



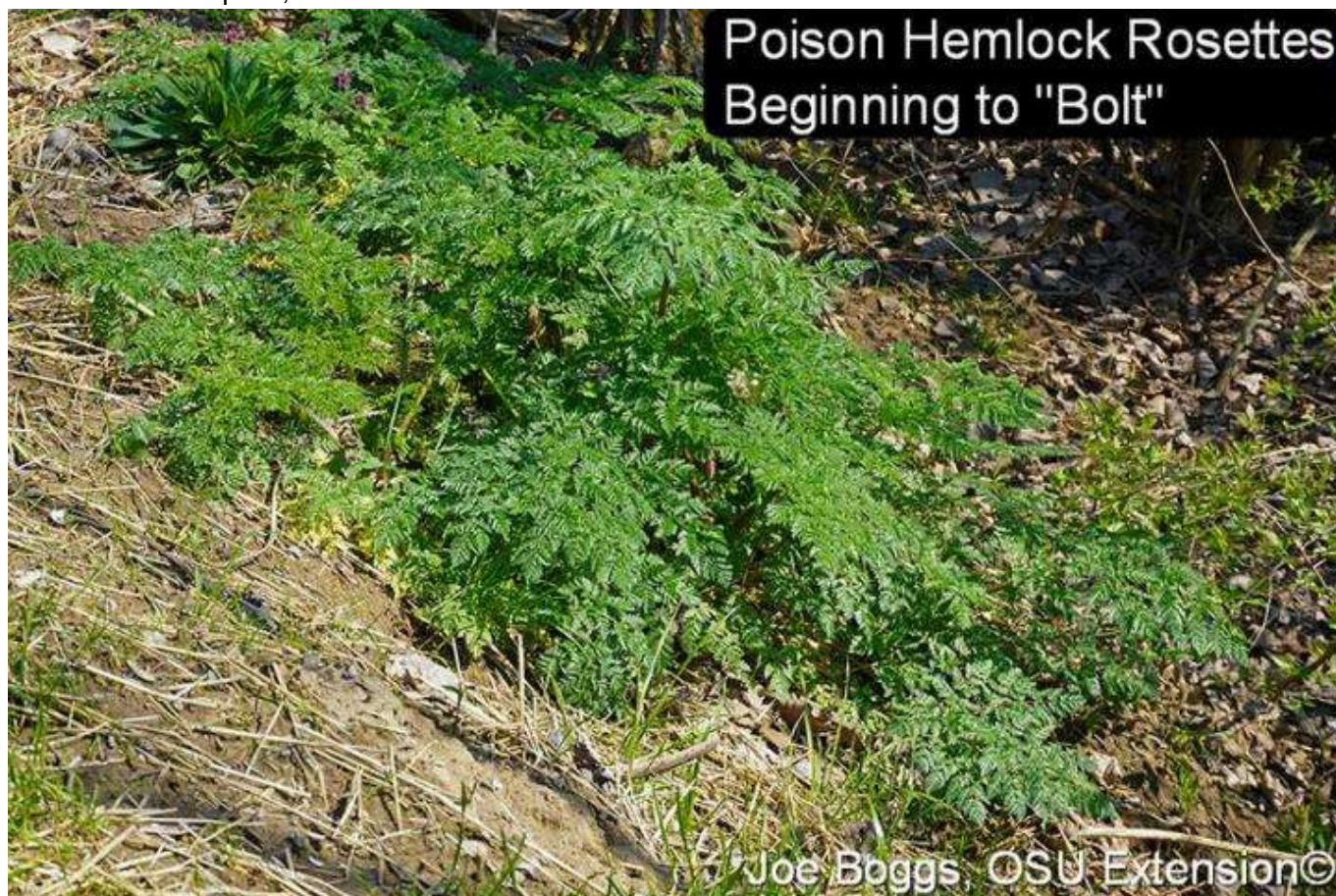
Buckeye Yard & Garden onLine ^(/)



Poison Hemlock is No Joke

Authors: Joe Boggs (/index.php/node/51)

Published on: April 1, 2023



(<https://bygl.osu.edu/sites/default/files/field/image/1%20Rosettes%20-%20Early%20Spring%202023%202.JPG>)

Poison hemlock (*Conium maculatum* L.) was imported into the U.S. as an ornamental in the late 1800s from Europe, West Asia, and North Africa. Rogue plants remained relatively rare until around 30 years ago. Since that time, poison hemlock has elevated its profile from an uncommon oddity to a common threat.

