Japanese knotweed (Fallopia japonica)

Description

- Refer to the DCNR Invasive Plants webpage, and the knotweed factsheet which describes Japanese knotweed and giant knotweed (*Fallopia sachalinense*).
- Herbaceous, rhizomatous, perennial dicot.
- The true identity of knotweed can be obscure – there is Japanese, giant, and a hybrid.
- Grows in tall (6 to 10-plus feet), dense stands that exclude almost all other vegetation.
- Native to East Asia, imported as an ornamental in the late-1800's.
- Grows almost anywhere, from acidic spoil in full sun to fertile, partly-shaded alluvial soils along rivers and streams.

Management Keys

The primary objective in controlling Japanese knotweed is eliminating the underground rhizome system. Rhizomes are creeping underground stems that give rise to new stems and roots. As long as you are willing to invest the effort and follow a few key timing guidelines, it can be successfully suppressed.

Be Persistent

There are two phases of invasive species management – control and maintenance. The control phase for knotweed takes two seasons, and would ideally include two herbicide applications the first season and a rigorous follow-up treatment the second year.

After your control efforts have nearly eliminated the knotweed, you need to periodically monitor the sites and treat any new growth to prevent re-infestation.

Target the Rhizomes – Timing is Key

To control knotweed, you have to injure the rhizomes. This is most effectively done with systemic herbicides applied later in the growing season (Figure 1). This is when the foliage is sending sugars produced through photosynthesis to the roots and rhizomes. Systemic herbicides move in the same direction through the plant as the sugars.

Applications made too early in the season or too soon after cutting do not translocate to the rhizomes, and only injure the shoots.

June Cutting Can Help

Cutting alone is not an effective suppression approach. However, cutting prior to an herbicide application can be very helpful. If you cut in June, and wait eight weeks after cutting to treat, you will find that the knotweed regrowth is much shorter than when it was cut. Typically, knotweed regrows 2- to 5-ft tall. This cutting also reduces rhizome growth as the plant has to expend its energy to regrow a canopy instead of expanding its network of rhizomes.

When knotweed is growing near water, cutting is useful because it is easier to treat the shorter regrowth without getting spray solution into the water.

If the knotweed is not near water, you have to decide if cutting the knotweed is a good use of your finite time and effort. Treating intact knotweed towering over your head is a lot like work, but cutting may be even more work. As long as you are able to effectively spray all the foliage in a patch, cutting is not critical.

Wait after Cutting to Treat

Wait eight weeks after cutting before applying herbicide. If you apply too soon after cutting, the plant is still directing its energy to new leaf growth and the herbicide will not be translocated to the rhizomes.

Recommended Herbicides

We recommend the herbicide *glyphosate*, a non-selective herbicide available as aquatic-labeled products for use in or near water. The *glyphosate* products typically available on the PA state contract include 'Rodeo', 'Aqauaneat', or 'Glyphomate 41'.

Glyphosate has several advantages:

- it is effective
- it has low toxicity to non-target organisms
- it is available in aquatic-labeled formulations
- it has no soil activity
- it is relatively inexpensive.

The herbicide *imazapyr* (e.g. 'Polaris', 'Habitat') is also effective against knotweed, but has considerable soil activity and can injure nearby trees through root

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absorption. Broadleaf herbicides such as *triclopyr* or *2,4-D* provide significant foliar injury, but limited effect on the rhizome system.

Mixing *glyphosate* with other herbicides makes sense if knotweed is not your only target during spray operations. Combinations with *triclopyr* or *imazapyr* provide a broader species spectrum and do not reduce activity against knotweed.

After the Knotweed

If you remove the knotweed while it is a small patch, you probably will not need to reseed or replant the site.

When a knotweed infestation is well established, you may need to suppress the vegetation that follows as well, and establish desirable plants in that space.

If you are planning on replanting the area, BE PATIENT. If you plant before the knotweed is completely suppressed, it will be much harder to manage the recurring knotweed without injuring the desirable plants you have established.

