

<b>Appendix VIII</b>		
<b>HERBICIDE INGREDIENTS AND MODES OF ACTION</b>		
Brand Names	Active Ingredient(s)	Mode(s) of action <sup>1</sup>
Aatrex	atrazine	5
Accent	nicosulfuron	2
Acclaim Extra	fenoxaprop	1
Acumen	pendimethalin	3
Aim	carfentrazone	14
Alachlor	alachlor	15
Alanap	naptalam	19
Arrow	clethodim	1
Arsenal	imazapyr	2
Atrazine	atrazine	5
Assure II	quizalofop	1
Axial	pinoxaden	1
Axiom	flufenacet + metribuzin	15 + 5
Authority First	sulfentrazone + chloransulam	14 + 2
Backdraft	glyphosate + imazaquin	9 + 2
Balan	benefin	3
Banvel	dicamba	4
Banvel-K + Atrazine	dicamba + atrazine	4 + 5
Barricade	prodiamine	3
Basagran	bentazon	6
Basis	rimsulfuron + thifensulfuron	2 + 2
Basis Gold	rimsulfuron + thifensulfuron + atrazine	2 + 2 + 5
Beacon	primsulfuron	2
Bensumec	bensulide	17
Beyond	imazamox	2
Bicep II Magnum	atrazine + S-metolachlor	5 + 15
Blade	metsulfuron	2
Blazer	acifluorfen	14
Boundary	s-metolachlor + metribuzin	5 + 15
Brawl, Brawl II	s-metolachlor	15
Brawl II ATZ	s-metolachlor + atrazine	15 + 5
Breakfree	acetochlor	15
Breakfree ATZ	acetochlor + atrazine	15 + 5
Break-Up	pronamide	3
Bromox	bromoxynil	6
Bromox + atrazine	bromoxynil + atrazine	6 + 5
Buctril	bromoxynil	6
Bullet	alachlor + atrazine	15 + 5
Brand Names	Active Ingredient(s)	Mode(s) of action <sup>1</sup>
Butoxone	2,4-DB	4

Butyrac	2,4-DB	4
Cadre	imazapic	2
Callisto	mesotrione	27
Camix	s-metolachlor + mesiotrione	15 + 27
Canopy	metribuzin + chlorimuron	5 + 2
Canopy EX	chlorimuron + tribenuron	2 + 2
Canopy XL	sulfentrazone + chlorimuron	14 + 2
Caparol	prometryn	5
Celebrity, Celebrity Plus	nicosulfuron + dicamba	2 + 4
Certainty	sulfosulfuron	2
Charger Basic, Charger MAX	s-metolachlor	15
Charger MAX ATZ	atrazine + s-metolachlor	5 + 15
Chateau	flumioxazin	14
Cimarron Max	metsulfuron + 2,4-D + dicamba	2 + 4 + 4
Cimarron Plus	metsulfuron + chlorsulfuron	2 + 2
Cinch	s-metolachlor	15
Cinch ATZ	s-metolachlor + atrazine	15 + 5
Clarity	dicamba	4
Classic	chlorimuron	2
Clethodim	clethodim	2
Clopyr AG	clopyralid	4
Cobra	lactofen	14
Command	clomazone	13
Confidence	acetochlor	15
Confidence Xtra	acetochlor + atrazine	15 + 5
Corsair	sulfometuron	2
Cotoran	fluometuron	7
Crossbow	2,4-D + triclopyr	4 + 4
Curbit	ethalfuralin	3
Dacthal	DCPA	3
Define	flufenacet	15
Degree	acetochlor	15
Degree Xtra	acetochlor + atrazine	15 + 5
Devrinol	napropamide	15
Diablo	dicamba	4
Dicamba	dicamba	4
Dicambazine	dicamba + atrazine	4 + 5
Dimension	dithiopyr	3
Direx	diuron	7
Brand Names	Active Ingredient(s)	Mode(s) of action <sup>1</sup>
Dismiss	sulfentrazone	14
Distinct	dicamba	4

