

REED CANARYGRASS CONTROL



Reed canarygrass (*Phalaris arundinacea*) is an invasive perennial grass that invades wetlands, moist fields, riparian areas, flood plains, and other low-lying areas. Reed canarygrass (RCG) spreads through seed, stem fragments, and root rhizomes. It is sod forming and creates dense mats above and below the soil surface and often creates a monoculture. RCG outcompetes native grass and forb species.

Do's

- Prepare the site for herbicide application with prescribed fire or mowing.
- Combine various control practices.
- Treat RCG with herbicide during the spring or fall when native warm-season plants are not actively growing.
- Consider planting native grasses and forbs after control.

Don'ts

- Mow RCG after seed heads are viable.
- Mow RCG-infested areas and then move the mower to areas without RCG.
- Conduct only dormant season burns.

Plant Facts

- Cool-season perennial grass, 2-6 feet tall
- Spreads from root rhizome, stem fragments, and seed distribution
- Growing period: Mar- Nov (depending on year and locality)
- Flowering period: May to mid-June
- Seed period: Late June

Control Options

Long-term control of RCG requires the integration of multiple control options over several years. The phenology (time of growth; cooler months) of RCG allows for its control in native warm-season stands with limited damage to native vegetation. However, RCG control still requires diligence to avoid non-target impacts. Control in areas prone to flooding may be exceedingly challenging because new seeds can be brought to the site from upstream sources. Once RCG is controlled, establishing, or re-establishing, a diverse native plant community can help suppress RCG.

Mowing

Mowing will often stimulate the growth of RCG and is not an effective method of long-term control when used alone. Mowing can be used to reduce the height of RCG to prepare the site for effective herbicide applications, suppress RCG, or prevent it from producing seed. Timing is critical for mowing to suppress RCG successfully or to be used in preparing the site for herbicide treatments. To prevent seed production, mowing should be completed after flowering (boot stage) begins but before seed heads emerge in the spring. Multiple mowings over the growing season (May-Jul) are required for suppression. For site preparation for herbicide application, mowing should be conducted at least 2-3 weeks before your expected application date.

Prescribed Fire

Prescribed fire alone will not control RCG but can be used as site preparation before herbicide applications. Frequent spring burning while RCG is actively growing (Apr-May) can help to reduce RCG seed in the seed bank but may not reduce the abundance of the plants. Late summer or early fall burning (Aug-Oct) can also prepare the site for an herbicide application, as the RCG will rapidly green up following this burn during the cooler fall months. Dormant season burns can be used to prepare the site for herbicide treatment, but when used alone, they may encourage the spread of RCG by reducing competition.

Herbicide

Herbicides are the most effective means of control for RCG. However, it will take multiple years of treatments to control RCG effectively. Herbicides containing glyphosate, imazapyr, clethodim, and sethoxydim have been shown to be effective at controlling RCG. Some herbicides (clethodim and sethoxydim) are grass-selective and should be used on sites with desirable forbs or sedge species. Grass-selective herbicides often require repeat applications, separated by 3-4 weeks, to provide effective control. Non-selective herbicides, such as glyphosate, will kill most species in the treatment area. Imazapyr is a broad-spectrum selective herbicide that controls some grasses and forbs but not all grasses and forbs. Additionally, imazapyr is soil-active, which may help control the new growth of RCG as it emerges.

Herbicides should be applied to RCG while the plant is actively growing in the spring or fall. However, spot applications can be used throughout the growing season. If desirable native species are present on-site, herbicide treatments should be completed early in the spring (Mar-Apr) before many native species emerge or later in the fall (Oct-Nov)

after 2-3 frosts have occurred. Fall applications have been shown to be the most effective timing for RCG control. Using herbicides and surfactants labeled for aquatic use is recommended when treating RCG near water.

Water Level Manipulation

Increasing the water depth in a wetland to at least 12-18 inches throughout the growing season (often multiple growing seasons) can reduce the growth of RCG and the germination of seeds in the seed bank. Water level manipulation can be combined with other treatments, such as herbicide application.

Acknowledgments

We thank Zach Voyles, Nate Yazel, Adam DeLucenay from the Indiana Department of Natural Resources, and Matt Kraushar from the Indiana Department of Transportation for reviewing this publication. Thank you to the Renewable Resources Extension Act and the West Central Indiana and Sagamore chapters of Pheasants Forever and Quail Forever for funding. Thank you to Dawn Minns for layout and design.

