

Using SiteVue™ (florpyrauxifen-benzyl) to control wild parsnip in tallgrass prairies



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Tallgrass prairies are being invaded by invasive plants like wild parsnip (*Pastinaca sativa*) in the upper Midwest. It is a monocarpic perennial, meaning it is vegetative in its first year and flowers in favorable conditions (usually after the first year). This plant has been reported to displace native plants in this system, reducing the services they provide. The sap can also burn human skin that is exposed to sunlight.

While wild parsnip is relatively easy to control, it is challenging to utilize effective approaches in forb rich tallgrass prairies. Hand pulling is effective but unrealistic on large infestations and exposes the individual to risks of burns from the sap. Mowing can eliminate infestations if repeated for 3-4 consecutive years but mowing also injures native forbs. Herbicides that contain glyphosate (Roundup), metsulfuron (Escort), 2,4-D and aminocyclopyrachlor (Method) eliminate wild parsnip but can injure native forbs if contacted so individual plant treatments are needed to reduce the impact.

Florpyrauxifen-benzyl is a new active ingredient that will be commercially available in 2025 under the trade name SiteVue™. Research has found it is effective on wild parsnip and safe to most native forbs and grasses present in tallgrass prairies. Due to this, applications could be broadcasted over large infestations to control wild parsnip with limited injury to native forbs.

This factsheet will provide recommendations on how to use SiteVue™ to control wild parsnip in tallgrass prairies.

WHAT IS FLORPYRAUXIFEN-BENZYL:

Florpyrauxifen-benzyl is a group 4 auxin herbicide that causes uncontrolled growth when applied to sensitive plants which eventually leads to death. It has low persistence in the soil with a soil half-life of 3-34 days, and during this timeframe stays near the soil surface. Unlike other auxin herbicides it has a low potential for volatilization. The Environmental Protection Agency has stated it is non-toxic to honeybees, birds, and mammals. It is expected to be labelled for use in a wide range of terrestrial non-crop areas. Often the manufacturer refers to this active ingredient as Rinskor™.



Image 1. Wild parsnip injured by SiteVue™ (left) compared with healthy wild parsnip (right).

HOW TO CONTROL WILD PARSNIP WITH SITEVUE™

Our research has found that 0.5-8 fl oz/A can control wild parsnip. Lower rates (0.5-4) will control flowering and rosette plants the year of treatment. Some plants may not completely die immediately after treatment at these rates but will not develop viable seeds (Image 1 and 2). If interested in two years of control we suggest higher rates (6-8 fl oz/A) as these rates have provided more consistent control than lower rates one year after treatment.

While herbicides that are effective on wild parsnip can be applied in spring-fall, previous research has shown parsnip is most sensitive in the fall to herbicides. This timing is best for spot treatments. If broadcasting, spring applications are recommended after seedlings emerge as they control plants that will flower and the seedlings. Research with SiteVue™, while limited, has found this herbicide to behave similarly to the others with respect to timing.

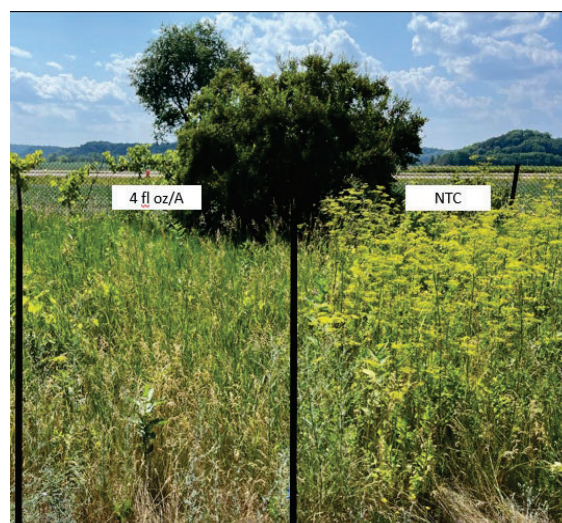


Image 2. Effectiveness of SiteVue™ at 4 fl oz/a compared with non-treated plot

TOLERANCE OF NATIVE PLANTS:

GRASSES: Native and non-native grass injury has not been observed in research trials at rates between 0.5-16 fl oz/A. However, others have seen SiteVue™ injure grasses at higher rates (17 fl oz/A), although these were annual grasses.

