

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 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 ¹		NUMBER OF RESISTANT WEED SPECIES IN U.S.								
	SITE OF ACTION	CHEMICAL FAMILY	ACTIVE INGREDIENT	PRODUCT EXAMPLES (TRADE NAME)						
LIPID SYNTHESIS INHIBITORS										
1	ACCASE INHIBITORS (acetyl CoA carboxylase)	14	Aryloxyphenoxypropionate (fops)	clodinafop cyhalofop fenoxaprop fluzafop quizalofop	Discover NG Clincher Ricestar HT, others Fusilade DX Aggressor, Assure II, Targa					
			Cyclohexanedione (dims)	clethodim sethoxydim	Select Max, others Poast, Poast Plus					
			Phenylpyrazoline	pinoxaden	Axial XL					
AMINO ACID SYNTHESIS INHIBITORS										
2	ALS INHIBITORS (acetolactate synthase)	53	Imidazolinone	imazamox imazapic imazapyr imazaquin imazethapyr	Raptor, Beyond Plateau Arsenal Scepter Pursuit, Newpath					
				Pyrimidinyl benzoates	bispyribac pyrithiobac bensulfuron chlorimuron chlorsulfuron halosulfuron iodosulfuron mesosulfuron metsulfuron nicosulfuron	Regiment Staple Londax Classic Glean Permit, Sandea Autumn Osprey Ally Accent Q, Zest				
					Sulfonyleurea	orthosulfamuron primisulfuron prosulfuron rimsulfuron sulfosulfuron thifensulfuron triasulfuron tribenuron trifloxysulfuron triflussulfuron	Strada Beacon Peak Matrix, Resolve Outrider Harmony Amber Express Envoke UpBeet			
						Triazolinones	flucarbazone propoxycarbazone thiencarbazone cloransulam	Everest, Pre-Pare Olympus Varro FirstRate		
							Triazolopyrimidine - Type 1	florasulam flumetsulam	component of Orion, Quelex, Starane Flex Python	
		Triazolopyrimidine - Type 2	penoxsulam pyrasulam					Grasp PowerFlex HL		
			9	EPSP SYNTHASE INHIBITOR (5-enolpyruvyl-shikimate-3-phosphate)			17	Glycine	glyphosate	Roundup, several others
		GROWTH REGULATORS								
		4	SYNTHETIC AUXINS (TIR1, AFB1-5 and unknown auxin receptor)	10		Benzoate	dicamba	Banvel, Clarity, DiFlexx, Engenia, XtendiMax, others		
						Phenoxy carboxylate	2,4-D MCPA	2,4-D, Enlist One, others MCPA, others		
							Pyridine carboxylate	aminopyralid clopyralid halauxifen	Milestone Stinger HL Elevero	
					Pyridyloxy carboxylate	fluroxypyr triclopyr		Starane Ultra Garlon, Remedy Ultra		
						Quinoline carboxylate	quinclorac	Facet		
					19	AUXIN TRANSPORT INHIBITOR	0	Aryl carboxylate	diffenazopyr	component of Status

¹Site-of-action group numbers follow the revised 2020 Herbicide Resistance Action Committee (HRAC) classification.

For more information and links to additional resources, visit IWillTakeAction.com

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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.

COMPONENT				COMPONENT				
SITE-OF-ACTION GROUP				SITE-OF-ACTION GROUP				
PREMIX	ACTIVE INGREDIENT	TRADE NAME		PREMIX	ACTIVE INGREDIENT	TRADE NAME		
ACURON	bicyclopyrone	Optogen	27	IMPACT CORE	acetochlor	Harness	15	
	mesotrione	Callisto	27		topramezone	Impact	27	
	atrazine	AAtrex	5		IMPACTZ	atrazine	AAtrex	5
