

WEED RESPONSE RATINGS FOR PASTURE BRUSH CONTROL HERBICIDES

HERBICIDES	WEEDS	Blackberry	Black Locust	Buckbrush	Cedar	Cherry	Elm	Greenbrier	Hawthorn	Honey-locust	Honeysuckle	Kudzu	Oaks	Osage Orange	Persimmon	Pine	Poison Ivy	Pricklypear Cactus	Rose, Wild	Sassafras	Sericea Lespedeza	Sumac	Sweetgum	Willow
2,4-D		N	H	H	N	N	N	N	H	N	N	N	R	N	N	N	N	N	N	N	N	H	N	H
Arsenal		N	R	R	N	R	R	R	R	R	R	N	H	H	H	N	H	N	R	H	N	R	H	H
Banvel		R	N	N	N	N	N	N	N	N	N	H	N	N	R <sup>4</sup>	N	N	N	R	N	R	N	N	N
Chaparral		H	H	H	N	N	N	N	N	H	H	H	R	N	N	N	N	N	H	N	H	H	N	H
Chaparral + PastureGard HL		H	H	H	N	R	R	R	R	H	H	R	H	R	R	R	H	N	H	R	H	H	R	H
Crossbow		R	R	R	N	R	R	N	R	R	R	R	R	N	N	N	R	N	N	N	R	R	R	R
Glyphosate		H <sup>2</sup>	R	N	N	R	R	N	R	R	H <sup>2</sup>	R	R	N	N	N	H <sup>2</sup>	N	H	N	N	N	R	H
Grazon P+D		R	R	R	N	R	R	R <sup>3</sup>	R	H	R	R	R	N	R	N	N	H	R	N	R	R	R	R
GrazonNext HL + Remedy Ultra		H	H	H	N	R	R	R	R	H	H	R	H	H	R	R	H	N	H	R	H	H	R	H
Metsulfuron		H	H	R	N	R	R	N	R	H	R	H	N	R	N	N	N	N	R	N	H	N	N	R
PastureGard HL		H	R	R	N	R	R	R	R	R	N	R	R	H	N	N	R	N	R	N	H	R	H	R
Remedy Ultra		H	R	R	N	R	R	R <sup>3</sup>	R	H	N	R	R	H	N	R	R	N	N	N	H	R	H	R
Spike		R	R	R	R <sup>1</sup>	R	H	N	R	R	H	R	R	N	N	H	R	N	H	N	N	N	R	R
Surmount		R	N	N	R	N	N	N	N	H	N	H	N	N	R	N	R	H	R	R	R	R	N	N
Tordon 22K		R	N	N	R <sup>4</sup>	N	N	N	N	H	N	H	N	N	R <sup>4</sup>	R	N	H	R	R	R	N	N	N
Velpar		R	R	R	R <sup>1</sup>	R	R	N	R	H	H	R	R	N	N	N	R	N	H	N	N	N	R	R
Weedmaster		R	N	R	N	N	R	N	R	R	R	R	R	N	N	N	R	N	N	N	R	R	N	R

Small red cedar<sup>1</sup> September application<sup>2</sup> Suppression only<sup>3</sup> Soil application<sup>4</sup>

H = Highly recommended, has been shown to be effective if used properly.

R = Recommended, intermediately susceptible or listed by the manufacturer on the label.

N = Not recommended, has not performed in research or is not listed on the label.

