



# Tree of Heaven

## BVGC INVASIVE SPECIES FACT SHEET

Tree of Heaven (*Ailanthus altissima*) is considered to be the most dreaded of invasive species. It was introduced to the US nearly 200 years ago as an ornamental but quickly became invasive. Characterized by rapid growth, the species is capable of growing over 15' in one year. Its root system is extensive which can displace native trees, damage masonry and push up through concrete or sidewalks. Its allelopathic traits further preventing growth of native plants and it is also the exclusive host to the spotted lanternfly which is another highly destructive pest from Asia.

**Description:** A deciduous tree that can grow up to 80' high. Yellow-greenish flowers appear in June/July and female flowers develop into samaras (winged seed pods). The female tree can produce up to 300,000 seeds/year. Its leaves are pinnately compound (a central stem with leaflets attached to either side). The tree is drought-tolerant and can grow in a variety of soils including poor soils. Once established it spreads through suckers that can extend up to 50ft away as well as seeds dispersion.



TREE OF HEAVEN ROOT SYSTEM GRAPHIC: PENN STATE

### Extermination:

Hand pulling young seedlings is effective if the entire root system can be removed. If not sure, it is possible to dig out the seedling. Removing larger trees is more complicated and will require herbicide.

**Protocol 1:** Remove smaller trees by cutting trunk close to ground and immediately painting it with herbicide. It is important to paint immediately as it seals rapidly. Just cutting the stem alone will stimulate sucker growth and exacerbate the problem. The stump should be observed for sucker or other growth and herbicide reapplied when ever material is removed.



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### Extermination: (Continued):

**Protocol 2:** If tree is small and is not around other vegetation, a foliar herbicidal spray can be used. Using a handheld or backpack spray herbicide (glyphosate or triclopyr amine, use according to direction), to carefully spray the foliage of the tree. This can be done between late July to mid Oct as the tree is sending energy to its roots. The herbicide will accompany it to the roots. After spraying it is important to wait at least one month before cutting the tree down and removing. Any branches with seeds should be removed and bagged to prevent seeds from taking root.

**Protocol 3:** On larger trees, use the hatchet method. Create gaps in the bark at a 45-degree angle (careful to avoid girdling tree) and using a squirt bottle, squirt the herbicide into the gashes in the bark taking care not to over fill and drip. The number of gashes required is based on the tree circumference. Measure the circumference of tree at about your chest level. Divide the circumference by 3.14. The number produced is the number of gashes required with a minimum of two. Immediately use the herbicide and it is again important to wait 30 days before cutting tree down.

Please note: if you decide to contact a professional, they need to know that it is a tree of heaven. Just cutting the tree will promote sucker growth.

### Look-Alikes:

Tree of Heaven looks similar to native Sumacs (staghorn and smooth sumac) and the Black Walnut tree. The leaves of all are pinnately compound. However, the Tree of Heaven has a single leaflet at the end of the central stem (terminal leaf) the same size as its other leaflets and its leaves have a smooth edge. Sumacs do not have a terminal leaf and their leaves are serrated. Black Walnut have a very small terminal leaflet and its leaves are finely serrated. In the spring its flowers are easily distinguishable as the male walnut has catkins and the female has spiky flowers. In addition, the Tree of Heaven flowers, stem and leaves emit a nasty urine like odor when crushed.

**Disposal:** Bag the remains for safe disposal or burn.

### TREE OF HEAVEN FOLIAGE



Botanical artwork by  
Pierre-Joseph Redouté  
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