	s-metolachlor	Dual II Magnum	15			topramezone	Impact	27
ACURON FLEXI	bicyclopyrone	Optogen	27	INTERMOC	glufosinate	Liberty	10	
	mesotrione	Callisto	27		s-metolachlor	Dual Magnum	15	
	ACURON GT	s-metolachlor	Dual II Magnum	15	KATAGON	nicosulfuron	Accent Q	2
bicyclopyrone		Optogen	27	tolpyralate	Shieldex	27		
mesotrione		Callisto	27	KEYSTONE NXT (Keystone LA NXT)	acetochlor	Surpass NXT	15	
s-metolachlor		Dual Magnum	15	atrazine	AAtrex	5		
AFFINITY BROADSPEC (Affinity TankMix)	glyphosate	glyphosate	9	KOCHIAVORE	2,4-D	2,4-D, others	4	
	thifensulfuron	Harmony	2		fluroxypyr	Starane	4	
	AFFORIA	tribenuron	Express	2	quinclorac	Maestro	16	
flumioxazin		Valor	14	KYBER	flumioxazin	Valor	14	
dicamba		Clarity	4		pyroxasulfone	Zidua	15	
AGILITY SG	thifensulfuron	Harmony	2	LEADOFF	metribuzin	Metribuzin	5	
	tribenuron	Express	2		rimsulfuron	Resolve	2	
	metlsulfuron	Ally	2	thifensulfuron	Harmony	2		
	thifensulfuron	Harmony	2	LEXAR EZ	mesotrione	Callisto	27	
tribenuron	Express	2	s-metolachlor		Dual II Magnum	15		
ALLY EXTRA	metlsulfuron	Ally	2	atrazine	AAtrex	5		
	pyroxasulfone	Zidua	15	LUMAX EZ	mesotrione	Callisto	27	
ANTHEM FLEX	carfentrazone	Aim	14		s-metolachlor	Dual II Magnum	15	
	pyroxasulfone	Zidua	15	atrazine	AAtrex	5		
ANTHEM MAXX	fluthiacet	Cadet	14	MARVEL	fluthiacet	Cadet	14	
	topramezone	Armezon	27		fomesafen	Flexstar	14	
ARMEZON PRO	dimethenamid-P	Outlook	15	MAVERICK	pyroxasulfone	Zidua	15	
	sulfentrazone	Spartan	14		clopyralid	Stinger	4	
AUTHORITY ASSIST	imazethapyr	Pursuit	2	NOVIXID	flumetsulam	Python	2	
	sulfentrazone	Spartan	14		florpyrauxifen	Loyant	4	
AUTHORITY EDGE	pyroxasulfone	Zidua	15	OBEY	penoxsulam	Grasp	2	
	sulfentrazone	Spartan	14		clomazone	Command 3ME	13	
AUTHORITY ELITE	sulfentrazone	Spartan	14	quinclorac	Facet	4		
	s-metolachlor	Dual Magnum	15	OPENSKY	pyroxasulam	PowerFlex HL	2	
AUTHORITY FIRST	sulfentrazone	Spartan	14		fluroxypyr	Starane Ultra	4	
	cloransulam	FirstRate	2	florasulam	-----	2		
AUTHORITY MTZ (Preview 2.1)	sulfentrazone	Spartan	14	ORION	MCPA	MCPA	4	
	metribuzin	Metribuzin	5		OSPREY XTRA	messosulfuron	Osprey	2
AUTHORITY SUPREME	sulfentrazone	Spartan	14	thiencarbazone		Varro	2	
	pyroxasulfone	Zidua	15	PANDFLEX	thifensulfuron	Harmony	2	
AUTHORITY XL (Authority Maxx)	sulfentrazone	Spartan	14		tribenuron	Express	2	
	chlorimuron	Classic	2	clopyralid	Stinger	4		
AUTUMN SUPER	iodosulfuron	Autumn	2	PERFECTMATCH	fluroxypyr	Starane Ultra	4	
	thiencarbazone	Varro	2		pyroxasulam	PowerFlex HL	2	
AXIAL BOLD	pinoxaden	Axial XL	1	PERMIT PLUS	thifensulfuron	Harmony	2	
	fenoxaprop	Ricestar	1		halosulfuron	Permit	2	
AXIAL STAR	pinoxaden	Axial XL	1	PERPETUO	flumiclorac	Resource	14	
	fluroxypyr	Starane	4		pyroxasulfone	Zidua	15	
BASIS BLEND	rimsulfuron	Resolve	2	PIXXARO EC	fluroxypyr	Starane	4	
	thifensulfuron	Harmony	2		halauxifen	Elevore	4	
BICEP II MAGNUM (Bicep Lite II Magnum)	s-metolachlor	Dual II Magnum	15	PREFIX	s-metolachlor	Dual Magnum	15	
	atrazine	AAtrex	5		fomesafen	Reflex	4	
