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Multiflora Rose- 2007 Edition

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Multiflora rose is a perfect example of a good idea gone awry. Promoted and planted in the Midwest and Eastern United States as a living fence and for wildlife cover, it now is estimated to infest 45 million acres. Within Wisconsin it has reached very serious levels of infestation in the last 10 to 15 years. Much research has been conducted on multiflora rose resulting in a range of management options including mechanical, biological, and herbicidal methods. This article will discuss current and future management options available for multiflora rose and how to best fit them into your management plan.

What has already been done? Many Midwestern states have similar multiflora rose problems and collectively they have tested a wide spectrum of management strategies. The best resource that summarizes years of mechanical, biological and herbicidal research trials on multiflora rose in several states is from The Ohio State University. Their bulletin no. 857 is available in print form and on the internet at: <http://www.caf.wvu.edu/~forage/multifloralos/>. This resource is particularly rich because it covers all the control strategies and is based on many years of data from several states. The following statements on mechanical and biological control are from Bulletin 857.

Mechanical control of multiflora rose is challenging but feasible. Grubbing is only effective if all of the roots in the root crown area (at least 6 inches deep) are removed. A single mowing is an excellent first step prior to herbicide use, but by itself will not kill multiflora rose bushes. In Virginia, mowing three to six times a season for two to three years was effective in reducing populations to acceptable control. In Wisconsin, fewer trips with the mower may give the same result as our winters are more severe than Virginia's.

Biological control of multiflora rose is happening naturally with rose rosette disease (RRD). The disease causes leaves to become red to purplish and stems to become elongated, increase in the number of thorns, and cause an increase in lateral shoots that are bright red and have reduced and malformed leaves. The infection is thought to be a virus transmitted by a very small eriophyid mite which occurs naturally on roses. Once a plant is infected, it dies within two to four years. Most multiflora rose sites in Wisconsin have little if any RRD, however, within the past 3 years sites in the southwest counties (Crawford, Grant, Iowa, and Richland) have had a large increase in the abundance of RRD infected multiflora rose plants. As of 2007 this disease has been found in nearly all southern counties and as far north as Columbia county.

Rose rosette disease seems to be spreading naturally throughout the state, and time will tell whether it significantly aids in reducing multiflora rose infestations in large areas. Currently it is not recommended to artificially spread this disease as this disease has the potential to affect ornamental roses. Observations have not shown this to be the case and indicate that multiflora

rose is the preferred host and the species most susceptible to this disease. Additional information on the potential of RRD to infect commercial rose varieties is available at this Iowa State web site: <http://www.weeds.iastate.edu/MGMT/2003/multiflorarose.shtml>

Animal grazing can control multiflora rose. Goats are the most effective species as they are not deterred by the thorny vegetation and eat higher up on brush than sheep. Eight to ten goats per acre are required and early season grazing is most effective and several years of grazing are needed to give long term benefits. A combination of goats to browse early, followed by sheep gave the best results.

What has been done in Wisconsin?

In the 1980s multiflora rose control studies were conducted and found several herbicides and control strategies to be effective and economical. One of the most useful studies was a five-year trial that compared various multiflora rose management strategies, including an economic assessment of the alternatives. This research is summarized in an Agronomy Advice article at: http://ipcm.wisc.edu/uw_weeds/extension/articles/multirose.htm.

Recent activities in Wisconsin. 2003 trials. Two demonstration sites for multiflora rose control were established: one in Grant County and the other at the Franbrook Farm in Green County. Foliar applications of metsulfuron (Ally, Cimarron or Escort), triclopyr ester plus 2,4-D ester (Crossbow) and glyphosate were made in mid August. Results differed between locations because soil moisture levels differed greatly.

- **In Grant Co.**, the soil was reasonably moist and multiflora rose plants were not stressed when treated. A month after herbicide application, Crossbow gave the most impressive results, but the following spring Crossbow treated plants had slight to moderate regrowth. Foliage on multiflora rose plants treated with metsulfuron and glyphosate had much less injury to plants one month after treatment compared to Crossbow, but these plants seldom had regrowth from the base and were highly effective at this site.
- **In Green Co.**, multiflora roses were stressed by dry soil conditions when treated. The following spring, most bushes treated with Crossbow had abundant regrowth from the base of the stems and even some bushes treated with metsulfuron or glyphosate had slight regrowth. Even slight regrowth will perpetuate the infestation unless plants are retreated.

These observations illustrate several important realities of multiflora rose control:

- ☛ The year-after application evaluations are the real test of effectiveness
- ☛ Best results occur when plants are actively growing when treated
- ☛ Time of application is important for some herbicides and less so for others.
- ☛ Metsulfuron and glyphosate can be applied later into the season than Crossbow.

