



IPM-1317

Appendix

Alabama Pest Management Handbook 2021



NAMES, CLASSIFICATION, AND TOXICITY OF PESTICIDES

Names

The chemical names of pesticide active ingredients are mostly long and complex and seldom used. The common name of a pesticide active ingredient is the one that is most often used by appropriate scientific groups and pesticide users. The trade name of a pesticide active ingredient is a copyrighted name used by its producer. A pesticide active ingredient will usually have only one common name, but it may have several trade names. Unless otherwise indicated, the trade names listed in these tables are capitalized and are followed by an asterisk (*). They should not be confused with the brand names used by formulators and distributors of pesticide products.

Pesticide products are sold commercially by trade and brand names and may not have a common name on the container label. However, recommendations are often made by the common name or by the chemical name. The following tables provide a cross reference for the trade and common names of herbicides and a list of common names for insecticides, miticides, nematocides, fungicides, and bactericides for use in identifying the toxicity of the products.

Classification

Insecticides, herbicides, fungicides, and other pesticides are primarily classified on the basis of their chemical structure or origin. The inorganic pesticides are those which contain no carbon in their chemical structure. The organic pesticides, those that contain carbon, are usually synthetic, but some are obtained from natural sources such as plants or microorganisms. Some synthetic organic pesticides such as the pyrethroids, or synthetic pyrethrins, are based on naturally occurring chemicals. The main classifications of pesticides along with the abbreviations used in the tables are as follows:

Insecticides, Miticides, and Nematocides. Organic phosphates or organophosphates (OP), carbamates (Car.), chlorinated hydrocarbons or organochlorines (CH), pyre-throids (SyP), botanicals (Bot.), microbials (M), insect growth regulators (IGR), fumigants (Fum.), inorganics (Inor.), repellents (Rep.), insecticide (I), acaricide (A), rodenticide (R), nicotinoid or neonicotinoid (N), miscellaneous (Misc.).

Fungicides and Bactericides. Dithiocarbamates (DC), thiazoles (TZ), triazines (T), substituted aromatics (SA), dicarboximides (DO), oxythiins (OX), benzimidazoles (BZ), acylalamines (AC), triazoles (TR), piperazines (PI), imides (IM), dinitrophenols (DN), aliphatic nitrogen compounds (AN), quinones (QN), organotins (OT), organophosphates (OP), antibiotics (AB), fumigants (Fum.), inorganics (Inor.), miscellaneous (Misc.).

Toxicity

The Environmental Protection Agency uses the results of acute toxicity studies on test animals, usually rats and rabbits, to place pesticides in toxicity categories (I-IV) which determine what signal word must appear on the label. Registration standards by EPA require these signal words and special precautions in label wording. Although inhalation toxicity and eye and skin corrosiveness studies are also used, results of acute dermal and acute oral toxicity studies are more publicized and probably more important.

The LD50 is the lethal dose of a substance required to kill half of the exposed test animals. It is based on the body weight of the animal and is expressed in milligrams of the substance per kilogram of body weight (mg/kg). One mg/kg is equivalent to 1 ppm. The lower the LD50, the greater the toxicity. Although most LD50 values are for the pesticide active ingredient or actual toxicant, the signal word on each pesticide product is determined by the toxicity of that particular formulation. Formulated pesticides are usually, but not necessarily, less toxic than the active ingredient.

The following table shows signal words that must appear on the pesticide label for each toxicity category. It also shows the range of the oral and dermal median lethal doses (LD50) for each. For example, a pesticide that falls into category I only because of eye or skin corrosiveness must bear “Danger” but not “Poison” or the skull and crossbones symbol on its label.

Toxicity categories and signal words on the pesticide label are based on acute toxicity studies, but sub-acute and chronic toxicity studies are also conducted. Acute toxicity involves the rather rapid response of the test animal to a single large exposure to the pesticide. Sub-acute toxicity refers to the response of the animal to repeated or continuous exposure to smaller doses over less than half of its normal life span. In chronic toxicity studies, exposures are repeated or continued for longer than half of the animal’s life span. The toxicity categories given in the following tables are based solely on the accompanying LD50 values which, unless stated otherwise, are for the active ingredient. EPA would not necessarily assign the same category shown in the tables.

The Office of Pesticide Programs maintains a database of all pesticide products registered in the United States. This database also contains detailed information for all conventional, antimicrobial, and biopesticides. Also included are the MSDS sheets that outline toxicity, classification, and chemical composition of pesticides. For further information please visit www.iaspub.epa.gov/apex/pesticides/f?p=chemicalsearch:1.

Toxicity Category	Signal Words Required on Label by EPA	Oral LD ₅₀ (mg/kg)	24-Hr. Exposure (mg/kg)	Equivalent Oral Dose for Adult Humans
I. Highly Toxic	DANGER, POISON, Plus Skull & Crossbones Symbol	0–50	0–200	A few drops to 1 t.
II. Moderately Toxic	WARNING	50–500	200–2000	1 t. to 2 T.
III. Slightly Toxic	CAUTION	500–5000	2000–20,000	1 oz. to 2 pt. (1 lb.)
IV. Low Toxicity	CAUTION	5000	20,000	1 pt. (1 lb.) or more

Table 1. Names, Classification, and Toxicity of Pesticides

Pesticide Name (common name)	Other names (all not listed) (trade name)	Class	Toxicity Category	Acute LD ₅₀ Values	
				Oral (mg/kg) White rats	Dermal (mg/kg) Rabbits
INSECTICIDES, MITICIDES, AND NEMATOCIDES					
abamectin	Ascend*, Clinch*, Varsity*	Misc.	IV	5000	2000
acephate	Orthene*	OP	III	866–945	10250
acetamiprid	Assail		III	1064	>2000
aldrin		CH	I	39–60	50–100 (rat)
allethrin		SyP	III	920	
alpha-cypermethrin	Fastac				
aluminum phosphide	Phosfume2*, Phostoxin*, Weevilcide*	Misc.	I	0.3 ppm	
aminocarb	Matacil*	Car.	I	30	275 (rat)
amitraz	BAAM*	Car.	III	800	200
	cypermethrin	SyP	II	251 (corn oil)	1600 (rat)
	trichlorfon	OP	II	150–400	500 (rat)
aprocarb	Baygon*, propoxur	Car.	II	70–200	500
azinphosethyl	Ethyl Guthion*	OP	I	17.5	250 (rat)
azinphosmethyl	Guthion*	OP	I	13–16.4	220 (rat)
Bacillus popilliae	Doom*, milky disease spores, Japademic*	M	IV	nontoxic	
Bacillus thuringiensis	Agree*, Biobit*, Dipel*, Javelin*, Thuricide*, XenTari*	M	III	>5050	>2020 – >5000
bendiocarb	Ficam*	Car.	II	40–156	1000 (rat)
benzene hexachloride	BHC	CH	III	1250	
benzyl benzoate		Rep.	III	500–5000	
beta-cyfluthrin	Baythroid XL*, Tempo SC Ultra*	SyP	IV	960–1150	>2000 (rat)
bifenazate	Acramite		IV	>5000	>5000
bifenthrin	Capture*, Talstar*, many others	SyP	III	375	2000
binapacryl	Morocide*	Misc.	II	421	720–810 (rat)
borax		Inor.	III	2660–5190	
boric acid		Inor.	III	3000	
bromophos	Nexion*	OP	III	3750–8000	
bufencarb	Bux*	Car.	II	85–105	680
buprofezin	Courier				
calcium polysulfide	lime sulfur, Polycal*	Inor.	IV		caustic
carbaryl	Carbaryl*, Sevin*	Car.	III	500–850	4000 (rat)
carbophenothion	Trithion*	OP	I	6.8–36.9	1270
carbosulfan	Advantage*	Car.	II	209	
chlordantraniliprole	Coragen*, Prevathon*		IV	>5000	>5000
chlorbenside	Chlorocide*	CH	III	2000	
chlordecone	Kepon*	CH	II	114–140	345–475
chlordimeform	Fundal*, Galecron*, chlorophenamidine	Misc.	II	127–352	3000
chlorethoxyfos	Fortress*	I, OP	I	44–124	>2000

Table 1. Names, Classification, and Toxicity of Pesticides (cont.)

Pesticide Name (common name)	Other names (all not listed) (trade name)	Class	Toxicity Category	Acute LD ₅₀ Values	
				Oral (mg/kg) White rats	Dermal (mg/kg) Rabbits
INSECTICIDES, MITICIDES, AND NEMATOCIDES (cont.)					
chlorfenvinphos	Cpd 4072*, Supona*	OP	I	10–39	400–4700
chlorobenzilate	Acaraben*, Akar*	CH	III	2784–3880	10200 (4E)
chlorophenamidine	chlordimeform, Fundal*, Galecron*	Misc.	II	127–352	3000
chloropicrin	Larvicide*	Misc.	I	250	200 ppm (vapor)
chloropropylate	Acaralate*	CH	III	5000 (2EC)	
chlorpyrifos	Chlorpyrifos*, Dursban*, Killmaster II*, Lorsban*, many others	OP	II	97–276	2000
chlorpyrifos-methyl	Reldan*	OP	III	1000–3700	2000
clothianidin	Belay, Clutch, Inside NipsIt, Poncho pro*, Poncho 600	N	IV	>5000	>2000
coumaphos	Co-Ral*	OP	I	17–240	860 (rat)
crotoxyphos	Ciodrin*	OP	II	53	385
crufomate	Ruelene*	OP	III	770	400–600
cryolite	Kryocide*	Inor.	IV	5000	
cube	rotenone	Bot.	II	132–1500	940
cyfluthrin	Tempo WP*, Tombstone*	SyP	II	900	5000
cyhexatin	Plictran*	Misc.	III	540	2000
cypermethrin	Ammo*, Cymbush*, Demon*	SyP	III	251 (corn oil)	1600 (rat)
cythioate	Cyffee*, Proban*	OP	II	160	2500
dazomet	Mylone*, DMTT*	Misc.	II	640	
deet	Off*, diethyltoluamide	Rep.	III	2000	
deltamethrin	Centynal, Decis*, Delta Gold*	SyP	II	42.9	>2000 (rat)
demeton	Systox*	OP	I	2.5–12	8.2–14 (rat)
derris	rotenone	Bot.	II	132–1500	940
dialifor	Torak*	OP	I	5–53	145
diamidfos	Nellite*	OP	I	140	100–200
diatomaceous earth	Dryacide*, Insecto*, Protect It*	Inor.	IV	non-toxic to mammals	
diazinon	Many	OP	II	300–400	3600
dibutyl phthalate	DBP	Rep.	IV	8000	
dichlofenthion	Mobilawn*, VC-13*	OP	II	270	
dichloropropene	Telone* II	Fum.	II	250–500	500 ppm (vapor)
dichlorvos (dichlorphos)	DDVP, Prozap InsectGuard*	OP	I	56–80	107
dicofol	Kelthane*	CH	II	684–809	2100
dicrotophos	Bidrin*	OP	I	17–22	224
dieldrin		CH	I	40–60	50–100 (rat)
dienochlor	Pentac*	CH	III	3160	3160
diethyltoluamide	deet, Off*	Rep.	III	2000	
diflubenzuron	Dimilin*	IGR	III	4640	2000

