

Indiana – October 2010

Maintenance of Herbaceous Plantings on Muck Soils

Establishing perennial herbaceous vegetation on muck (organic) soils poses numerous complications. Due to their excessive wet and excessive dry properties, some plants struggle to survive these extremes. Several weed species however, thrive in organic soils and may out-compete the desirable planned vegetation to the detriment of the original purpose of the planting. The success of any planting on muck soils is highly dependent on recognizing these potential weeds early in the establishment period and taking action against them before they become fully established.

The purpose of this technical note is to provide maintenance guidelines on sites planted with herbaceous vegetation on muck (organic) soils. Treatments may include mechanical (mowing) or chemical treatments (herbicides) to control competing vegetation (weeds).

UNDESIRABLE VEGETATION

The following species are likely to compete with the planted vegetation on muck soils: Reed Canarygrass (*Phalaris aruninacea*), Giant Ragweed (*Ambrosia trifida*), and Canada Thistle (*Cirsium arvense*). Other species may also threaten the muck plantings and should be addressed when discovered.

MONITORING

It is vital to evaluate the planted acres monthly during the first three years after planting to identify any potentially troublesome weeds while they are young and their populations are low. Early detection and immediate control efforts will provide the highest chances of successfully controlling them before they threaten the planned species.

Once established, the planting needs inspected at least twice each year to ensure troublesome weeds do not become established.

WEED CONTROL

Weed control is critical to successful establishment to prevent competing vegetation from dominating the site. Mowing will be needed along with specific herbicide applications to release planned vegetation.

Mowing

Undesirable vegetation should be monitored and controlled as described in each species section to release desired planted vegetation.

Herbicides

For chemical control guidelines, such as rates, tank mixes, timing, spray additives, water conditioners and spray volumes refer to Purdue Extension Publications-*Weed Control Guide for Indiana and Ohio*, WS-16 and *The Impact of Water Quality on Pesticide Performance*, PPP-86 as well as other publications in the *Glyphosate, Weeds, and Crops* series at www.ces.purdue.edu.

Control of difficult perennial weeds is improved by understanding the effect of growing conditions on translocation of chemicals. When treating weeds early in the season, when temperatures are cool during the day and night, the application should occur only in the **warming hours** of the day (10:00 am - 3:00 pm) to maximize translocation.

Whole Field General Control Steps

When perennial weeds and/or undesirable plants exist throughout a planting that are too extensive for spot treatment, and where the desired vegetation is lost or may be sacrificed:

1. Use a broadcast application to existing vegetation with a nonselective, translocating herbicide in spring during warming hours.

2. Mow any re-growth during the summer to prevent seed formation and to deplete root reserves.
3. Use a broadcast application on remaining vegetation with a nonselective, translocating herbicide in the fall after the first frost but prior to a killing freeze.
4. Dormant seed desired vegetation with a no-till drill with as little surface disturbance as possible.

REED CANARYGRASS

Reed canary grass (RCG) is an aggressive, cool-season perennial grass that dominates a variety of sites, especially muck soils. Invasion typically occurs after disturbance from tillage, erosion, sedimentation, nutrient enrichment, hydrological instability or modification, and restoration efforts that expose bare ground and increase light availability. RCG responds positively to nutrient inputs, either as fertilizer or nonpoint agricultural runoff. If RCG is not controlled during stand establishment it may take over and replace the planted vegetation. RCG is a cool season plant, with similar growth habits and control measures to Quackgrass. For good chemical control guidelines, refer to the "Quackgrass" section in the "Control of Problem Weeds" chapter of the Purdue Extension Publication-*Weed Control Guide for Indiana and Ohio*, WS-16. Since RCG actively grows in the spring and fall, many chemical control measures can be targeted before desired warm season species are actively growing or after the first fall frosts have triggered dormancy of the desired species in the fall. RCG will remain actively growing well through the first fall frosts.

Control Steps when RCG is found in small patches or single bunches:

1. Spot treat existing vegetation with a nonselective, translocating herbicide in spring during warming hours.
2. Mow any re-growth in summer.
3. Spot treat any remaining vegetation with a nonselective, translocating herbicide

in the fall after the first frost but prior to a killing freeze.

