Tree of Heaven

The tree of heaven (*Ailanthus altissima*) is an invasive tree that originated in China, was brought to Europe in 1751 and was brought to the United States in 1784. Tree of heaven is a fast-growing, deciduous tree that can reach a height of 40 to 50 feet. The leaves resemble walnut or pecan (compound pinnate) but are much larger (1 to 3 feet in length). The leaves and male flowers have an offensive odor. It produces abundant winged seeds which readily germinate. When cut or damaged, the tree vigorously resprouts from the roots making it somewhat difficult to control.

The tree of heaven is probably the most common woody plant in Jerome, AZ. From there, it has spread down the washes into Cottonwood and Clarkdale. Dead Horse Ranch State Park also has several stands of these trees. They have colonized ditch banks and new populations appear as the seed spreads. Tree of heaven gained fame through A Tree Grows in Brooklyn, the novel by Betty Smith. In many eastern U.S. cities it grows in the mortar of brick walls and on flat rooftops.

Most people start out liking the tree of heaven. It grows with little water, tolerates alkaline soils, and it creates shade. Most trees of heaven begin to produce seed at about 10 years of age. Male or female flowers are usually produced on separate trees. After the 10 year honeymoon period, seedlings begin to come up everywhere. In addition, if the tree is damaged or cut down, then it begins to sprout from the roots. The tree of heaven also produces allelopathic chemicals that preclude other plants from successfully growing nearby. Allelopathy is common among invasive species.

Most people find tree of heaven undesirable. It can be controlled but it requires diligence and long-term monitoring for regrowth. Young seedlings may be pulled or dug up, preferably when soil is moist. Care must be taken to remove the entire plant including all roots and fragments, as these will almost certainly regrow. Root suckers appear similar to seedlings, but are connected to a pre-existing lateral root, and are nearly impossible to remove effectively.

The most effective method of *Ailanthus* control seems to be through the use of herbicides, which may be applied as a foliar (to the leaves), basal bark, or hack and squirt. The cut stump method (cut tree down to the stump and apply herbicide to the top of the stump) has been recommended in the past but it is not effective at preventing root suckers. Keep in mind that it is relatively easy to kill the above ground portion of *ailanthus trees;* you need to kill or seriously damage the root system to prevent or limit stump sprouting and root suckering. Always be extremely careful with herbicide applications in the vicinity of valuable ornamental shrubs and trees and always follow label directions.

For seedlings and small plants, a foliar spray with glyphosate during the summer is recommended. Remember that any desirable green plant or plant part will also be killed using this method. For larger trees, a basal bark application of herbicides around the trunk from ground level to 18 inches up the trunk can be effective. The hack and squirt method is effective for trees at least 1 inch in diameter. Both glyphosate and triclopyr are the recommended herbicides for the treatments. Mid-to-late summer (July to September) are the optimal months for controlling tree of heaven. Herbicide applications in other months may injure foliage but not the roots.

Hack and squirt method; photo source: PennState Extension

PennState Extension provides instructions for the above mentioned control methods in this video https://extension.psu.edu/tree-of-heaven-control-strategies

There are many tree species that are better choices than the tree of heaven. Contact your local Cooperative Extension office for guidance.

Ailanthus altissima seed pods and leaves. Photos from Yavapai Native and Naturalized Plant Database.

Updated September 17, 2025 with more recent control methods.

Adapted from original Backyard Gardener publications by Jeff Schalau, Agent, Agriculture & Natural Resources, University of Arizona Cooperative Extension, Yavapai County.