Table 1. Names, Classification, and Toxicity of Pesticides (cont.)

Pesticide Name (common name)	Other names (all not listed) (trade name)	Class	Toxicity Category	Acute LD ₅₀ Values	
				Oral (mg/kg) White rats	Dermal (mg/kg) Rabbits
INSECTICIDES, MITICIDES, AND NEMATOCIDES (cont.)					
dimethoate	Cygon*, De-Fend*, Dimethoate*, Rebelate*	OP	II	215	400–610 (rat)
dinitrocresol	DNOC	Misc.	I	20–50	200–600 (rat)
dinocap	Karathane*	Misc.	III	980	4700
dinoseb	DNBP	Misc.	I	40–60	80–200
dinotefuran	Venom, Zylam		IV	>5000	>5000
dioxathion	Delnav*, Deltic*	OP	I	45	235 (rat)
disulfoton	Di-Syston*	OP	I	2–12	6–25 (rat)
d-phenothrin	sumithrin	SyP	IV	10000	10000 (rat)
d-trans allethrin		SyP	III	860	
dymet		OP	III	2000	8000
endrin		CH	I	7–15	15 (rat)
emamectin benzoate	Proclaim		III	1516	>2000
EPN		OP	I	26	420
esfenvalerate	Asana*, S-Fenvalostar	SyP	II	75	2000
ethion		OP	I	208	915
ethoprop	Mocap*	OP	I	61.5	2.4
ethylene dibromide	EDB, Soilbrom*	Fum.	II	146	200 ppm (vapor)
famphur	Warbex*	OP	I	36–62	2730
fenbutatin-oxide	Vendex*, Hexakis*	Misc.	III	2631	2000
fenitrothion	Sumithion*	OP	II	500	1300 (rat)
fenoxycarb	Award*	Car.	IV	>5000	>2000
fenpropathrin	Danitol*	SyP	I	66.7–70.6	2000
fenpyroximate	Portal	Phenyl- pyroazole	III	810	>5000
fensulfothion	Dasanit*	OP	I	2–10	3–30 (rat)
fenthion	Baytex*, Entex*, Tiguron*	OP	III	255–298	1600–2830 (rat)
fenvalerate	Pydrin*, Ectrin*	SyP	III	3200	2500
fipronil	Regent	Phenyl- pyroazole	II	336	382
flonicamid	Beleaf		III	>2000	>2000
flubendiamide	Belt*, Synapse*		III	>2000	>4000
flucythrinate	Pay-Off*	SyP	II	67	1000
fluvalinate	Mavrik*	SyP	II	261–282	20,000
fonofos	Dyfonate*	OP	I	8–17.5	25
formetanate hydrochloride	Carzol*	Misc.	I	20	10,200
fosthietan	Nem-A-Tak*	OP	I	4.7–7.7	27.4–66.3
gamma-cyhalothrin	Declare*, Proaxis*, Prolex*	SyP		2500	>5000
heptachlor		CH	II	147–220	2000
hydramethylnon	Amdro*, Pro bait*, Siege Pro*	Misc.	III	1131–1300	5000
hydropene	Altozar*	IGR	IV	34,000	4550
imidacloprid	Admire*, Attendant*, Gaucho*, Imidacloprid*, Marathon II*, Provado*, Senator*, Trimax *(cotton)	N	II-III	450	>5000 (rat)
indoxacarb	Advion*, Avaunt*, Steward*	Car.		751–3619	>5000 (rat)
isazofos	Triumph*	OP	I	60	3100

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				Oral (mg/kg) White rats	Dermal (mg/kg) Rabbits
INSECTICIDES, MITICIDES, AND NEMATOCIDES (cont.)					
isofenphos	Amaze*, Oftanol*	OP	I	28–38	163–315
kinoprene	Enstar*	IGR	III	5900–6000	9000
lambda-cyhalothrin	Karate* with Zeon Technology, Lambdastar*, Lamcap, Warrior* with Zeon Technology, many others	SyP	II	79	632–696
lead arsenate		Inor.	I	100	
leptophos	Phosvel*	OP	II	52.8	10000 (rat)
lime sulfur	calcium polysulfide, Polycal*	Inor.	IV		caustic
lindane	gamma isomer of BHC	CH	II	88–125	1000 (rat)
malathion	Atropa*, Cythion*, Malathion*	OP	III	1375	4100
mephosfolan	Cyrolane*	OP	I	8.9	28.7
metaflumizone		Misc.	III	>2000	>4000 (rat)
metaldehyde	Many	Misc.	III	630	
metam-sodium	Vapam*, VPM*	Car.	III	820	
methamidophos	Monitor*	OP	I	30	118
methiocarb	Mesuroil*	Car.	II	10–130	2000
methiodothion	Supracide*	OP	I	44	200
methomyl	Lannate*, Nudrin*	Car.	I	17–24	5000
methoprene	Altosid*, Diacon IGR*, Diacon D IGR*, Extinguish* Precor*	IGR	IV	34600	3000
methoxychlor	Marlate*	CH	III	6000	6000 (rat)
methoxyfenozide	Intrepid*	Misc.	IV	>5000	>5000
methyl bromide		Fum.	II	200 ppm (vapor)	
methyl parathion	Methyl Parathion*, Penncap*	I, A, OP	I	6–50	300
methyl trithion		OP	I	200	190–215 (rat)
mevinphos	Phosdrin*	OP	I	16–33	33.8
mexacarbate	Zectran*	Car.	I	24	500
milky disease spores	Bacillus popilliae	M	IV	nontoxic	
naled	Dibrom*	OP	II	430	1100
naphthalene		Fum.	III	2400	2500 (rat)
nicotine		Bot.	I	50–60	50
novaluron	Rimon		III	>5000	>2000
NPD	Aspon*	OP	III	2710-5010	
oxamyl	Vydate*	Car.	I	5.4	710 (24% liq.)
oxydemeton-methyl	Metasystox-R*	OP	II	65–75	250 (rat)
oxythioquinox	Morestan*	Misc.	III	2500–3000	2000 (rat)
para-dichlorobenzene	PDB	Fum.	II	500	2000
paris green		Inor.	II	22	2400 (rat)
permethrin	Atroban*, Ectiban*, Permethrin*, Pounce*, Pramax*, Torpedo*, many others	SyP	III	4000	2000
phorate	Thimet*, Phorate*	OP	I	2–4	2.5–6.2 (rat)

Table 1. Names, Classification, and Toxicity of Pesticides (cont.)

Pesticide Name (common name)	Other names (all not listed) (trade name)	Class	Toxicity Category	Acute LD ₅₀ Values	
				Oral (mg/kg) White rats	Dermal (mg/kg) Rabbits
INSECTICIDES, MITICIDES, AND NEMATICIDES (cont.)					
phosalone	Zolone*	OP	II	120	1250
phosfolan	Cyolane*	OP	I	8.9	23
phosmet	Imidan*	OP	II	147–316	4640
phosphamidon	Dimecron*	OP	I	17–30	267
phoxim	Baythion*	OP	III	1845	1000 (rat)
piperonyl butoxide		Misc.	II	7500	
pirimicarb	Pirimor*	Car.	II	147	500 (rat)
pirimiphos-methyl	Actellic*	OP	III	200	4600
profenofos	Curacron*	OP	II	358	472
propargite	Omite*, Comite*	Misc.	III	2200	
propoxur	Baygon*, aprocarb	Car.	II	70–200	500
pymethozine	Fulfill		III	>5000	>2000
pyrethrum	Douglas Pyrethrin 5, Pyganic, pyrethrins	Bot.	III	1500	1800 (rat)
pyriproxifen	Distance*, Esteem*, Nyguard*	pyridine	III	>5000	>2000
resmethrin	Chryson*, Synthrin*	SyP	III	4240	2500
ronnel	Korlan*, Trolene*, Viozene*	OP	III	1740	1000–2000
ryania		Bot.	III	1200	4000
sabadilla		Bot.	III	4000	
sodium fluorite	various	Inor.	I	75 (man)	
spinetoram	Radiant		IV	>5000	>5000
spinosad	Tracer*, Spintor	Misc.	IV	>5000	>5000
spiromesifen	Oberon		III	>2000	>2000
spirotetramat	Movento		III	>2000	>4000
sulfotepp	Bladafume*	OP	I	7–10	
sulfuryl fluoride	Profume*	I, R, Inor.	I	50–500	>5000
sulprofos	Bolstar*	OP	II	107	820
sumithrin	d-phenothrin	SyP	IV	10000	10000 (rat)
tefluthrin	Force*	SyP	III	1550	
tempephos	Abate*, Biothion*	OP	III	8600	1300–1930
terbufos	Counter*	OP	I	4.5–9.2	1.1
tetrachlorvinphos	Rabon*, Gardona*	OP	III	4000–5000	2500
tetradifon	Tedion*	OP	III	14,700	10,000
tetraethyl pyrophosphate	TEPP	OP	I	1.2–2	2.4 (rat)
tetramethrin	Neopyamin*	SyP	III	4640	
thiamethoxam	Actara*, Cruiser*, Platinum*	N	III	>5000	>2000
thiodicarb	Larvin*	Car.	II	66–120	
toxaphene		CH	II	69	780–1075 (rat)
trichlorfon	Dylox*, Dipterex*, Neguvon*, Anthon*, Proxol*	OP	II	450	2000 (rat)
trichloronate	Agritox*	OP	I	37.5	341 (rat)
triflumuron	Alsystin*, Mascot*	Misc.	IV	5000	
zeta-cypermethrin	Mustang Max*, Respect*	SyP	II	157	>5000

Table 1. Names, Classification, and Toxicity of Pesticides (cont.)