Diuron	diuron	7
Double Team	acetochlor+atrazine	15 + 5
Drive	quinclorac	4
DSMA, numerous brands	DSMA	17
Dual, Dual II, Dual Magnum	metoalchlor or s-metolachlor	15
Echelon	prodiamine+sulfentrazone	3+14
Envoke	trifloxysulfuron	2
Envoy	clethodim	1
Eptam	EPTC	8
Equip	foramsulfuron + iodosulfuron	2 + 2
Eradicane	EPTC	8
Establish	dimethenamid-p	15
Establish ATZ	dimethenamid-p+atrazine	15+5
ET	pyraflufen ethyl	14
Evik	ametryne	5
Exceed	primisulfuron+prosulfon	2+2
Expert	glyphosate + s-metolachlor + atrazine	9 + 15 + 5
Express	tribenuron	2
Extreme	glyphosate + imazethapyr	9 + 2
Finesse	chlorsulfuron + metsulfuron	2 + 2
Firestorm	paraquat	22
Firstrate	cloransulam	2
Flexstar	fomesafen	14
Flomet, Fluometuron	fluometuron	7
Forefront	aminopyralid+2,4-D	4 + 4
Fultime	acetochlor	15
Fusilade DX, II	fluazifop	1
Fusion	fluazifop + fenoxaprop	1 + 1
Gallery	isoxaben	21
Galligan	oxyfluorfen	14
Gangster	flumioxazin + cloransulam	14 + 2
Garlon	triclopyr	4
Glyphosate (numerous brands)	glyphosate	9
Goal/ GoalTender	oxyfluorfen	14
Gramoxone Inteon, Gramoxone Extra	paraquat	22
Grazon P+D	2,4-D+picloram	4 + 4
Guardsman Max	dimethenamid-p+atrazine	15 + 5
Gunslinger	2,4-D+picorlam	4 + 4
Brand Names	Active Ingredient(s)	Mode(s) of action <sup>1</sup>
Halex GT	mesiotrione+atrazine+gylphosate	27 + 5 + 9
Harmony Extra	thifensulfuron + tribenuron	2 + 2
Harmony GT	thifensulfuron	2

Harness	acetochlor	15
Harness Xtra	acetochlor + atrazine	15 + 5
Hoelon	diclofop	1
Hyvar	bromacil	5
Ignite, Ignite 280	glufosinate	10
Illoxan	diclofop	1
Impact	topramezone	27
Image	imazaquin	2
Impose	imazapic	2
Intrro	alachlor	15
Karmex	diuron	7
Kerb	pronamide	3
Keystone	acetochlor+atrazine	15 + 5
Laddok S-12	bentazon + atrazine	6 + 5
Lariat	alachlor + atrazine	6 + 5
Laudis	tembotrione	27
Lasso	alachlor	15
Layby Pro	diuron + linuron	7 + 7
Lexar	mesotrione + s-metolachlor + atrazine	27 + 15 + 5
Liberty	glufosinate	10
Liberty ATZ	glufosinate + atrazine	10 + 5
Lightning	imazethapyr + imazapyr	2 + 2
Linex, Linuron, Lorox	linuron	7
Lontrel	clopyralid	4
Lumax	mesotrione + s-metolachlor + atrazine	27 + 15 + 5
Manor	metsulfuron	2
Marksman	dicamba + atrazine	4 + 5
Matrix	rimsulfuron	2
Maverick	sulfosulfuron	2
Medal, Medal II	S-metolachlor	15
Me-Too-Lachlor, Me-Too-Lachlor II	Metoachlor	15
Metri	metribuzin	5
Metribuzin	metribuzin	2
Micro-Tech	alachlor	15
Milestone	aminopyralid	4
Monument	trifloxysulfron	2
Moxy	bromoxynil	6
<b>Brand Names</b>	<b>Active Ingredient(s)</b>	<b>Mode(s) of action<sup>1</sup></b>
MSMA (numerous brands)	MSMA	17
Option	foramsulfuron	2
Osprey	mesosulfuron	2
Oust	sulfometuron	2

Outlaw	2,4-D+dicamba	4 + 4
Outlook	dimethenamid	15
OxiFlo	oxyfluorfen	14
Parallel, Parallel PCS	metolachlor	15
Panoramic	imazapic	2
Parazone	paraquat	22
Parrlay	metolachlor	15
PastureGard	Triclopyr+fluroxpyr	4 + 4
Peak	prosulfuron	2
Pendant, Pendimax	pendimethalin	3
Pendulum	penimethalin	3
Pennant	s-matolachlor	15
Permit	halosulfuron	2
Phoenix	lactofen	14
Plateau	imazapic	2
Poast, Poast Plus	sethoxydim	1
Prefar	bensulide	8
Prefix	s-metolachlor+fomesafen	15 + 14
Princep, others	simazine	5
Priority	carfentrazone+halosulfuron	14 + 2
Prograss	ethofumesate	16
Prometryn	prometryn	5
Prowl, Prowl H20	pendimethalin	3
Pursuit	imazethapyr	2
Python	flumetsulam	2
Quicksilver	carfentrazone	14
Raptor	imazamox	2
Reflex	fomesafen	14
Remedy	triclopyr	4
Resolve	rimsulfuron	2
Resource	flumiclorac-pentyl	14
Revolver	foramsulfuron	2
Reward	diquat	22
Ro-Neet	cycloate	8
Ronstar	oxadiazon	14
Sandea	halosulfuron	2
<b>Brand Names</b>	<b>Active Ingredient(s)</b>	<b>Mode(s) of action<sup>1</sup></b>
Scepter	imazaquin	2
Sedgehammer	halosulfuron	2
Select, Select Max	clethodim	1
Sencor	metribuzin	5
Sequence	glyphosate + s-metolachlor	9 + 15