Crop, Situation, and Active Chemical Per Broadcast Acre	Weeds Controlled	Formulated Material Per Broadcast Acre	Time of Application	Method of Application and Precautions
<b>BRUSH CONTROL</b>				
Imazapyr @ 0.25 to 0.75 lb/A	Persimmon, sassafras, oak, hickory, sweetgum.	<b>Arsenal</b> 1% solution.	May to September.	Add 0.5% surfactant. No grazing restrictions. Will kill grass. Do not exceed 48 oz per acre.
2,4-D + picloram @ 2 + 0.54 lb/A	Buckbrush, honeylocust, multiflora rose, some oaks, persimmon, prickly pear cactus.	<b>Grazon P+D</b> 4 qt/A.	At full leaf-out in May or June.	Use high rate for prickly pear control. Results are very slow. Evaluate one year after application. Add 0.5% nonionic surfactant. Tank mix Grazon P+D with 1 qt/A or 0.5% Remedy or for broad spectrum mixed brush control. Adding Remedy may improve honeylocust control. Use 1 to 2% solutions for hand-held equipment.
picloram @ 0.25 to 0.5 lb/A	Prickly pear cactus, persimmon, honeylocust.	<b>Tordon 22K</b> 1 to 2 pt/A.	Treat prickly pear in early May. Treat persimmon or honeylocust in May or June.	Read the entire label carefully before using picloram. We recommend that it be used as a spot treatment (see label) rather than broadcast application. Do not exceed 1 quart of Tordon 22K per acre per season. Picloram is a chemical which can travel (seep or leach) through soil and under certain conditions has the potential to contaminate groundwater which may be used for irrigation and drinking purposes. Users are advised not to apply picloram where soils have a rapid to very rapid permeability throughout the profile (such as loamy sand to sand) and the water table of an underlying aquifer is shallow or to soils containing sinkholes over limestone bedrock, severely fractured surfaces and substrates which would allow direct introduction into an aquifer. Your local county Extension office can provide further information on the type of soil in your area and the location of groundwater.
picloram + fluroxypyr @ 0.22 + 0.18 to 0.9 to 0.72 lb/A	Horsenettle, hemp dogbane, ragweed, thistles, etc., and also for many brush species, including blackberry and multiflora rose. Will not control any grass weeds or sedges.	<b>Surmount</b> 1.5 to 2 pt/A for general broadleaf control. 3 to 6 pt/A for brush control.	During active weed growth. Blackberry and multiflora rose are best controlled when they have not been mowed for at least one year.	New legume seedlings may not be successful if planted within 1 year after applying herbicide. Consult label for specific recommendations. Using a surfactant will improve the performance of this herbicide.

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triclopyr @ 0.75 to 1.5 lb/A	Blackberries, buckeye, oaks, willow, pine, sumac, osage orange, sweetgum, mixed brush.	<b>Remedy Ultra</b> 1.5 to 3 pt/A.	Apply during good growing conditions. Blackberries: flowering through mid-July, leaves must be fully developed on fruiting canes. May through June for general foliar use. Treat cut stumps when fresh, make basal bark applications during dormant season.	Use a 0.5 to 1% solution for hand equipment applications. Add 0.5% nonionic surfactant. Follow-up applications will be needed for control of most species. Tank mix with 1 gallon per acre or 2% Grazon P+D for broader spectrum brush control.
metsulfuron @ 0.038 lb/A	Blackberry, dewberry, <i>Sericea lespedeza</i> , honeysuckle.	<b>Metsulfuron 60DF</b> 1.0 oz/A.	Postemergence.	Add 0.25% nonionic surfactant. Will stunt fescue. Do not spray ryegrass or legume pastures.
fluroxypyr + triclopyr @ 0.5 to 2.0 lb/A	Many broadleaf herbaceous and woody plants.	<b>PastureGard HL</b> 1 to 4 pt/A.	Postemergence.	A more concentrated version of PastureGard. Do not use more than 2 qt/A in a single growing season. Do not harvest hay for 14 days after application. Do not graze lactating dairy cows during the growing season of application. Withdraw animals from treated pasture 3 days before slaughter.
metsulfuron + aminopyralid + triclopyr + fluroxypyr @ 0.019 + 0.1 + 0.38 + 0.125 lb/A	Many brush species and broad-leaf weeds.	<b>Chaparral + PastureGard HL</b> 3.3 oz + 1 pt/A	May to September.	Will kill bahiagrass. Does not contain picloram. Add 0.5% nonionic surfactant.
aminopyralid + 2,4-D + triclopyr ester @ 0.1 + 0.8 + 1.0 lb/A	Many brush species and broad-leaf weeds.	<b>GrazonNext HL + Remedy Ultra</b> 2.0 + 2.0 pt/A	May to September.	Provides brush control without the use of picloram. Add 0.5% nonionic surfactant.
glyphosate @ 2 to 5 lb/A	Blackberry, honeysuckle, kudzu, multiflora rose, poison ivy, trumpet creeper.	<b>Glyphosate</b> (4 lb/gal formulations) 2 to 5 qt/A.	Late fall to early summer before leaf color changes. Do not apply to drought-stressed or dusty brush.	Use a 2% solution for spot treatment. Add 0.5% nonionic surfactant. Follow-up treatment will be needed. Will kill grass.
tebuthiuron @ 2 to 4 lb/A	Buckbrush, red cedar, elms, hickory, honeylocust, honeysuckle, oaks, pines, sweetgum.	<b>Spike 20P</b> 10 to 20 lb/A.	Can be applied any time. Late winter and early spring applications perform the best. Needs rainfall for activation.	Soil-applied only. May take up to 3 years for complete kill. Do not use on soils with a high clay content. Persimmon and sassafras are not controlled. Do not apply where the roots of desirable vegetation extend. Root spread of trees may be triple the crown width. Will injure grass. Apply during the dormant season. Do not apply when the soil is frozen or snow-covered. Do not apply to red cedar over 6 feet tall.