Pesticide Name (common name)	Other names (all not listed) (trade name)	Class	Toxicity Category	Acute LD ₅₀ Values	
				Oral (mg/kg) White rats	Dermal (mg/kg) Rabbits
FUNGICIDES AND BACTERICIDES					
bichloride of mercury	corrosive sublimate	Inor.	I	1–5	
biteranol	Baycor*	TR	IV	5000	5000 (rat)
blue stone	copper sulfate	Inor.	I	470	
blue vitriol	copper sulfate	Inor.	I	470	
Bordeaux mixture	copper sulfate plus hydrated lime in varying proportions	Inor.		low toxicity	
brimstone	sulfur	Inor.	IV	low toxicity	
captan	Orthocide*	DO	I, III	9000	
carboxin	Vitavax*	OX	I, III	3820	8000
chlorothalonil	Bravo*, Termil*, Daconil*	SA	I, II, III	10,000	10,000
copper	fixed copper	Inor.	III	3000+	
copper ammonium carbonate	Copper-Count N*	Misc.		low toxicity	
copper hydroxide	Kocide*	Inor.	III	1000	
copper naphthenates	Cuprinol*	Misc.	II	6.0	
copper oleate		Misc.	IV	6000	
copper oxychloride		Inor.	III	1000 (formulation)	
copper resinate	Citcop*	Misc.	IV	10,000–20,000	
copper sulfate	blue stone, blue vitriol	Inor.	I	470	
copper sulfate (basic)		Inor.	III	1000	
dichloropropene	Telone II*	Fum.	I	250–500	500 ppm (vapor)
dodine	Cyprex*	AN	II	1000	1500
fenarimol	Rubigan*	PY	III	2500	
ferbam	carbamate	DC	IV	17000	
fixed copper	basic copper fungicides, various commercial products	Inor.	III	3000+	
folpet	Phaltan*	DO	IV	10000	
fosethyl Al	Aliette*	OP	III	5800	2000
iprodione	Rovral*, Chipco 26019*	IM	III	4400	75,000
lime sulfur		Inor.	I	low toxicity	caustic
mancozeb	Dithane M-45*, Fore*, Manzate 200*	DC	IV	8000	
maneb	Dithane M-22*, Manzate D*	DC	IV	8000	
mefanoxam	Ridomil*, Apron*	AC	II	669	3100 (rat)

Table 1. Names, Classification, and Toxicity of Pesticides (cont.)

Pesticide Name (common name)	Other names (all not listed) (trade name)	Class	Toxicity Category	Acute LD ₅₀ Values	
				Oral (mg/kg) White rats	Dermal (mg/kg) Rabbits
FUNGICIDES AND BACTERICIDES (cont.)					
metam-sodium	Vapam*, Busan 1020*	DC	III	1700–1800 (formulation)	3100
orthophenylphenol		Misc.	III	2700	
phosethyl Al	Aliette*	OP	IV	5400	
propamcarb hydrochloride	Previcur N*, Banol*	AN	IV	8600	3000
propiconazole	Tilt*, Orbit*	TR	III	1500	
prothiocarb	Dynone*, Previcur*	AN	III	1300	
quintozene	PCNB*, Terraclor*	SA	IV	1700	
streptomycin	Agrimycin*, Agristrep*, Phytomycin*	AB	IV	9000	
sulfur	brimstone	Inor.	IV	low toxicity	
thiophanate-methyl	Topsin M*	BZ	IV	7500	
thiram	Arasan*, Thylate*, Thiramad*	DC	III	780	
triadimefon	Bayleton*	TR	II	1000	5000
triadimenol	Baytan*	TR	III	700–1200	
tribasic copper sulfate	fixed copper	Inor.		low toxicity	
triforine	Funginex*	PI	II, IV	16,000	
vinclozolin	Ronilan*	IM	IV	10,000	
HERBICIDES					
2,4-D	Various formulations		II, III	-600	>2000
2,4-D choline + glyphosate	Enlist Duo			2500	>5000 (rat)
2,4-DB	Butoxone*, Butyrac*		III	>2000	>5000
acetochlor	Harness*, Surpass*, TopNotch*, Warrant		III	-1849	-5000
acifluofen	Ultra Blazer*		III	2020	>2000
alachlor	Intrro*, Micro-Tech*		III	1782	>5000
ametryn	Evik*		III	-4494	->2020
aminopyralid	Milestone*		IV	>5000	>5000
amitrol R.U.	Amitrol*		IV	-5000	-2000
asulam	Asulox*		IV	>5000	>2000
atrazine	AAtrex*, Atrazine*		III	>5000	>5050 (rat)
atrazine + dimethenamid	Guardsman Max*		III	>500 - >2000	>4000
atrazine + fluthiacet-methyl + pyroxasulfone	Anthem ATZ*		III	310	>2000 (rat)
atrazine + S-metolachlor	Bicep II Magnum*, Cinch ATZ*, etc.		III	3271	2020 (rat)
benefin	Balan*		II	500	>2000
bensulide	Betasan*, Prefar*		III	-960	>2000
bentazon	Basagran*		III	1260	2500 (rat)
bentazon + acifluofen	Storm*		III	998	>2000 (rat)
bispyribac-sodium	Velocity*		IV	>5000	>5000

Table 1. Names, Classification, and Toxicity of Pesticides (cont.)

Pesticide Name (common name)	Other names (all not listed) (trade name)	Class	Toxicity Category	Acute LD ₅₀ Values	
				Oral (mg/kg) White rats	Dermal (mg/kg) Rabbits
HERBICIDES (cont.)					
bromacil	Hyvar*		III	2000	>2000
bromoxynil	Buctril*		III	750	-2000 (rat)
carfentrazone	Aim*, Quicksilver*		III	4077	>4000
chloransulam-methyl	FirstRate*		IV	>5000	>2000
chlorimuron	Classic*		IV	>5000	>2000
chlorimuron + thifensulfuron	Synchrony XP*		IV	>5000	>5000
chlorimuron + tribenuron-methyl	Canopy EX*		IV	>5000	>2000
chlorsulfuron	Corsair*		III	-5545	-3400
cloransulam-methyl	FirstRate*		IV	>5000	>2000
clethodim	Envoy*, Prism*, Select*		III	>2000	>5000
clomazone	Command*		IV	>5000	>5000 (rat)
clopyralid	Lontrel*, Stinger*, Transline*		IV	>5000	>5000
DCPA	Dacthal*		IV	>5000	>5000
dicamba	Banvel*, Clarity*, Vanquish*, Engenia, Xtendimax		III	2629	>2000
dicamba + diflufenzopyr	Status*		III	>2000	>2000 (rat)
dichlobenil	Casoron*		IV	>5000	>2000
diclofop-methyl	Illoxan			2870	>2000
diclosulam	Strongarm*		IV	>5000	>2000
dimethenamid-P	Outlook*		III	1570	>2000
diquat	Diquat*, Reward*		II	230	400
dithiopyr	Dimension*		III	>3600	>5000
diuron	diuron, Direx*, Karmex*		III	>3000	>2000
EPTC	Eptam*, Eradicane*		III	-1325	2750
ethalfluralin	Curbit*, Sonalan*		III	3267	>5000
ethofumesate	Prograss*		IV	>5000	>4000
fenoxaprop	Acclaim*, Whip*		III	-3310	>2000
fluazifop	Fusilade DX*		IV	>5000	>2000
fluazifop-butyl	Fusilade II*		IV	>5000	>2000
flumetsulam	Python*		IV	>5000	>2000
flumiclorac	Resource*		IV	3200	2000
flumioxazin	Payload*, Valor*		IV	>5000	>2000
flumioxazin + chlorimuron ethyl	Valor XLT		IV	>5000	>2000
flumioxazin + chlorimuron + thifensulfuron	Envive*		IV	>5000	>2689
flumioxazin + pyroxasulfone	Fierce*		IV	>5000	>5000 (rat)
flumioxazin + pyroxasulfone + chlorimuron	Fierce XLT*		IV	>5000	>5000 (rat)
fluometuron	Cotoran*, Meturon*		III	-1450	10,000
fluridone	Sonar*		IV	>5000	>2000
fluroxypyr	Spotlight*, Vista*		IV	>5000	>5000

Table 1. Names, Classification, and Toxicity of Pesticides (cont.)