Additional Resources

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Phillips-Mao, L. and S. Chaplin. 2017. Restoring Your Invasive Perennial-Dominated Grassland to Utility Meadow. The Nature Conservancy. <https://www.nature.org/content/dam/tnc/nature/en/documents/Restoration-Guide-Invasive-Perennial-to-Utility-Prairie.pdf>.

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Wisconsin Reed Canary Grass Management Working Group. 2009. Reed Canary Grass (*Phalaris arundinacea*) Management Guide: Recommendations for Landowners and Restoration Professionals

Conservation Program Disclaimer: The management practices in this publication may conflict with cost-share program (e.g., CRP) rules and regulations (e.g., primary nesting season). If you are enrolled in a conservation program, please consult with an agency representative before utilizing a prescribed practice.

Control Scenarios

Below are only a few examples of common scenarios in the field. Many other scenarios exist. For your specific conditions, please consult a biologist.

Native grassland with high-forb diversity

OPTION 1. SPRING TREATMENT	OPTION 2. FALL TREATMENT
Year 1 - Utilize prescribed fire during the dormant or early growing season (Dec-Apr). - Use grass-selective herbicide (clethodim) on newly emerging RCG when actively growing (6-12 in tall) but before native grasses have emerged. - Consider a second application of clethodim 2-4 weeks following the first application <i>*Only if native grasses have not emerged or if damage to native grasses is tolerable</i> - Monitor the site throughout the growing season (spot spray as needed). Year 2 - Complete year 1 practice again if needed. - Routinely monitor and spot-spray any emerging RCG sprouts Year 3+ - Utilize prescribed fire as necessary. - Continue to monitor and spot spray as needed	Year 1 - Mow or burn site during late summer (Aug-Sep) - Treat RCG with a grass-selective herbicide (Clethodim) or imazapyr after a few frosts when many native warm-season plants are dormant (Oct-Nov). - If clethodim is used, consider a second application of clethodim 2-4 weeks following the first application <i>*Only if RCG is still actively growing</i> - Monitor and spot spray RCG as needed in the spring (Mar-Apr). Year 2 - Complete year 1 practice again if needed - Spot spray RCG in the spring and fall Year 3+ - Spot spray RCG in the spring and fall - Continue to monitor the site

Grassland or old field with low native diversity and high reed canarygrass infestation

OPTION 1. FALL TREATMENT	OPTION 2. SPRING TREATMENT
Year 1 - Mowing or late growing season prescribed fire (Aug-Sep) to prepare the site for herbicide treatment. - Broadcast herbicide treatment of imazapyr or imazapyr+ glyphosate after a few frosts when many native warm-season plants are dormant (Oct-Nov) Year 2 - Mowing or dormant/early growing season (Dec-Apr) prescribed fire to remove litter from the site. - Spot-spray RCG with glyphosate, imazapyr, or clethodim when actively growing (6-12 in tall; Mar-May). <i>*If you plan to reseed the area to native grasses and forbs, consider using glyphosate or clethodim instead of imazapyr for the follow-up treatment</i> Year 3+ - Continue to monitor the site for newly emerging RCG sprouts. If present, treat with herbicide.	Year 1 - Mowing or dormant season prescribed fire (Dec-Apr) to prepare the site for herbicide treatment. - Broadcast herbicide treatment of glyphosate, imazapyr, or imazapyr+glyphosate when RCG is actively growing (6-12 in tall; Mar-May) - Spot-spray RCG as new growth emerges (May-Oct) Year 2 - If needed, repeat steps from Year 1. Multiple years of control will likely be required. Continue to monitor the site for newly appearing RCG sprouts and treat as needed with herbicide. - Spot-spray RCG as new growth emerges (May-Oct). Year 3+ - Continue to monitor the site for newly emerging RCG sprouts. If present, treat with herbicide.