Suppress knotweed for at least two seasons before investing time and money into replanting the site. You can seed a cover crop such as oats, rye grain, or annual ryegrass if you need temporary cover to prevent erosion.

Figure 1. The management calendar for Japanese knotweed emphasizes late-season applications of the herbicide glyphosate to maximize injury to the rhizomes, and waiting at least eight weeks after cutting to apply herbicide.

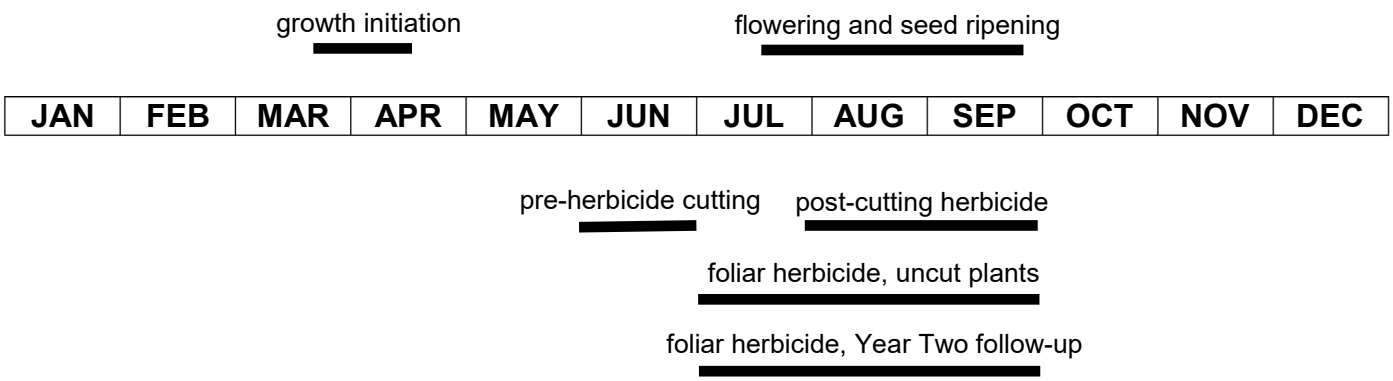

Table 1. Prescriptions for controlling Japanese and giant knotweed stress proper timing of operations to maximize injury to rhizomes. Improper timing (impatience) will result in treatments that provide 'topkill' (shoot injury) but little net effect.

Timing	Treatment	Product rate	comments
June	Cutting prior to foliar herbicide application	n/a	Cutting in June results in shortened regrowth (2 to 5 ft) and elimination of persistent stems from the previous season. This is a particular advantage in riparian settings, where full-size knotweed will hang over the water, making it impossible to treat without contacting the water with herbicide solution.
anytime	cutting	n/a	Cutting does not eliminate knotweed, but it does slow its growth and rhizome spread significantly. If you are going to treat the knotweed with a systemic herbicide, wait at least eight weeks after the last cutting, and do not treat before July.
July to frost, at least 8 weeks after cutting or late spring frost	Foliar Herbicide: 'Rodeo' (or equivalent) or 'Glyphomate 41'	3 qts/acre or 4.3 qts/acre	Use either of these *glyphosate* formulations to treat knotweed foliage, waiting eight weeks after cutting or a late frost to treat. The product rates differ because the glyphosate concentration differs. Applications of 'Rodeo' will require an additional surfactant (e.g. 'CWC 90'). No additional surfactant is needed with 'Glyphomate 41'. If you work at the early end of the operational window, you can make a 'touch-up' application later in the season before a killing frost. Use this treatment for both initial control and maintenance applications. For high-volume (spray-to-wet), mix on a 100 gal/ac basis (e.g. 'Rodeo' would be 96 oz/100 gal, or 0.75 percent by volume). For spot treatment, calibrate your sprayer ("Simplified Sprayer Calibration").