

HERBICIDE CLASSIFICATION



Repeated use of herbicides with the same site of action can result in the development of herbicide-resistant weed populations.

by MODE OF ACTION (effect on plant growth)

This chart groups herbicides by their modes of action to assist you in selecting herbicides 1) to maintain greater diversity in herbicide use and 2) to rotate among effective herbicides with different sites of action to delay the development of herbicide resistance.

SITE-OF-ACTION GROUP	SITE OF ACTION	CHEMICAL FAMILY	ACTIVE INGREDIENT	PRODUCT EXAMPLES (TRADE NAME [®])
1	ACCASE INHIBITORS (acetyl CoA carboxylase)	Aryloxyphenoxypropionate (fops) Cyclohexanedione (dime) Phenylpyrazolin	clodinafop cyhalofop fenoxaprop flazifop quizalofop cletodim sethoxydim pinoxaden	Discover NG Clincher Ricestar, others Fusilade DX Assure II, Targa Select Max, others Poast, Poast Plus Axial XL
2	ALS INHIBITORS (acetolactate synthase)	Imidazolinone Pyrimidinylthiobenzoic acid Sulfonylamino-carbonyl-triazolinones Sulfonyleurea Triazolopyrimidine	imazamox imazapic imazapyr imazaquin imazethapyr bispyribac pyrithiobac flucarbazone propoxycarbazone thiencarbazone bensulfuron chlorsulfuron chlorimuron halosulfuron halosulfuron iodosulfuron mesosulfuron metsulfuron nicosulfuron orthosulfuron primisulfuron prosulfuron rimsulfuron sulfosulfuron thifensulfuron triasulfuron tribenuron triflousulfuron triflusalurone cloransulam florasulam flumetsulam penoxulam pyroxasulfone	Raptor, Beyond, Clearmax Plateau Arsenal Scepter Pursuit, Newpath Regiment Staple Everest, Pre-Pare, Sierra Olympus Varro Londax Classic Glean Permit, Sandea Autumn Osprey Ally Accent Q, Zest Strada Beacon Peak Matrix, Resolve Maverick Harmony Amber Express Envoke UpBeet FirstRate component of Orion Python, Accolade Grasp PowerFlex HL
9	EPSP SYNTHASE INHIBITOR (5-enolpyruvyl-shikimate-3-phosphate)	Organophosphorus	glyphosate	Roundup, several others
4	SYNTHETIC AUXINS (TIR1, AF5, and unknown auxin receptors)	Arylpicolinate Benzoic acid Carboxylic acid Phenoxy	halauxifen dicamba aminopyralid clopyralid fluroxypyr quinclorac triclopyr 2,4-D MCPA	Elevore Banvel, Clarity, DIFlexx, Engenia, FeKapan, XtendiMax, others Milestone Stinger Starane Ultra Facet Garlon, Remedy Ultra 2,4-D, Enlist One, others MCPA, others
19	AUXIN TRANSPORT INHIBITOR	Semicarbazone	diflufenopyr	component of Status