Control Timeline

CONTROL OPTION	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mowing												
Prescribed Fire												
Herbicide (Broadcast)												
Herbicide (Spot Spray)												

 Control¹

 Suppression²

 Site Preparation³

¹ Control = provides effective control

² Suppression = reduces adult seed production but is not an effective long-term control method

³ Site preparation = used prior to herbicide application to improve herbicide efficiency

Herbicide Recommendations

Active Ingredient	Trade Names ¹	Application rates ²	Application Timing	Adjuvant Information ³	Additional Information
clethodim	Clethodim 2EC, Select Max	Broadcast: 10–16 oz (Clethodim 2EC) Spot Spray: 0.33 – 0.65 oz of clethodim per gallon (Clethodim 2EC)	Mar-May when RCG is actively growing, but before many native warm-season plants emerge Oct-Nov after a few frosts when RCG is actively growing, but many native warm-season plants are dormant	Addition of NIS (0.25-0.5% v/v) recommended to improve efficacy on tough to control weeds.	Grass selective herbicide. Multiple full-rate applications required for perennial grasses. Second application should be 2–3 weeks after first application. No water-labeled clethodim is available
glyphosate	Roundup, AquaNeat, and others	Broadcast: 2-3 qt/acre Spot Spray: 0.75-2% solution by volume (AquaNeat)	Mar-May when RCG is actively growing, but before many native warm-season plants emerge Oct-Nov after a few frosts when RCG is actively growing, but many native warm-season plants are dormant	Apply with COC/MSO (1% v/v), or NIS (0.25%). AMS (2 lb/A) or UAN (2 qts/A) can also be added for tough weeds.	AquaNeat is labeled for use on aquatic sites. Broad-spectrum herbicide (non-selective). Will kill or damage most plants (forbs or grasses) it contacts. Not soil active.
imazapyr	Arsenal, Habitat, Polaris	Broadcast: 3-4 pt/ac (Habitat) Spot Spray: 0.75-1.5% solution by volume (Habitat)	Mar-May when RCG is actively growing, but before many native warm-season plants emerge Oct-Nov after a few frosts when RCG is actively growing, but many native warm-season plants are dormant	Transline - For control of broadleaf weeds with broadcast applications, use a NIS at 1 to 2 qt per 100 gallons of spray solution. Stinger - Addition of adjuvants is not usually needed when applying Stinger, but a surfactant can increase effectiveness of the herbicide. However, it may also make non-target plants or crops more susceptible to injury.	Habitat and Polaris are labeled for use on aquatic sites. Imazapyr is soil-active. May result in bare-ground conditions for several months. May also damage desirable overstory trees by translocation throughout the root system. Do not spray imazapyr within the drip line of desirable trees. Many Rubus species and legumes are somewhat tolerant of imazapyr. Arsenal AC is the Applicator's concentrate and has 2x the active ingredient of Arsenal.
imazapyr + glyphosate	Habitat + AquaNeat	Broadcast: 2.25 pt/ac (Habitat) + 1.5 qt/ac (Rodeo) Spot Spray: equivalent to broadcast rate	Mar-May when RCG is actively growing, but before many native warm-season plants emerge Oct-Nov after a few frosts when RCG is actively growing, but many native warm-season plants are dormant	Add AMS (2-3 lbs/A). Add NIS to improve control of tough to control species of if the formulation does not contain a spray adjuvant.	See additional information on glyphosate and imazapyr
sethoxydim	Poast, Segment	Broadcast: 2-2.5 pt/acre (Poast) Spot Spray: 1-1.5% solution by volume (Poast)	Mar-May when RCG is actively growing, but before many native warm-season plants emerge Oct-Nov after a few frosts when RCG is actively growing, but many native warm-season plants are dormant	Apply with NIS at a minimum rate (concentration) of 0.25% v/v (1qt/100 gal of spray solution)	Grass selective herbicide. Multiple applications will be required.

¹ Product names are provided as examples and for educational purposes. Several other products with the same active ingredient may exist. Listing of the products does not constitute an endorsement

² The rates for these applications are provided for one specific product as an example. These products are sold under several trade names with different concentrations (active ingredients per gallon). Be sure to read the label to determine application rates for specific products.

³ Spray adjuvants, including surfactants, are supplemental products added to a spray mixture to improve the performance of the chemical. Please refer to the product labels for more information. AMS = ammonium sulfate, COC = Crop Oil Concentrate, MSO = Methylated Seed Oil, NIS = Nonionic Surfactant, v/v = volume/volume

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