Crop, Situation, and Active Chemical Per Broadcast Acre	Weeds Controlled	Formulated Material Per Broadcast Acre	Time of Application	Method of Application and Precautions
<b>BRUSH CONTROL [cont.]</b>				
hexazinone @ 0.66 lb/A	Red cedar, elms, honeysuckle, hickory, oaks.	<b>Velpar L</b> 2 to 4 milliliters per stem up to 1/3 gal/A.	Can be applied any time. Late winter and early spring applications perform the best. Needs rainfall for activation.	Soil-applied only. Do not use on soils with a high clay content. Persimmon and sassafras are not controlled. Do not apply where the roots of desirable vegetation extend. Will injure grass. Apply during the dormant season. Do not apply when the soil is frozen or snow-covered. Do not apply to red cedar over 6 feet tall. Apply to soil at base of stem with a spotgun. Do not exceed 1/3 gal per acre per season or treat more than 709 brush plants per acre per season.
2,4-D + dicamba @ 1.4 + 0.5 lb/A	Buckbrush, hawthorn, black locust, sumac, willows.	<b>Weedmaster</b> 2 qt/A, or 32-48 oz.	At full leaf-out in spring.	Effective on a limited number of brush species. Contains amine 2,4-D. Follow-up treatments are usually needed. Use 2% solution for hand equipment applications. Add 0.5% nonionic surfactant.
2,4-D ester @ 2 to 4 lb/A	Buckbrush, black locust, hawthorn, sumac, willows.	<b>2,4-D</b> 2 to 4 qt/A or 32 to 48 oz/A.	At full leaf-out in spring.	Ester formulations more readily penetrate the leaves of brush species. Effective on a limited number of brush species. Follow-up treatments are usually needed. Use 2% solution for hand equipment applications. Add 0.5% nonionic surfactant. Some studies have shown the amine formulation to be more effective on buckbrush.
<b>ALFALFA</b>				
<b>Postemergence</b>				
2,4-DB amine @ 1 lb/A	Broadleaf weeds.	<b>Butyrac 200/Butoxone</b> 2.3 qt of 1.75 lb/gal 2,4-DB or 2 qt of 2 lb/gal.	When alfalfa seedlings are 3 inches or following hay harvest before new growth starts.	AVOID DRIFT. Best applied to very small weeds, 2 to 6 leaves.
imazethapyr 0.047 to 0.094 lb/A	Foxtails, chickweed, cocklebur, mustards, shepherdspurse.	<b>Pursuit 70 DG</b> 1.08 to 2.16 oz/A.	Postemergence to seedling alfalfa when the weeds are in the 1- to 3-inch size range.	Apply to alfalfa that has reached the second trifoliolate or later. Pursuit may be tank mixed with other herbicides. Add crop oil concentrate and UAN at 1 qt/A.
imazamox @ 0.03 to 0.04 lb/A	Annual grasses and some broadleaf weeds.	<b>Beyond Xtra 1L</b> 4 to 6 oz/A.	Early postemergence while the weeds are actively growing and before they exceed 3 inches.	Alfalfa should have at least two trifoliolates before applying Beyond Xtra. For weeds such as mustards with a prostrate growth habit, apply before the rosette exceeds 3 inches. Beyond Xtra may cause temporary stunting.

