



Jumping Worm

Photo Credit: University of Minnesota-Extension



Soil Texture

Photo Credit: DATCP

Identifying Jumping Worms

Jumping Worm Life Cycle

Detecting Jumping Worm Populations

Applying Facility Biosecurity Measures

Protecting Propagation and Growing Areas

Best Management Practices

Reducing Risks of Invasive Jumping Worms (*Amynthas* spp.) in Nurseries

Wisconsin Department of Agriculture, Trade and Consumer Protection – Bureau of Plant Industry

Invasive Jumping Worms (*Amynthas* spp.) are native to eastern Asia and were first detected in Wisconsin in 2013. Jumping worms live in the upper layers of soil, leaf litter, mulch, and compost. They consume the soil, leaching nutrients and altering the soil structure. This altered soil creates a challenging environment for growing ornamental plants and landscape trees and establishing lawns. Research on control measures is underway. Following best management practices is the primary way to reduce the spread of jumping worms and lessen their impact in forest and landscape settings. Jumping worms are listed as a Restricted Invasive Species and regulated under WI Chapter NR 40.

- Adult worms are 15-20 cm long when full grown but only 1-3 cm upon hatching. Cocoons are 1-3 mm in diameter. Transporting any life stage in soil can easily spread infestations to new locations.
- Worms have a smooth body and are dark gray to brown in color.
- The clitellum, a smooth band that completely encircles the worm's body near its head, is creamy white to light gray colored. The clitellum of a jumping worm is smooth, not raised like a European earthworm.
- Worms have snake-like movements and will thrash, wiggle aggressively, and drop their tail in order to escape.
- It is common to find many worms at one location since they reproduce so quickly.
- Worms reproduce asexually. No mate is needed. A single cocoon can start a new population.
- April – May: Worms hatch from cocoons when soil temperatures reach 50 °Fahrenheit (10 °C).
- June – July: Worms feed in soil and leaf litter and grow to maturity.
- August – September: Worms reproduce, leaving cocoons containing eggs in both forest and landscape settings.
- September – November: The first frost of the season kills adult worms.
- Winter months: Eggs overwinter inside cocoons.
- Inspect soil for castings that resemble coffee grounds.
- Pour a mustard water solution (1/3 cup of ground mustard mixed with one gallon of water) over soil. This solution will irritate the skin of the adult jumping worms and drive them to the surface if they are present.
- Detect cocoons by shoveling soil into a pail filled with water. Dark brown cocoons, containing eggs the size of poppy seeds, will float to the surface.
- Employees and visitors must clean soil from shoes, boots, clothing, and gloves before entering all production areas. It is best to wash shoes and boots, as cocoons are small and can attach to the soles.
- Vehicles should be inspected and cleaned before entering the facility. Dispose of all debris washed from vehicles at a designated cull site.
- Quarantine incoming plant materials until they are inspected and free of jumping worms.
- Educate and train all employees to identify jumping worms and the texture of jumping worm impacted soil.
- Clean soil from all tools, boots, and gloves prior to working in and when moving between propagation and growing areas.
- Keep propagation areas free of leaf debris and dispose of culled plants at a designated cull site.
- Monitor media mixing areas and clean equipment between batches.
- Inspect all mix ingredient purchases.

Maintaining Cull Piles to Reduce Risk of Spread

Keeping Landscape Settings Free of Jumping Worms

Reporting Jumping Worms

Resources

- Ensure properly prepared compost is used in container mixes.
 - Clean soil from containers and place excess soil at a designated cull site. Inspect and thoroughly clean containers before re-use or verify containers are recycled or disposed of properly.
 - Ensure only properly composted materials are spread in growing fields. Compost must reach 131 ° Fahrenheit (55 °C) for three days to destroy jumping worms.
 - Scout field growing areas and monitor soil for jumping worms regularly.
 - Store and hold all plants using an air gap or other effective surface barrier to limit contact with soil.
 - Always inspect plant materials before shipping off site.
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- Maintain cull piles in isolated areas away from natural areas and forest settings.
 - Make every effort to ensure culled materials are not inadvertently moved from the site by wind or runoff from rainfall.
 - Do not accept yard or landscape waste from any outside sources.
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- Ensure gloves, boots, tools, equipment, and trucks are clean before entering a site and when moving from one location to another during the work day.
 - Inspect all plant materials before installation in the landscape. If feasible, remove soil and plant bare root.
 - Ensure mulch and wood chips are sourced from suppliers who take reasonable precautions to limit spread of jumping worms. Inspect these materials before incorporating them into landscaped areas.
 - Always dispose of landscape waste at a designated cull site.
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- Report all jumping worm sightings, including pictures and location, to Wisconsin Department of Natural Resources invasive species program staff at invasive.species@wi.gov.
 - Once detected, worms can be disposed of by double bagging and placing in the trash or killed by freezing or dousing them with rubbing alcohol or vinegar.
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- WI DNR Jumping Worm webpage – <https://dnr.wisconsin.gov/topic/Invasives/fact/jumpingWorm.html>
 - UW Arboretum Jumping Worm Factsheet – https://arboretum.wisc.edu/content/uploads/2014/06/Public-info-sheet_Amyntas-spp_Frev170502c-1.pdf
 - WI DNR Invasive Species Rule – <https://dnr.wisconsin.gov/topic/invasives/classification.html>
 - Great Lakes Worm Watch – <https://wormwatch.d.umn.edu/>
 - Contact your local WI-DATCP nursery inspector for additional guidance – <https://datcp.wi.gov/Documents/NurseryInspTerritories.pdf>



Jumping worm cocoons

Photo Credit: University of Wisconsin Arboretum



Jumping worm soil and texture

Photo Credit: DATCP



Jumping worm

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