



Japanese stiltgrass (*Microstegium vimineum*)

Description

- Refer to the DCNR Invasive Plants page, and the stiltgrass factsheet - (http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_010258.pdf)
- Herbaceous, annual, warm-season grass.
- Tolerant of full sun to heavy shade.
- Has a sprawling growth habit, with a canopy height between 12 and 24 inches.
- Seedheads emerge late-August to early-September.
- Infestations commonly start along road or trail edges, then spread outward.

Management Keys

As a plant, stiltgrass is not hard to suppress. What you are really trying to manage is the seed bank in the soil. New infestations can be contained and potentially eliminated. For well established infestations, the goal is create opportunities to release or plant desired vegetation. In this scenario, the stiltgrass does not go away, but you can at least establish desirable plant communities that provide ecological function with stiltgrass present. Where well-established, we do not currently have the means to eliminate stiltgrass without treating every year for an indefinite period – which is not a sustainable approach.

Early Detection - Target the Seedbank

To eliminate new patches of stiltgrass, you have to prevent further seed production, and exhaust the seed lying in wait in the soil. You should plan on at least a three-year process. This is only viable if the population is isolated and reintroduction of seed is unlikely.

Prevention is Easier

If stiltgrass is just appearing on your site, determine where it's coming from. Shale and gravel for roadwork are potential sources, as is equipment that worked in infested sites. Roadwork and timber harvests where stiltgrass is already established spread it even further.

Mechanical Control

Small infestations of stiltgrass are readily pulled. A trimmer can be effective later in the season (Figure 1),

if you cut the stiltgrass off at ground level. A lawnmower cuts too high and will not work, as stiltgrass is a common weed in turf.

Recommended Herbicides

Stiltgrass is susceptible to a number of herbicides, allowing you to tailor a program that fits your schedule and the plant community you are trying to preserve.

You can achieve selective preemergence control with herbicides such as *procliamine* ('Proclipse') or *pendimethalin* ('Pendulum Aquacap'). These herbicides enter the seedling plant through the root tip and prevent further root growth. They do not injure established vegetation. However, they are very insoluble in water, so they must be applied well in advance of germination to move into the soil where the seed are. If these herbicides are not present when the root emerges from the seed, they are not effective. To enhance their activity and provide flexibility for application timing, add a low rate of the herbicide *imazapic* ('Plateau' at 1 oz/acre). The *imazapic* will suppress germinated seedlings while the insoluble herbicide moves into the upper layer of the soil to prevent further germination. This combination allows you to delay application while maintaining selectivity. At higher rates, *imazapic* would injure most vegetation, but the very low dosage prevents that.

Three postemergence herbicides that are effective against stiltgrass include *glyphosate* ('Rodeo'), *glufosinate* ('Finale'), and *quizalofop* ('Assure II'). *Glyphosate* is non-selective and systemic, and will injure all treated vegetation. However, *glyphosate* can be applied at very low rates that will limit injury to non-target species. *Glufosinate* is also non-selective, but it is a 'contact' herbicide, so the damage to treated non-target plants will be limited to the foliage where the spray contacted the plant. Most perennial plants will regrow after treatment with *glufosinate*.

The herbicide *quizalofop* only injures grasses. Stiltgrass is affected by *quizalofop* at low rates, so you can control stiltgrass but leave most native grasses largely intact.

Strangely enough, there are broadleaf herbicides

that control stiltgrass – *aminocyclopyrachlor* (a component of 'Streamline') and *aminopyralid* ('Milestone VM'). You can include these herbicides in mixtures that could be used to control invasive shrubs and broadleaf weeds, and also suppress stiltgrass while leaving desirable grasses intact.

Alternate Groundcover

We have not observed any seed mixes or native plant communities that exclude stiltgrass. However, there are many situations where the ecological function

of a site is improved by re-establishing native vegetation. Where stiltgrass is well established, you can direct your efforts towards temporary suppression to create a window of opportunity to establish meadow plantings, successional habitat, or reforestation plantings. Your objective in this scenario is to release the planting and allow it to become vigorous enough to compete with the stiltgrass and tolerate its presence after you stop the suppression treatments. An otherwise ecologically functional plant community with stiltgrass present may be the best we can expect.

Figure 1. The objective of stiltgrass management is to prevent seed set. Stiltgrass is effectively controlled with preemergence or postemergence herbicide applications, and small infestations can be hand-pulled or cut at ground level.

