

Crop, Situation, and Active Chemical Per Broadcast Acre	Weeds Controlled	Formulated Material Per Broadcast Acre	Time of Application	Method of Application and Precautions
<b>Forestry Herbicide Use in Hardwoods Herbaceous Weed Control Postplant but Preemergence to Weeds</b>				
sulfometuron @ 0.06 lb/A	Many herbaceous species.	<b>Oust XP</b> 2 oz/A.	Apply soon after transplanting. Late dormant season.	Apply while hardwood seedlings, transplants or cuttings are dormant. Application after bud break or leaf-out may cause injury to the hardwoods. Do not add surfactant. Broadcast or band with a ground sprayer. Approved for use on 23 hardwood species including oaks. Do not use on marshy sites .
<b>Forestry Herbicide Use in Pines Site Preparation - Foliar Spray</b>				
imazapyr @ 0.75 lb/A	Most brush species except blackberry, elm, locust and pine. Controls many herbaceous plants.	<b>Arsenal A.C.*</b> 24 oz/A.	Late summer to fall before leaves begin to change color.	May be applied by helicopter, ground equipment and backpack sprayers. Apply as a foliar spray. Add nonionic surfactant at 0.5%. Brownout is very slow with this treatment. Used on sites with dense brush where no burn is planned and mechanical site prep is likely. Do not spray when wind exceeds 5 mph.
imazapyr @ 0.75 lb/A	Most brush species including: gum, cherry, maple and many vines, grasses and broadleaf weeds.	<b>Chopper Gen 2*</b> 48 oz/A.	Late summer to fall, but before leaves begin to change color.	Chopper may be mixed with water, diesel oil or recommended seed oils and penetrating oils. Chopper may be mixed as an emulsion carrier. Mix with water first and then make up the rest of the carrier volume with 12 to 50% seed oil on a volumetric basis. Use a seed oil with at least 50% esterified seed oil by volume.
imazapyr + glyphosate @ 0.75 + 4.0 lb/A	Most woody species and many herbaceous plants.	<b>Chopper Gen 2 + Accord XRT II*</b> 24 oz + 128 oz/A.	Late summer to fall before leaves begin to change color.	May be applied by helicopter, ground equipment and backpack sprayers. Apply as a foliar spray. Add nonionic surfactant at 0.5% or 1 qt/A. Do not spray when wind exceeds 5 mph. Considered to be one of the most consistent treatments available over a wide range of conditions.

\* Sulfometuron Methyl + Metsulfuron Methyl can be added fall mix.

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imazapyr + triclopyr @ 0.5 to 1.0 + 0.5 to 1.5 lb/A	Most woody species and many herbaceous plants.	<b>Arsenal A.C. + Garlon 4</b> 16 to 32 oz/A + 16 to 48 oz/A.	Late summer to fall before leaves begin to change color.	Provides rapid brownout, especially on sites with a high percentage of waxy leaf species.
picloram or (picloram + 2,4-D) + triclopyr @ 1 or (0.8 + 3) + 2 to 3 lb/A	Most brush species and many broadleaf weeds but no grass control.	<b>Tordon 22K or Graslan L + Garlon XRT</b> 2 qt/A or 4 qt/A + 2 to 3 qt/A.	Apply after full leaf development in the spring.	Do not burn or cut treated plants for 6 to 8 weeks after application. Apply by ground or air. Add 0.5% nonionic surfactant. Use on bottom-land hardwood sites where there is little grass competition.
picloram + imazapyr @ 1 + 0.5 lb/A	Most brush species including residual pines and many grasses and broadleaf weeds.	<b>Tordon 22K+ Arsenal AC</b> 64 oz/A + 24 oz/A.	June to July.	Ground or aerial application. Used on sites where there is a high percentage of undesirable pines.
<b>Forestry Herbicide Use in Pines Site Preparation</b>				
hexazinone @ 3 to 4 lb/A	Most woody plants.	<b>Velpar ULW</b> 4.0 to 5.33 lb/A.	In the spring after danger of frost has passed. Apply from bud swell to early leaf-out.	Velpar ULW is generally applied by helicopter. Rates depend on soil type and species present. Uniform, accurate application is essential.
<b>Forestry Herbicide Use in Pines Pine Release - Foliar Spray</b>				
imazapyr @ 0.38 to 0.5 lb/A	Most brush species except blackberry, elm, cherry, locust and pine.	<b>Arsenal AC</b> 12 to 20 fl oz/A.	Late summer to fall, but before leaves begin to change color. Change in leaf color of blackgum is a reliable indicator of when to spray.	May be applied by helicopter, ground equipment, backpack sprayers and injection equipment. Apply as a foliar spray. Add non-ionic surfactant at 0.25%. Brownout is very slow with this treatment. Do not spray when wind exceeds 5 mph.
imazapyr + metsulfuron @ 0.38 to 0.5 + 0.06 lb/A	Most brush species including blackberry.	<b>Arsenal AC + Escort</b> 12 to 16 fl oz/A + 1.0 oz/A.	Same as above. Escort is safe to use on non-hardened off pines.	Commonly used on sites with blackberry infestation. May be applied by helicopter, ground equipment and backpack sprayers. Do not spray when wind exceeds 5 mph. Apply as a foliar spray. Add nonionic surfactant at 0.25% or 1 qt/A. Brownout is slow with this treatment.
imazapyr	Most brush species.	<b>Arsenal AC</b> 1 to 3 fl oz/A per gallon of water.	Same as above.	Apply as a directed foliar spray in a low volume backpack application. Add 0.25% non-ionic surfactant. See label for instructions for making more concentrated mixtures for hard to kill species.