This dangerous non-native invasive plant is currently in the growth stages in southern Ohio which makes it susceptible to early-season management options. Seeds have germinated and last season's rosettes are beginning to "bolt." Killing the seedlings will reduce next year's rosettes and killing the bolting rosettes will prevent seed production later this season. Eliminating these plants now can significantly reduce infestations.

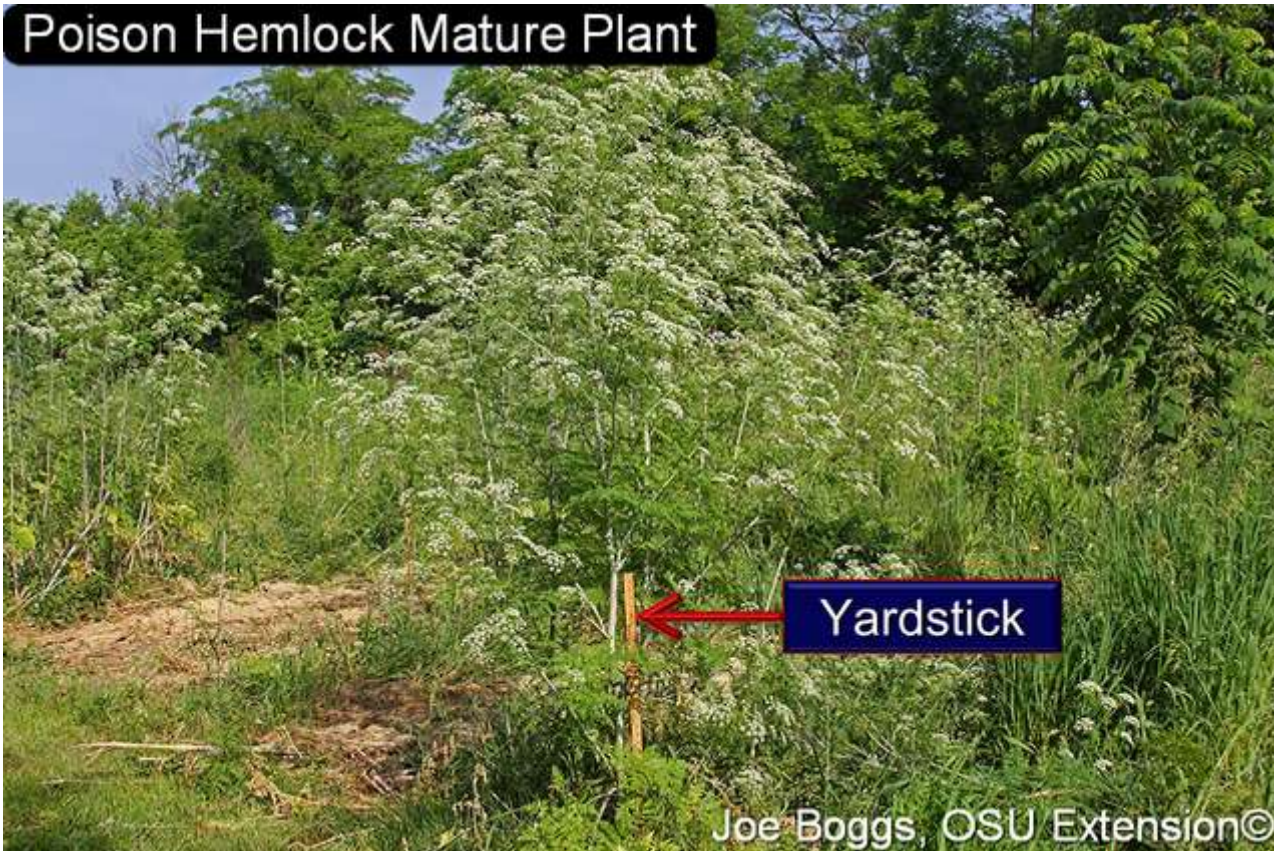
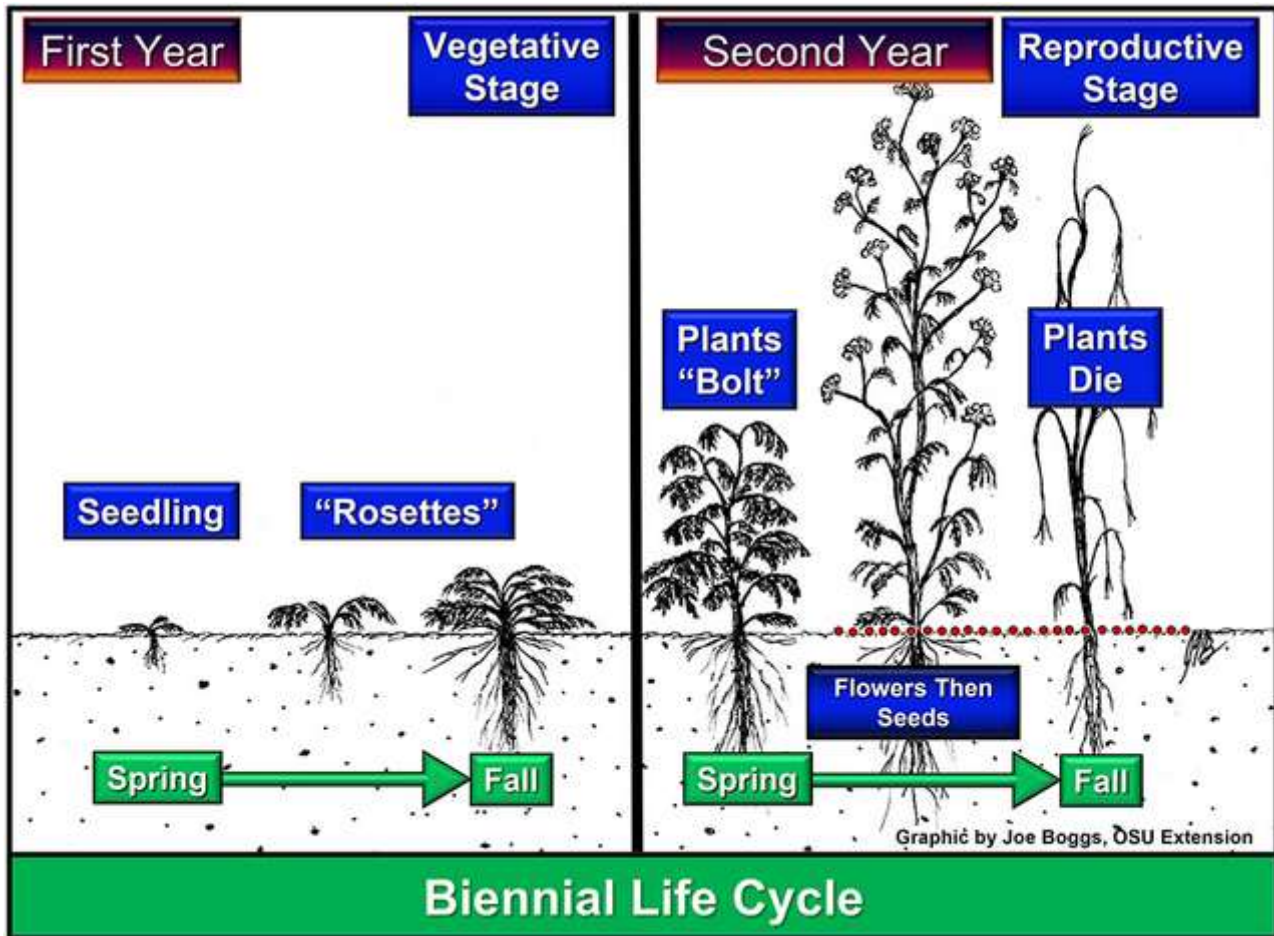


Life Cycle and Identification

Poison hemlock is a member of the carrot family, Apiaceae. The old name for the family was Umbelliferae which refers to the *umbel* flowers. The flowers are a key family feature with short flower stalks rising from a common point like the ribs on an umbrella.

