



Best Management Practices

Reducing Risks of Invasive Forest Insect Pests and Diseases in Nurseries

Wisconsin Department of Agriculture, Trade and Consumer Protection

You can protect Wisconsin's nursery industry and natural resources by understanding the signs and impacts of invasive forest insects and diseases. These best management practices, or BMPs, will help reduce those risks and keep your business and nursery stock thriving.



Buying Plants and Plant Materials

- Buy material from reputable, licensed nursery growers.
- Make sure you follow rules for moving plants into or within Wisconsin. You may need a phytosanitary certificate or compliance agreement with the Department of Agriculture, Trade and Consumer Protection (DATCP) or USDA-Animal and Plant Health Inspection Service (APHIS).
- Know the status of pests in states where you buy plant material. Familiarize yourself with plant and pest movement regulations summarized on websites for the National Plant Board, DATCP, and Wisconsin Department of Natural Resources.
- Inspect incoming stock for damage and other signs of insects and disease. Reject stock that contains common pests or diseases. If you find an unknown or regulated pest or disease on incoming plant material, quarantine it and contact your local nursery inspector. When in doubt, check with your nursery inspector.

The Growing Season

- Scout often for forest pests and diseases. Be on the lookout for these non-native, invasive forest insects and diseases that could be introduced or spread on nursery stock:
 - **Gypsy moth:** The eastern 2/3 of Wisconsin is quarantined for this pest. Check for larvae, pupae, adults and buff-colored egg masses on nursery stock and in containers. Don't move plants from quarantined to non-quarantined areas without proper compliance agreements. We are available to train your staff to identify gypsy moth.
 - **Hemlock woolly adelgid (HWA)** is a small aphid-like insect native to Asia that has killed hemlock in over 20 Eastern states. Females lay white, waxy egg sacs that look like the tips of cotton swabs on the undersides of branches. Wisconsin restricts hemlock nursery stock from infested areas, including four Western states. Contact DATCP to see if you need a compliance agreement to import hemlock from other states.
 - **Elongate hemlock scale (EHS)** is an armored scale insect with oval brown or white scale coverings. It may occur along with HWA. EHS feeds on the undersides of hemlock, spruce and fir needles, causing needle loss and yellowing. EHS has been introduced into 16 states. We have not found it in Wisconsin.
 - **Thousand cankers disease (TCD)** has caused widespread mortality in black walnut since 2001 in some Western states. TCD is caused by the fungus

Selling and Shipping Plants

Geosmithia morbida, carried by the walnut twig beetle. Wisconsin restricts walnut nursery stock from states where TCD has been found. Contact DATCP to see if you need a compliance agreement to import walnut from other states.

- **Sudden oak death (SOD)** is a water mold caused by *Phytophthora ramorum*. It may infect more than 100 species of plants, including rhododendron, viburnum and lilac. SOD causes foliar blight, dieback and lethal bleeding bark cankers. Wisconsin restricts host plants from parts of California and Oregon.
- **Spotted lanternfly (SLF)** is a red, black and white planthopper native to Asia, recently found in Pennsylvania and other Eastern states. Although it strongly prefers the invasive tree-of-heaven and grapes, SLF feeds on over 65 plant species, including apple, willow, oak, walnut, and white pine. SLF feeding causes oozing, wilting, leaf curling, sooty mold and mortality. SLF lays its mud-like egg masses on any surface in fall, risking spread to new areas.
- Contact your local nursery inspector if you have insects or diseases you can't identify.
- Understand the life cycles of common pests and diseases, so you can treat at the appropriate times with pesticides labeled for the pest and plant.
- Use integrated pest management strategies to help prevent pest problems and decrease the risk of pesticide resistance.
- Do not sell or ship plants if they are infested or infected with pests or diseases.
- Familiarize yourself with other states' plant movement regulations, summarized on the National Plant Board website.
- Make sure you have the proper paperwork when shipping plants. Interstate shipments of stock moving out of quarantine requires a compliance agreement with the USDA. Including a plant health certificate with shipments can also facilitate interstate shipping.
- Keep shipping paperwork with each outgoing shipment, and keep records for incoming and outgoing material for at least 3 years.
- Control regulated weeds (invasive restricted or prohibited plants listed in DNR's NR 40 rule) in growing areas to limit spread.
- DATCP nursery program coordinator Liz Meils, (608) 224-4572, elizabeth.meils@wisconsin.gov
- Pest hotline: **1-866-440-7523**
- Nursery inspectors: <https://datcp.wi.gov/Documents/NurseryInspTerritories.pdf>
- **Hemlock woolly adelgid** facts: https://datcp.wi.gov/Pages/Programs_Services/HemlockWoollyAdelgid.aspx
- **Elongate hemlock scale** facts: <https://www.forestpests.org/acrobat/EHScale.pdf>
- **Thousand cankers disease** facts: https://datcp.wi.gov/Pages/Programs_Services/TCDQuarantine.aspx
- **Sudden oak death** facts: https://datcp.wi.gov/Pages/Programs_Services/SuddenOakDeathQuarantine.aspx
- **Spotted lanternfly** facts: <https://www.aphis.usda.gov/aphis/resources/pests-diseases/hungry-pests/the-threat/spotted-lanternfly/spotted-lanternfly>
- Wisconsin invasive species rule (NR 40): <https://dnr.wi.gov/topic/Invasives/classification.html>
- Wisconsin Pest Bulletin: <https://datcpservices.wisconsin.gov/pb/?AspxAutoDetectCookieSupport=1>
- National Plant Board: <http://nationalplantboard.org/laws-and-regulations/>
- Wisconsin Nursery and Landscape Association: <http://www.WNLA.net>

Resources