are wet or when snow cover is present. Recommended herbicides are the triclopyr ester herbicides and a commercially available basal oil mixed in a ratio of 20% herbicide and 80% oil.



Trees three or more inches in diameter may also be controlled using the “hack and squirt” method, also referred to as the injection method in some cases. A narrow cutting tool like a shingle hatchet is used to make 45 degree angled cuts through the bark of the tree around the circumference, with equal-sized uncut spaces between the cuts. Herbicides like glyphosate or triclopyr amine formulations are applied as directed on the label into the pockets created by the cuts. This treatment results in very few root sprouts as compared to cutting down or girdling the tree. The number of cuts should approximately equal the diameter of the tree in inches, and be sure to leave the uncut spaces between the cuts.

If the tree stems need to come down for safety or other reasons, apply the basal bark or hack and squirt treatments and wait approximately 30 days before cutting down the stem. This should allow time for the herbicide to impact the root system and limit the amount of root sprouting.

Work safely for yourself and the environment by reading and following the herbicide label, wearing the required personal protective gear, and working carefully with cutting tools.

For additional details on tree-of-heaven management visit these sites:

[Tree of Heaven | Purdue University Report Invasive Species Control & Management — State of Indiana Cooperative Invasives Management \(sicim.info\)](#)

[Invasive Plant Control Database \(wisc.edu\)](#)

A new Purdue Extension Publication, *Invasive Plant Series - Tree of Heaven*, will be released later this year.

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