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Invasive plants can thrive and aggressively spread beyond their natural range, disrupting ecosystems. The *Management of Invasive Plants in Wisconsin* series explains how to identify invasive plants and provides common management options. Management methods recommend specific timings for treatment, as well as expected effectiveness. For more information, go to: fyi.uwex.edu/weedsci/category/invasive-plants-of-wisconsin.

Asian bitterweet

(*Celastrus orbiculatus*)

Asian bitterweet is a woody, perennial, climbing vine. Stems may reach 6" in diameter. May grow up to 60' long, depending on tree canopy.

Legal classification in Wisconsin:
Restricted

Leaves: Alternate, glossy, and round with an abruptly pointed tip and shallow-toothed margins, 2–5" long.

Flowers: Late spring. Small, inconspicuous, five-petaled, greenish-yellow flowers in clusters of 3–7 on stalks where leaf attaches to stem (axil). Male and female flowers usually borne on separate plants (dioecious).

Fruits and seeds: First appears in summer, but remains on vine throughout the winter. Showy, round capsules, 0.2–0.3" in diameter, and clustered in leaf axils. Green in summer, yellow to orange in fall. Split open at maturity to reveal three red-orange, fleshy fruits, each containing 1–2 seeds.

Roots: Roots spread both vertically and laterally. They can be up to 0.8" wide. New stems can sprout from roots, root crowns, and root fragments. Sprouting is especially pronounced after damage to the plant.

Similar species: American bitterweet (*Celastrus scandens*; native) has clusters of fruits and flowers at the end of stems, rather than in the leaf axils, as Asian bitterweet does. Its leaves are less rounded and nearly twice as long as wide. Hybrids of the two occur, which makes identification difficult because hybrids have characteristics of both species.

Ecological threat:

- Invades forests, woodlands, hedgerows, fields, established prairies, and coastal areas. It can grow in sunlight or in shade.
- Widely planted as an ornamental and often mislabeled as American bitterweet.
- Individual plants displaying characteristics of the native bitterweet could be hybrids. Caution must be taken when sourcing native genetic stock.



Non-chemical control Chemical control

Removal

Effectiveness in season: 90–100%
Season after treatment: 50–70%

Seedlings and small to medium bittersweet plants can be controlled by pulling or digging as long as the roots are removed. Larger plants may necessitate removal of soil near the plant base to facilitate removal. If seeds are present when removal is taking place, avoid movement off site unless material can be transported without spreading seed to other locations.

Mowing

Effectiveness in season: 70–90%
Season after treatment: 50–70%

Cut or mow as close to root collar as possible. Begin cutting in spring and repeat every two weeks for the entire year to exhaust root reserves. This technique can also be used as preparation for herbicide treatment. After cutting, wait at least one month to let the canopy regrow before foliar applications.

Prescribed burning

Effectiveness in season: 50–70%
Season after treatment: < 50%

Spring burns can kill germinating seedlings and young plants. Fire can also suppress above-ground growth of established plants, depending on fire intensity. After the fire, established plants will quickly resprout or reroof and reinvade areas; bittersweet is stimulated by open canopy and available nutrients, conditions that are promoted by fire. This management method is not recommended unless integrated with other techniques. A handheld propane torch can be effective for treating seedlings. Caution must be taken when burning where the vine climbs into trees since bittersweet could act as ladder fuel and carry fire into the crown of trees.

Foliar

Apply directly to individual plants or broadcast across an infested area. Broadcasted foliar applications are typically the most cost-effective treatment in dense infestations. Use lower rates on smaller plants and less dense populations and higher rates on larger plants and denser populations. Absorption of herbicide can be limited with this species, resulting in reduced effectiveness. Including a recommended surfactant can alleviate any potential reduction in effectiveness.

glyphosate*

Effectiveness in season: 70–90%
After season: 50–70%

Common name: Roundup

Rate:

broadcast: 1.5–3.0 lb a.e./A
spot: For a 3 lb a.e./gal product.
1–2% (0.03–0.06 lb a.e./gal)

Timing: Apply when target species is actively growing and fully leafed out.

Caution: Use product labeled for aquatic use if potential exists for solution to contact surface waters. Applications can result in bare ground since glyphosate is not selective. Overspray or drift to desirable plants should be avoided since even minute quantities of the spray may cause severe injury to plants.

imazapyr*

Effectiveness in season: 90–100%
After season: 70–90%

Common name: Arsenal

Rate:

broadcast: 64–96 fl oz/A
(1.0–1.5 lb a.e./A)
spot: 1.5–2% (0.03–0.04 lb a.e./gal)

Timing: Apply when target species is actively growing and fully leafed out.