Crop, Situation, and Active Chemical Per Broadcast Acre	Weeds Controlled	Formulated Material Per Broadcast Acre	Time of Application	Method of Application and Precautions
<b>Woody Plant Control in Non-Cropland (Right-of-ways, fencerows, industrial sites, etc.)</b>				
<b>Foliar Spray</b>				
imazapyr @ 0.5 to 1.5 lb/A	Hickory, honeylocust, honeysuckle, kudzu, maple, mulberry, multiflora, rose, oaks, poison ivy, sassafras, sumac, sweetgum, willow, other broadleaf plants.	<b>Arsenal 2S</b> 2 to 6 pt of 2 lb/gal.	Apply to actively growing vegetation not under stress.	Apply during warm weather after full leaf-out and before leaf drop. Apply to foliage in 10 to 60 gal/A if using ground equipment. Use 0.5 to 1% for low volume hand application. Spray to wet but do not allow runoff. Keep away from foliage or roots of desirable plants.
metsulfuron @ 0.038 to 0.15 lb/A	Kudzu, honeysuckle, black locust, sericea lespedeza, privet, bodark.	<b>Escort 60 DF</b> 1 to 4 oz/A.	During periods of active growth.	Use the 4 oz rate for kudzu and add 0.25% nonionic surfactant. Wet the kudzu canopy thoroughly, using at least 60 gpa. Make a follow-up treatment one year later to control escapes and misses. Failure to do so will result in reinfestation.
triclopyr @ 2.25 to 4 lb/A	Blackberry, oaks, pines, sumac, sweetgum and other broadleaf plants.	<b>Garlon 3A or 4</b> 0.75 to 1 gal/A.	Apply uniformly as a foliar spray after leaves are fully developed until 3 weeks before a frost.	Wet foliage to point of runoff with a backpack sprayer. Apply in 100 to 400 gallons per acre with a hydraulic sprayer. See label for application directions for specific brush species.
bromacil @ 4.4 to 24 lb/A	Controls many brush and tree species.	<b>Hyvar X-L</b> 2.25 to 12 gal/A.	Apply to actively growing brush.	Do not apply to brush standing in water; do not use in irrigation ditches nor on right of ways or other sites where marketable timber or other desirable trees or shrubs are immediately adjacent to the treated areas.
fosamine @ 6 to 12 lb/A	Kudzu, pines and other woody plants.	<b>Krenite S + Surfactant (nonionic)</b> 1.5 to 3 gal/A + 1 qt/100 gal of water.	Apply as a foliar spray from July until the first frost in the fall.	Complete coverage is required for control. See label for application directions for specific brush species.
glyphosate @ 1.5 to 3.75 lb/A	Most annual weeds and many perennials such as johnsongrass, bermudagrass, curly dock, milkweed, horse-nettle, honeysuckle, lespedeza, brambles, multiflora rose and trumpetcreeper.	<b>Roundup Pro 4L + Surfactant (nonionic)</b> 2 to 5 qt/A + 2 qt/100 gal of water.	When plants are actively growing. Perennial plants are best controlled when sprayed at growth stages nearing maturity. Brush control is best when applications are made in fall to nonstressed trees.	Follow instructions and precautions listed on the label. Adding 0.5% nonionic surfactant has improved control of some perennials. Surfactant must be added to Accord. Tank mix with Arsenal improves perennial grass control.
picloram + 2,4-D amine @ 0.54 + 2 lb to 2.2 + 8 lb/A	Dogwood, honeylocust, honeysuckle, persimmon, pines and other woody plants.	<b>Tordon 101 Mixture</b> 1 to 4 gal/A.	Apply to actively growing plants.	Use 15 to 25 gpa spray mix. See label for use rates for specific woody plant species. <b>Restricted use pesticide.</b>

