

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 (MOA) (effect on plant growth)

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

SITE-OF-ACTION GROUP ¹	SITE OF ACTION	NUMBER OF RESISTANT WEED SPECIES IN U.S.							
		CHEMICAL FAMILY	ACTIVE INGREDIENT	PRODUCT EXAMPLES (TRADE NAME)					
LIPID SYNTHESIS INHIBITORS									
1	ACCASE INHIBITORS (acetyl CoA carboxylase)	14	Aryloxyphenoxypropionate (fops)	clodinafop cyhalofop fenoxaprop flusulfop quizalofop clethodim sethoxydim pinoxaden	<i>Discover NG</i> <i>Clincher</i> <i>Ricestar HI, others</i> <i>Fusilade DX</i> <i>Assure II, others</i> <i>Select Max, others</i> <i>Poast, Poast Plus</i> <i>Axial XL</i>				
			AMINO ACID SYNTHESIS INHIBITORS						
			2	ALS INHIBITORS (acetolactate synthase)	53	Imidazolinone	imazamox imazapyr imazaquin imazethapyr	<i>Raptor, Beyond</i> <i>Plateau</i> <i>Arsenal</i> <i>Scepter</i> <i>Pursuit, Newpath</i>	
						Pyrimidinyl benzates	bispyribac pyrithiobac	<i>Regiment</i> <i>Staple</i>	
Sulfonyleurea	bensulfuron chlorimuron chlorsulfuron halosulfuron iodosulfuron mesosulfuron metsulfuron nicosulfuron orthosulfuron primisulfuron primsulfuron rimsulfuron sulfosulfuron thifensulfuron triasulfuron tribenuron triflurosulfuron triflusulfuron	<i>Londax</i> <i>Classic</i> <i>Glean</i> <i>Permit, Sandea</i> <i>Amber</i> <i>Osprey</i> <i>Ally</i> <i>Accent Q, Zest</i> <i>Strada</i> <i>Beacon</i> <i>Peak</i> <i>Matrix, Resolve</i> <i>Outrider</i> <i>Harmony</i> <i>Amber</i> <i>Express</i> <i>Envoke</i> <i>UpBeet</i>							
	Triazolones	flucarbazone propoxycarbazone thiencarbazone cloransulam				<i>Everest, Pro-Para</i> <i>Olympus</i> <i>Varro</i> <i>FirstRate</i>			
	Triazolopyrimidine - Type 1	florasulam flumetsulam				<i>component of Orion, Quelex, Starane Flex</i> <i>Python</i>			
	Triazolopyrimidine - Type 2	penoxsulam pyrasulfam				<i>Grasp</i> <i>PowerFlex HL</i>			
	9	EPSP SYNTHASE INHIBITOR (5-enolpyruvyl-shikimate-3-phosphate)				18	Glycine	glyphosate	<i>Roundup, several others</i>
	GROWTH REGULATORS								
	4	SYNTHETIC AUXINS (TIR1, AFB1-5 and unknown auxin receptors)				11	6-Arylpicolinates	florpyrauxifen halauxifen	<i>Loyant</i> <i>Elevore</i>
							Benzate	dicamba	<i>Banvel, Clarity, DiFlexx, others</i>
							Phenoxy carboxylate	2,4-D MCPA	<i>2,4-D, Enlist One, others</i> <i>Milestone</i>
							Pyridine carboxylate	aminopyralid clopyralid halauxifen	<i>Stinger</i> <i>Starane Ultra</i> <i>Elevore</i>
19	AUXIN TRANSPORT INHIBITOR	0				Aryl carboxylate	diffenozopyr	<i>component of Status</i>	