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<b>Forestry Herbicide Use in Pines Pine Release - Soil Treatment</b>				
hexazinone @ 1.5 to 2.25 lb/A	Many brush species.	<b>Velpar DF</b> 1.33 to 2 lb/A.	Mid-March to early May.	Do not use on a ripped site. For use in natural stands employing all-age management. Excessive injury may occur when applications are made to loblolly pines less than 4 years of age when planted in coarse-textured soils and less than 3 years of age when planted in fine-textured soils.
<b>Forestry Herbicide Use in Pines Herbaceous Weed Control</b>				
sulfometuron + hexazinone @ 0.06 + 1.0 lb/A	Many herbaceous species.	<b>Oust + Velpar DF</b> 2 oz/A + 1.33 lb/A.	February to April.	Soil and foliar activity. Broadcast, ground or aerial.
hexazinone + sulfometuron @ 0.4 to 0.63 + 0.07 to 0.11 lb/A	Annual grasses and broadleaf weeds.	<b>Oustar</b> 10 to 16 oz/A.	Preemergence to weeds.	Loblolly pines only. Use lower rate on coarse-textured soils. Rainfall is needed for activation.
sulfometuron + atrazine @ 0.047 to 0.094 + 2 lb/A	Sicklepod, morningglory, cocklebur and other species likely to be found on former agricultural land.	<b>Oust + AAtrex 4L</b> 2 oz/A + 2 qt/A.	Early spring after the soil has settled around the base of the transplants (February - April).	Soil and foliar activity. Broadcast aerial or ground application.
imazapyr + sulfometuron @ 0.13 to 0.19 + 0.06 lb/A	Many herbaceous species including bermudagrass suppression.	<b>Arsenal A.C. + Oust XP</b> 4 oz/A + 2 oz/A.	Early spring to newly emerged weeds.	Soil and foliar activity. Broadcast aerial or ground application.
imazapyr + metsulfuron @ 0.13 + 0.038 to 0.076 lb/A	Bahiagrass control and many other herbaceous species.	<b>Arsenal A.C. + Escort</b> 4 fl oz/A + 1 to 2 oz/A.	Late spring (May) when bahiagrass is actively growing.	Add 0.25% nonionic surfactant. Arsenal may cause some temporary growth inhibition of young pines.
sulfometuron @ 0,14 lb/A	Fescue and other herbaceous species.	<b>Oust XP</b> 3 oz/A.	Early spring after the soil has settled around the base of the transplants (March - April).	Foliar and soil activity. For fescue pastures planted in pines. Band or broadcast application.

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<b>Pine Release - Cut Surface, Frill and Injection (dilute solutions)</b>				
picloram 5.4% + 2,4-D amine 20.9%	Most woody plants.	<p align="center"><b>Pathway</b></p> 1 ml undiluted per 1 inch of stem diameter, or to wet frill completely.	Apply during period of active growth.	Hatchet and squirt bottle. Make cuts at a convenient height around stem and evenly distributed around the tree. Completely circle the stem of difficult to kill species such as dogwood, hickory and red maple with overlapping cuts. Avoid treating during periods of heavy sap flow. Do not leave more than 1 inch between cuts.
imazapyr 4 lb/gal	Most woody plants.	<p align="center"><b>Arsenal A.C.</b></p> Add 6 fl oz to 1 gal of water and use 1 ml per 1 inch of stem diameter.	Apply during period of active growth.	Hatchet and squirt bottle. Make cuts at a convenient height around stem. Completely circle the stem of difficult to kill species such as dogwood, hickory and red maple. Avoid treating during periods of heavy sap flow. Do not leave more than 1 inch between cuts.
<b>Pine Release and Hardwood TSI – Frill and Injection (concentrated solutions)</b>				
imazapyr 4 lb/gal	Most woody plants.	<p align="center"><b>Arsenal A.C.</b></p> 20% concentrate + 80% water and use 1 ml per 3 inches of stem diameter.	Add anytime excluding spring green-up. Best results apply in fall.	Hatchet and squirt bottle. Make 1 hack per 3 inches diameter. Make cuts at a convenient height around stem. Avoid treating during periods of heavy sap flow.