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<b>Woody Plant Control in Non-Cropland (Right-of-ways, fencerows, industrial sites, etc.)</b>				
<b>Soil Treatments</b>				
bromacil @ 4.5 to 24 lb/A	Many woody plant species.	<b>Hyvar X-L</b> 2.25 to 12 gal/A.	Apply before or during the period of active growth when rainfall can be expected for activation.	Use higher rates (greater than 5 gpa) on high organic soils. Use as a soil treatment or basal treatment. For use on drainage ditches, use only as basal treatment. Apply broadcast treatment. Apply broadcast treatments using at least 200 gal per acre of water. Basal treatment may be applied undiluted using a hand-gun applicator, or mixed with water in a ratio of 1 gal Hyvar in 5 gal of water. Do not apply near desirable vegetation. See label for use roles for specific woody plant species.
tebuthiuron @ 2 to 6 lb/A	Dogwood, elm, honeylocust, honeysuckle, multiflora rose, oaks, sumac and other woody plants.	<b>Spike 20P or 80W</b> 10 to 30 or 2.5 to 7.5 lb/A.	Before or during the period of active growth. Best applied in mid-March.	Apply in 15 to 150 gal of water per acre before or during the period of active growth of target plants. See label for use rates for specific plant species to be controlled. Do not broadcast where maintenance of a grass cover is desired. Has some postemergence activity on some herbaceous weeds. May be used as an individual plant treatment on forage or pasture area when used at less than 5 lb/A. Do not cut for hay for 1 year after application.
hexazinone @ 2 to 12 lb	Honeylocust, multiflora rose, oaks and other woody plants.	<b>Velpar L</b> 1 to 6 gal/A.	Apply in late winter or early spring before rainfall that is needed for activation.	Direct spray to the soil beneath woody plants to be controlled.
indaziflam @ 0.045 to 0.091 lb/A	Annual grasses including crabgrass and goosegrass and some broadleaf weeds.	<b>Esplanade 200 SC</b> 3.5 to 7.0 fl oz/A.	Preemergence.	Do not exceed 7 fl oz/A in a single application or 10 fl oz per year. Tank mix with postemergence herbicides to control existing weeds.
indaziflam @ 0.089% + diquat 0.89% + glyphosate 20.46%	Most broadleaf weeds and grasses.	<b>Esplanade EZ</b> 8.0 to 16.0 oz per gallon of water.	Postemergence.	Not for use on turfgrass. Avoid tracking the spray on desirable vegetation. Do not apply more than 5.4 gallons per acre per year.
<b>Cut Surface (frill, injection, hypo-hatchet, stump)</b>				
2,4-D amine (4 lb/gal formulation)	Elm, poplar, sassafras, willow and many woody species.	<b>2,4-D amine</b> (4 lb/gal formulation) Undiluted. 1 to 2 ml of concentrate per injection.	May to October.	Make injections as near the root collar as possible. See label for instructions for specific woody plant species.
imazapyr	Many woody plant species.	<b>Arsenal 2S</b> 2 qt per 1 qt of water (concentrated), or 8 to 12 fl oz per gal of water (dilute).	During active growth.	May be used as a cut stump, injection, frill or girdle treatment. See label for instructions for specific uses and rates.