5	PHOTOSYSTEM II INHIBITORS (different binding than 6 & 7)	Phenylcarbamate Triazine Triazinone Uracil	desmedipham phenmedipham atrazine prometon prometryn simazine hexazinone metribuzin terbacil	Betenex component of Betamix AAtrex, others Pramitol Caprol Princep Velpar Metribuzin, others Sinbar
6	PHOTOSYSTEM II INHIBITORS (different binding than 5 & 7)	Benzothiadiazole Nitrite	benzoxazin bromoxynil	Basagran, others Maestro, Moxy, others
7	PHOTOSYSTEM II INHIBITORS (different binding than 5 & 6)	Amide Urea	propanil diuron flumeturon linuron tebuthiuron	SuperWham Direx, Karmex Cotoran Lorox, Linex Spike
10	NITROGEN METABOLISM INHIBITOR (GLUTAMINE SYNTHETASE INHIBITOR)	Organophosphorus	glufosinate	Liberty, Rely, others
12	PHYTOENE DESATURASE (PDS) INHIBITOR	none recognized	fluridone	Sonar
13	GOXP SYNTHASE INHIBITOR (1-O-EKOXY-D-XYLULOSE-5-PHOSPHATE)	Pyridazinone	norturazon	Solicam
27	HPPD INHIBITORS	Isoxazolidinone Isoxazole Pyrazole Triketone	clomazone isoxaflutole pyrasulfotole topramezone tolpyralate mesotrione tembotrione bicyclopyrone	Command Allie 27*, Balance Flexx component of Huskie Armezon, Impact Shieldex Callisto Laudis component of Acuron
14	CELL MEMBRANE DISRUPTERS (PPO INHIBITORS)	Aryl triazinone Diphenylether N-phenylphthalimide Pyrimidinedione	carfentrazone fluthiacet sulfentrazone acifluorfen fomesafen lactofen flumiclorac flumioxazin sulfafenacil	Aim Cadet Spartan Ultra Blazer Flexstar, Reflex, others Cobra, Phoenix Resource Valor, Chateau, others Sharpen
22	PHOTOSYSTEM I ELECTRON DIVERTER	Biarylpyridium	diquat paraquat	Reglone Gramoxone SL
3	SEEDLING ROOT GROWTH INHIBITORS (MICROTUBULE INHIBITORS)	Benzamide Dinitroaniline	pronamide ethalfuralin pendimethalin trifluralin	Kerb Sonalan Prowl H ₂ O, others Treflan, others
8	SEEDLING SHOOT GROWTH INHIBITORS (LIPID SYNTHESIS INHIBITOR (not ACCase))	Thiocarbamate	butylate cycloate EPTC thiobencarb triallate	Sutan + Ro-Neet Eradicane, Eptam Bolero Far-Go
15	LONG-CHAIN FATTY ACID INHIBITORS	Amide Chloroacetamide Oxyacetamide Pyrazole	dithiopyr napropamide acetochlor dimethenamid-P s-metolachlor flufenacet pyroxasulfone	Dimension Devinol Harness, Surpass, Topnotch, Warrant, others Outlook Dual Magnum, others Define Zidua
16	SPECIFIC SITE UNKNOWN	Benzofuran	ethofumesate	Nortron
17	UNDEFINED (NUCLEIC ACID INHIBITOR)	Arsenical	MSMA	MSMA