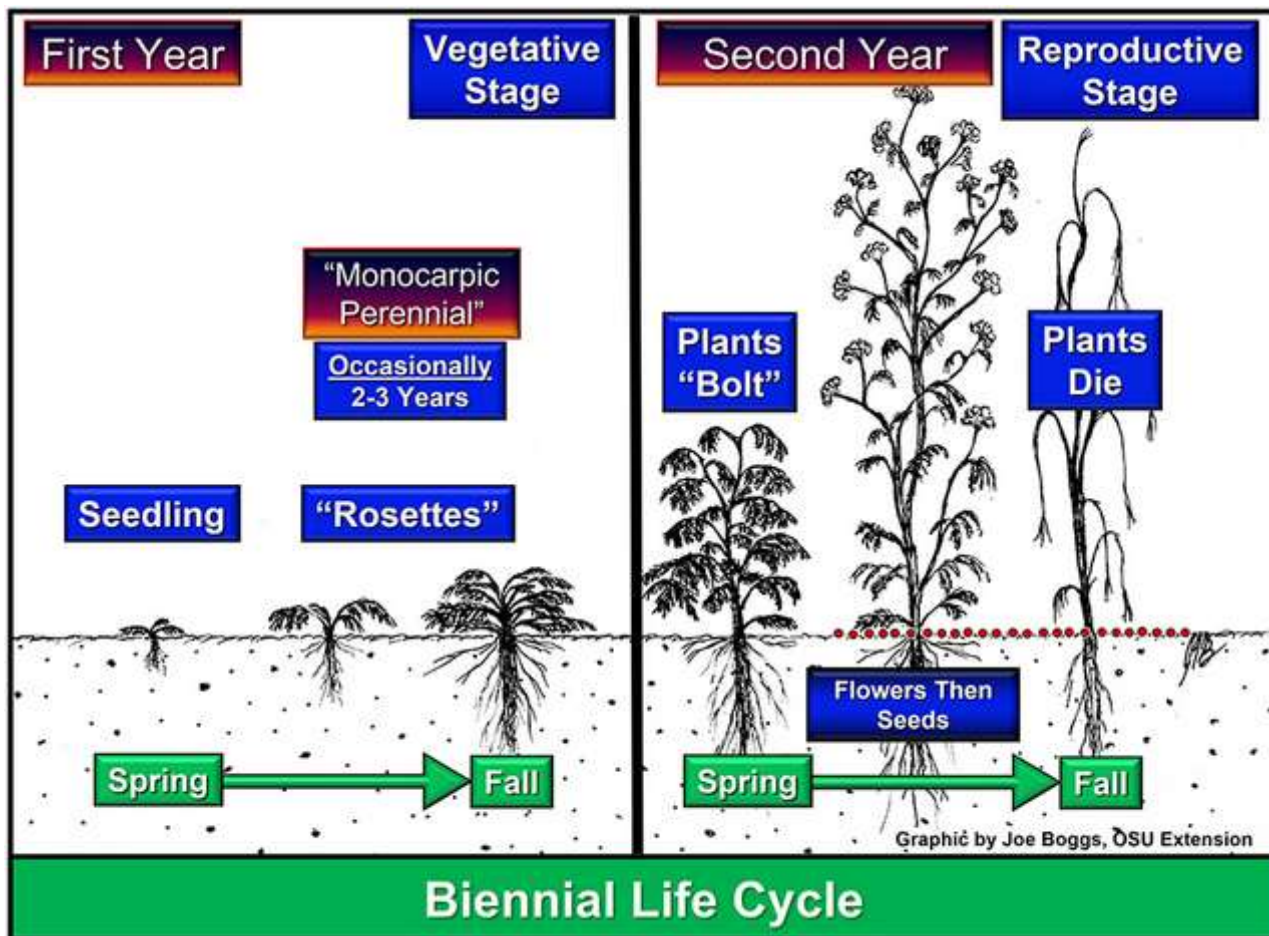
Poison hemlock has a biennial life cycle. The first year is spent in the **vegetative stage** as a low-growing basal **rosette**. The rosettes use carbohydrates acquired through photosynthesis to produce a robust root system.