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imazapyr	Many woody plant species.	<b>Chopper RTU</b> Undiluted.	During active growth.	Spray or brush the undiluted solution onto the cambium area of freshly cut stump surface and the bark of the cut stump. Insure that the cambium area (wood just inside the bark) is thoroughly wetted, but not to the point of puddling.
triclopyr	Maple, oaks, poison ivy, sumac, sweetgum and other woody plant species.	<b>Garlon 3A, Tahoe 3A</b> Undiluted.	Apply in spring or summer.	Apply in 1 ml of concentrate to cuts spaced 3 inches apart around the tree trunk. May also be applied with frill or girdle method.
glyphosate	Oaks, pines, poison ivy, sweetgum, sycamore and other woody plant species.	<b>Glyphosate</b> (4 lb/gal formulations) Undiluted.	Apply during active growth.	Apply 1 ml in cuts spaced 2 to 3 inches apart around the tree trunk.
picloram + 2,4-D amine	Pines and other woody plant species.	<b>Pathway</b> Undiluted.	Any time except during heavy sap flow.	Apply 0.5 ml of undiluted solution to cuts spaced 3 inches apart around the trunk. Or use 1 ml of 50% solution of Tordon 101 in a continuous cut girdling the trunk. Use undiluted Tordon RTU for frill method. <b>Restricted use pesticide.</b>
<b>Basal Spray</b>				
imazapyr (see label)	Many brush species.	<b>Stalker 2L</b> (See label.)	Spring or Fall.	For thinline and low-volume basal bark treatments. See label for specifics. Imazapyr is soil active and may be taken up by the roots of desirable vegetation.
2,4-D ester + triclopyr	Many woody plant species.	<b>Crossbow</b> 4 gal in enough diesel oil, No. 1 or No. 2 fuel oil, or kerosene to make 100 gal of spray mixture.	Apply any time except when snow or water prevent spraying the ground-line.	Spray basal parts of brush or trees to a height of 15 to 20 inches from the ground. Thoroughly wet all the basal bark area including crown buds and ground sprouts. Best results have been obtained with winter to early spring applications.
triclopyr	Blackberry, dogwood, hickory, maple, oaks, pines, sumac, sweetgum and other woody plant species.	<b>Garlon 4</b> 4 gal in enough Arborchem Basal Oil, diesel fuel, No. 1 or No. 2 fuel oil, or kerosene to make 100 gal of spray mixture.	Apply any time except when snow or water prevent spraying the ground-line.	For control of weedy plants with stems less than 6 inches in diameter. Spray the basal parts of trunks to a height of 12 to 15 inches from the ground. May be mixed in oil-water mixtures as well. Refer to label for rates and directions.
triclopyr @ 1.0 lb/gal	Many woody plants.	<b>Pathfinder II</b> Ready to use.	Apply any time except when snow or water prevent spraying the ground-line.	Use on plant with basal stem diameter less than 6 inches. Thoroughly wet the lower 12 to 15 inches of stems including the root collar, but not to runoff. See label for streamline basal bark instructions.
aminopyralid + triclopyr @ 0.83 to 1.23 lb/A	Many herbaceous and woody broadleaf weeds.	<b>Capstone</b> 6 to 9 pt/A.	Postemergence to actively growing weeds.	No grazing or haying restrictions. Do not use treated hay for mulch. Do not use manure from animals grazing treated pastures around sensitive plants.

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<b>Woody Plant Control in Non-Cropland (Right-of-ways, fencerows, industrial sites, etc.)</b>				
<b>Basal Spray [cont.]</b>				
clopyralid @ 0.5 lb	Kudzu, honeylocust, black locust, sericea lespedeza.	<b>Transline 3 lb/gal</b> 1.33 pt/A.	Late June to early October.	Clopyralid is a chemical which can travel (seep or leach) through soil and, under certain conditions, has the potential to contaminate groundwater which may be used for irrigation and drinking purposes. Users are advised not to apply picloram where soils have a rapid to very rapid permeability throughout the profile (such as loamy sand to sand) and the water table of an underlying aquifer is shallow or to soils containing sinkholes over limestone bedrock, severely fractured surfaces and substrates which would allow direct introduction into an aquifer. Your local county Extension office can provide further information of the type of soil in your area and the location of groundwater.
aminocyclopyrachlor + metsulfuron + imazapyr @ 0.5 to 0.77 lb/gal	Many broadleaf herbaceous and woody plants and some grasses.	<b>Viewpoint 61.7 DF</b> 13 to 20 oz/A.	Postemergence.	Read the label carefully before using Viewpoint. Very low rates of this herbicide can injure crops. Do not use on lawns, walks, driveways, tennis courts or similar areas. Do not apply more than 20 oz/A per year.
<b>General Herbaceous Weed Control in Non-Cropland (Right-of-ways, fencerows, industrial sites, etc.)</b>				
imazapyr @ 0.5 to 3 lb/A	Ash, dogwood, greenbrier, hawthorne and many other grass, broadleaf and brush weeds.	<b>Arsenal 2S</b> 2 to 6 pt/A.	May be applied preemergence or as postemergence spray.	Post sprays are usually more effective. Apply to wet foliage. Apply to actively growing vegetation.
2,4-D amine 1 to 4 lb/A	Many annual and perennial broadleaf weeds.	<b>2,4-D amine</b> 1 to 4 qt/A.	Postemergence.	Apply as a foliar spray in 15 to 30 gpa of water to young, vigorously growing weeds. Avoid drift to susceptible crops or other desirable vegetation.
dicamba @ 0.5 to 8 lb/A	Many annual and perennial broadleaf weeds.	<b>Vanquish 4S</b> 1 pt to 2 gal/A.	Postemergence.	Apply to actively growing weeds and brush. May be tank mixed with 2,4-D, Karmex, Dalapon, Princep, Tordon, Amitrole, Hyvar, Velpar, Spike, Garlon and other herbicides to broaden spectrum of weed and brush control. See label for more information.
prodiamine @ 0.65 to 1.5 lb/A	Annual grasses.	<b>Endurance 65 DF</b> 1 to 2.3 lb/A.	Preemergence.	Tank mix with Roundup Pro or Arsenal for control of emerged weeds.
DSMA or MSMA @ 2.7 to 5.4 lb/A	Johnsongrass control in other perennial grasses.	<b>DSMA or MSMA</b> Many formulations.	Postemergence.	Apply when johnsongrass is 6 inches tall until early head stage. Two broadcast applications are allowed per year. A 100-ft buffer is required between treated sites and permanent water bodies.