PHOTOSYNTHESIS INHIBITORS									
5	PHOTOSYSTEM II INHIBITORS (D1 Serine 264 binders and non-histidine 215 binders)	28				Amide	propanil atrazine ametryn	<i>SuperWham</i> <i>AAtrex, others</i> <i>Evik</i>	
						Triazine	prometon prometryn simazine	<i>Pramitol</i> <i>Caparal</i> <i>Princep</i>	
						Triazinone	hexazinone	<i>Velpar</i>	
						Uracil	metribuzin terbacil	<i>Metribuzin, others</i> <i>Sinbar</i>	
6	PHOTOSYSTEM II INHIBITORS (D1 Histidine 215 binders)	1				Urea	diuron fluometuron linuron tebuthiuron	<i>Direx, Karmex</i> <i>Cotaron</i> <i>Lorox, Linex</i> <i>Spike</i>	
10	GLUTAMINE SYNTHETASE INHIBITOR	3	Benzothiadiazinone Nitrile Phenyl pyridazine	benzoxazin bromoxynil pyridate	<i>Basagran, others</i> <i>Maestro, Mox, others</i> <i>Tough</i>				
NITROGEN METABOLISM INHIBITOR									
12	PHYTOENE DESATURASE (PDS) INHIBITORS	1	Diphenyl heterocycle N-Phenyl heterocycle Phenyl ether	fluridone norflurazon diflufenican	<i>Brake, Sonar</i> <i>Solicam</i> -----				
13	DOXP SYNTHASE INHIBITOR (1-DEOXY-D-XYULOSE 5-PHOSPHATE)	2	Isoxazolidinone	clomazone	<i>Command 3ME</i>				
27	HPPD INHIBITORS	3	Isoxazole Pyrazole Triketone	isoxaflutole pyrasulfotole topramezone tolpyralate bicyclopyrone mesotrione tembotrione	<i>Alite 27, Balance Flexx</i> <i>component of Huskie</i> <i>Armezon, Impact</i> <i>Shieldex</i> <i>Optogen</i> <i>Callisto</i> <i>Laudis</i>				
CELL MEMBRANE DISRUPTERS									
14	PPO INHIBITORS	6	Diphenyl ether	acifluorfen fomesafen lactofen	<i>Ultra Blazer</i> <i>Flexstar, Reflex, others</i> <i>Cobra, Phenix</i>				
			N-Phenyl imide	flumiclorac flumioxazin fluthiacet safluenacil tiafenacil	<i>Resource</i> <i>Valor, Chateau, others</i> <i>Cadet</i> <i>Sharpen</i> <i>Reviton, Gamma</i>				
				N-Phenyl triazolone	carfentrazone sulfentrazone	<i>Aim</i> <i>Spartan</i>			
			Pyridinium	diquat	<i>Reglone</i>				
22	PHOTOSYSTEM I ELECTRON DIVERTER	6	Pyridinium	paraquat	<i>Gramoxone SL</i>				
SEEDLING ROOT GROWTH INHIBITORS									
3	MICROTUBULE ASSEMBLY INHIBITORS	6	Benzamide	pronamide	<i>Kerb</i>				
			Dinitroaniline	ethalfluralin pendimethalin	<i>Sonalan</i> <i>Prowl H2O, others</i>				
			Pyridine	trifluralin dithiopyr	<i>Treflan, others</i> <i>Dimension</i>				
				SEEDLING SHOOT GROWTH INHIBITORS					
15	VERY LONG-CHAIN FATTY ACID SYNTHESIS INHIBITORS	8	Benzofuran	ethofumesate	<i>Norton</i>				
			α-Chloroacetamide	acetochlor dimethenamid-P	<i>Harness, Surpass, Warrant, others</i> <i>Outlook</i>				
				s-metolachlor pyrasulfone	<i>Dual Magnum, others</i> <i>Zidua</i>				