Plants "bolt" during the second-year **reproductive stage** to produce erect multi-branched stems topped with umbrella-like flowers. Mature poison hemlock plants can tower as much as 6 – 10 ft. tall. Plants die after producing seeds.



It's important to note that the graphic above provides a generalized view of a biennial life cycle. In reality, there can be considerable variability in the timing of events meaning that the growth stages within a group of poison hemlock plants are seldom synchronized. It's common for first-season vegetative plants to be mixed with second-season reproductive plants.

Also, the literature notes that some plants may occasionally behave as **monocarpic perennials** spending more than one year in the vegetative stage before flowering once and then dying. This could help to explain the rapid rise in asynchronous life cycles in developing poison hemlock infestations.



Seed viability as well as the timing of seed germination also affects what we see. Poison hemlock is a prolific seed producer. Research has shown that seed production ranges from 1,700 to as high as 39,000 seeds per plant with seed germination rates averaging around 85%. Seeds remain viable for 4 – 6 years. This means that management tactics must account for new plants arising annually from the “seed bank” until there are no longer any viable seeds to contribute to infestations.



New and old seeds may germinate in late summer, early fall, to early spring. As a result, first-year rosettes commonly range in size from small plants if seeds germinated in the spring to larger plants if seeds germinated in the fall.

Poison Hemlock Seedlings



Joe Boggs, OSU Extension©

Poison Hemlock Seedling



Joe Boggs, OSU Extension©



All stages of the poison hemlock plant have dark-green to bluish-green leaves that are 3-4 times pinnately compound. The deeply cut **parsley or carrot-like leaflets** have sharp points. The characteristic leaf structure is even evident on newly germinated seedlings.



Poison hemlock stems are hairless, light-green to bluish-green, and covered with obvious purplish blotches; *maculatum* means 'spotted'. The purplish-blotched stems are first evident as the rosettes begin to bolt and become even more obvious on mature plants.



Poison hemlock produces white flowers on stalks that create a more rounded look compared to other members of the carrot family. For example, the non-native Queen Anne's Lace (*Daucus carota*), with its umbels producing a flat-topped flower arrangement, is often used as the poster child for carrot family flowers.

Poison Hemlock Blooms



Queen Anne's Lace Blooms



Various online reports also claim Queen Anne's lace is often mistaken for poison hemlock and vice versa. Queen Anne's lace has hairy stems and blooms much later in the season after poison hemlock plants are producing seed.

Queen Anne's Lace Blooms with Poison Hemlock Seeds



Toxicity

Poison hemlock is one of the deadliest plants found in North America. It is the plant used to kill Socrates as well as the Greek statemen Theramenes and Phocion. All parts of the plant are poisonous: the leaves, stems, seeds, and roots. However, the toxins must be ingested or enter our body through our eyes, nasal passages, or cuts in our skin to induce poisoning. **The toxins do not cause skin rashes or blistering.**



