

Herbicide Trade Name, Common Name, Formulation, Mode (Site) of Action, and Manufacturer, Ordered By WSSA Site of Action [cont.]

Trade Name	Common Name	Formulation ¹	Resistance Management Site of Action ²		Manufacturer
			WSSA	HRAC	
Trimec Ester, Triamine	2,4-D + MCPA + dicamba	3.96 SL (2.44 + 1.3 + 0.22 lb/gal)	4 + 4 + 4	O + O + O	Various
Enlist Duo	2,4-D choline + glyphosate	3.3 SL (16 lb/gal + 1.7 lb/gal)	4 + 9	O + G	Corteva
Obey	clomazone + quinclorac	2.5 ZC (1.25 + 1.25 lb/gal)	4 + 13	O + F4	FMC
Tavium	dicamba + S-metolachlor	3.38 CS (1.12 + 2.26 lb/gal)	4 + 15	O + K3	Syngenta
Canopy	metribuzin + chlorimuron	75 DF (64.3 + 10.7%)	5 + 2	C1 + B	Corteva
Suprend	prometryn +trifloxysulfuron	80 WG (79.3 + 0.7%)	5 + 2	C1 + B	Syngenta
Cloak	metribuzin + chlorimuron	75 DG (64.3 + 10.7%)	5 + 2	C1 + B	Nufarm
Krovar	bromacil + diuron	80 DF (40 + 40%)	5 + 7	C1 + C2	Corteva
Intimidator	metribuzin + fomesafen + S-metolachlor	4.81 SL (0.75 + 0.67 + 3.39 lb/gal)	5 + 14 + 15	C1 + O + K3	Loveland
Guardman Max	atrazine + dimethenamid	5 L (3.3 + 1.7 lb/gal)	5 + 15	C1 + K3	BASF
Prompt	bentazon + atrazine	5 L (2.5 + 2.5 lb/gal)	6 + 5	C3 + C1	Microflo
Storm	bentazon + acifluorfen	4 SL (2.67 + 1.33 lb/gal)	6 + 14	C3 + E	UPL-NA
Duet	propanil + bensulfuron	60 DF (60 + 0.46%)	7 + 2	C2 + B	UPL-NA
RiceBeaux	propanil + thiobencarb	6 SL (35% + 31%)	7 + 8	C2 + N	UPL-NA
Goosegrass/Crabgrass Control	bensulide + oxadiazon	5.25 G	8 + 14	N + E	Scott's
OneStep	glyphosate + imazapyr	2.16 L (1.53 + 0.637 lb/gal)	9 + 2	G + B	BASF
Costarr	glyphosate + dicamba	2.1 EC (1.5 + 0.6 lb/gal)	9 + 4	G + O	Albaugh
Landmaster	glyphosate + 2,4-D	3.1 EC (1.2 + 1.9 lb/gal)	9 + 4	G + O	Albaugh
Journey	glyphosate + imazapic	1.5 + 0.75 SL	9 + 8	G + B	BASF
Sequence	glyphosate + S-metolachlor	5.25 F (2.25 + 3 lb/gal)	9 + 15	G + K3	Syngenta
Authority First	sulfentrazone + cloransulam	0.7 DF (0.62 + 0.08 lb/lb)	14 + 2	E + B	FMC
Authority Maxx	sulfentrazone + chlorimuron ethyl	66 DF (0.62 + 0.04 lb/lb)	14 + 2	E + B	FMC
Authority XL	sulfentrazone + chlorimuron	0.7 DG (0.62 + 0.08 lb/lb)	14 + 2	E + B	FMC
OpTill	safllufenacil + imazethapyr	68 WG (17.8 + 50.2)	14 + 2	E + B	BASF
Surveil	flumioxazin + cloransulam	48 WDG (36% + 12%)	14 + 2	E + B	Corteva
Valor XLT	flumioxazin + chlorimuron	40.3 WDG (30% + 10.3%)	14 + 2	E + B	Valent
Zone Maxx	sulfentrazone + chlorimuron ethyl	66 DF (0.62 + 0.04 lb/lb)	14 + 2	E + B	HELM
Zidua Pro	safllufenacil + imazethapyr + pyroxasulfone	4.09 SC (0.48 + 1.33 + 2.28 lb/gal)	14 + 2 + 15	E + B + K3	BASF
Echelon	sulfentrazone + prodiamine	4 SC	14 + 3	E + K1	FMC
Avenue South	sulfentrazone + penoxsulam + 2,4-D + dicamba	0.8 EC (0.06 + 0.06 + 0.53 + 0.15 lb/gal)	14 + 2 + 4 + 4	E + O + O + O	PBI Gordon
Power Zone	carfentrazone + MCPA + mecoprop + dicamba	2.9 EC (0.04 + 2.21 + 0.44 + 0.22 lb/gal)	14 + 4 + 4 + 4	E + O + O + O	PBI Gordon
Speed Zone	carfentrazone + mecoprop + 2,4-D + dicamba	2.2 EC (0.05 + 1.53 + 0.48 + 0.14 lb/gal)	14 + 4 + 4 + 4	E + O + O + O	PBI Gordon
Surge	sulfentrazone + 2,4-D + MCPP + dicamba	2.2 EC (1.4 + 0.5 + 0.2 + 0.06 lb/gal)	14 + 4 + 4 + 4	E + O	PBI Gordon
Authority MTZ	sulfentrazone + metribuzin	45 DG (18 + 27%)	14 + 5	E + C1	FMC
Battle Star GT	fomesafen + glyphosate	2.8L (0.54 + 2.26)	14 + 9	E + G	Albaugh, LLC
Flexstar GT 3.5	fomesafen + glyphosate	2.8 L (0.56 + 2.26 lb/gal)	14 + 9	K3 + G	Syngenta
Display	carfentrazone + fluthiacet-methyl	4.3 SE (4.174 + 0.126 lb/gal)	14 + 14	E + E	FMC