by PREMIX

This chart lists premix herbicides alphabetically by their trade names so you can identify the premix's component herbicides and their respective site-of-action groups. Refer to the Site-of-Action chart on the left for more information.

PREMIX	ACTIVE INGREDIENT	TRADE NAME [®]	SITE-OF-ACTION GROUP	
			Component	Site-of-Action Group
ACURON	bicyclopyrone mesotrione atrazine s-metolachlor bicyclopyrone	---- Callisto AAtrex Dual II Magnum ----	27 27 5 15 27	27
ACURON FLEXI	mesotrione s-metolachlor	Callisto Dual II Magnum	27 15	27
AFFINITY BROADSPEC (Affinity Tankmix)	thifensulfuron tribenuron	Harmony Express	2 2	2
AFFORIA	thifensulfuron tribenuron flumioxazin	Harmony Express Valor	2 2 14	2
AGILITY SG	dicamba thifensulfuron tribenuron metsulfuron	Clarity Harmony Express Ally	4 2 2 2	2
ALLY EXTRA	thifensulfuron tribenuron metsulfuron	Harmony Express Ally	2 2 2	2
ANTHEM ATZ	pyroxasulfone fluthiacet atrazine	Zidua Cadet AAtrex	15 14 5	14
ANTHEM FLEX	pyroxasulfone carfentrazone	Zidua Aim	15 14	14
ANTHEM MAXX	pyroxasulfone fluthiacet	Zidua Cadet	15 14	14
ARMEZON PRO	topramezone dimethenamid-P	Armezon Outlook	27 15	27
AUTHORITY ASSIST	sulfentrazone imazethapyr	Spartan Pursuit	14 2	14
AUTHORITY ELITE	sulfentrazone s-metolachlor	Spartan Dual Magnum	14 15	14
AUTHORITY FIRST	sulfentrazone cloransulam	Spartan FirstRate	14 2	2
AUTHORITY MTZ	sulfentrazone metribuzin	Spartan Metribuzin	14 5	14
AUTHORITY SUPREME	sulfentrazone pyroxasulfone	Spartan Zidua	14 15	14
AUTHORITY XL (Authority Maxx)	sulfentrazone chlorimuron	Spartan Classic	14 2	2
AUTUMN SUPER	iodosulfuron thiencarbazone	Autumn Varro	2 2	2
AXIAL BOLD	pinoxaden fenoxaprop pinoxaden fluroxypyr	Axial XL Ricestar Axial XL Starane	1 1 1 4	1
AXIAL STAR	rimsulfuron thifensulfuron	Resolve Harmony	2 2	2
BASIS BLEND	thifensulfuron desmedipham phenmedipham	Harmony Betenex ----	2 5 5	2
BETAMIX	s-metolachlor phenmedipham	Dual II Magnum Dual II Magnum	15 5	15
BICEP II MAGNUM (Bicep II & Magnum)	atrazine	AAtrex	5	5
BOUNDARY	s-metolachlor metribuzin	Dual Magnum Metribuzin	15 5	15
BRAKE F16	fomesafen fluridone	Flexstar Sonar	14 12	14
BRAKE FX	flumeturon fluridone	Cotoran Sonar	7 12	7
BREAKFREE NXT ATZ (Breakfree NXT Lite)	acetochlor atrazine	Breakfree NXT AAtrex	15 5	15
BROADAXE XC	s-metolachlor sulfentrazone	Dual Magnum Spartan	15 14	15
BRONATE	MCPA MCPA	MCPA MCPA	4 4	4
CALLISTO GT	mesotrione glyphosate	Callisto glyphosate	27 9	27
CALLISTO XTRA	mesotrione atrazine chlorimuron	Callisto AAtrex Classic	27 5 2	27
CANOPY	metribuzin	Metribuzin	5	5
CANOPY EX	chlorimuron tribenuron	Classic Express	2 2	2
CAPRENO	thiencarbazone tembotrione MCPA	Varro Laudis MCPA	2 27 4	2
CARNIVORE	clopyralid bromoxynil glufosinate	Stinger Maestro Liberty	4 6 10	4
CHEETAH MAX	fomesafen	Reflex	14	14
CINCH ATZ (Cinch ATZ Lite)	s-metolachlor atrazine	Dual II Magnum AAtrex	15 5	15
CLEARPATH	quinclorac imazethapyr	Facet Newpath	4 2	4