Sethoxydim G-and E-Pro	sethoxydim	1
Simazat	simazine + atrazine	5 + 5
Simazine	simazine	5
Sim-Trol	simazine	5
Sinbar	terbacil	5
Sonalan	ethalfluralin	3
Sonic	sulfentrazone+cloransulam	14 + 2
Solicam	norflurazone	12
Spartan	sulfentrazone	14
Spike	tebuthiuron	7
Spin-aid	phenmedipham	5
Spotlight	fluroxypyr	4
Squadron	imazaquin + pendimethalin	2 + 3
Stalwart, Stalwart C	metolachlor	15
Stalwart Xtra	metolachlor + atrazine	15 + 5
Staple	pyrithiobac	2
Status	dicamba+diflufenzopyr	4 + 19
Steadfast	nicosulfuron + rimsulfuron	2 + 2
Steadfast ATZ	nicosulfuron+rimsulfuron+atrazine	2 + 2 + 5
Stealth	pendimethalin	3
Stellar	flumiclorac + lactofen	14 + 14
Sterling	dicamba	4
Stinger	clopyralid	4
Storm	acifluorfen + bentazon	14 + 6
Stout	nicosulfuron+thifensulfuron	2+2
Strategy	ethalfluralin + clomazone	3 + 13
Strongarm	diclosulam	2
Suprend	prometryn + trifloxysulfuron	5 + 2
Surflan	oryzalin	3
Surmount	picoram+fluroxypyr	4
Sutan+	butylate	8
Surpass	acetochlor	15
Synchrony XP	chlorimuron + thifensulfuron	2 + 2
Targa	quizalofop	1
Top Notch	acetochlor	15
<b>Brand Names</b>	<b>Active Ingredient(s)</b>	<b>Mode(s) of action<sup>1</sup></b>
Transline	clopyralid	4
TranXit	rimsulfuron	2
Treflan, Trifluralin, Trilin, Trust	trifluralin	3
Triangle	atrazine+metolachlor	5 + 15
Trigger	clethodim	1
Tupersan	siduron	7

Turflon Ester	triclopyr	4
Ultra Blazer	acifluorfen	14
Valor	flumioxazin	14
Valor XLT	flumioxazin+chlorimuron	14 + 2
Vanquish	dicamba	4
Velocity	bispyribac-sodium	2
Velpar	hexazinone	5
Vision	dicamba	4
Volley	acetochlor	15
Volley ATZ	acetochlor + atrazine	15 + 5
Volunteer	clethodim	1
Weedmaster	2,4-D + dicamba	4 + 4
Yukon	halosulfuron+dicamba	2+4
Zorial	norflurazon	12
2,4-D (numerous brands)	2,4-D	4
2,4-DB (numerous brands)	2,4-DB	4

<sup>1</sup> The numerical system to describe modes of action is taken from the Weed Science Society of America. Modes of action are as follows:

1. ACCase inhibition
2. ALS inhibition
3. Microtubule assembly inhibition
4. Synthetic auxin
5. Photosystem II, different binding behavior than groups 6 and 7
6. Photosystem II, different binding behavior than groups 5 and 7
7. Photosystem II, different binding behavior than groups 5 and 6
8. Inhibition of lipid synthesis - not ACCase inhibition
9. EPSP synthase inhibition
10. Glutamine synthetase inhibition
12. Inhibition of carotenoid biosynthesis at PDS
13. Inhibition of carotenoid biosynthesis, unknown target
14. PPO inhibition
15. Inhibition of very long-chain fatty acids
17. Unknown mode of action
19. Auxin transport inhibition
22. Photosystem I electron diversion
27. Inhibition of HPPD