Pesticide Name (common name)	Other names (all not listed) (trade name)	Class	Toxicity Category	Acute LD ₅₀ Values	
				Oral (mg/kg) White rats	Dermal (mg/kg) Rabbits
HERBICIDES (cont.)					
fluthiacet	Blizzard*, Cadet*		III	-2537	2020
fluthiacet-methyl + pyroxasulfone	Anthem*		IV	>5000	>5000 (rat)
fomesafen	Flexstar*, Reflex*		III	>3863	>2000
fomesafen + S-metolachlor	Prefix*		IV	5000	>5050
foramsulfuron	Revolver*		IV	>5000	>5000
fosamine ammonium	Krenite*		IV	>5000	>5000
glufosinate	Finale*		III	3570	>2000
glufosinate-ammonium	Liberty*, Rely*, Ignite*		II	>300 - >2000	>2000
glyphosate	Glyphos*, Glyphomax*, Rodeo*, Roundup*, Touchdown*, others		IV	>5000	>5000
halosulfuron	Permit*, Sandea*, SedgeHammer*		III	-1287	>5000
halosulfuron + thifensulfuron	Permit Plus*		III	2000	>5000 (rat)
hexazinone	Velpar*		III	-1310	>5000
Hyvar*	bromacil		III	-2000	>2000
imazamox	Raptor*		IV	>5000	>4000 (rat)
imazapic	Cadre*, Impose*, Panoramic*		IV	>5000	>5000
imazapyr	Arsenal*, Habitat*		IV	>5000	>2000
imazaquin	Image*, Scepter*		IV	>6500	>2000
imazethapyr	Pursuit*		IV	>5000	>5000
isoxaben	Gallery*		IV	>5000	>5000
lactofen	Cobra*		III	2400	>2000
Leadoff*	rimsulfuron + thifensulfuron		IV	>5000	>5000
Lexar EZ*	S-metolachlor + atrazine + mesotrione		IV	5000	>5050 (rat)
linuron	Linex*, Lorox*		III	>4300	>2000
mecoprop	MCPPP*		III	1098	>5000
mesosulfuron-methyl	Osprey*		III	>2000	>2000
mesotrione	Callisto*		IV	>5000	>5000 (rat)
metham	Vapam*		III	-820	>2000
metribuzin	Metribuzin*, Metri*, Sencor		III	2365	>2000
metribuzin + chlorimuron	Canopy*, Canopy Blend*		III	1030	>5000
metsulfuron methyl	Accurate*, Escort*, Manor*, Patriot*, Valuron*		III	>2000	-2000
napropamide	Devrinol			>2000	>2000
nicosulfuron	Accent*, NIC-IT*, Zest		III	>5000	>5000
norflurazon	Predict*, Solicam*, Zorial*		IV	1140	>2000
oryzalin	Surflan*		IV	>5000	>2000
oxadiazon	Ronstar*		I, II	>5000	>2000
oxyflurofen	Goal* 2XL*		II	3129	>5000
paraquat	Firestorm*, Gramoxone SL*		II	283	>2000
pelargonic acid	Scythe*		III	>5000	>2000
pendimethalin	Pentagon*, Pre-M*, Prowl H ₂ O*		II	>5000	>5000 (rat)
picloram	Tordon*		II, III	>5000	>5000

Table 1. Names, Classification, and Toxicity of Pesticides (cont.)

Pesticide Name (common name)	Other names (all not listed) (trade name)	Class	Toxicity Category	Acute LD ₅₀ Values	
				Oral (mg/kg) White rats	Dermal (mg/kg) Rabbits
HERBICIDES (cont.)					
pinoxaden	Axial*		IV	>5000	>5000
primisulfuron	Beacon*		IV	-5050	>2010
prodiamine	Barricade*, Endurance, Stonewall*		V	>5000	>5000
prometon	Pramitol*		I	503	>2500
prometryn	Caparol*, Cotton-Pro*		IV	>5000	>5000
pronamide	Kerb*		IV	>5000	>5000
prosulfuron	Peak*		III	-4360	>2020 (rat)
pyraflufen	ET*		IV	>5000	>2000
pyrithiobac sodium	Staple LX*		II	>5000	>5000
pyroxasulfone	Zidua*		III	>2000	>2000 (rat)
quinclorac	Drive*, Facet L		III	>2200	-2000
quizalofop	Assure II*		III	5900	>2000 (rat)
rimsulfuron	Matrix*, Tranxit*		IV	>5000	>5000
rimsulfuron + mesotrione	Realm Q*		IV	>5000	>5000 (rat)
rimsulfuron + thifensulfuron	Leadoff*		IV	>5000	>5000
saflufenacil	Sharpen*		III	>2000	>5000 (rat)
saflufenacil + dimethenamid	Verdict*		III	>2000	>5000 (rat)
sethoxydim	Poast*, Poast Plus*, Vantage*		III	>2000	>5000 (rat)
siduron	Tupersan*		IV	>7500	N/A
simazine	Princep*		IV	>5000	>5050
S-metolachlor	Dual Magnum, Cinch, Pennant			3425	>2000
S-metolachlor + atrazine + mesotrione	Lexar EZ*		IV	5000	>5050 (rat)
S-metolachlor + glyphosate	Sequence*		IV	>5000	>5050
S-metolachlor + glyphosate + mesotrione	Halex GT*		IV	>5000	>6147
sulfentrazone	Authority*, Dismiss*, Spartan*		III	-2084	>2000
sulfentrazone + chlorimuron	Authority XL*		III	1750	>5000
sulfentrazone + cloransulam-methyl	Authority First*, Sonic*		III	2504	>5000
sulfometuron-methyl	Oust*		IV	>5000	>5000
sulfosulfuron	Certainty*, Outrider*		IV	>5000	>5000
tebuthiuron	Spike*		III	>2000	>2000
tembotrione	Laudis		III	1750	>5000
terbacil	Sinbar*		III	>5000	>5000
thiencarbazone + isoxaflutole	Corvus*		IV	>5000	>2000 (rat)
thiencarbazone + tembotrione	Capreno*		III	>2000	>2000 (rat)

Table 1. Names, Classification, and Toxicity of Pesticides (cont.)

Pesticide Name (common name)	Other names (all not listed) (trade name)	Class	Toxicity Category	Acute LD ₅₀ Values	
				Oral (mg/kg) White rats	Dermal (mg/kg) Rabbits
HERBICIDES (cont.)					
thifensulfuron + tribenuron	Firstshot*		IV	>5000	>5000 (rat)
topramezone	Armezon*, Impact*		III	>2000	>4000 (rat)
tralkoxydim	Achieve*		III	>2950	>5000 (rat)
tribenuron	Express*		IV	>5000	>5000
triclopyr	Garlon*, Remedy*		III	4100	>5000
trifloxysulfuron	Envoke*		IV	>5000	>2000
trifloxysulfuron- sodium	Monument*		IV	>5000	>2000
trifluralin	Treflan*, Trilin*		III	>5000	>2000
PLANT GROWTH REGULATORS–DEFOLIANTS					
BLIZZARD*	fluthiacet-methyl		III	2537	2020
DEF*	tributyl phosphotriothioate		II	200	1000 (rat)
DROPP*	thidiazuron		IV	4000	1000
EMBARK*	mefluidide		III	>5000	>20000
PLANT GROWTH REGULATORS–DEFOLIANTS (cont.)					
PREP*	ethephon		I, II	4229	
PRO-GIBB*	gibberellic acid		III	15,000	

NOTE: T = technical material WP = wettable powder formulation; EC = emulsifiable concentrate; L = liquid formulation; DF = dry flowable. Acute oral or dermal scale: 0–50 = highly toxic; 50–500 = moderately toxic; 500–5000 = slightly toxic; greater than 5000 = low toxicity. Acute oral means the amount fed to test animals at one time.

* Indicates trade name.

Appendixes prepared by **Sonja B. Thomas**, *Extension Specialist*, Pesticide Safety Education Program, and **Steve Li**, *Extension Specialist*, Assistant Professor, Crop, Soil, and Environmental Sciences.

CLASSIFICATION OF HERBICIDES ACCORDING TO SITE OF ACTION

HRAC—The Herbicide Resistance Action Committee Classification system differs from the WSSA system in minor ways. The aim of the HRAC is to create a uniform classification of herbicide sites of action in as many countries as possible.

Site of Action—The biochemical pathway a particular herbicide acts upon in the plant. The herbicide works on the inhibition of the site of action listed. In resistance management, it is especially important that you use multiple sites of action when deciding your herbicide plan.

Chemical family—The chemical family is a group of herbicides that is named in relation to its chemical similarities. Active ingredients—The ingredient in a herbicide which is biologically active; that kills the plant.

Trade name(s)—The trade name listed is an example of a popular trade name most associated with the active ingredient. Multiple trade names exist for some active ingredients, i.e. Glyphosate.

WSSA group—The herbicide grouping classification system of the Weed Science Society of America. This group is listed on the herbicide label.

Table 2. Classification of Herbicides According to Site of Action

HRAC Group	Site of Action	Chemical family	Active ingredients	Trade name(s)	WSSA Group
A	Acetyl CoA carboxylase (ACCase)	Aryloxyphenoxypropionate (FOPs)	clodinafop-propargyl	Discover	1
			cyhalofop-butyl	Barnstorm	
			diclofop-methyl	Hoelon	
			fenoxaprop-P-ethyl	Whip	
			fluzifop-P-butyl	Fusilade	
			haloxyfop-R-methyl	Focus	
			propaquizafop	Correct	
		Cyclohexanedione (DIMs)	quizalofop-P-ethyl	Assure II	
			alloxydim	Clout	
			butoxydim	Fusion	
			clethodim	Select Max	
			cycloxydim	Focus	
			setoxydim	Poast Plus	
			tepraloxym	Equinox	
		Phenylpyrazoline (DEN)	tralkoxydim	Achieve	
			pinoxaden	Axial	
B	Acetolactate synthase ALS (acetohydroxyacid synthase AHAS)	Sulfonylurea	amidosulfuron	Eagle	2
			azimsulfuron	Gullier	
			bensulfuron-methyl	Londax	
			chlorimuron-ethyl	Classic	
			chlorsulfuron	Finesse	
			cyclosulfamuron	Jumbogo	
			ethamsulfuron-methyl	Muster	
			ethoxysulfuron	Gladium	
			flazasulfuron	Katana	
			foramsulfuron	Equip	
			halosulfuron-methyl	Permit	
			metsulfuron-methyl	Escort	

Table 2. Classification of Herbicides According to Site of Action (cont.)