			Isoxazoline	flufenacet	<i>Define</i>				
			α-Diacycetamide	cycloate	<i>Ro-Neet</i>				
			Thiocarbamate	EPTC	<i>Eradicane, Eptam</i>				
29	CELLULOSE BIOSYNTHESIS INHIBITORS	3	Aylkylazine Benzamide	indaziflam isoxaben	<i>Alion, Esplanade, Rezion</i> <i>Gallery, Trellis</i>				
UNDEFINED									
0	UNKNOWN	1	Amide	napropamide	<i>Devrinal</i>				
			Arsenical	MSMA	<i>MSMA</i>				

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			
				PREMIX	ACTIVE INGREDIENT	TRADE NAME	
ACURON	bicyclopyrone	<i>Optogen</i>	27	KYBER	flumioxazin	<i>Valor</i>	14
	mesotrione	<i>Callisto</i>	27		pyrasulfone	<i>Zidua</i>	15
	atrazine	<i>AAtrex</i>	5		metribuzin	<i>Metribuzin</i>	5
	s-metolachlor	<i>Dual II Magnum</i>	15		acetochlor	<i>Surpass NXT</i>	15
ACURON FLEXI	bicyclopyrone	<i>Optogen</i>	27	KYRO	topramezone	<i>Impact</i>	27
	mesotrione	<i>Callisto</i>	27		clopyralid	<i>Stinger</i>	4
ACURON GT	s-metolachlor	<i>Dual II Magnum</i>	15	LEXAR EZ	mesotrione	<i>Callisto</i>	27
	bicyclopyrone	<i>Optogen</i>	27		s-metolachlor	<i>Dual II Magnum</i>	15
	mesotrione	<i>Callisto</i>	27		atrazine	<i>AAtrex</i>	5
	s-metolachlor	<i>Dual Magnum</i>	15		mesotrione	<i>Callisto</i>	27
AFFINITY BROADSPEC (Affinity Tank Mix)	glyphosate	<i>glyphosate</i>	9	LUMAX EZ	s-metolachlor	<i>Dual II Magnum</i>	15
	thifensulfuron	<i>Harmony</i>	2		atrazine	<i>AAtrex</i>	5
AFFORIA	thifensulfuron	<i>Harmony</i>	2	MAVERICK	pyrasulfone	<i>Zidua</i>	15
	tribenuron	<i>Express</i>	2		clopyralid	<i>Stinger</i>	4
	flumioxazin	<i>Valor</i>	14		mesotrione	<i>Callisto</i>	27
	thifensulfuron	<i>Harmony</i>	2		pyrasulfone	<i>Zidua</i>	15
ALLY EXTRA	tribenuron	<i>Express</i>	2	NOVVID	florpyrauxifen	<i>Loyant</i>	4
	metsulfuron	<i>Ally</i>	2		penoxsulam	<i>Grasp</i>	2
ANTHEM FLEX	pyrasulfone	<i>Zidua</i>	15	OBEY	clomazone	<i>Command 3ME</i>	13
	carfentrazone	<i>Aim</i>	14		quinclorac	<i>Facet</i>	4
ANTHEM MAXX	pyrasulfone	<i>Zidua</i>	15	OPENSKY	pyrasulfone	<i>PowerFlex HL</i>	2
	fluthiacet	<i>Cadet</i>	14		fluroxypyr	<i>Starane Ultra</i>	4
ARMEZON PRO	topramezone	<i>Armezon</i>	27	ORION	florasulam	-----	2
	dimethenamid-P	<i>Outlook</i>	15		MCPA	<i>MCPA</i>	4
AUTHORITY ASSIST	sulfentrazone	<i>Spartan</i>	14	OSPREY XTRA	mesosulfuron	<i>Osprey</i>	2
	imazethapyr	<i>Pursuit</i>	2		thiencarbazone	<i>Varro</i>	2
AUTHORITY EDGE	sulfentrazone	<i>Spartan</i>	14	PANOFLEX	thifensulfuron	<i>Harmony</i>	2
	pyrasulfone	<i>Zidua</i>	15		tribenuron	<i>Express</i>	2
AUTHORITY FIRST	sulfentrazone	<i>Spartan</i>	14	PERFECTMATCH	clopyralid	<i>Stinger</i>	4
