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Russian Olive Control—Cut Stump Treatment

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Introduction

The Russian olive (*Elaeagnus angustifolia* L.) is an invasive, thorny tree that is native to Western and Central Asia. Friedman, et al. (2005) found that Russian olive is now the fourth most common tree species in the western U.S. It reduces vegetative diversity and crowds out native species used by wildlife (Knopf & Olson, 1984). Russian olive is prevalent in riparian areas and readily spreads along fence lines, ditches, and into pastures.

Aggressive measures are needed to combat Russian olive encroachment. Landowners are sometimes discouraged from attempting control because cutting trees without herbicide treatment results in profuse sucker growth from stumps and roots. They may believe that herbicide applications can only be made during the growing season, when other farm and ranch tasks demand attention.

This fact sheet discusses cut stump herbicide treatment, which can be used to control Russian olive at any time of the year (Patterson & Worwood, 2012).

Procedure

Trees are usually cut just above ground level using a chain saw. If dead stumps will be removed, trees should be cut high enough to allow the stump to be snagged or grasped by equipment. In the authors' research, herbicide treatment was equally effective on stumps cut at ground level, or up to 14 inches tall (Patterson & Worwood, 2012).

Small stems can be cut at the desired height with a single sweeping cut. Large trees should initially be trimmed at a height of 3 to 4 feet to reduce weight and leverage. This makes it easier, and safer, to make a final cut closer to ground level. After making the final cut with the chain saw, brush or blow sawdust and other debris from the cut surface before applying herbicide.

Figures 1 & 2. Russian olive in East Central Utah is over-taking pastures and limiting access to streams and rivers.

Figure 3. There is no easy way to get to the stump, especially in fence lines.

Glyphosate herbicide is de-activated by soil, so a dirty stump surface may hinder control. Many authors state that applying herbicide within 10 minutes after cutting will improve the effectiveness of the herbicide. Delaying application may reduce herbicide absorption, since the stump surface begins to seal soon after it is cut. It is helpful to have two people—a sawyer and an herbicide applicator—working together.

The goal of a cut stump treatment is to apply herbicide in a way that allows it to be translocated to the roots. Herbicide should be applied to the sapwood (the cambium area just beneath the bark) without leaving any gaps or untreated spots. Herbicide applied to the center of the trunk will not be carried to the roots, and is wasted (Figure 4).

Figure 4. Herbicide application around each stem of a three-stemmed tree. Apply the chemical on the outer rings of each stump, just inside the bark.

Tree size determines the amount of herbicide to apply. Patterson and Worwood (2012) showed that 1 milliliter of undiluted 41% glyphosate (terra or aquatic label) or 28.7% imazapyr per inch of trunk diameter applied directly to the cambium layer provided over 95% control of Russian olive, observed 24 months after application. Herbicide can be applied with a livestock vaccinating syringe to allow accurate placement and metering. While any herbicide labeled for cut stump treatment of trees can be used, the above mentioned study only considered glyphosate or imazapyr products. In areas where subsurface water movement is evident, the soil activity of the herbicide should be considered. Imazapyr caused non-target plant damage from the treated stumps in areas with a shallow water table.

The cut stump method is equally effective during the dormant or growing season.

Each stem of trees with multiple stems must be treated individually with herbicide (Figures 4 and 5). Untreated cut stems will not be killed, and will re-sprout vigorously (Figure 6).

Figure 5. Properly treated trees stumps will have no sucker growth.

Figure 6. Untreated trees will grow back vigorously with many suckers sprouting from the trunk.

Follow Up

Stumps should not be disturbed for at least 1 year to ensure that roots have been killed. After that, they may be removed with heavy equipment, or left in place so the roots can stabilize the soil in areas where re-vegetation is needed. The stump of a tree that has been cut down in a previous year seems to harden, even though there may be sprouts growing from the stump. It is easier to cut the trees and treat immediately, rather than cut and come back the next year to cut again.

Treated areas should be monitored for several years. Stumps that re-sprout can be treated with an herbicide labeled for tree and brush control. Russian olive seed can survive in the soil for 3 years (Wilson & Bernards, 2009). First-year seedlings can be pulled from the ground without producing root suckers. Older seedlings must be sprayed with an herbicide labeled for woody plant control.

Conclusion

The cut stump treatment method is a very effective year-round control option for Russian olive. It requires only a very small amount of herbicide, and poses minimal risk to non-target organisms because the herbicide is applied directly to a specific area of the tree trunk.

The cut stump method is labor intensive. The most difficult part of the process is getting close enough to the trunk to cut the tree and administer the herbicide. A pruning saw and loppers are helpful to clear a path to the tree trunk. Any cut stems not treated with herbicide may re-sprout. Follow-up treatments are needed for at least 3 years to treat sprouts and seedlings.

Protective clothing should be worn by anyone operating a chain saw, or who is working around Russian olives.

References

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