Caution: Use product labeled for aquatic use if potential exists for solution to contact surface waters. Applications can result in bare ground since imazapyr is not selective and can remain in the soil for several months to more than a year, depending on application rate. Overspray or drift to desirable plants should be avoided since even minute quantities of the spray may cause severe injury to plants.

triclopyr*

Effectiveness in season: 70–90%
Season after treatment: 50–70%

Common name: Garlon 4

Rate:

broadcast: 16–32 fl oz/A
(0.5–1.0 lb a.e./A)
spot: 1–3% (0.04–0.1 lb a.e./gal)

Timing: Apply when target species is actively growing and fully leafed out.

Remark: Lower concentrations are more effective in the fall.

Caution: Use product labeled for aquatic use if potential exists for solution to contact surface waters. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Overspray or drift to desirable plants should be avoided since even minute quantities of the spray may cause severe injury to plants.

Cut stump

Cut a stem of a plant near the base and apply herbicide to the cut surface that remains rooted in the ground. Apply as soon as possible after cutting, but no later than one hour after cutting. Do not use this method if there is heavy sap flow or if snow covers the cut surface. Use lower rates on smaller plants and higher rates on larger plants.

glyphosate*

Effectiveness in season: 90–100%
Season after treatment: 50–70%

Common name: Roundup

Rate: For a 3 lb a.e./gal product. 20–25% (0.6–0.75 lb a.e./gal)

Timing: Apply any time of year.

Caution: Use product labeled for aquatic use if potential exists for solution to contact surface waters. Applications can result in bare ground since glyphosate is not selective. Overspray or drift to desirable plants should be avoided since even minute quantities of the spray may cause severe injury to plants.

imazapyr*

Effectiveness in season: 90–100%
Season after treatment: 70–90%

Common name: Stalker

Rate: 5% in oil (0.1 lb a.e./gal)

Timing: Apply any time of year.

Remarks: Products containing this active ingredient can have different instructions for mixing. Labels will recommend mixing the product in a water- or oil-based carrier (e.g., basal bark oil). Consult the label to determine the appropriate carrier.

Caution: Use product labeled for aquatic use if potential exists for solution to contact surface waters. Applications can result in bare ground since imazapyr is not selective and can remain in the soil for several months to more than a year, depending on application rate. Overspray or drift to desirable plants should be avoided since even minute quantities of the spray may cause severe injury to plants.

triclopyr*

Effectiveness in season: 90–100%
Season after treatment: 50–70%

Common name: Garlon 4

Rate: 10–20% in oil (0.4–0.8 lb a.e./gal)

Timing: Apply any time of year.

Remarks: Products containing this active ingredient can have different instructions for mixing. Labels will recommend mixing the product in a water- or oil-based carrier (e.g., basal bark oil). Consult the label to determine the appropriate carrier.

Caution: Use product labeled for aquatic use if potential exists for solution to contact surface waters. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Overspray or drift to desirable plants should be avoided since even minute quantities of the spray may cause severe injury to plants.



*Active ingredient (a.i.)

Basal bark

Apply herbicide in a ring around the entire stem. Do not use this method if snow or other vegetation obscures the target area. Applications should be made at least 6" wide (6–18") to the base of a woody stem. Ideal for stems ≤ 6" in diameter. Use lower rates on smaller plants and higher rates on larger plants.

Herbicide information is based on label rates and reports by researchers and land managers. Products known to provide effective control or in common use are included. Those that do not provide sufficient control or lack information for effectiveness on target species have been omitted.

References to pesticide products in this publication are for your convenience and not an endorsement of one product instead of a similar product. You are responsible for using pesticides in accordance with the label directions. *Read the label before any application.*

imazapyr*

Effectiveness in season: 50–70%
Season after treatment: 70–90%

Common name: Stalker

Rate: 6–9% in oil (0.1–0.2 lb a.e./gal)

Timing: Apply any time of year.

Remarks: Products containing this active ingredient can have different instructions for mixing. Labels will recommend mixing the product in a water- or oil-based carrier (e.g., basal bark oil). Consult the label to determine the appropriate carrier.

Caution: Use product labeled for aquatic use if potential exists for solution to contact surface waters. Applications can result in bare ground since imazapyr is not selective and can remain in the soil for several months to more than a year, depending on application rate. Overspray or drift to desirable plants should be avoided since even minute quantities of the spray may cause severe injury to plants.

triclopyr*

Effectiveness in season: 50–70%
Season after treatment: < 50%

Common name: Garlon 4

Rate: 20–30% in oil (0.8–1.2 lb a.e./gal)

Timing: Apply any time of year.

Remarks: Products containing this active ingredient can have different instructions for mixing. Labels will recommend mixing the product in a water- or oil-based carrier (e.g., basal bark oil). Consult the label to determine the appropriate carrier.

Caution: Use product labeled for aquatic use if potential exists for solution to contact surface waters. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Overspray or drift to desirable plants should be avoided since even minute quantities of the spray may cause severe injury to plants.



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