HRAC Group	Site of Action	Chemical family	Active ingredients	Trade name(s)	WSSA Group		
B (cont.)	Acetolactate synthase ALS (acetohydroxyacid synthase AHAS) (cont.)	Sulfonylurea (cont.)	nicosulfuron	Accent	5		
			primisulfuron-methyl	Beacon			
			prosulfuron	Peak			
			pyrazosulfuron-ethyl	Act			
			rimsulfuron	Resolve			
			sulfometuron-methyl	Landmark			
			sulfosulfuron	Maverick			
			thifensulfuron-methyl	Harmony Extra			
			triasulfuron	Amber			
			tribenuron-methyl	Express			
			trifloxysulfuron	Envoke			
			triflusulfuron-methyl	Upbeet			
			Imidazolinone	imazapic		Cadre, Plateau	
				imazamethabenz-methyl		Assert	
				imazamox		Beyond	
		imazapyr		Arsenal			
		imazaquin		Scepter			
		imazethapyr		Pursuit			
		Triazolopyrimidine	cloransulam-methyl	Firstrate			
			diclosulam	Strongarm			
			florasulam	Primus			
			flumetsulam	Python			
		Pyrimidinyl (thio) benzoate Sulfonylaminocarbonyl-triazolinone	pyrithiobac-Na	Staple			
			flucarbazone-Na	Everest			
			propoxycarbazone-Na	Rimfire			
		C1	Photosynthesis at Photosystem II	triazine		ametryne	Evik
						atrazine	Atrazine
						cyanazine	Bladex
						desmetryne	Semeron
						prometon	Pramitol
prometryne	Caparol						
propazine	Miloguard						
simazine	Princip						
simetryne	Gybon						
terbumeton	Caragard						
terbuthylazine	Mascot						
trietazine	Rental						
triazinone	hexazinone				Velpar		
	metribuzin				Sencor		
	uracil				bromacil	Hyvar X	
terbacil				Sinbar			
pyridazinone	pyrazon = chloridazon			Pyramin			
phenyl-carbamate	desmedipham			Betanex			
	phenmedipham			Betamix			

Table 2. Classification of Herbicides According to Site of Action (cont.)

HRAC Group	Site of Action	Chemical family	Active ingredients	Trade name(s)	WSSA Group
C2	Photosynthesis at Photosystem II	Urea	chlorotoluron	Tolurgan	7
			dimefuron	Pradone	
			diuron	Karmex	
			fluometuron	Cotoran	
			isoproturon	Alon	
			linuron	Lorox	
			metoxuron	Dosanex	
			monolinuron	Afesin	
			siduron	Tupersan	
			tebuthiuron	Spike	
		Amide	propanil	Stam	
C3	Photosynthesis at Photosystem II	Nitrile	bromoxynil	Buctril	6
			ioxynil	oxytril	
		Benzothiadiazinone	bentazon	Basagran	
		Phenyl-pyridazine	pyridate	Tough	
D	Photosystem-I-electron diversion	Bipyridylum	diquat	Diquat	22
			paraquat	Gramoxone	
E	Protoporphyrinogen Oxidase - PPO (PPG oxidase or Protox)	Diphenylether	acifluofen-Na	Blazer	14
			bifenox	Fox	
			fomesafen	Reflex	
			lactofen	Cobra	
			oxyfluorfen	Goal	
			pyraflufen-ethyl	Milan	
		Phenylpyrazole	flumioxazin	Valor	
			flumiclorac-pentyl	Resource	
			fluthiacet-methyl	Appeal	
		Thiadiazole	oxadiazon	Ronstar	
			Oxadiazole	azafenidin	
		Triazolinone		carfentrazone-ethyl	
				Sulfentrazone	
		Pyrimidinidione	butafenacil	Inspire	
F1	Bleaching: Carotenoid Biosynthesis at the phytoene desaturase step (PDS)	Pyridazinone	norfluzon	Zorial	12
			Pyridinecarboxamide	diflufenican	
		Other	picolinafen	Sniper	
			beflubutamid	beflubutamid	
			fluridone	Sonar	
			flurochloridone	Racer	
	Flurtamone	Carat			
F2	Bleaching: 4-hydroxyphenyl-pyruvate-dioxygenase (4-HPPD)	triketone	mesotrione	Callisto	28
			sulcotrione	Mikado	
		Isoxazole	isoxaflutole	Balance	
			Pyrazole	benzofenap	
		pyrazolynate		Sanbird	
pyrazoxyfen	Paicer				

Table 2. Classification of Herbicides According to Site of Action (cont.)

HRAC Group	Site of Action	Chemical family	Active ingredients	Trade name(s)	WSSA Group	
F3	Bleaching: carotenoid biosynthesis (unknown target)	Triazole	amitrole (in vivo inhibition of lycopene cyclase)	Amitrol-T	11	
		Isoxazolidinone	clomazone	Command	13	
		Urea	Fluometuron	Cotoran		
		Diphenylether	aclonifen	Bandur		
G	Inhibition of EPSP synthase	Glycine	Glyphosate	Roundup PowerMax	9	
			Sulfosate	Touchdown		
H	Glutamine synthetase	Phosphinic acid	glufosinate-ammonium	Liberty	10	
I	DHP (dihydropteroate) synthase	Carbamate	asulam	Asulox	18	
K1	microtubule assembly	Dinitroaniline	benefin = benfluralin	Balan	3	
			ethalfluralin	Sonalan		
			oryzalin	Surflan		
			pendimethalin	Prowl H2O		
			trifluralin	Treflan		
		Pyridine	dithiopyr	Dimension		
	thiazopyr	Mandate				
	Benzamide	propyzamide = pronamide	Kerb			
	Benzoic acid	DCPA = chlorthal-dimethyl	Dacthal	3		
K2	mitosis/microtubule organization	Carbamate	carbetamide	Carbetamex	23	
K3	inhibition of VLCFA (very long chain fatty acid) synthesis (inhibition of cell division)	Chloroacetamide	acetochlor	Warrant	15	
			alachlor	Micro-tech		
			butachlor	Aimchlor		
			dimethanamid	Outlook		
			metazachlor	Butisan		
			metolachlor	Dual Magnum		
			pretilachlor	Rift		
			propachlor	Ramrod		
			thetylchlor	Alherb		
			Acetamide	napropamide		Devrinol
			Oxyacetamide	flufenacet		Axiom
				mefenacet		Act
		Tetrazolinone	fentrazamide	Lecs		
Other	anilofos	Aniloguard				
L	cell wall (cellulose) synthesis	Nitrile	dichlobenil	Acme	20	
		Benzamide	isoxaben	Gallery	21	
N	lipid synthesis—not ACCase inhibition	Thiocarbamate	butylate	Sutan	8	
			cycloate	Marathon		
			EPTC	Eptam		
			molinate	Molinate		
			pebulate	Tillam		
			prosulfocarb	Boxer		
			thiobencarb = benthio carb	Bolero		
triallate	Buckle					

Table 2. Classification of Herbicides According to Site of Action (cont.)

HRAC Group	Site of Action	Chemical family	Active ingredients	Trade name(s)	WSSA Group
N (<i>cont.</i>)	lipid synthesis—not ACCase inhibition (<i>cont.</i>)	Thiocarbamate (<i>cont.</i>)	vernolate	Vernam	
		Phosphorodithioate	bensulide	Prefar	
		Benzofuran	ethofumesate	Progress	
O	indole acetic acid (synthetic auxins)	Phenoxy-carboxylic-acid	2,4-D	2,4-D	4
			2,4-DB	Butyrac	
			dichlorprop = 2,4- DP	Weedone	
			MCPA	MCPA	
			MCPB	MCPB	
			mecoprop = MCPP = CMPP	MCPP	
		Benzoic acid	dicamba	Banvel	
		Pyridine carboxylic acid	clopyralid	Reclaim	
			fluroxypyr	Starane Ultra	
			picloram	Tordon	
			triclopyr	Remedy	
		Quinoline carboxylic acid	quinclorac also Group L	Facet L	
		Other	benazolin-ethyl	Asset	
P	auxin transport	Phthalamate	naptalam	Alanap	19
		semicarbazone	diflufenzopyr-Na	Distinct	
Z	pyrazolium	organoarsenical	difenzoquat	Avenge	26
			DSMA	DSMA	17
			MSMA	MSMA	
	Other	cinmethylin	Argold		
		dazomet	Basamid		
		fosamine	Krenite		
		metam	Busan		
		pelargonic acid	Scythe		

Table 3. Rainfree Requirements Following Postemergence Applications of Corn Herbicides on Field Corn, Grain Sorghum, Wheat, Cotton, and Soybean