COLT + SALVO (Trump Card)	2,4-D fluroxypyr	2,4-D Starane	4 4	4
COLT + SWORD	MCPA fluroxypyr	MCPA Starane	4 4	4
CORVUS	thiencarbazone isoxaflutole	Varro Balance Flexx	2 15	2
COVOTE	s-metolachlor mesotrione	Dual II Magnum Callisto	15 27	15
CRUSHER	rimsulfuron thifensulfuron	Resolve Harmony	2 2	2
CURTAIL	clopyralid	Stinger	4	4
CURTAIL M	2,4-D clopyralid MCPA	2,4-D Stinger MCPA	4 4 4	4
DEGREE XTRA	acetochlor atrazine	Degree AAtrex	15 5	15
DIFLEXX DUO	dicamba tembotrione	DIFlexx Laudis	4 27	4
ENGENIA PRO*	dicamba pyroxasulfone	Engenia Zidua	4 15	4
ENLIST DUO	2,4-D glyphosate	2,4-D glyphosate	4 9	4
ENLITE	chlorimuron thifensulfuron	Classic Harmony	2 2	2
ENLITE	thifensulfuron flumioxazin	Harmony Valor	2 14	2
ENVIVE	chlorimuron thifensulfuron flumioxazin	Classic Harmony Valor	2 2 14	2
EXTREME	imazethapyr glyphosate	Pursuit glyphosate	2 9	2
FIERCE	flumioxazin pyroxasulfone	Valor Zidua	14 15	14
FIERCE MTZ	flumioxazin pyroxasulfone metribuzin	Valor Zidua Metribuzin	14 15 5	14
FIERCE XLT	flumioxazin pyroxasulfone	Valor Zidua	14 15	14
FINESSE	chlorsulfuron metsulfuron	Glean Ally	2 2	2
FINESSE GRASS AND BROADLEAF	chlorsulfuron flucarbazone fomesafen	Glean Everest Flexstar	2 2 14	2
FLEXSTAR GT	glyphosate fenoxaprop	glyphosate Tecoma	9 1	9
FOXFIRE	pinoxaden	Axial XL	1	1
FULTIME NXT	acetochlor atrazine	TopNotch AAtrex	15 5	15
FUSION	fluzifop flumioxazin	Fusilade DX Puma	1 1	1
GANGSTER	flumioxazin cloransulam	Valor FirstRate	14 2	14
GOLDSKY	pyroxasulfone florasulam fluroxypyr	PowerFlex HL ---- Starane	2 2 15	2
GRAMOXONE MAGNUM*	s-metolachlor paraquat	Dual Magnum Gramoxone	15 22	15
GRAZONNEX HL	aminopyralid 2,4-D	Milestone 2,4-D	4 4	4
HALEX GT	s-metolachlor mesotrione glyphosate	Dual Magnum Callisto glyphosate	15 27 2	15
HARMONY XTRA	thifensulfuron tribenuron	Harmony Express	2 2	2
HARNES MAX	acetochlor mesotrione	Harness Callisto	15 27	15
HARNES XTRA	acetochlor atrazine	Harness AAtrex	15 5	15
HORNET	clopyralid flumetsulam	Stinger Python	4 2	4
HUSKIE	pyrasulfotole bromoxynil	---- Maestro	27 6	27
HUSKIE COMPLETE	pyrasulfotole bromoxynil thiencarbazone	---- Maestro Varro	27 6 2	27
IMPACTZ	atrazine	AAtrex	5	5
IMPACTZ	topramezone	Impact	27	27
INSTIGATE	rimsulfuron mesotrione	Resolve, Matrix Callisto	2 2	2
INTERMOC	glufosinate s-metolachlor	Liberty Dual Magnum	10 15	10
KEYSTONE NXT (Keystone LA NXT)	acetochlor atrazine	Surpass NXT AAtrex	15 5	15
KOCHIAVORE	2,4-D fluroxypyr bromoxynil	2,4-D, others Starane Maestro	4 4 6	4
LEXAR EZ	mesotrione s-metolachlor	Callisto Dual II Magnum	27 15	27
LUMAX EZ	s-metolachlor atrazine	Dual II Magnum AAtrex	15 5	15
MARVEL	fluthiacet fomesafen	Cadet Flexstar	14 14	14
OBEY	clomazone quinclorac	Command Facet	13 4	13
OPENSKY	pyroxasulfone fluroxypyr	PowerFlex HL Starane Ultra	4 4	4
OPTILL	saflufenacil imazethapyr	Sharpen Pursuit	14 2	14
OPTILL PRO	saflufenacil imazethapyr dimethenamid-P	Sharpen Pursuit Outlook	14 2 15	14
ORION	florasulam MCPA	---- MCPA	2 4	2
