

CHEMICAL CONTROL OF BUCKTHORN

(Updated Dec. 2010)

There are many ways to kill buckthorn and other woody invasive plants that are crowding out valuable natives in our wooded areas. This information sheet addresses only chemical control methods.

Before you begin killing buckthorn *be absolutely certain that you have identified buckthorn correctly.*

You may feel that the whole woodland under-story is invaded with buckthorn, but there are many native species that are routinely being mistaken for buckthorn and removed. Too often workers are “throwing the baby out with the bathwater.” Valuable remnant woody plants that are regularly confused with buckthorn are: American plum, choke cherry, black cherry, hawthorn, nannyberry, gray dogwood, and others. “Brushing” is not an acceptable control method for buckthorn, because areas with severe disturbance are susceptible to further invasive species invasion and erosion. Ask for help with native remnant plant identification. Even the smallest native plants can bounce back if properly protected after being released from buckthorn competition.

Time to Apply Chemicals

For larger buckthorn control or reduction projects, some type of chemical treatment is the best control method. It is important not to treat during the spring-flush growth period. This is a time when the sap is running and the plant is using its stored energy reserves to grow, in the Twin Cities during May and June. During the spring-flush, the plant generally does not store energy, it spends energy. Herbicide treatments work best when the plant is dormant or transporting sugars to its root system (storing energy). Summer, autumn, and winter are the three seasons when chemical treatment of buckthorn is most effective. Late September through November is an especially good time, because this is when buckthorn is easiest to identify. This is when buckthorn leaves remain green and attached while leaves of our native plants are turning color and falling.

Cut Stump Treatment

Cut stumps low (approximately 2” or less), because taller stumps are more likely to re-sprout after herbicide is applied. During cutting and brush-hauling operations, stumps are easily lost under leaves and debris, particularly in fall. Marking stump locations with wire flags (similar to those used by utilities to mark underground wires or pipes) is helpful when it comes time to locate the stump for treatment after an area has been cleared. Secure the flags well, so they will not be dragged away with the brush.

Stumps can be chemically treated with a paint-brush (single-use foam brushes work well), a wick applicator, or an ultra low volume spray wand. It is very important that water-based herbicide chemicals are applied very soon after the cut. There is NO NEED to drill holes in the stump and pour chemical as some labels suggest—this over-exposes you and the environment to herbicide. See herbicide recommendations on next page.

Frill Cuts with Chemical Spray

Frill cuts can be made on any size stem and are made by wounding the bark at the base of the plant with an axe or hatchet (a butcher knife will work on small stems). At the base of the trunk near the soil line, cut through the bark and cambium at a downward angle with a series of light chops around the circumference of the tree. These cuts create a frill (bark & wood flap). Next, apply herbicide (paint brush or spray) inside exposed cut areas and adjacent inner bark. Chemical contact with the cambium (the layer just under the bark) is very important. Killed buckthorn can be left standing and removed at a later time. This is a good method to stop female trees from producing fruit (the following year) and to minimize erosion on slopes (no soil disturbance). If you physically remove all the buckthorn, you set the site up for erosion and/or proliferation of other invasive species such as garlic mustard. Dead buckthorn can be a structural frame for native vines to climb, such as, woodbine (virginiana creeper), American bittersweet, moonseed, or wild grape. Once dry, standing dead trees can be cut and used for firewood or wood-working.

Basal Bark Treatment

When mixed with a diluent (a *solvent* sometimes containing dye that can be mixed with some herbicides), ester formulations of Triclopyr can be applied directly to the bark at the base of the tree to provide effective control. Spray the lowest 1 ½ feet of bark around the entire circumference of the tree. For diameters 2 inches or less, only half this vertical distance needs to be sprayed. Wick applicators reduce over-spray when targeting smaller diameter plants. Basal bark treatment is a fast, effective way of controlling trees up to 6 inches in diameter on large sites. Dead trees can be left standing for habitat or cut at a later time. Garlon 4, Crossbow, and Pathfinder II (ready to use)

are effective brand-name chemicals (containing the active ingredient Triclopyr) for basal bark treatment. See <http://www.arborchem.com/products/1095.html> for an ultra low volume spray wand.

Herbicides that work well on buckthorn:

Do NOT use more chemical than you need! If a little is good, a lot is not better. See specifics below.

1. Glyphosate is a good choice since there is no residual or soil leaching of this herbicide. It is the active ingredient in Roundup (now off patent); Ortho Basic Solutions Weed & Grass Killer Concentrate and other generic-type brands. Use for stump and frill treatments. Many different concentrations are available. Check the fine print in the lower label corner.

- 10 to 25% active ingredient is needed for stump and frill applications.
- For the cut stump and frill method, apply immediately after cutting.
- Only 3-5% active ingredient is necessary for foliar applications (best for seedlings in the late fall).

Rodeo (now off patent), Aqua Neat, and others are the glyphosate products for aquatic use. Use on glossy buckthorn growing in wet sites (required when within 10 ft. of wetland/pond/stream). Use the same rates as Roundup, above.

2. Triclopyramine is the active ingredient in Garlon 3A and Ortho Brush B-Gon.

- Mix with water for **cut stump, frill, and foliar** applications.
- Use goggles when spraying, since exposure to this chemical can cause a burning sensation in eyes.
- For the cut stump and frill method, apply immediately after cutting.

3. Triclopyr ester is the active ingredient in Garlon 4, Crossbow & Pathfinder. Mix with diluent or Kerosene for cut-stump, frill and **basal bark** treatments.

Note: Garlon 3a needs to be applied immediately after the cut. Garlon 4 can be used long after the cut because it will penetrate the stump and bark.

Wet Sites:

For areas directly adjoining wetlands, ponds, creeks, and lakes, you must use an herbicide labeled for aquatic use, like Rodeo.* This is only necessary when working within ten feet of the shoreline.

* Rodeo is now beyond its legal patent. The glyphosate product may be offered for sale under other brand names such as Aqua Neat, etc.

Where to buy the herbicides:

- Glyphosate herbicides are readily available at hardware stores, Menards, Home Depot, etc. Be certain to look for active ingredient concentration between 10 & 25% for cut stump and frill treatment uses.
- Garlon herbicides can be purchased through local agriculture, turf, and horticulture co-op suppliers or wholesalers.

Tips for spraying in a dense, "old growth" buckthorn woods:

1. In densely infested areas, use a hand-held tank sprayer; backpack sprayers can be difficult to negotiate through the woods.
2. An ultra low volume spray wand (available through "<http://www.arborchem.com>") can cut chemical use by 75%.
3. Be sure to wear appropriate protective clothing when using chemicals, especially when mixing concentrate. Use neoprene or chemical resistant gloves, not latex, cloth, or leather. Wear goggles or safety glasses when mixing chemicals. Be certain to read and follow label instructions.

Janet Van Sloun Larson
B.S. Urban & Community Forestry
Natural Resource Specialist
City of Minnetonka
952.988.8423