Herbicide (trade name)	Rainfree Requirements Following Postemergence Applications					Forage, Feed, and Grazing Restrictions for Herbicide-Treated Crops				
	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean
	Minimum Hours from Application to Rainfall/Irrigation					Minimum Days from Application to Harvesting for Forage or Grazing				
BURNDOWN FOR NO-TILL CORN										
Aim	6 to 8	6 to 8	6 to 8	6 to 8	6 to 8	NOL	DNGF	7	NOL	DNGF
Clarity, etc.	4	4	4	4	4	Milk stage or later	DNGF	7	NOL	DNGF
Fierce	1	1	1	1	1	NOL	N/A	NOL	NOL	DNGF
Glyphosate, etc.	TNL	TNL	TNL	TNL	TNL	7	7	35	NOL	25
2, 4-D, etc.	6 to 8	6 to 8	6 to 8	6 to 8	6 to 8	7	7	14	NOL	DNGF
Gramoxone SL, etc.	0.5	0.5	0.5	0.5	0.5	NOL	NOL	NOL	DNGF	DNGF
PRE-EMERGE FOR NO-TILL CORN										
Anthem	4	4	4	4	4	NOL	N/A	N/A	N/A	NOL
Anthem ATZ	4	4	4	4	4	NOL	N/A	N/A	N/A	N/A
Atrazine	1 to 2	1 to 2	1 to 2	1 to 2	1 to 2	60	60	N/A	N/A	N/A
Bicep II Magnum, etc.	NRA	NRA	NRA	NRA	NRA	60	60	N/A	DNGF	N/A
Corvus	2	2	2	2	2	45	N/A	N/A	N/A	N/A
Guardsman Max	4	4	4	4	4	60	60	N/A	N/A	N/A
Lexar EZ	4 or when dry	4 or when dry	4 or when dry	4 or when dry	4 or when dry	45	45	N/A	N/A	N/A
Prowl H20, etc.	1	1	1	1	1	21	21	28 (hay) 11 (forage)	0	DNGF
Sharpen	1	1	1	1	1	80	70	30	DNGF	0
Verdict	1	1	1	1	1	80	70	N/A	N/A	DNGF
Zidua	NRA	NRA	NRA	NRA	NRA	NOL	N/A	7	0	NOL

Table 3. Rainfree Requirements Following Postemergence Applications of Corn Herbicides on Field Corn, Grain Sorghum, Wheat, Cotton, and Soybean (cont.)

Herbicide (trade name)	Rainfree Requirements Following Postemergence Applications					Forage, Feed, and Grazing Restrictions for Herbicide-Treated Crops				
	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean
	Minimum Hours from Application to Rainfall/Irrigation					Minimum Days from Application to Harvesting for Forage or Grazing				
POST (OVER THE TOP) FOR NO-TILL CORN										
2, 4-D	6 to 8	6 to 8	6 to 8	6 to 8	6 to 8	7	30	NOL	N/A	NOL
Armezon, Impact	1	1	1	1	1	45	N/A	N/A	N/A	N/A
Basagran	4	4	4	4	4	12	12	N/A	N/A	30
Callisto	12	12	12	12	12	45	60	N/A	N/A	N/A
Capreno	1	1	1	1	1	NOL	N/A	N/A	N/A	N/A
Clarity, etc.	4	4	4	4	4	Milk Stage or Later	DNGF	7	NOL	DNGF
Glyphosate, etc. (RR only)	TNL	TNL	TNL	TNL	TNL	7	7	35	NOL	25
Halex GT (RR Only)	1	1	1	1	1	45	45	N/A	N/A	N/A
Laudis	1	1	1	1	1	45	N/A	N/A	N/A	N/A
Lexar EZ	4 (or when dry)	4 (or when dry)	4 (or when dry)	4 (or when dry)	4 (or when dry)	45	45	N/A	N/A	N/A
Liberty 280 (LLink Only)	4	4	4	4	4	N/A	N/A	N/A	NOL	DNGF
Accent Q	4	4	4	4	4	NOL	NOL	N/A	N/A	N/A
Permit Plus	4	4	4	4	4	30	N/A	N/A	N/A	NOL
Realm Q	4	4	4	4	4	45	N/A	N/A	N/A	N/A
Status	4	4	4	4	4	32	N/A	N/A	N/A	N/A

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Table 3. Rainfree Requirements Following Postemergence Applications of Corn Herbicides on Field Corn, Grain Sorghum, Wheat, Cotton, and Soybean (cont.)

Herbicide (trade name)	Rainfree Requirements Following Postemergence Applications						Forage, Feed, and Grazing Restrictions for Herbicide-Treated Crops			
	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean
	Minimum Hours from Application to Rainfall/Irrigation						Minimum Days from Application to Harvesting for Forage or Grazing			
POST (DIRECTED) FOR NO-TILL CORN										
Linex, Lorox	NRA	NRA	NRA	NRA	NRA	NRA	3 months	NOL	NOL	DNGF
Gramoxone SL, etc.	0.5	0.5	0.5	0.5	0.5	NOL	NOL	NOL	DNGF	DNGF
PRE-HARVEST FOR NO-TILL CORN										
2, 4-D	6 to 8	6 to 8	6 to 8	6 to 8	6 to 8	7	7	14	NOL	DNGF
Glyphosate, etc.	TNL	TNL	TNL	TNL	TNL	7	7	35	NOL	25
Aim	6 to 8	6 to 8	6 to 8	6 to 8	6 to 8	NOL	DNGF	7	NOL	DNGF

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Table 4. Rainfree Requirements Following Postemergence Applications of Soybean Herbicides on Field Corn, Grain Sorghum, Wheat, Cotton, and Soybean

Herbicide (trade name)	Rainfree Requirements Following Postemergence Applications					Forage, Feed, and Grazing Restrictions for Herbicide-Treated Crops				
	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean
	Minimum Hours from Application to Rainfall/Irrigation					Minimum Days from Application to Harvesting for Forage or Grazing				
BURNDOWN FOR SOYBEANS										
2, 4-D, etc.	6 to 8	6 to 8	6 to 8	6 to 8	6 to 8	7	7	14	NOL	DNGF
Clarity, etc.	4	4	4	4	4	Milk stage or later	DNGF	7	NOL	DNGF
Firstshot	2	2	2	2	2	DNGF	DNGF	DNGF	DNGF	DNGF
Leadoff	TNL	TNL	TNL	TNL	TNL	30	30	30	30	30
Goal 2XL	1	1	1	1	1	DNGF	DNGF	DNGF	DNGF	DNGF
Glyphosate	TNL	TNL	TNL	TNL	TNL	7	7	35	NOL	25
Canopy EX	2	2	2	2	2	N/A	N/A	N/A	N/A	14
Envive	1	1	1	1	1	N/A	N/A	N/A	N/A	DNGF
Sharpen	1	1	1	1	1	80	70	30	DNGF	0
Synchrony XP	1	1	1	1	1	N/A	N/A	N/A	N/A	DNGF
Valor SX	1	1	1	1	1	NOL	NOL	NOL	NOL	NOL
Liberty 280	4	4	4	4	4	N/A	N/A	N/A	NOL	DNGF
Metribuzin	TNL	TNL	TNL	TNL	TNL	N/A	N/A	N/A	N/A	DNGF
Verdict	1	1	1	1	1	80	70	N/A	N/A	DNGF
Gramoxone SL, etc.	0.5	0.5	0.5	0.5	0.5	NOL	NOL	NOL	DNGF	DNGF
PRE-EMERGENCE (INCORPORATED) FOR SOYBEANS										
Prowl H2O, etc.	1	1	1	1	1	21	21	28 (hay) 11 (forage)	0	DNGF
Treflan	TNL	TNL	TNL	TNL	TNL	NOL	NOL	NOL	NOL	NOL

Table 4. Rainfree Requirements Following Postemergence Applications of Soybean Herbicides on Field Corn, Grain Sorghum, Wheat, Cotton, and Soybean (cont.)

Herbicide (trade name)	Rainfree Requirements Following Postemergence Applications					Forage, Feed, and Grazing Restrictions for Herbicide-Treated Crops				
	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean
	Minimum Hours from Application to Rainfall/Irrigation					Minimum Days from Application to Harvesting for Forage or Grazing				
PRE-PLANT OR PRE-EMERGENCE (SURFACE) FOR SOYBEANS										
Authority First/Sonic	NRA	NRA	NRA	NRA	NRA	N/A	N/A	N/A	N/A	DNGF
Authority XL	1	1	1	1	1	N/A	N/A	N/A	N/A	DNGF
Canopy DF	1	1	1	1	1	N/A	N/A	N/A	N/A	DNGF
Canopy EX	2	2	2	2	2	N/A	N/A	N/A	N/A	14
Dual II Magnum/Cinch	NRA	NRA	NRA	NRA	NRA	30	NOL	N/A	DNGF	30
Envive	1	1	1	1	1	N/A	N/A	N/A	N/A	DNGF
Fierce XLT	1	1	1	1	1	N/A	N/A	N/A	N/A	DNGF
Metribuzin	TNL	TNL	TNL	TNL	TNL	60	N/A	N/A	N/A	90 (harvest) DNGF
Outlook	NRA	NRA	NRA	NRA	NRA	40	60 (forage) 80 (grain, fodder)	N/A	0	DNGF
Prefix	1	1	1	1	1	N/A	N/A	N/A	DNGF	DNGF
Prowl H20, etc.	1	1	1	1	1	21	21	28 (hay) 11 (forage)	0	DNGF
Sequence	1 to 2	1 to 2	1 to 2	1 to 2	1 to 2	30	NOL	N/A	DNGF	30
Valor SX	1	1	1	1	1	NOL	NOL	NOL	NOL	NOL
Valor XLT	1	1	1	1	1	N/A	N/A	N/A	N/A	DNGF
POSTEMERGENCE (OTT) FOR SOYBEANS										
Aim EC	6 to 8	6 to 8	6 to 8	6 to 8	6 to 8	NOL	DNGF	7	NOL	DNGF
Assure II	1	1	1	1	1	N/A	N/A	N/A	NOL	NOL
Basagran	4	4	4	4	4	12	12	N/A	N/A	30

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Table 4. Rainfree Requirements Following Postemergence Applications of Soybean Herbicides on Field Corn, Grain Sorghum, Wheat, Cotton, and Soybean (cont.)