PANOFLEX	thifensulfuron tribenuron	Harmony Express	2 2	2
PERMIT PLUS	thifensulfuron halosulfuron	Harmony Permit	2 2	2
PREFIX	s-metolachlor fomesafen	Dual Magnum Reflex	15 14	15
PREQUEL	rimsulfuron isoxaflutole	Resolve Balance	2 27	2
PROGRESS	desmedipham phenmedipham	Betenex ----	5 5	5
PULSAR	dicamba fluroxypyr	Clarity Starane	4 4	4
QUELEX	halauxifen florasulam	Elevore ----	4 2	4
RAVE	triasulfuron dicamba	Amber Clarity	2 4	2
RAZE	flucarbazone fluroxypyr	Everest Starane	2 4	2
REALM Q	rimsulfuron mesotrione	Resolve Callisto	2 27	2
REBELEX	cyhalofop penoxulam	Clincher Grasp	1 2	1
RESICORE	acetochlor mesotrione	Surpass NXT Callisto	15 27	15
RESOLVE Q	rimsulfuron thifensulfuron	Resolve Harmony	2 2	2
REVOLIN Q	nicosulfuron mesotrione	Accent Q Callisto	2 27	2
RIMFIRE MAX	propoxycarbazone mesosulfuron	Olympus Osprey	2 2	2
ROUNDUP XTEND*	dicamba glyphosate	XtendiMax glyphosate	4 9	4
SENTRALLAS	thifensulfuron fluroxypyr	Harmony Starane	2 4	2
SEQUENCE	s-metolachlor glyphosate	Dual Magnum glyphosate	15 15	15
SOLSTICE	mesotrione fluthiacet	Callisto Cadet	27 14	27
SONIC	sulfentrazone cloransulam	Spartan FirstRate	14 2	14
SPARTAN CHARGE	sulfentrazone carfentrazone	Spartan Aim	14 14	14
STANZA	clopyralid flumetsulam	Stinger Python	4 2	4
STARANE FLEX	florasulam fluroxypyr	---- Starane	2 4	2
STARANE NXT	fluroxypyr bromoxynil	Starane Maestro	4 6	4
STATUS	difflufenopyr	----	19	19
STEADFAST Q	nicosulfuron rimsulfuron	Accent Q Resolve	2 2	2
STORM	benzoxazin acifluorfen	Basagran Ultra Blazer	6 14	6
SUPREMACY	fluroxypyr thifensulfuron	Starane Harmony	4 2	4
SUPREND	tribenuron prometryn	Express Caprol	2 5	2
SURESTART II	triflousulfuron acetochlor	Envoke Surpass NXT	5 15	5
SURVEIL	clopyralid flumetsulam	Stinger Python	4 2	4
SYNCHRONY XP	flumioxazin chlorsulfuron thifensulfuron	Valor Classic Harmony	14 2 2	14
TALINOR	bromoxynil bicyclopyrone	Maestro ----	6 27	6
TAVIUM*	dicamba s-metolachlor	XtendiMax Dual Magnum	4 15	4
TRAVALLAS	metsulfuron thifensulfuron	Ally Harmony	2 2	2
TRIPLEFLEX II	fluroxypyr acetochlor	Starane Harness	4 15	4
TRIPZIN ZC	clopyralid flumetsulam	Stinger Python	4 2	4
TRIVENCE	pendimethalin metribuzin	Prowl Metribuzin	5 5	5
VALOR XLT	chlorsulfuron flumioxazin	Classic Valor	2 14	2
VARISTO	imazamox benzoxazin	Raptor Basagran	5 6	5
VELPAR ALFAMAX	hexazinone diuron	Velpar Karmex	5 7	5
VERDICT	saflufenacil dimethenamid-P	Sharpen Outlook	14 15	14
WARRANT ULTRA	fomesafen acetochlor	Reflex Warrant	14 15	14
WELD (FULL DECK)	MCPA fluroxypyr clopyralid	MCPC Starane Stinger	4 4 4	4
WIDEMATCH	clopyralid fluroxypyr	Stinger Starane	4 4	4
WOLVERINE	fenoxaprop pyrasulfotole bromoxynil	Tecoma ---- Maestro	1 27 6	1
YUKON	dicamba halosulfuron	Banvel Permit	4 2	4
ZEMAX	mesotrione s-metolachlor	Callisto Dual II Magnum	27 15	27
ZIDUA PRO	imazethapyr saflufenacil	Pursuit Sharpen	2 14	2
ZIDUA PRO	pyroxasulfone	Zidua	15	15

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