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sulfosulfuron @ 0.062 to 0.13 lb/A	Johnsongrass, nutsedge, buttercup, others.	<b>Outrider 75 DF</b> 1.33 to 2.66 oz/A.	Postemergence to actively growing weeds. Treat johnsongrass at 12 to 18 inches.	Excellent for johnsongrass control in bermudagrass. Does not injure actively growing bermudagrass. Add 0.5% nonionic surfactant or methylated seed oil. May be tank mixed with Roundup Pro, Escort, Oust or other herbicides to broaden the spectrum of control.
triclopyr @ 1.0 to 4.5 lb/A	Many annual and perennial broadleaf weeds.	<b>Tahoe 3A, Garlon 3A or 4 + Nonionic Surfactant</b> 0.33 to 1.5 gal/A of Garlon 3A, or 1 to 4 qt/A of Garlon 4 + 0.25 to 1 pt per 20 to 100 gal of water.	Postemergence.	Apply any time during growing season. May be tank mixed with 2,4-D or Tordon 22K to broaden spectrum of weed and brush control. See labels for more information.
fosamine @ 6 to 12 lb/A	Blackberry, multiflora rose, sumac and other brush and woody plant species.	<b>Krenite S + Nonionic Surfactant</b> 1.5 to 3 gal/A.	Postemergence.	Apply as a foliar spray from July through first frost. Complete coverage is essential for good control.
sulfometuron-methyl @ 0.5 to 0.56 lb/A	Johnsongrass, fescue, most annual grass and broadleaf weeds.	<b>Oust 75 DF</b> 1 to 12 oz/A.	Preemergence or postemergence.	Apply preemergence or early postemergence in late spring to early summer. Use nonionic surfactant for postemergence applications. Do not apply where runoff water may flow onto agricultural land or where other desirable vegetation is growing. May be tank-mixed with Karmex, Velpar and other herbicides for broader spectrum weed control. See label for more information.
sulfometuron + chlorsulfuron @ 0.14 to 0.048 to 0.35 + 0.12 lb/a	Many broadleaf weeds and grasses.	<b>Landmark XP</b> 4 to 9 oz/A.	Preemergence and postemergence.	Premix of Oust + Telar.
glyphosate @ 0.75 to 3.75 lb/A	Johnsongrass, bermudagrass, fescue, dandelion, multiflora rose, thistles, most annual weeds and many perennial plants.	<b>Glyphosate</b> (4 lb/gal formulations) 2 to 5 qt/A.	Postemergence.	Apply as foliar spray to actively growing plants. See label for use rates for specific plant species.
imazapic @ 0.032 to 0.188 lb/A	Johnsongrass, ragweed, tall fescue, prickly sida, trumpetcreeper.	<b>Plateau 2S</b> 2 oz to 12 oz/A.	Postemergence.	Provides weed control and growth suppression.
imazapic + glyphosate @ 0.023 + 0.063 to 0.188 + 0.5 lb/A	Johnsongrass, crabgrass, sandbur, sedges, tall fescue control or seedhead suppression.	<b>Journey</b> 4 to 32 oz/A.	Postemergence.	Do not use unless bermudagrass injury can be tolerated.
pendimethalin @ 2 to 4 lb/A	Annual grasses.	<b>Pendulum 60 DF</b> 3.3 to 6.6 lb/A.	Preemergence.	Tank mix with Roundup Pro or Arsenal for control of emerged weeds.
aminocyclopyrachlor + chlorsulfuron @ 0.06 to 0.38 lb/A	Many broadleaf herbaceous and woody plants.	<b>Perspective 55.3 DF</b> 1.75 to 11 oz/A.	Postemergence.	Read the label carefully before using Perspective. Very low rates of this herbicide can injure crops. Do not use on lawns, walks, driveways, tennis courts or similar areas. Do not apply more than 11.5 oz/A per year.

