Backpack Herbicide Treatment Can Effectively Improve Stands

By Maxwell McCormack

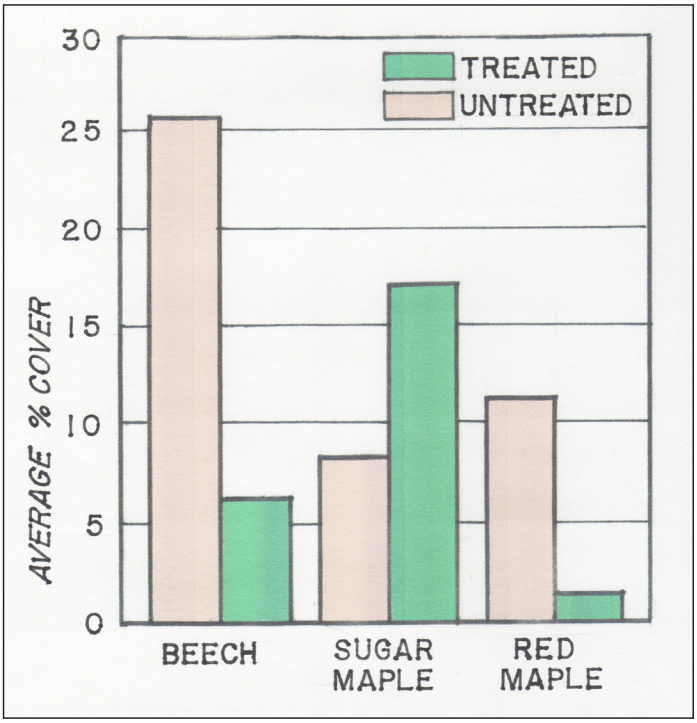
Foliar application of herbicides – directly to the leaves – is the most efficient method for suppressing undesirable broadleaf vegetation such as beech thickets. The first aerial applications, by helicopter, for silviculture objectives were administered in 1947 by Tom McConkey on the Massabesic Experimental Forest in Alfred. For woodlots, spraying can be done effectively with a range of equipment; hand spray bottles, knapsack sprayers, hydraulic backpack sprayers, or backpack mist blowers. Over the last 60 years treatments have become precise, with prescriptions based on individual stand conditions.

Practical Silviculture

Coverage of all details here is not possible, but some selected considerations are worth mentioning. Our current focus on beech management narrows the herbicide choice to glyphosate chemistry with the proviso that, where soft maples comprise much of the target vegetation, triclopyr should be considered. Where smooth barked beech – trees potentially resistant to beech bark disease – are present, it usually is desirable to retain and foster development of those trees.

Glyphosate should be applied with an appropriate surfactant well mixed in a sufficient volume of water for adequate target coverage. Spraying should wet the foliage, but not to the point of runoff. High concentrations of glyphosate active ingredient, approximately 3 to 5%, in very small droplets (400 to 600 microns) are most effective. The objective is to have the molecules penetrate the dust and leaf surfaces to enter the translocation systems of undesirable vegetation. They will move throughout the plants, including the root systems, and function as an amino acid inhibitor.

It is best to use some type of pressure regulator with hydraulic sprayers to have consistent delivery with minimum spray volumes. Because woodlot conditions often involve treating patches and clumps, I suggest very high concentration droplets with a strong focus on barely wetting the target foliage. There is a tendency for all of us to give an extra nozzle burst for good measure. Don't do it. It is wasteful, dispersing excessive spray volumes. Remember to shut off the spray valve when you pause to think through your application decisions. Make sure that every droplet of spray counts.



Relative percentage cover of three species three years after operational treatment of a young hardwood stand with glyphosate (Plum Creek Timber Co. data)

Timing is important. Late summer into early autumn is best. When leaves of target vegetation begin to lose green and change color, the odds for best levels of success decrease. In terms of forest structure, it's best to spray before target vegetation exceeds shoulder height. When considering whether to wait a year to treat, it's probably best to go ahead and spray – better to be early rather than too late.

Mornings are better than evenings. Meteorological conditions are more favorable for spray pattern deposition and moderate dew moisture (not dripping off leaves) can benefit coverage. In the morning targets are fresh and less likely to be under stress that renders vegetation less susceptible to treatment. Avoid drought conditions, injured vegetation, and new sprouts. Even vegetation recently browsed by animals should be considered under stress. Refrain from spraying with impending rain.

Following are some general volume examples for guidance. The efficient coverage by helicopter can treat an acre of brush with 4 to 6 gallons of spray (water plus two pounds active ingredient of glyphosate). With a proper nozzle and pressure regulator, a backpack

sprayer would require at least 25 gallons of spray mix per acre (this might cover 2-3 acres since we consider only the actual acres of area treated). With a backpack mist blower I can effectively cover an acre of brush with 10 to 15 gal of mix. With a convenient water supply, 3-5 acres can be treated in a day. A mist blower is uniquely useful for woodlot silviculture, but requires special techniques that are best acquired through hands-on workshop instruction.

Herbicide results are subtle. Beneficial effects develop over a period of time. Do not expect to thoroughly "blitz" away an individual undesirable species. Think in terms of increasing stand levels of your desirable crop trees. As an example of operational results, the bar graph illustrates relative effects three years after a glyphosate treatment of a beech-dominated young hardwood stand. It compares treated and untreated components of three species. Glyphosate efficacy has reduced beech and red maple cover while sugar maple's tolerance of glyphosate has resulted in an increase in cover. The existing species composition has been maintained while the proportion of the desirable species has been increased. And remember, the herbicide product label is a legal document. Always read it and follow its specific instructions.

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State House

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A very interesting bill we have been dealing with is **LD 1040** "An Act To Prohibit the Placement of Cameras and Electronic Surveillance Equipment on Private Property without the Written Permission of the Landowner." As the title suggests, it would prohibit anyone from putting up items like trail cameras on someone else's property without their permission. Judiciary Committee members were sympathetic to the idea that a person on their own land deserves privacy protection, and gave initial approval to the bill. In addition to permission, the committee added an amendment that the person putting up a camera would have to label it, similarly to existing labeling requirements for tree stands.

Feel free to call me about any legislation. As a reminder, to check the status of any bill, enter the LD number on this page: http://www.mainelegislature.org/LawMakerWeb/search.asp