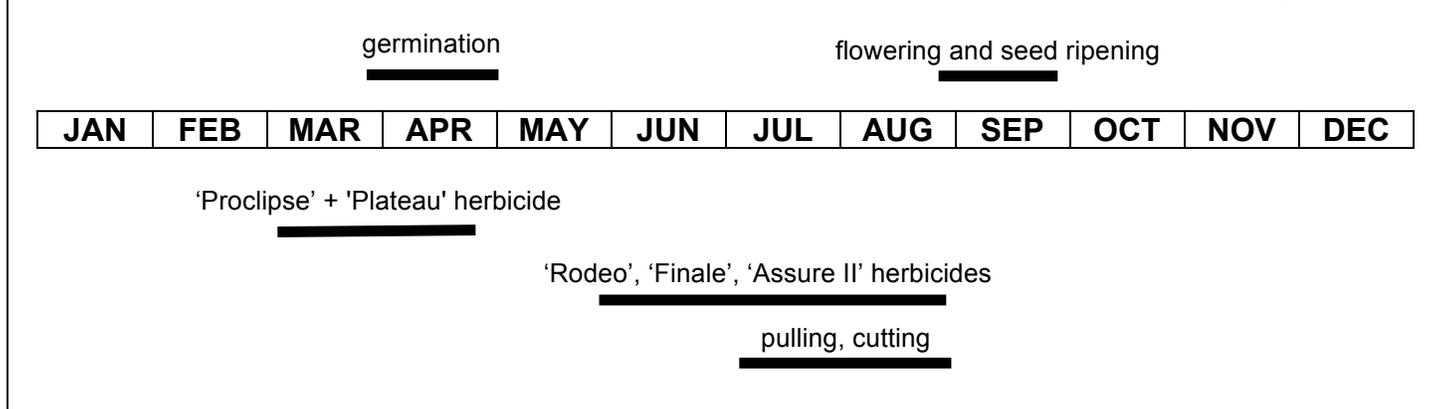


Table 1. Prescriptions for elimination of Japanese stiltgrass focus on preventing seed set. Stiltgrass is susceptible to a number of herbicides suitable for use in parks. Small infestations can be pulled or cut at ground level, which facilitates the use of volunteers.

Timing	Treatment	Product Rate	Comments
March 15 to April 15	Selective Preemergence 'Proclipse' plus 'Plateau'	36 oz/ac plus 1 oz/acre	Preemergence applications of 'Proclipse' (<i>prodiamine</i>) prevent stiltgrass establishment, and have little effect on plants that are already present. <i>Prodiamine</i> moves very slowly into the soil, and if used alone needs to be applied 2 to 3 weeks prior to germination. Adding a very low rate of <i>imazapic</i> ('Plateau') allows you to apply closer to, or even after stiltgrass germination, without injuring desirable vegetation. The <i>imazapic</i> suppresses the emerged and germinating stiltgrass while the <i>prodiamine</i> moves into the upper soil profile to suppress subsequent germination. <i>Pendimethalin</i> ('Pendulum AquaCap') is chemically similar to <i>prodiamine</i> , and can be used in its place. This approach is effective against mile-a-minute (<i>Polygonum perfoliatum</i>).
mid-May through August	Postemergence 'Rodeo' or 'Finale' or 'Assure II'	6 oz/acre or 64 oz/acre or 4 oz/acre	'Rodeo' (<i>glyphosate</i>) and 'Finale' (<i>glufosinate</i>) are non-selective herbicides with no soil activity. 'Finale' only injures the parts of the plant it contacts, while 'Rodeo' is systemic, and will kill the entire plant. 'Assure II' (<i>quizalofop</i>) only affects grasses, but the rate used for stiltgrass is low enough that desirable grasses such as whitegrass (<i>Leersia virginica</i>), deertongue (<i>Dicanthelium clandestinum</i>) and nimblewill (<i>Muhlenbergia schreberi</i>) are only temporarily affected.
mid-June through August	pulling or cutting	n/a	Small infestations of stiltgrass can be mechanically controlled. If you're cutting, use a trimmer that will cut the stiltgrass at the soil surface to prevent resprouting from the lower nodes of the stem. The key to this treatment is to wait so that more stiltgrass will not germinate, but finish before the seedheads emerge.

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