	cloransulam	<i>FirstRate</i>	2		fluroxypyr	<i>Starane Ultra</i>	4
AUTHORITY SUPREME	sulfentrazone	<i>Spartan</i>	14	PERMIT PLUS	thifensulfuron	<i>Harmony</i>	2
	pyrasulfone	<i>Zidua</i>	15		halosulfuron	<i>Permit</i>	2
AUTHORITY XL	sulfentrazone	<i>Spartan</i>	14	PERPETUO	flumiclorac	<i>Resource</i>	14
	chlorimuron	<i>Classic</i>	2		pyrasulfone	<i>Zidua</i>	15
AUTUMN SUPER	iodosulfuron	<i>Autumn</i>	2	PIXARO EC	fluroxypyr	<i>Starane</i>	4
	thiencarbazone	<i>Varro</i>	2		halauxifen	<i>Elevore</i>	4
AXIAL BOLD	pinoxaden	<i>Axial XL</i>	1	PREFIX	s-metolachlor	<i>Dual Magnum</i>	15
	fenoxaprop	<i>Ricestar</i>	1		fomesafen	<i>Reflex</i>	14
AXIAL STAR	pinoxaden	<i>Axial XL</i>	1	QUELEX	halauxifen	<i>Elevore</i>	4
	fluroxypyr	<i>Starane</i>	4		florasulam	-----	2
BASIS BLEND	rimsulfuron	<i>Resolve</i>	2	RAVE	triasulfuron	<i>Amber</i>	2
	thifensulfuron	<i>Harmony</i>	2		dicamba	<i>Clarity</i>	4
BICEP II MAGNUM (Bicep Lite II Magnum)	s-metolachlor	<i>Dual II Magnum</i>	15	REALM Q	rimsulfuron	<i>Resolve</i>	2
	atrazine	<i>AAtrex</i>	5		mesotrione	<i>Callisto</i>	27
BOUNDARY	s-metolachlor	<i>Dual Magnum</i>	15	REBELEX	cyhalofop	<i>Clincher</i>	1
	metribuzin	<i>Metribuzin</i>	5		penoxsulam	<i>Grasp</i>	2
BROADAXE XC	s-metolachlor	<i>Dual Magnum</i>	15	RESICORE REV	clopyralid	<i>Stinger</i>	4
	sulfentrazone	<i>Spartan 4F</i>	14		acetochlor	<i>Surpass NXT</i>	15
BRONATE ADVANCED	bromoxynil	<i>Maestro</i>	6	RESOLVE Q	mesotrione	<i>Callisto</i>	27
	MCPA	<i>MCPA</i>	4		rimsulfuron	<i>Resolve</i>	2
CALIBRA	s-metolachlor	<i>Dual II Magnum</i>	15	RESTRAINT	thifensulfuron	<i>Harmony</i>	2
	mesotrione	<i>Callisto</i>	27		acetochlor	<i>Harness</i>	15
CALLISTO GT	glyphosate	<i>glyphosate</i>	9	REVULIN Q	tolpyralate	<i>Shieldex</i>	27
	mesotrione	<i>Callisto</i>	27		nicosulfuron	<i>Accent D</i>	2
CALLISTO XTRA	mesotrione	<i>Callisto</i>	27	REZUVANT	mesotrione	<i>Callisto</i>	27
	atrazine	<i>AAtrex</i>	5		fluroxypyr	<i>Starane Ultra</i>	4
CAPRENO	thiencarbazone	<i>Varro</i>	2	RIFIMAX	pinoxaden	<i>Axial XL</i>	1
	tembotrione	<i>Laudis</i>	27		propoxycarbazone	<i>Olympus</i>	2
CARNIVORE	MCPA	<i>MCPA</i>	4	RIFIMAX MAX	mesosulfuron	<i>Osprey</i>	2
	fluroxypyr	<i>Starane</i>	4		thifensulfuron	<i>Harmony</i>	2
CHEETAH MAX	bromoxynil	<i>Maestro</i>	6	SECTRALLAS	fluroxypyr	<i>Starane</i>	4
	glufosinate	<i>Liberty</i>	10		thifensulfuron	<i>Harmony</i>	2
CLEARPATH	fomesafen	<i>Reflex</i>	14	SEQUENCE	s-metolachlor	<i>Dual Magnum</i>	15
	quinclorac	<i>Facet</i>	4		glyphosate	<i>glyphosate</i>	9
COLT AS	imazethapyr	<i>Newpath</i>	2	SINATE	glufosinate	<i>Liberty</i>	10