2004 Trial. To specifically assess the effect of time of the season when multiflora rose is sprayed, monthly applications of foliar herbicides were made at the Franbrook Farm (Green Co.) in June through September 2004. The detailed results are summarized in Table 1, but these trials

demonstrate that:

- ✪ Foliar kill was fastest with Crossbow and slowest with Ally and glyphosate
- ✪ Cimarron and glyphosate consistently prevented multiflora rose resprouting regardless of the season applied
- ✪ Crossbow applied in June and July was much more effective in preventing resprouting than when applied in August and September

Preparing the spray mixture for foliar and cut surface applications. Foliar herbicide applications typically recommend treating the vegetation to the point of runoff (or just before) with a solution that has a 1 to 2% concentration, volume to volume, of the herbicide while cut surface (stump) treatments use a more concentrated solution (from 20 to 75%, volume to volume). The desired concentration is obtained by mixing a specified amount of product into a given quantity of water (or oil). For example, to prepare a 1% solution of a herbicide sold as a liquid, you would mix 1 quart of the product into 25 gallons of water (1 quart of the herbicide into 100 quarts of water = 1 in 100 or 1% herbicide on a volume to volume basis). Most product labels have a chart that shows how much product to mix with a range of volumes to achieve the desired concentration.

Ally, Cimarron and Escort are mixed with water at the ratio of 1 ounce of product (a dry material) into 100 gallons of water. Most people will not mix this quantity of spray solution so DuPont has prepared a chart that tells how many grams of product to mix with 1, 2, 3, and 4 gallons of water. For example, if you want to prepare 4 gallons of solution with Cimarron at a ratio of 1 ounce of product in 100 gallons of water, you need to mix 1 gram of Cimarron into the 4 gallons of water. The manufacturer realizes few people have access to a scale that will measure ounces or fractions of ounces so they provide a convenient measurement tube that can accurately measure from 0.25 to 4.0 grams of product.

Current herbicide options for multiflora rose. The most practical method to control large multiflora rose infestations with herbicides is to make foliar applications. Several herbicides could be used. Table 2 summarizes options that have been found to be effective in Wisconsin.

Have a plan. One of the most common reasons multiflora rose control efforts fail is that land managers have not prepared a comprehensive long-term plan of action. There are no easy solutions to control this invasive woody species with a single effort for one or two years. Often integrating control strategies will provide the best results. For example, mowing and herbicides will be better than either alone (especially mowing alone). Remember in only a few situations is eradication of multiflora rose population a realistic goal. Such expectations should be avoided unless only a few plants are present, as this will lead to frustration and failure. Remember that as the length of time a population has been present on a particular site increases, the harder it will be to eliminate from the site. For large expansive populations, prevent of spread, and annual reduction of the population should be the goal until populations reach acceptable levels.

Most land owners will start by applying a foliar herbicide. If done for 2 to 3 years, rapid and continual decline in percentage of remaining bushes will occur. From 1988 to 1993 the most effective control strategies implemented in a research project reduced the population to 18% of

the original density by the second year and achieved stable levels by the third year.

Sample Management Plans. Many land managers have difficulty in preparing a management plan for multiflora rose. Below are several hypothetical situations that are common for multiflora rose in Wisconsin along with recommended approaches to take for management.

Sample Plan 1 (Hilly woods)

Setting: The site is 40 acres with both open areas and woods; the terrain is very hilly and mowing is not practical in several areas. The multiflora rose bushes are dense, especially along the edges of the woods.

First year. Apply glyphosate at 1%, volume/volume, to a dense infestation of multiflora roses along and in a wooded area in June when bushes are flowering (or later if necessary). While this treatment is non-selective, it is appropriate because it is safe to trees in the vicinity, has no vapor movement risk, and is unlikely to affect any desired vegetation due to the dense nature of the infestation.

Second and third years: In late June Apply metsulfuron (Ally, Escort or Cimarron) to escaping bushes. These products are safe to grasses that may appear where dead bushes are found.

Subsequent years. Monitor the site and dig, mow or treat escaping or new multiflora rose bushes if and as needed.

Sample Plan 2 (Pasture with cattle)

Setting: The site is a pasture with scattered multiflora rose bushes in a 20-acre area and thicker rose bushes along one side next to the woods. Cattle graze the site and it can be mowed.

First year. Graze the pasture early in the season and then mow the multiflora roses in June as they start to flower. Repeat the grazing and mowing sequence again in August if possible.

Second and third years. Apply a selective foliar herbicide to the multiflora rose regrowth anytime from mid June to mid July if Crossbow is used or until late August if Ally, Escort or Cimarron is used. These products are safe to the grasses in the pasture.

Subsequent years. Monitor the site and dig, mow or treat escaping or new multiflora rose bushes if and as needed.

Sample Plan 3 (RRD Infected area)

Setting: The site is a pasture and wooded area with dense multiflora rose bushes along the fringe of the forested area, but plants scattered throughout both areas. Rose rosette disease has recently been found within several plants.

First year. Observations indicate that the disease spreads naturally to infest adult shrubs if conditions are right. Therefore recommendations are to do nothing, and let the disease spread and

infect as many plants as possible.

Second and third years. Map the presence of infected plants to ensure the disease is still spreading. Typically infections will take many years to spread throughout the area, therefore minimal management of populations should continue until spread of the disease slows. You should begin to observe dead canes within shrubs and whole plants dieing by the end of three years.