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Anthem Maxx	pyroxasulfone + fluthiacet-methyl	2.15 SE (2.087 + 0.063 lb/gal)	14 + 15	E + K3	FMC
Authority Edge	sulfentrazone + pyroxasulfone	4.25 SC (2.73 + 1.52 lb/gal)	14 + 15	E + K3	FMC
Authority Elite, BroadAxe XC	sulfentrazone + S-metolachlor	7 EC (0.7 + 6.3 lb/gal)	14 + 15	E + E	FMC/Syngenta
Zone Elite	sulfentrazone + metolachlor	7 EC (0.7 + 6.3 lb/gal)	14 + 15	E + K3	HELM
Authority Supreme	sulfentrazone + pyroxasulfone	4.16 SC (2.08 + 2.08 lb/gal)	14 + 15	E + K3	FMC
Perpetuo	flumiclorac + pyroxasulfone	2.3 SC (0.59 + 1.71 lb/gal)	14 + 15	E + K3	Valent
Prefix	S-metolachlor + fomesafen	Co-Pak (7.62 EC/2 LC)	14 + 15	E + K3	Syngenta
Verdict	saflufenacil + dimethenamid	5.57 EC (0.57 + 5.0)	14 + 15	E + K3	BASF
Freehand	dimethenamid + pendimethalin	1.75 G	15 + 3	K3 + K1	BASF
Axiom	flufenacet + metribuzin	68 DF (54.4 + 13.6%)	15 + 5	K3 + C1	Bayer
Bicep II Magnum	S-metolachlor + atrazine	5.5 L (3.1 + 2.4 lb/gal)	15 + 5	K3 + C1	Syngenta
Bicep Lite II Magnum	S-metolachlor + atrazine	6 L (3.33 + 2.67 lb/gal)	15 + 5	K3 + C1	Syngenta
Boundary	S-metolachlor + metribuzin	7.8 EC (6.3 + 1.5 lb/gal); 6.5 EC (5.25 + 1.25 lb/gal)	15 + 5	K3 + C1	Syngenta
Cinch ATZ	S-metolachlor + atrazine	5.5 F (3.1 + 2.4 lb/gal)	15 + 5	K3 + C1	Corteva
Degree Xtra	acetochlor + atrazine	4 SL	15 + 5	K3 + C1	Bayer
Fearless Xtra 5.6	acetochlor + atrazine	5.6 L (3.1 + 2.5 lb/gal)	15 + 5	K3 + C1	HELM
Harness Extra	acetochlor + atrazine	5.6 L (3.1 + 2.5 lb/gal); 6 L (4.3 + 1.7 lb/gal)	15 + 5	K3 + C1	Bayer
Keystone	acetochlor + atrazine	5.5 L (3 + 2.5 lb/gal)	15 + 5	K3 + C1	Corteva
Lariat	alachlor + atrazine	4 L (2.5 + 1.5 lb/gal)	15 + 5	K3 + C1	Bayer
Resicore	acetochlor + mesotrione + clopyralid	3.29 SL (2.8 + 0.3 + 0.19 lb/gal)	15 + 27 + 4	K3 + F2 + O	Corteva
Acuron	S-metolachlor + atrazine + bicyclopyrone + mesotrione	3.44 L (2.14 lb + 1.0 lb + 0.06 lb + 0.24 lb)	15 + 5 + 27	K3 + C1 + F2	Syngenta
Helmet Maxx	metolachlor + atrazine + mesotrione	3.578 L (1.7 + 1.66 + 0.218 lb/gal)	15 + 5 + 27	K3 + C1 + F2	HELM