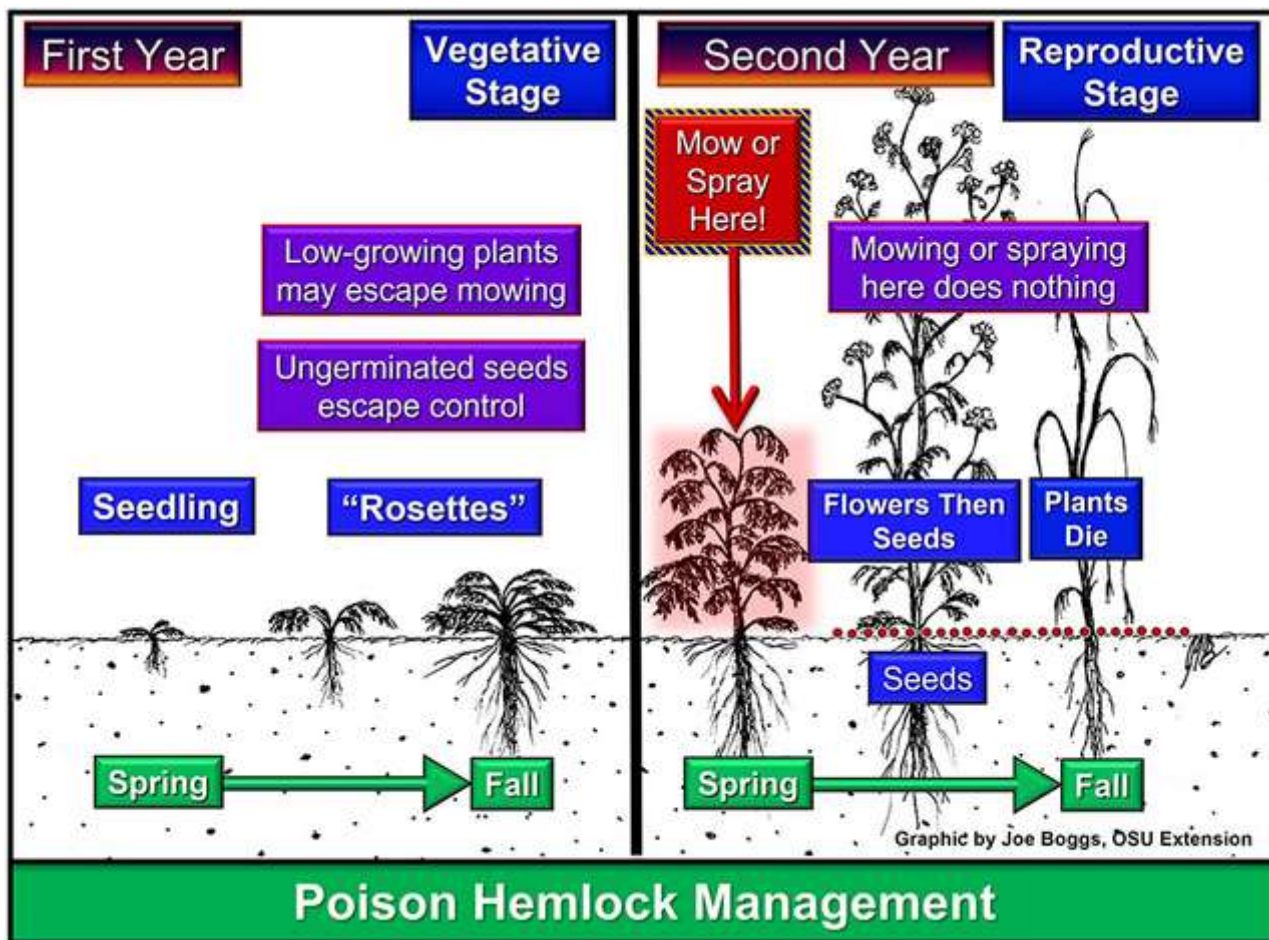
Regardless, this plant should not be handled because sap on the skin can be rubbed into the eyes or accidentally ingested while handling food. Immediate emergency medical attention should be sought if accidental poisoning from this plant is suspected.

Mow, Pull, or Spray?

Unfortunately, poison hemlock has become too widespread for it to be eradicated from Ohio. However, infestations that present a clear and present danger to the public should be targeted for elimination.



Timing is everything! The graphic below shows the best and worst times to implement management tactics. However, it's important to note that regardless of management strategies, poison hemlock infestations are not likely to be eliminated in a single season.



Mowing poison hemlock **just after plants begin to bolt but before they bloom** can be highly effective although mowers may pass over the low-growing first-year rosettes. However, equipment operators should approach mowing large poison hemlock infestations with caution (see “Cautionary Case Study” below). Equipment with unshrouded blades should not be used. PPE should be considered even if brush or flail mowers are shrouded.



Hand-pulling poison hemlock plants just after they bolt can be effective on small infestations. However, it's strongly recommended that hands are protected with gloves, arms protected with long sleeves, and eyes protected with safety goggles. Plants should not be burned but disposed of using a method with limited exposure to animals and people.