	clopyralid	<i>Stinger</i>	4		topramezone	<i>Impact</i>	27
COLT + SALVO	fluroxypyr	<i>Starane</i>	4	SOLSTICE	mesotrione	<i>Callisto</i>	27
	2,4-D	<i>2,4-D</i>	4		fluthiacet	<i>Cadet</i>	14
COLT + SWORD	fluroxypyr	<i>Starane</i>	4	SONIC	sulfentrazone	<i>Spartan</i>	14
	MCPA	<i>MCPA</i>	4		cloransulam	<i>FirstRate</i>	2
CORVUS	thiencarbazone	<i>Varro</i>	2	SPARTAN CHARGE	sulfentrazone	<i>Spartan</i>	14
	isoxaflutole	<i>Balance Flexx</i>	27		carfentrazone	<i>Aim</i>	14
COYOTE	s-metolachlor	<i>Dual II Magnum</i>	15	STARANE FLEX	florasulam	-----	2
	mesotrione	<i>Callisto</i>	27		fluroxypyr	<i>Starane</i>	4
CURTAIL	clopyralid	<i>Stinger</i>	4	STARANE NXT	fluroxypyr	<i>Starane</i>	4
	2,4-D	<i>2,4-D</i>	4		bromoxynil	<i>Maestro</i>	6
CURTAIL M	clopyralid	<i>Stinger</i>	4	STATUS	diffenozopyr	-----	19
	MCPA	<i>MCPA</i>	4		dicamba	<i>Clarity</i>	4
DEGREE XTRA	acetochlor	<i>Degree</i>	15	STEADFAST Q	nicosulfuron	<i>Accent D</i>	2
	atrazine	<i>AAtrex</i>	5		rimsulfuron	<i>Resolve</i>	2
DIFLEX DUO	dicamba	<i>DiFlexx</i>	4	STOREN	bicyclopyrone	<i>Optogen</i>	27
	tembotrione	<i>Laudis</i>	27		mesotrione	<i>Callisto</i>	27
DIMETRIC CHARGED	metribuzin	<i>Metribuzin</i>	5	STORM	s-metolachlor	<i>Dual II Magnum</i>	15
	flumioxazin	<i>Valor</i>	14		pyrasulfone	<i>Zidua</i>	15
ENLIST DUO	2,4-D	<i>2,4-D</i>	4	SUPREMACY	benzoxazin	<i>Basagran</i>	6
	glyphosate	<i>glyphosate</i>	9		acifluorfen	<i>Ultra Blazer</i>	14
ENLITE	chlorimuron	<i>Classic</i>	2	SURESTART II	fluroxypyr	<i>Starane</i>	4
	thifensulfuron	<i>Harmony</i>	2		thifensulfuron	<i>Harmony</i>	2
ENWIVE	flumioxazin	<i>Valor</i>	14	SURESTART II	acetochlor	<i>Surpass NXT</i>	15
	chlorimuron	<i>Classic</i>	2		clopyralid	<i>Stinger</i>	4
FIERCE EZ	flumioxazin	<i>Valor</i>	14	SURTAIN	flumetsulam	<i>Python</i>	2
	pyrasulfone	<i>Zidua</i>	15		saflufenacil	<i>Sharpen</i>	14
FIERCE MTZ	pyrasulfone	<i>Zidua</i>	15	SURVEIL	pyrasulfone	<i>Zidua</i>	15
	metribuzin	<i>Metribuzin</i>	5		flumioxazin	<i>Valor</i>	14
FIERCE XLT	pyrasulfone	<i>Zidua</i>	15	SYNCHRONY XP	cloransulam	<i>FirstRate</i>	2
	chlorimuron	<i>Classic</i>	2		chlorimuron	<i>Classic</i>	2
FINESSE	chlorsulfuron	<i>Glean</i>	2	TARZEC	thifensulfuron	<i>Harmony</i>	2
	metsulfuron	<i>Ally</i>	2		halauxifen	<i>Elevore</i>	4
FIRSTSHOT	thifensulfuron	<i>Harmony</i>	2	TENDOVO	s-metolachlor	<i>Dual Magnum</i>	15
	tribenuron	<i>Express</i>	2		cloransulam	<i>FirstRate</i>	2
FLEXSTAR GT	fomesafen	<i>Flexstar</i>	14	TRIPLEFLEX II	metribuzin	<i>Metribuzin</i>	5
	glyphosate	<i>glyphosate</i>	9		bromoxynil	<i>Maestro</i>	