Herbicide (trade name)	Rainfree Requirements Following Postemergence Applications					Forage, Feed, and Grazing Restrictions for Herbicide-Treated Crops				
	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean
	Minimum Hours from Application to Rainfall/Irrigation					Minimum Days from Application to Harvesting for Forage or Grazing				
POSTEMERGENCE (OTT) FOR SOYBEANS (cont.)										
Classic Z5F	1	1	1	1	1	N/A	N/A	N/A	N/A	DNGF
Cobra	0.5	0.5	0.5	0.5	0.5	N/A	N/A	N/A	DNGF	DNGF
Firstrate	2	2	2	2	2	N/A	N/A	N/A	N/A	NOL
Flexstar, etc.	1	1	1	1	1	N/A	N/A	N/A	DNGF	DNGF
Flexstar GT	1	1	1	1	1	N/A	N/A	DNGF	NOL	DNGF
Fusilade DX	1	1	1	1	1	N/A	N/A	N/A	DNGF	60
Glyphosate, etc. (FOR USE ON ROUNDUP READY SOYBEANS ONLY)	TNL	TNL	TNL	TNL	TNL	7	7	35	NOL	25
Liberty (FOR USE ON LIBERTY LINK SOYBEANS ONLY)	4	4	4	4	4	N/A	N/A	N/A	NOL	DNGF
Poast Plus	1	1	1	1	1	N/A	N/A	N/A	DNGF	DNGF
Permit Plus (FOR USE ON SULFONYLUREA- TOLERANT SOYBEANS ONLY)	4	4	4	4	4	30	N/A	N/A	N/A	30
Prefix	1	1	1	1	1	N/A	N/A	DNGF	DNGF	DNGF
Pursuit	1	1	1	1	1	N/A	N/A	N/A	N/A	DNGF
Raptor	1	1	1	1	1	N/A	N/A	N/A	N/A	NOL
Reflex, etc.	1	1	1	1	1	N/A	N/A	N/A	NOL	NOL
Resource	1	1	1	1	1	28	N/A	N/A	28	DNGF

Table 4. Rainfree Requirements Following Postemergence Applications of Soybean Herbicides on Field Corn, Grain Sorghum, Wheat, Cotton, and Soybean (cont.)

Herbicide (trade name)	Rainfree Requirements Following Postemergence Applications					Forage, Feed, and Grazing Restrictions for Herbicide-Treated Crops				
	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean
	Minimum Hours from Application to Rainfall/Irrigation					Minimum Days from Application to Harvesting for Forage or Grazing				
POSTEMERGENCE (OTT) FOR SOYBEANS (cont.)										
Scepter	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	N/A	N/A	N/A	N/A	DNGF
Select Max	1	1	1	1	1	N/A	N/A	N/A	DNGF	DNGF
Storm	4	4	4	4	4	N/A	N/A	N/A	N/A	DNGF
Synchrony XP	1	1	1	1	1	N/A	N/A	N/A	N/A	DNGF
Ultra Blazer	4	4	4	4	4	N/A	N/A	N/A	N/A	DNGF
POSTEMERGENCE (DIRECTED) FOR SOYBEANS										
Gramoxone SL, etc.	0.5	0.5	0.5	0.5	0.5	NOL	NOL	NOL	DNGF	DNGF
HARVEST AIDS FOR SOYBEANS										
Aim EC	6 to 8	6 to 8	6 to 8	6 to 8	6 to 8	NOL	DNGF	7	NOL	DNGF
Glyphosate, etc.	TNL	TNL	TNL	TNL	TNL	7	7	35	NOL	25
Sharpen	1	1	1	1	1	80	70	30	DNGF	0
Gramoxone SL, etc.	0.5	0.5	0.5	0.5	0.5	NOL	NOL	NOL	DNGF	DNGF

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Table 5. Rainfree Requirements Following Postemergence Applications Cotton Herbicides on Field Corn, Grain Sorghum, Wheat, Cotton, and Soybean

Herbicide (trade name)	Rainfree Requirements Following Postemergence Applications					Forage, Feed, and Grazing Restrictions for Herbicide-Treated Crops				
	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean
	Minimum Hours from Application to Rainfall/Irrigation					Minimum Days from Application to Harvesting for Forage or Grazing				
BURNDOWN (NO-TILL/REDUCED TILL)										
Glyphosate, etc.	TNL	TNL	TNL	TNL	TNL	7	7	35	NOL	25
2, 4-D	6 to 8	6 to 8	6 to 8	6 to 8	6 to 8	7	7	14	NOL	DNGF
Aim	6 to 8	6 to 8	6 to 8	6 to 8	6 to 8	NOL	DNGF	7	NOL	DNGF
Clarity	4	4	4	4	4	Milk Stage or Later	DNGF	7	NOL	DNGF
Karmex	NRA	NRA	NRA	NRA	NRA	NOL	NOL	NOL	NOL	NOL
Harmony Extra	1	1	1	1	1	N/A	N/A	7 d graze/feed; 30 d hay	N/A	N/A
Valor SX	1	1	1	1	1	NOL	NOL	NOL	NOL	NOL
Sharpen	1	1	1	1	1	80	70	30	DNGF	0
Gramoxone SL, etc.	0.5	0.5	0.5	0.5	0.5	NOL	NOL	NOL	DNGF	DNGF
PREEMERGENCE										
Command	NRA	NRA	NRA	NRA	NRA	N/A	N/A	N/A	DNGF	DNGF
Cotoran	2	2	2	2	2	N/A	N/A	N/A	DNGF	N/A
Karmex	NRA	NRA	NRA	NRA	NRA	NOL	NOL	NOL	DNGF	N/A
Dual II Magnum	NRA	NRA	NRA	NRA	NRA	30	NOL	N/A	DNGF	30
Prowl H2O	1	1	1	1	1	21	21	28 (hay) 11 (forage)	0	DNGF
Reflex	1	1	1	1	1	N/A	N/A	N/A	NOL	NOL
Treflan	NRA	NRA	NRA	NRA	NRA	6 weeks	NOL	NOL	NOL	NOL
Warrant	NRA	NRA	NRA	NRA	NRA	40	60	N/A	DNGF	DNGF

Table 5. Rainfree Requirements Following Postemergence Applications Cotton Herbicides on Field Corn, Grain Sorghum, Wheat, Cotton, and Soybean (cont.)

Herbicide (trade name)	Rainfree Requirements Following Postemergence Applications					Forage, Feed, and Grazing Restrictions for Herbicide-Treated Crops				
	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean
	Minimum Hours from Application to Rainfall/Irrigation					Minimum Days from Application to Harvesting for Forage or Grazing				
POSTEMERGENCE										
Assure II	1	1	1	1	1	N/A	N/A	N/A	NOL	NOL
Envoke	3	3	3	3	3	N/A	N/A	N/A	NOL	N/A
Fusilade	1	1	1	1	1	N/A	N/A	N/A	DNGF	60
Liberty	4	4	4	4	4	N/A	N/A	N/A	NOL	DNGF
Poast	1	1	1	1	1	N/A	N/A	N/A	DNGF	DNGF
Select Max	1	1	1	1	1	N/A	N/A	N/A	DNGF	DNGF
Staple LX	4	4	4	4	4	N/A	N/A	N/A	NOL	N/A
POST DIRECTED										
Aim	6 to 8	6 to 8	6 to 8	6 to 8	6 to 8	NOL	DNGF	7	NOL	DNGF
Diuron	NRA	NRA	NRA	NRA	NRA	NOL	NOL	NOL	DNGF	NOL
Valor	1	1	1	1	1	NOL	NOL	NOL	NOL	NOL
Zidua	NRA	NRA	NRA	NRA	NRA	NOL	N/A	7	0	NOL

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Table 6. Grazing Restrictions on Commonly Used Herbicides

Herbicide	Crop	Minimum Days from Last Application to Grazing
2,4-D	Pasture (nonlactating cattle)	None
	Pasture (lactating dairy cattle)	7-14
2,4-DB	Peanuts	Do not graze
AAtrex 90DF, 4L (pre, post)	Corn	21
Accent	Corn	30
Achieve	Wheat	45
Ally	Pasture	1
Arsenal (pre)	Noncrop areas	Do not graze
Assure II	Soybeans	Do not graze
Banvel (post)	Corn, sorghum before harvest	Do not graze
	Small grains before harvest	Do not graze
Banvel (post) 1 pint	Pasture (nonlactating cattle)	None
	Pasture (lactating dairy cattle)	7
Banvel (post) 1 quart	Pasture (lactating dairy cattle)	21
Basagran + 2,4-DB (post)	Peanuts	Do not graze
Basagran 4EC (post)	Soybeans, peanuts, corn, sorghum	None
Beacon	Corn	30
Buctril 4EC	Corn, small grains	Do not graze
Cadre	Peanuts	Do not graze
Canopy (pre)	Soybeans	Do not graze
Caparol 80W, 4L (pre)	Cotton	Do not graze
Casoron 4G, 50W (pre)	All crops	Do not graze
Classic (post)	Soybeans	Do not graze
Cobra	Soybeans	Do not graze
Command	Cotton	Do not graze
	Soybeans	9 months
Cotoran 80W, 4L (pre)	Cotton	Do not graze
Crossbow	Hay (not dairy cattle)	7
	Pasture (nonlactating cattle)	None
	Pasture (dairy cattle)	14
Dacthal 75W (pre)	All crops	Do not graze
Devrinol 50W, 10G (pre)	All crops	Do not graze
Dual 8E (pre)	Pod crops	Do not graze
Envoke	Cotton	Do not graze
Eradicane 6E (ppi)	Corn	None
Evik (directed)	Corn	30
Express	Wheat	Do not graze
FirstRate	Soybeans	14
Flexstar	Soybeans	Do not graze

Table 6. Grazing Restrictions on Commonly Used Herbicides (cont.)

