

Broadcast Spraying Using Ground Equipment or Aircraft

Several products containing recommended active ingredients may be available for application with boomless ground equipment or aircraft. Before you buy, be sure that proposed uses comply with label restrictions. This is especially true for chemicals used specifically for growing tree crops.

In most cases, it is preferable to spray 2,4-D or triclopyr with aircraft late in the dormant season to avoid injuring Douglas-fir, hemlock, or true firs. Glyphosate and/or imazapyr are effective and selective in later summer, after conifer buds have hardened. Pines are very sensitive to 2,4-D or triclopyr between March and early July. In most situations, helicopter and broadcast ground applications with coarse sprays (VMD 1,000 microns or less) drift less and are as effective as finer sprays. Boomless nozzles cannot project fine drops to the edges of their swaths. They are best suited for soil-residual products and those with good systemic activity if applied in large drops, for example, hexazinone, glyphosate, and imazapyr.

Recommendations for Broadcast Spraying For Control of Listed Species

This table lists herbicide rates for site preparation and conifer release. In most instances release rates are for Douglas-fir before bud break in spring or after bud set in the fall. Users should check tolerance of other conifer species in the table “Effectiveness of Major Forestry-registered Herbicides” earlier in this chapter and the product label.

Species	Herbicide	Active chemical/a	Carrier	Expected control	Application and remarks
Alder, red <i>Alnus rubra</i>	2,4-D ester	2 lb ae	Water	Good	Release during early foliar timing. Best on trees under 10 yr. old.
		2 lb ae	Oil	Good	Dormant spray before conifer bud break, April and early May.
	picloram + 2,4-D	0.5 lb + 2 lb ae	Water	Good	Foliage spray. Badly injures conifers. Site prep only.
	glyphosate	0.75 to 1.5 lb ae	Water	Good	Release in Sept. Best on trees under 10 ft tall.
	glyphosate	2.25 to 3 lb ae	Water	Good	Site prep July-August
	triclopyr amine	3 to 6 lb ae	Water	Good	Midsummer foliage spray. Site prep only at this time.
	triclopyr ester	1.25 ae	Oil/Water	Good	Severely injures pines. Release. Use oil for dormant treatment. Use water only for early foliar treatments. See label for higher rates for site prep.
Birch <i>Betula</i> spp.	glyphosate and imazapyr	2 lb + .25 ae	Water	Good	Site prep summer- fall
Blackberry	triclopyr ester	1.0 lb ae	Water	Excellent	Fall release.
Bracken Fern	metsulfuron	.6 to 1.2 oz ai	Water	Excellent	Summer-fall site prep.
	glyphosate	1.1 to 1.5 lb	Water	Good	Fall release.
Broom, Scotch <i>Cytisus scoparius</i>	2,4-D ester	2 lb ae	Water + 5% oil	Good	Early spring release spray. Will reproduce from seed; some sprouting.
	2,4-D ester	2 lb ae	Oil	Good	Feb.–March dormant spray. Will reproduce from seed; little sprouting.
	picloram + 2,4-D	0.5 lb + 1 to 1.5 lb ae	Water	Good	Site prep only; summer to fall.
	triclopyr ester	1.25 lb ae	Water	Good to excellent	Douglas-fir release, spring
	aminopyralid + metsulfuron (Opensight)	0.11 ae + 0.31 ai (3.3 oz product/a)	Water	Good	Site prep only or directed spray. Manages germinants. Planting sooner than 4 months may injure conifers.
	aminopyralid + triclopyr amine (Capstone)	0.075 to 0.11 + 0.75 to 1.12 lb ae (6 to 9 pints product/a)	Water	Good to Excellent	Site prep only or directed spray. Keep spray from contacting trees.