Control Steps when RCG is found in broadly scattered patches throughout a planting that is too extensive for spot treatment and where the desired vegetation is worth preserving (note: this is intended to minimize but not completely eliminate potential damage to desired species):

1. In the spring as soon as the RCG begins active growth but before desired warm season vegetation breaks dormancy, use a broadcast application with a grass selective, translocating herbicide (see the soybeans section under quackgrass control of the above referenced publication for a list of possible herbicides).
2. Mow any regrowth of the RCG prior to seed set to keep it in a vegetative growth stage.
3. Treat any remaining vegetation with a grass-selective, translocating herbicide in the fall after the first frost but prior to a killing freeze.

GIANT RAGWEED

Giant ragweed (GRW) is an annual that can emerge as early as March and grow 8 feet or higher. Several scattered plants are typically not an issue, but if left uncontrolled, these tall plants can effectively out-compete the planted vegetation in muck soils.

Giant ragweed seed is common in organic soils and may continue to germinate for several years after the planting. Since it is an annual however, keeping mature plants from setting seed is an effective control.

General Control Steps: One of the best control methods is to ensure a good healthy stand of desired species. Cool season native grasses such as Virginia Wildrye emerge early and are competitive against GRW. Inspect plantings for giant ragweed in April through August. Mowing when giant ragweed is 12 – 18 inches, to a height just taller than the planted vegetation, will control it. Repeat as needed during this period.

Broadleaf-specific herbicides are also effective against giant ragweed. Spray plants from emergence to 18 inches high

Control Steps when GRW is found in small patches or single bunches:

1. Spot treat existing vegetation with a selective (broadleaf-specific), translocating herbicide in spring.
2. Mow any re-growth in summer.

Control Steps when GRW is found in broadly scattered patches throughout a planting that is too extensive for spot treatment and where the desired vegetation is worth preserving (note: this is intended to minimize but not completely eliminate potential damage to desired species. Desired grasses will be less affected than forbs):

1. Use a broadcast application with either a broadleaf-specific, non-residual herbicide (i.e.-2,4-D), or a contact, nonselective, non-residual herbicide (i.e.- paraquat) (see the section under giant ragweed control, or table 21 *Weed Responses to Herbicides in Grass Pastures/CRP/Grass Hay* of the above referenced publication for a list of possible herbicides) in the spring as soon as the GRW begins active growth but before desired warm season vegetation breaks dormancy.
2. Mow any regrowth of the GRW according to the above general control steps.

CANADA THISTLE

Canada Thistle (CT) is a cool season broadleaf perennial that spreads both by seed and creeping roots (rhizomes). Canada thistle emerges early in the spring and will remain actively growing well through the first fall frosts. For good chemical control guidelines, refer to the "Canada Thistle" section in the "Control of Problem Weeds" chapter of the Purdue Extension Publication-*Weed Control Guide for Indiana and Ohio*, WS-16

Control Steps when CT is found in small patches or single bunches:

1. Spot treat existing vegetation with a nonselective, translocating herbicide (i.e.-glyphosate) in spring.
2. Mow any re-growth in summer at early bloom allowing no seed to form.
3. Spot treat any remaining vegetation with a nonselective, translocating herbicide in the fall after the first frost but prior to a killing freeze.

Control Steps when CT is found in broadly scattered patches throughout a planting that is too extensive for spot treatment and where the desired vegetation is worth preserving (note: this is intended to minimize but not completely eliminate potential damage to desired species. Desired grasses will be less affected than forbs):

1. Use a broadcast application with a broadleaf-specific, non-residual herbicide (i.e.-2,4-D) in the spring as soon as the CT begins active growth but before desired warm season vegetation breaks dormancy.
2. Mow any regrowth of the CT in summer at early bloom allowing no seed to form.
3. Treat any remaining vegetation with either a broadleaf-specific, translocating herbicide (i.e.-2,4-D, dicamba), or a nonselective, translocating herbicide (i.e.-glyphosate) in the fall after the first frost but prior to a killing freeze

QUACKGRASS

See Reed Canarygrass Section

REFERENCES

Purdue Extension Publications-*Weed Control Guide for Indiana and Ohio*, WS-16

Purdue Extension Publications- *The Impact of Water Quality on Pesticide Performance*, PPP-86.

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USDA Natural Resources Conservation Service, Indiana Biology Technical Note No. 3 *Wetland Plantings for Wildlife* (http://www.in.nrcs.usda.gov/intranet/TechnicalNotes/Indiana_Tech_note_3.pdf)

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