Anthem Flex	pyroxasulfone + carfentrazone	4 SE (3.733 + 0.267 lb/gal)	15 + 14	K3 + E	FMC
Fierce	pyroxasulfone + flumioxazin	76 WDG	15 + 14	K3 + E	Valent
Armezon PRO	dimethenamid + topramezone	5.35 EC (5.25 + 0.1 lb/gal)	15 + 27	K3 + F2	BASF
Coyote	S-metolachlor + mesotrione	3.67 SC (3.34 + 0.33 lb/gal)	15 + 27	K3 + F2	UPL-NA
Harness MAX	acetochlor + mesotrione	3.85 L (3.52 + 0.33 lb/gal)	15 + 27	K3 + F2	Bayer
Moccasin MTZ	S-metolachlor + metribuzin	4.46 EC (3.35 + 1.11 lb/gal)	15 + 5	K3 + C1	UPL-NA
Sinate	topramezone + glufosinate	2.57 L (0.1 + 2.47 lb/gal)	27 + 10	F2 + H	Amvac
Corvus	isoxoflutole + thiencazabzone	2.63 SC (0.75 + 1.88)	27 + 2	F2 + B	Bayer
Halex GT	mesotrione + S-metolachlor + glyphosate	4.4 L (0.209 + 2.09 + 2.09)	27 + 15 + 9	F2 + K3 + G	Syngenta

¹ Liquid formulations include AC, applicator's concentration; CS, aqueous capsule suspension; E, EC or EW, emulsifiable concentrate; F, flowable; L, liquid; ME, micro-encapsulated; SL, soluble liquid; S, suspension. **Dry** formulations include DF, dry flowable; DG, dispersible granules; G, granules; SP, soluble powder; W, WG or WDG, wettable dispersible granules; WP, wettable powder; WSG, wettable soluble granule.

² Herbicide classification according to primary site of action as described by Weed Science Society of America (WSSA) (number designation) and Herbicide Resistance Action Committee (HRAC) (letter designation). *From Mallory-Smith and Retzinger*. Rotating herbicides so plants are not exposed to a single herbicidal mode of action for several seasons or plant generations is highly recommended as part of a resistance-management program. The classification presented here can be used as a tool to choose herbicides in different site-of-action groups so that mixtures or rotations of active ingredients can be planned. An attempt should be made to rotate herbicides designated with the same number or letter to those with different numbers or letters (i.e., different sites or modes of action). See table on page 19 for sites of action associated with each classification.