NATIVE FORBS: Four experiments to date have evaluated the tolerance of native forbs to SiteVue™ at rates ranging from 6-15 fl oz/A applied during the summer. While injury the season of application was common, reductions in total native forb cover one year after treatment was only observed at one site at the 8 fl oz/A rate. At that same location a 6 fl oz/A rate did not show any reductions in total native forb cover. Select native forbs do appear to be sensitive. See Table 1 for a list of species tested and a ranking of their sensitivity to SiteVue™.

CONSIDERATIONS WHEN USING IN PRAIRIES:

Caution should be taken when broadcasting SiteVue™ when native forbs are present. Identify forbs that are present in the prairie *PRIOR* to application. Then consider what the acceptable level of injury you can tolerate for any species. Consult Table 1 and determine if the injury we have observed would be acceptable. If unacceptable, conduct targeted applications to individual parsnip plants to control populations. Timing of this application when the sensitive species are dormant or not actively growing may increase tolerance. Integrating SiteVue™ with prescribed fire may allow for broadcast application without injury to native forbs as wild parsnip emerges after fire but before native species. More research is needed to confirm this.

ONGOING RESEARCH:

We are continuing to evaluate individual forb species tolerance towards SiteVue™, especially reduced rates (1-6 fl oz/A). Our hope is the reduced rates will provide additional safety to sensitive species. Additional efforts are determining other invasive plant susceptibility to SiteVue™ and the appropriate rate to control these species.

Tolerance Level	Impact to cover
I=Benefit	Increase
T= Tolerant	<15% reduction
MT= Moderately tolerant	15-50% reduction
MS= Moderately susceptible	51-75% reduction
S= Susceptible	>75% reduction

Table 1. Sensitivity of tested native forbs to SiteVue™ (florpyrauxifen-benzyl) one year after treatment at four location in Wisconsin.

Common Name	Scientific Name	Tolerance	Rate tested (fl oz/A)
Ashy Sunflower	<i>Helianthus mollis</i>	I	15
Aster spp.	<i>Symphyotrichum</i> spp.	MT	6, 8
Black-eyed Susan	<i>Rudbeckia hirta</i>	T	6, 8
Cleavers	<i>Galium aparine</i>	I	6, 8
Common Milkweed	<i>Asclepias syriaca</i>	I	15
Compass-plant	<i>Silphium laciniatum</i>	S	15
Culver's-root	<i>Veronicastrum virginicum</i>	MS	15
Cup Plant	<i>Silphium perfoliatum</i>	MS ^A	6, 8, 15
False Sunflower	<i>Heliopsis helianthoides</i>	MS	15
Few-leaved Sunflower	<i>Helianthus occidentalis</i>	I	15
Golden Alexander	<i>Zizia aurea</i>	S ^A	6, 8, 15
Lead-plant	<i>Amorpha canescens</i>	MS	15
Northern Bedstraw	<i>Galium boreale</i>	I	15
Prairie Coreopsis	<i>Coreopsis palmata</i>	MS	15
Prairie Rose	<i>Rosa arkansana</i>	T	15
Purple Coneflower	<i>Echinacea purpurea</i>	MS	15
Ragweed spp.	<i>Ambrosia</i> spp.	MT	15
Rattlesnake-master	<i>Eryngium yuccifolium</i>	I	15
Rosinweed	<i>Silphium integrifolium</i>	S ^B	15
Round-headed Bush-clover	<i>Lespedeza capitata</i>	S	15
Saw-tooth Sunflower	<i>Helianthus grosseserratus</i>	I	15
Showy Goldenrod	<i>Solidago speciosa</i>	T	15
Smooth Penstemon	<i>Penstemon digitalis</i>	I	15
Stiff Goldenrod	<i>Solidago rigida</i>	MT ^C	15
Stiff Sunflower	<i>Helianthus pauciflorus</i>	S	15
Weedy Goldenrods	<i>Solidago</i> spp.	MT ^D	6, 8, 15
Wild Bergamot	<i>Monarda fistulosa</i>	I	6, 8
Yellow Coneflower	<i>Ratibida pinnata</i>	S ^E	6-15

^A6 fl oz/A had higher tolerance at another site (MT)

^BOther site had more tolerance (MT)

^COther sites had more tolerance (T, I)

^DOther sites had similar tolerance (MT) or increase (I)

^E8 fl oz/A had higher tolerance at another site (MT)