Subsequent years. As mature shrubs die, attention should be focused on seedling multiflora rose plants and shrubs that did not get infected. Prevent small plants from maturing by mowing, grazing, and/or herbicide use. Remember young plants are generally more sensitive to management methods therefore resources are required. Adult plants that are not infected will require additional management to remove them.

Other comments

What can be done when the rose canes are more than 10 feet tall in and around the woods? If possible, consider mowing with a heavy duty brush mower and treat the regrowth. Be careful not to spray leaves of desired trees with any of these herbicides. Some exposure to them will not be of consequence to well-established trees but younger trees that receive herbicide on 25 to 50% of their leaf area will be in trouble.

What if my rose bushes are in impenetrable thickets? Again, mowing first and treating the regrowth would help but is not often practical. Certainly you'll need more than a backpack sprayer in these cases. Treat as far into the "jungle" as you can this year and plan to continue the attack next year.

Can I use Spike pellets? Spike is also effective on many brush species and the pelleted version is labeled for use in pastures and convenient to handle and apply. The reasons not to use Spike except in very rare situations are twofold: 1) Spike is non-selective and will kill all vegetation in the treated area, and 2) Spike is very persistent, resulting in areas with no vegetation for 3 to 5 years. On sloping sites, the area of dead vegetation will extend down the slope from where the pellets were placed at least 4 feet and sometimes further.

Summary

Multiflora rose can be managed. Develop a plan and launch it. Document the levels and locations of your infestations before you start and then periodically assess your progress. Adjust the plan as needed.

A statement from the 1993 Agronomy Advice bulletin on multiflora rose makes a fitting comment on the long-term effort needed: "There are several strategies that producers can use to manage multiflora rose infestations. Regardless of the one used, it is important to continue the management program until the population is nearly eradicated. This appears to be at least for three years with annual treatments and then alternate year applications should continue until the seed

bank is depleted.” (See the full bulletin at: http://ipcm.wisc.edu/uw_weeds/extension/articles/multirose.htm)

Table 1. Response of multiflora rose to three herbicides applied foliarly during the summer months in 2004 at the Franbrook Farm, Green Co., Wisconsin.

Treatment*	Rate applied	Date applied in 2004	Visual control, Oct. 11, 04	Basal rose regrowth** May 12, 05
Ally [#] + NIS***	1 oz/100 gal	June 2	99	1.0
Crossbow	1%, v/v	June 2	100	1.1
GlyphomaxPlus	1%, v/v	June 2	99	1.1
Crossbow	1%, v/v	July 8	98	1.3
GlyphomaxPlus	1%, v/v	July 8	96	1.2
Ally [#] + NIS***	1 oz/100 gal	Aug. 5	94	1.0
Crossbow	1%, v/v	Aug. 5	93	3.0
GlyphomaxPlus	1%, v/v	Aug. 5	85	1.0
Ally [#] + NIS***	1 oz/100 gal	Sept. 2	45	1.0
Crossbow	1%, v/v	Sept. 2	97	2.8
GlyphomaxPlus	1%, v/v	Sept. 2	82	1.1

* in July, Ally was applied at the wrong rate, thus data is not given

** scale of 1 to 4 where
 1 = total plant kill and no regrowth
 2 = slight regrowth (1 or 2 new shoots per plant)
 3 = moderate regrowth (3 to 5 new shoots per plant)
 4 = extensive regrowth (more than 6 new shoots per plant)

*** NIS = nonionic surfactant at 0.25%, v/v;

Ally, Escort, and Cimarron are all the same herbicide, but each product is registered for use in different areas. Please read the label and select the appropriate herbicide that best suites the area of application.

Table 2. Summary of the characteristics of several herbicides used to control multiflora rose.

Characteristic	Ally/Cimarron/Escort ¹	Crossbow	glyphosate ²
active ingredient	metsulfuron	triclopyr + 2,4-D ester	glyphosate
formulated as	Dry flowable	emulsifiable concentrate	solution + surfactant ³
safe to	grasses	grasses	nothing
Soil life	1 mo. or more	1 mo.	very short
vapor drift risk	no	yes	no
grazing restriction	none	next season for milking cows; none for other livestock	0-14 days ³
can be used in	Ally & Cimarron: pastures Escort: non-crop sites	pastures	pastures and non-crop sites
when to apply	May - Sept.	May - early July	May - Sept.
Approx. price	<u>\$25/ounce</u>	<u>\$60/gallon</u>	<u>\$15-40/gallon</u>
concentration to apply	<u>1 oz product/100 gallons water</u>	<u>1 to 1.5%, v/v</u>	<u>0.75-1.20%, v/v³</u>
\$ to mix 4 gallon	<u>\$1.00</u>	<u>\$2.5 to 3.50</u>	<u>\$0.80 to 1.60</u>
additive needed?	Yes, NIS or crop oil concentrate	no	generally not needed; AMS in some situations ⁴

¹ Ally, Escort, and Cimarron are all the same herbicide, but each product is registered for use in different areas. Please read the label and select the appropriate herbicide that best suits the area of application.

² Glyphosate is the common name of Roundup and many other products.

³ Varies with the glyphosate brand. Read your label carefully.

⁴ If you have hard water, add spray grade ammonium sulfate per label guidelines to the water before adding glyphosate to the water.