Herbicides may be the safest option given the problematic nature of controlling poison hemlock by physical removal (see Case Study below). Fortunately, the non-native weed is susceptible to a wide range of selective and non-selective postemergent herbicides.



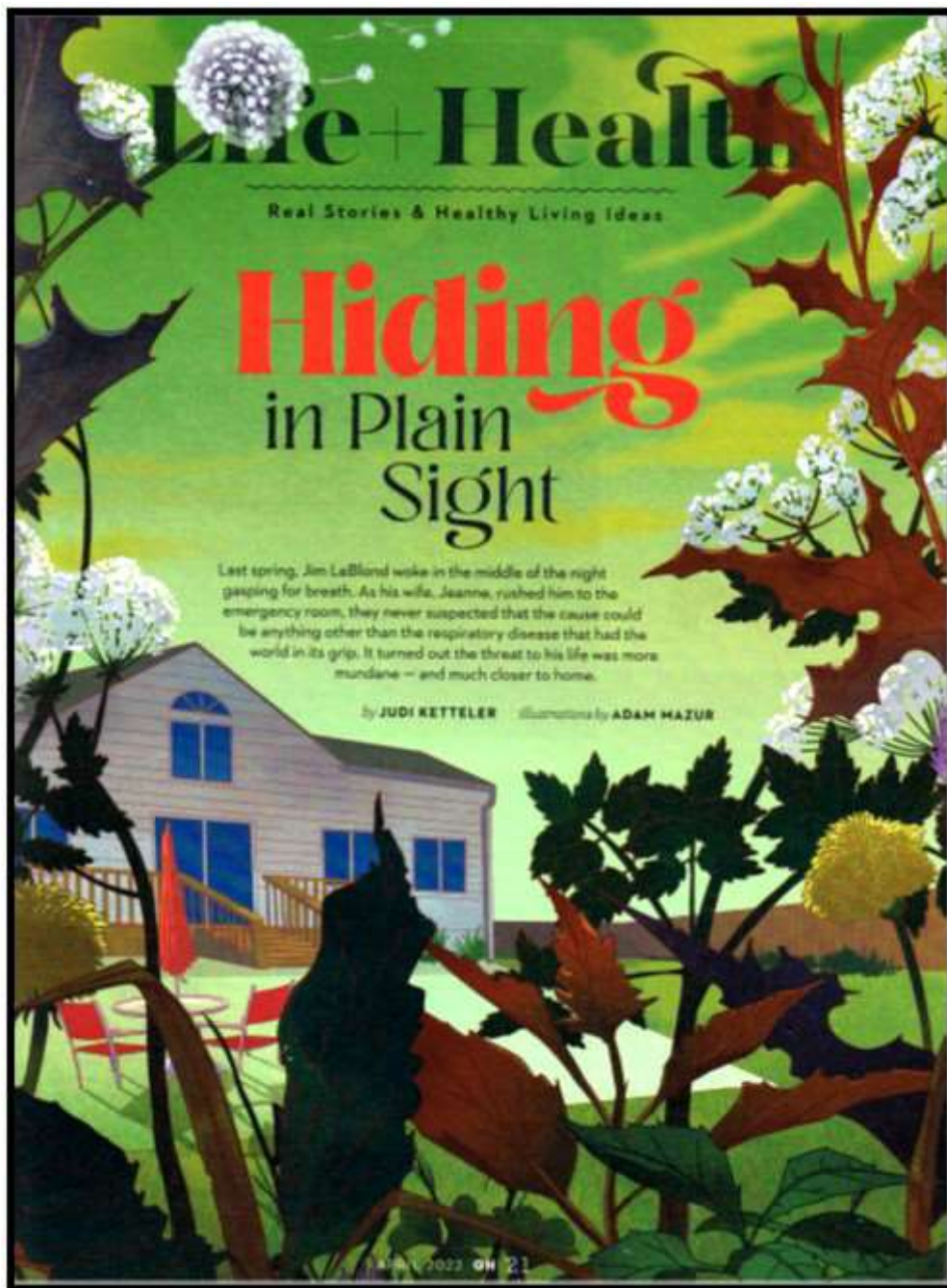
Non-selective herbicides with the active ingredients glyphosate (e.g., Roundup) or pelargonic acid (e.g., Scythe) are effective but can also eliminate plants that compete with poison hemlock. Herbicidal openings produced by non-selective herbicides provide perfect opportunities for poison hemlock to spring forth from

previously deposited seed. Thus, it's important to have a plan for establishing competitive plants such as over-seeding with grasses (family Poaceae).