Crop, Situation, and Active Chemical Per Broadcast Acre	Weeds Controlled	Formulated Material Per Broadcast Acre	Time of Application	Method of Application and Precautions
<b>Soil Sterilants (Right-of-ways, fencerows, industrial sites, etc.)</b>				
triclopyr @ 1.0 to 4.5 lb/A	Many annual and perennial broadleaf weeds.	<b>Tahoe 3A, Garlon 3A or 4 + Nonionic Surfactant</b> 0.33 to 1.5 gal/A of Garlon 3A, or 1 to 4 qt/A of Garlon 4 + 0.25 to 1 pt per 20 to 100 gal of water.	Postemergence.	Apply any time during growing season. May be tank mixed with 2,4-D or Tordon 22K to broaden spectrum of weed and brush control. See labels for more information.
bromacil + diuron @ 1.6 + 1.6 to 18.4 + 18.4 lb/A	Many annual and perennial broadleaf and grass weeds.	<b>Krovar II DF</b> 2 to 23 lb/A.	Preemergence or early postemergence.	Apply just before weed emergence or in early stages of weed growth. See label for use rates for specific weeds.
prometon @ 8 to 20 lb/A	Many annual and perennial broadleaf and grass weeds.	<b>Pramitol 25E</b> 4 to 10 gal/A.	Preemergence or postemergence.	Apply prior to emergence until 3 months after weed emergence. Will give residual control for over 1 year. See label for use rates for specific weeds and uses.
prometon + simazine + sodium chlorate + sodium metaborate	Many annual and perennial broadleaf and grass weeds.	<b>Pramitol 5 PS</b> 0.35 to 0.92 lb/100 sq ft.	Preemergence or postemergence.	Apply prior to emergence until 3 months after weed emergence. Will give residual control for over 1 year. See label for use rates for specific weeds and uses.
tebuthiuron @ 1 to 4 lb/A	Many annual and perennial broadleaf and grass weeds.	<b>Spike 20P</b> 10 to 20 lb/A of 20P.	March.	May be applied any time except when ground is frozen or the soil is saturated with moisture. Do not apply near desirable vegetation where roots may come in contact with the herbicide. Avoid contamination of irrigation water. See label for use rates for specific weeds.
dichlobenil @ 4 to 8 lb/A	Many annual and perennial weeds and woody plant species.	<b>Casoron 4G</b> 100 to 200 lb/A.	Preemergence.	See label for application instructions, use rates and specific weeds.
bromacil @ 3 to 24 lb/A	Many annual and perennial broadleaf and grass weeds.	<b>Hyvar X-L</b> 1.5 to 12 gal/A.	Preemergence or postemergence.	Apply as spray in 100 to 200 gal of water per acre. See label for use rates for specific weeds.
diuron @ 4 to 12 lb/A	Many annual and perennial broadleaf and grass weeds.	<b>Karmex 80DF</b> 5 to 15 lb/A.	Preemergence or early postemergence.	Apply to soil shortly before weed growth begins. See label for use rates for specific weeds.
bromacil + diuron @ 1.6 + 1.6 to 12 + 12 lb/A	Many annual and perennial broadleaf and grass weeds.	<b>Krovar IDF</b> 4 to 30 lb/A.	Preemergence or early postemergence.	Apply just before weed emergence or in early stages of weed growth. See label for use rates for specific weeds.
hexazinone @ 6 to 12 lb/A	Many annual and perennial broadleaf and grass weeds.	<b>Velpar L</b> 3 to 6 gal/A.	Preemergence or early postemergence.	Apply to soil from late winter to early summer, or in fall. Needs rainfall for activation. See label for use rates for specific weeds.
imazapyr + diuron @ 1.0 + 8.0 to 1.5 + 12.0 lb/A	Most herbaceous weeds.	<b>Sahara DG</b> 13 to 19 lb/A.	Pre or postemergence.	Tank mix with Roundup Pro for faster burndown of emerged vegetation. Do not apply over or near the roots of desirable trees.