BOUNDARY	s-metolachlor	Dual Magnum	15	QUELEX	halauxifen	Elevore	4	
	metribuzin	Metribuzin	5		florasulam	-----	2	
BROADAXE XC	s-metolachlor	Dual Magnum	15	RAVE	triasulfuron	Amber	2	
	sulfentrazone	Spartan 4F	14		dicamba	Clarity	4	
BRONATE ADVANCED	bromoxynil	Maestro	6	REALM Q	rimsulfuron	Resolve	2	
	MCPA	MCPA	4		mesotrione	Callisto	27	
CALIBRA	s-metolachlor	Dual II Magnum	15	REBELEX	cyhalofop	Clincher	1	
	mesotrione	Callisto	27		penoxsulam	Grasp	2	
CALLISTO GT	mesotrione	Callisto	27	RESICORE XL	clopyralid	Stinger	4	
	glyphosate	glyphosate	9		acetochlor	Surpass NXT	15	
CALLISTO XTRA	mesotrione	Callisto	27	RESOLVE Q	mesotrione	Callisto	27	
	atrazine	AAtrex	5		rimsulfuron	Resolve	2	
CANOPY	chlorimuron	Classic	2	thifensulfuron	Harmony	2		
	metribuzin	Metribuzin	5	RESTRAINT	acetochlor	Harness	15	
CANOPY EX	chlorimuron	Classic	2		tolpyralate	Shieldex	27	
	tribenuron	Express	2	nicosulfuron	Accent Q	2		
CAPRENO	thiencarbazone	Varro	2	REVULIN Q	mesotrione	Callisto	27	
	tembotrione	Laudis	27		halauxifen	Elevore	4	
CARNIVORE	MCPA	MCPA	4	REZUVANT	fluroxypyr	Starane Ultra	4	
	clopyralid	Stinger	4		pinoxaden	Axial XL	1	
CHEETAH MAX	bromoxynil	Maestro	6	RIMFIRE MAX	propoxycarbazone	Olympus	2	
	glufosinate	Liberty	10		messosulfuron	Osprey	2	
CINCH ATZ (Cinch ATZ Lite)	fomesafen	Reflex	14	SENTRALLAS	thifensulfuron	Harmony	2	
	s-metolachlor	Dual II Magnum	15		fluroxypyr	Starane	4	
CLEARPATH	atrazine	AAtrex	5	SEQUENCE	s-metolachlor	Dual Magnum	15	
	quinclorac	Facet	4		glyphosate	glyphosate	9	
COLT AS	imazethapyr	Newpath	2	SINATE	glufosinate	Liberty	10	
	clopyralid	Stinger	4		topramezone	Impact	27	
COLT + SALVO	fluroxypyr	Starane	4	SOLSTICE	mesotrione	Callisto	27	
	2,4-D	2,4-D	4		fluthiacet	Cadet	14	
COLT + SWORD	fluroxypyr	Starane	4	SONIC	sulfentrazone	Spartan	14	
	MCPA	MCPA	4		cloransulam	FirstRate	2	
CORVUS	fluroxypyr	Starane	4	SPARTAN CHARGE	sulfentrazone	Spartan	14	
	thiencarbazone	Varro	2		carfentrazone	Aim	14	
COYOTE	isoxaflutole	Balance Flexx	27	STARANE FLEX	-----	-----	-----	
	s-metolachlor	Dual II Magnum	15		fluroxypyr	Starane	4	
CRUSHER	mesotrione	Callisto	27	STARANE NXT	fluroxypyr	Starane	4	
	rimsulfuron	Resolve	2		bromoxynil	Maestro	6	
CURTAIL	thifensulfuron	Harmony	2	STATUS	diflufenzopyr	-----	19	
	clopyralid	Stinger	4		dicamba	Clarity	4	
CURTAIL M	2,4-D	2,4-D	4	STEADFAST Q	nicosulfuron	Accent Q	2	
	clopyralid	Stinger	4		rimsulfuron	Resolve	2	
DEGREE XTRA	MCPA	MCPA	4	STORM	berzanto	Basagran	6	
	acetochlor	Degree	15		acifluorfen	Ultra Blazer	14	
DIFLEX DUO	atrazine	AAtrex	5	SUPREMACY	fluroxypyr	Starane	4	
	dicamba	DiFlexx	4		thifensulfuron	Harmony	2	
DIMETRIC CHARGED	tembotrione	Laudis	27	SURESTART II	tribenuron	Express	2	
	metribuzin	Metribuzin	5		acetochlor	Surpass NXT	15	
ENLIST DUO	flumioxazin	Valor	14	SURVEIL	clopyralid	Stinger	4	
	2,4-D	2,4-D	4		flumetsulam	Python	2	
ENLITE	glyphosate	glyphosate	9	SYNCHRONY XP	flumioxazin	Valor	14	
	chlorimuron	Classic	2		cloransulam	FirstRate	2	