Grasses are effective competitors against poison hemlock and a range of selective post-emergent herbicides can be used that will preserve grasses but kill the poison hemlock. These include clopyralid (e.g., Transline), metsulfuron (e.g., Escort XP), triclopyr (e.g., Triclopyr 4), and products that contain a combination of 2,4-D, dicamba, mecoprop, and dichlorprop.

Of course, as with using any pesticide, it's important to closely read and follow label directions. Some post-emergent herbicides can seriously damage trees if applied over the root zone.

A CAUTIONARY CASE STUDY: Beware of Aerosolized Sap. A story titled, "*Hiding in Plain Sight*" published in the "Life + Health" section of Good Housekeeping (April 2022, pgs. 21-25) described a disastrous encounter with poison hemlock in 2021 in southwest Ohio. A landowner was using an electric chainsaw to cut down large weeds with thick stems on his property. He didn't know what kind of weeds he was cutting, but the stems defied string trimming.



The landowner began to feel ill and was having trouble breathing. He was taken to a hospital emergency room where he tested negative for COVID-19. His symptoms worsened, so he was admitted to the hospital. Various diagnoses were considered and eliminated by his physicians including pneumonia.

Poison hemlock exposure was not considered because the landowner was not familiar with the dangerous plant and the health risks it presented. He had just been “cutting down weeds.” The link to his symptoms was eventually made when his daughter showed him images of poison hemlock and he identified it as the weed he was cutting down. He spent 109 days in the hospital ultimately needing heart surgery.

The plight of the landowner is not proof-positive he had inhaled poison hemlock sap that had been aerosolized by the chainsaw. The toxins may have found their way into his system via another route. However, his physicians believe the mode of entry was through inhalation based on the symptoms and the damage to the landowner’s lungs. Regardless, it’s a cautionary tale that should be considered while weighing management options.

Tags

Poison Hemlock (</index.php/taxonomy/term/64>)

Conium maculatum (</index.php/taxonomy/term/1043>)

OHIO STATE UNIVERSITY EXTENSION ([HTTP://EXTENSION.OSU.EDU/](http://extension.osu.edu/))

THE OHIO STATE UNIVERSITY (<http://www.osu.edu/>)

website created by inVP team hvp.osu.edu (<http://hvp.osu.edu>)

© 2016, The Ohio State University

Send Comments to: Witney.1@osu.edu (<mailto:Witney.1@osu.edu>)

NEWSLETTER

Receive your BYGL through email! Visit our Newsletter page for more information - [Subscribe Now](https://bygl.osu.edu/newsletter) (<https://bygl.osu.edu/newsletter>).

USEFUL LINKS

› [PlantFacts](http://plantfacts.osu.edu) (<http://plantfacts.osu.edu>)

› [OhioLine](https://ohioline.osu.edu) (<https://ohioline.osu.edu>)

(<https://www.facebook.com/OSUBYGL/>)

(<https://twitter.com/osubygl>)

(<http://www.youtube.com/user/OhioStateUniversity>)

(<http://osu.edu/rss-feeds.html>)

› [The Ohio State University](http://www.osu.edu/) (<http://www.osu.edu/>)

› [College of Food, Agricultural, and Environmental Sciences](http://cfaes.osu.edu/) (<http://cfaes.osu.edu/>)

› [Ohio State University Extension](http://extension.osu.edu/) (<http://extension.osu.edu/>)

› [Ohio Agricultural Research and Development Center](http://oardc.osu.edu/) (<http://oardc.osu.edu/>)

› [Ohio State ATI](http://ati.osu.edu/) (<http://ati.osu.edu/>)

[Home \(/\)](#) | [About us \(/about-us\)](#)