Species	Herbicide	Active chemical/a	Carrier	Expected control	Application and remarks
Ceanothus spp., evergreen	picloram + 2,4-D	1 gal (0.54 + 2 lb ae)	Water	Good	Foliage spray. Site prep only.
	triclopyr ester	1.25 to 1.5 lb ae	Water/oil	Fair to excellent	Release. See label for rates above 1.5 lb and for timing for dormant applications. Do not use on pines.
	2,4-D ester	2 to 2.75 lb ae	Water	Fair to excellent	Early foliar release. 2,4-D rates above 2 lb may injure some conifers.
	2,4-D + triclopyr ester	2 lb + 1 lb ae	Water	Good to excellent	Can control some associated species; spring, late summer. See label for timing. Do not use on pines. Good conifer release treatment in spring.
	fluroxypyr	7.7 oz ae	Water	Excellent	Site prep for pine only. Reduced rates suitable for release.
<i>Ceanothus</i> spp., deciduous	glyphosate	1.1 lb ae	water	Good to Excellent	For deerbrush and redstem. Fall release rate for Douglas-fir and other conifers
Cherry, bitter <i>Prunus emarginata</i>	imazapyr + glyphosate	.25 to .4 + 1.5 to 2 lb ae	Water	Excellent	Site prep only.
Elderberry <i>Sambucus</i> spp.	picloram + 2,4-D	1 gal (0.54 + 2 lb ae)	Water	Excellent	Foliage spray. Site prep only.
	glyphosate	0.75 to 1.1 lb ae	Water	Excellent	Sept. foliage release spray. Higher rate for site prep. Add 2 to 2.5 oz/a imazapyr to broaden spectrum.
	triclopyr ester	1.25 lb ae	Water	Good to excellent	Site prep. See label for application timing. Do not use on pines.
	clopyralid	4 to 5 oz ae	Water	Good to excellent	Use when plants are actively growing. June - September release.
Gorse <i>Ulex europaeus</i>	picloram + 2,4-D	2 gal (1.08 + 4 lb ae)	Water	Good	Good enough control for reforestation but not for eradication. Site prep only.
	metsulfuron	2 oz ai	Water + 0.15% silicon-based surfactant	Excellent	New Zealand data. Site prep only. Wait at least 6 mo before planting.
	triclopyr ester	1 to 1.5 lb ae	Water	Excellent	Spring release.
Madrone <i>Arbutus</i> spp.	2,4-D ester	2.75 lb ae	Water	Good to excellent	Associated species may be difficult to control. Rates above 2 lb (1 lb 2,4-D for pines) may injure conifers. Spring treatment best.
	triclopyr ester	1.25 lb ae	Water	Fair to excellent	Use lower rate before conifer bud swell for release. Do not use over 2- or 3-needle pines.
	picloram + triclopyr ester	1 lb + 1 to 2 lb ae	Water	Good to excellent	Site prep only. Not recommended in ID.
	triclopyr ester + 2,4-D	1 lb + 2 lb ae	Water	Good to excellent	Early summer before conifer budbreak. Can control some associated species. Do not use on pines.
	fluroxypyr	7.7 oz ae	Water	Excellent	Pine plantations only; use highest rates only for site prep.
Manzanita <i>Arctostaphylos</i> spp.	2,4-D	2 lb ae	Water	Good	Release. See label for timing.
	triclopyr ester	1.25 lb ae	Water	Poor	Early foliage spray release. Erratic. See label for timing. Do not use over pines.
	fluroxypyr	7.7 oz ae		Good	Highest rates for site prep only. Should be safe at reduced rates on pine plantations.

Species	Herbicide	Active chemical/a	Carrier	Expected control	Application and remarks
Maple	imazapyr	0.25 lb ae	Water	Good	Release late summer. May injure conifers.
	imazapyr	0.25 to 0.5 lb ae	Water	Good to excellent	Site prep summer. Add glyphosate to broaden spectrum.
	glyphosate	0.75 to 1.5 lb ae	Water	Fair to good	Sept. foliar release for vine maple. Adding imazapyr will improve control but may injure conifers.
Bigleaf <i>Acer macrophyllum</i>	glyphosate	2 to 3 lb ae	Water	Good	Summer–fall site prep
	imazapyr	0.25 lb ae	Water	Good to Excellent	Sept. release. May injure conifers.
Vine <i>A. circinatum</i>	glyphosate + imazapyr	0.75 to 1.5lb ae + 0.1 to 0.4 lb ae	Water	Excellent	Summer - fall site prep.
Rocky Mountain <i>A. glabrum</i>	picloram+ 2,4-D	2 gal (1.08 + 4 lb ae)	Water	Fair	Site prep only.
	triclopyr ester	1.25 to 1.5 lb ae	Oil	Excellent	Dormant spray, spring. Do not use on pines. Higher rate may injure Douglas-fir.
	picloram + triclopyr ester	1 lb + 1 to 2 lb ae	Water	Good to excellent	Site prep only, summer. Not recommended in Idaho.
Ninebark <i>Physocarpus</i> spp.	glyphosate	1.5 to 3 lb ae	Water	Excellent	Summer – fall site prep.
Poison-oak <i>Toxicodendron diversilobum</i>	imazapyr	0.2 lb/a	Water	Excellent	Apply in fall for release. Erratic, may injure conifers
	glyphosate	0.75 to 1.5 lb ae	Water	Excellent	Aug. -Sept. release. May be mixed with imazapyr but increases risk of conifer injury.
	aminopyralid + triclopyr amine (Capstone)	6 to 9 pints product (0.075 + 0.75 to 0.11 + 1.12 lb)	Water	Good	Site prep or directed spray only. Keep spray from contacting conifers.
Salmonberry <i>Rubus spectabilis</i>	picloram + 2,4-D	1 gal (0.54 + 2 lb ae)	Water	Good	Site prep only.
	glyphosate	0.75 to 1.1 lb ae	Water	Excellent	Aug.–Sept. release spray.
	metsulfuron	0.5 oz ai	Water	Excellent	Site prep.
Sword fern <i>Polystichum munitum</i>	metsulfuron	0.6 to 1.2 oz ai	Water	Good	Summer – fall site prep only.
Tanoak <i>Lithocarpus densiflora</i>	triclopyr ester	1.25 lb ae	Water/Oil	Good	Apply prebud swell for conifer release. Do not use on pines.
	2,4-D	2 to 2.75 lb ae	Water	Fair	Spring. Summer treatment may injure conifers after bud burst.
	picloram + triclopyr ester	1 lb + 1 to 2 lb ae	Water	Good	Site prep only, summer. Not recommended in Idaho.
Willow <i>Salix</i> spp.	2,4-D	2 lb ae	Water	Fair to good	Release. Retreatment of sprouts necessary. See label for release timing.
	glyphosate	0.75 to 1.5 lb ae	Water	Good	Release Aug-Sept.
	imazapyr + glyphosate	0.2 to 0.4 lb + 1.5 to 3 lb ae	Water	Excellent	Site prep only.

* 10% oil in carrier