ENVIVE	thifensulfuron	Harmony	2	TALINOR	chlorimuron	Classic	2	
	flumioxazin	Valor	14		thifensulfuron	Harmony	2	
EXTREME	chlorimuron	Classic	2	TARZEC	bromoxynil	Maestro	6	
	thifensulfuron	Harmony	2		bicyclopyrone	Optogen	27	
FIERCE EZ	imazethapyr	Pursuit	14	TAVIUM	pyroxasulam	PowerFlex HL	2	
	glyphosate	glyphosate	9		halauxifen	Elevore	4	
FIERCE GT	flumioxazin	Valor	14	TENDOVO	dicamba	XtendiMax	4	
	pyroxasulfone	Zidua	15		s-metholachlor	Dual Magnum	15	
FIERCE MTZ	flumioxazin	Valor	14	TRIPLEFLX II	s-metholachlor	Dual Magnum	15	
	pyroxasulfone	Zidua	15		cloransulam	FirstRate	2	
FIERCE XLT	metribuzin	Metribuzin	5	TRIPZIN ZC	metribuzin	Metribuzin	5	
	flumioxazin	Valor	14		acetochlor	Harness	15	
FINESSE	pyroxasulfone	Zidua	15	TRIVOLTA	clopyralid	Stinger	4	
	chlorimuron	Classic	2		flumetsulam	Python	2	
FIRSTSHOT	chlorsulfuron	Glean	2	TRIVOLTA	pendimethalin	Prowl	3	
	metlsulfuron	Ally	2		metribuzin	Metribuzin	5	
FLEXSTAR GT	thifensulfuron	Harmony	2	TRIVOLTA	chlormuron	Classic	2	
	tribenuron	Express	2		flumioxazin	Valor	14	
FULTIME NXT	fomesafen	Flexstar	14	TRIVOLTA	metribuzin	Metribuzin	5	
	glyphosate	glyphosate	9		flufenacet	Define	15	
FUSION	acetochlor	TopNotch	15	VALOR XLT	isoxaflutole	Balance Flexx	27	
	atrazine	AAtrex	5		thiencarbazone	Varro	2	
GOLDSKY	fluzifop	Fusilade DX	1	VARIATO	flumioxazin	Valor	14	
	fenoxaprop	Puma	1		chlormuron	Classic	2	
GRAZONNEXT HL	pyroxasulam	PowerFlex HL	2	VIRIDIC	imazamox	Raptor	2	
	florasulam	-----	2		berzanto	Basagran	6	
HALEX GT	fluroxypyr	Starane	4	WARRANT ULTRA	hexazinone	Velpar	5	
	aminopyralid	Milestone	4		diuron	Karmex	5	
HARMONY EXTRA	2,4-D	2,4-D	4	WIDEMATCH	safinufenil	Sharpen	14	
	s-metolachlor	Dual Magnum	15		dimethenamid-P	Outlook	15	
HARNESS MAX	mesotrione	Callisto	27	WIDEMATCH	fomesafen	Reflex	14	
	glyphosate	glyphosate	9		acetochlor	Warrant	15	
HARNESS XTRA	thifensulfuron	Harmony	2	WIDEMATCH	MCPA	MCPA	4	
	tribenuron	Express	2		fluroxypyr	Starane	4	
HORNET	acetochlor	Harness	15	WIDEMATCH	clopyralid	Stinger	4	
	mesotrione	Callisto	27		clopyralid	Stinger	4	
HUSKIE	acetochlor	Harness	15	WIDEMATCH	fluroxypyr	Starane	4	
	atrazine	AAtrex	5		halauxifen	Elevore	4	
HUSKIE COMPLETE	clopyralid	Stinger	4	WIDEMATCH	clopyralid	Stinger	4	
	flumetsulam	Python	2		fluroxypyr	Starane	4	
HUSKIE FX	pyrasulfotole	-----	27	WIDEMATCH	halauxifen	Elevore	4	
	bromoxynil	Maestro	6		fluroxypyr	Starane	4	
HUSKIE COMPLETE	pyrasulfotole	-----	27	WIDEMATCH	fenoxaprop	Tecoma	1	
	bromoxynil	Maestro	6		pyrasulfotole	-----	27	
HUSKIE COMPLETE	thiencarbazone	Varro	2	WIDEMATCH	bromoxynil	Maestro	6	
	pyrasulfotole	-----	27		dicamba	Banvel	4	
HUSKIE FX	bromoxynil	Maestro	6	WIDEMATCH	halosulfuron	Permit	2	
	fluroxypyr	Starane Ultra	4		imazethapyr	Pursuit	2	
HUSKIE FX	fluroxypyr	Starane Ultra	4	WIDEMATCH	safinufenil	Sharpen	14	
	fluroxypyr	Starane Ultra	4		pyroxasulfone	Zidua	15	
HUSKIE FX	fluroxypyr	Starane Ultra	4	WIDEMATCH	sulfentrazone	Spartan	14	
	fluroxypyr	Starane Ultra	4		thiencarbazone	Varro	2	