Herbicide	Crop	Minimum Days from Last Application to Grazing
Fusilade DX	Soybeans, cotton	Do not graze
Garlon	All areas	Do not graze
Goal 1.6E (pre, post)	All crops	Do not graze
Gramoxone (post)	Pasture crops Row crops	40 Do not graze
Grazon P+D	Pasture (dairy cattle)	7
Harmony Extra	Wheat, barley	Do not graze
Karmex + Zorial (pre)	Cotton	Do not graze
Karmex (pre)	Cotton	Do not graze
Kerb	Alfalfa	25
Intro (ppi, pre)	Soybeans	40
Ignite/Liberty	Corn, cotton, soybean	70 days
Lightning	Corn	45 days
Lorox + Dual + Gramoxone	Soybeans	Do not graze
Lorox + Dual (pre)	Soybeans	Do not graze
Lorox + 2,4-DB (directed)	Soybeans	Do not graze
Lorox (post directed)	Cotton	Do not graze
Lorox (pre)	Soybeans	None
Option	Corn	45 days
Oust	Noncrop areas	Do not graze
Outlook	Corn	40 days
Peak	Corn	40
Poast 1.5E/Poast Plus (post)	All crops	Do not graze
Prefar 4E (ppi, pre)	All crops	Do not graze
Princep 90, 4L (pre)	Corn, pecans	Do not graze
Prowl + Dual (ppi, pre)	Soybeans	Do not graze
Prowl + Lorox (pre)	Soybeans	None
Prowl (ppi)	Cotton	Do not graze
Prowl (ppi, pre)	Soybeans Fruits and nuts	None Do not graze
Pursuit	Peanuts	Do not graze
Python	Corn Soybeans	Do not graze Do not graze
Reflex	Soybeans	Do not graze
Remedy	Hay (not dairy cattle) Pasture (nonlactating cattle) Pasture (dairy cattle)	7 None 14

Table 6. Grazing Restrictions on Commonly Used Herbicides (cont.)

Herbicide	Crop	Minimum Days from Last Application to Grazing
Roundup (post)	Hay, pasture	56
Roundup (preharvest)	Cotton	Do not graze
	Other row crops	56
Roundup (spot treat)	Hay, pasture	14
Sandea	Corn	30
Scepter (ppi, pre, post)	Soybeans	Do not graze
Select	Peanuts, soybeans	Do not graze
Sencor DF + Dual (ppi, pre)	Soybeans	40
Sencor DF + Gramoxone (min-till)	Soybeans	40
Sencor DF + Intrro 4E (ppi, pre)	Soybeans	40
Sencor DF + Prowl 3.3E (ppi, pre)	Soybeans	40
Sencor DF + Sonalan (ppi)	Soybeans	Do not graze
Sencor DF + Treflan (ppi)	Soybeans	40
Solicam DF	Pecans, tree fruits	Do not graze
Sonalan EC	Soybeans, peanuts	Do not graze
Staple	Cotton	Do not graze
Strongarm	Peanuts	Do not graze
Surflan AS (pre)	All crops	Do not graze
Sutan 6.7E (ppi)	Corn	None
Tillam 6E (ppi)	Tomatoes	Do not graze
Tordon	All areas	Do not graze
Touchdown	Cotton	Do not graze
Treflan EC	Soybeans	40
Ultra Blazer (post)	Soybeans, peanuts	Do not graze
Valor	Peanuts	Do not graze
Velpar L	Noncrop areas	Do not graze
Zorial 80DF	Cotton, soybeans	Do not graze

* NOT INCLUSIVE. Read product label for a complete list of all restrictions.

KEY TO ABBREVIATIONS

ppi = preplant incorporated

pre = preemergence

post = postemergence

min-till = minimum tillage

Table 7. Rotation Restrictions on Commonly Used Herbicides

Herbicide	Rotational Crops	Time Restriction
2,4-D	Crops not on label	12 months
2,4-DB	Crops not on label	12 months
Accent	Crops not on label Soybeans Wheat, barley, rye Oats Beans, peas, cotton	18 months 0.5 month 4 months 8 months 10 months
Achieve	Most row crops	3.5 months
Ally	Crops not on label	4-22 months
Arsenal	None	Bioassay after 3 years
Assure	Crops not on label	4 months
Atrazine	Crops not on label Application made after 6/10	12 months 18 months
Banvel	Soybeans, wheat Crops not on label	2 months 12 months
Basagran	Crops not on label	12 months
Beacon	Crops not on label Wheat, barley, rye Sweet corn, cotton, peanuts, soybeans, peas, beans, sorghum	18 months 3 months 8 months
Buctril	Crops not on label	1 month
Cadre	Rye, wheat Field corn, peas, soybeans Sweet corn, cotton, oats, sorghum Others	4 months 9 months 18 months 26+ months
Canopy (pH<6.8)	Wheat, barley Corn, cotton, sorghum	4 months 10 months
Canopy (pH>6.8)	Corn, cotton, sorghum Peanuts All other crops	18 months 18 months 30 months
Caparol	Crops not on label	6-12 months
Casoron	Crops not on label	12 months
Classic (pH<6.8)	Wheat, barley Corn, cotton, sorghum, peanuts All other crops	3 months 9 months 18 months
Command	Field corn, sorghum Small grains	9 months 12 months
Cotoran	Crops not on label	6 months
Crossbow	None	12 months
Dacthal	Crops not on label	8 months
Devrinol	Crops not on label	12 months
Dual	Crops not on label	18 months
Envoke	Wheat Peanuts, soybeans, corn Crops not on label	3 months 7 months 18 months
Eptam	Crops not on label	12 months
Eradicane	Crops not on label	12 months
Evik	Small grains Crops not on label	6 months 12 months
Express	Most row crops	1.5 months

Table 7. Rotation Restrictions on Commonly Used Herbicides (cont.)

Herbicide	Rotational Crops	Time Restriction
FirstRate	Wheat	3 months
	Field corn, cotton, peanuts, sorghum, peas	9 months
	Sweet corn	18 months
Fusilade	Crops not on label	2 months
Garlon	None	Bioassay after 24 months
Goal	Crops not on label	18 months
Gramoxone	Crops labeled	None
Grazon P+D	Crops not on label	24 months
Harmony Extra	Crops not on label	2 months
Karmex	Crops not on label	24 months
Intrro	Crops not on label	12 months
Linex/Lorox	Crops not on label	4 months
Oust	Crops not on label	Bioassay after 24 months
Poast/Poast Plus	Crops not on label	4 months
Prefar	Soybeans	12 months
	Other crops not on label	18 months
Princep/Simazine	Crops not on label	12 months
Prowl	Wheat (conventionally planted)	4 months
	Other crops not on label	12 months
Pursuit	Rye, wheat	4 months
	Field corn	8.5 months
	Sweet corn, cotton, oats, sorghum	18 months
	Other crops not on label	26+ months
Python	Peas, beans, peanuts, small grains	4 months
	Popcorn, forage grasses	9 months
	Potatoes, sorghum	12 months
	Cotton, sweet corn, sunflowers	18 months
Reflex/Flexstar	Small grains (grain production only)	4 months
	Corn, cotton, peanuts	10 months
	Other crops not on label	18 months
Sanda	Wheat, barley, oats	2 months
	Cotton	4 months
	Peanuts	6 months
	Peas, beans, potatoes, soybeans	9 months
Scepter	Wheat	3 months
	Field corn	9.5 months
	Barley, beans, oats, peanuts, sorghum	11 months
	Cotton	18 months
Sencor	Alfalfa, corn, forage grasses, potatoes, tomatoes	4 months
	Wheat	8 months
	Root crops	18 months
	Crops not on label	12 months
Sonalan	Crops not on label	12 months
Spike	None	Bioassay after 36 months
Staple	Wheat	4 months
	Peanuts, soybeans	10 months
	Sorghum, corn (Staple broadcast)	16 months
	Corn (Staple banded)	9 months

Table 7. Rotation Restrictions on Commonly Used Herbicides (cont.)

Herbicide	Rotational Crops	Time Restriction
Strongarm	Wheat, barley	4 months
	Oats, rye	6 months
	Cotton	10 months
	Corn, sorghum	18 months
Surflan	Crops not on label	12 months
Tillam	Crops not on label	12 months
Tordon	None	Bioassay after 36 months
Treflan	Crops not on label	5 months
Ultra Blazer	Root crops	18 months
Velpar	Corn	12 months
	Crops not on label	24 months

* NOT INCLUSIVE. Read product label for a complete list of all rotational restrictions.

Table 8. Guidelines for Crop Rotation in Fields Previously Treated with Corn Herbicides

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
Aim	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	All Labeled Crops Nonlabeled Crops	Anytime 12 mo.
Clarity, etc.	FS	FS	FS	FS	FS	FS	Tobacco	FS
Fierce	7d–1 mo.	18 mo.	1–2 mo.	45 d.–2 mo.	Anytime	4 mo.	Potato, sunflower, sweet potato	4 mo.
							Field peas	6 mo
							Lentils	6–7 mo.
							Alfalfa	10 mo.
							Rice	10–12 mo.
							Edible peas and other edible beans (except field peas)	11 mo.
							Small grains (other than wheat)	11–12 mo.
							Sugar beet	15 mo.
Glyphosate, etc.	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Sunflowers	Anytime
							Tobacco	1 mo.
2, 4-D, etc.	OLC	OLC	OLC	OLC	OLC	OLC		
Gramoxone SL, etc.	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	All rotational crops	Anytime
BURNDOWN FOR NO-TILL CORN								
Anthem	Anytime	6–12 mo.	4–6 mo.	4 mo.	0–4 mo.	4 mo.	Potato, sunflower	4 mo.
							Field pea (dry)	4–8 mo.
							Lentil	6–8 mo.
							Rice	10–24 mo.
							Alfalfa	10 mo.
							Edible peas, succulent edible beans, and other edible dry beans	11 mo.
							Small grains (other than wheat)	11–18 mo.
							Sugar beet	12–15 mo.
							Canola	12–18 mo.
Grasses grown for seed, all other crops	18 mo.							
Anthem ATZ	Anytime	FY	FY	FY	FY	FY	All crops except corn	FY
Atrazine	Anytime	Anytime	FS	FS	FS	FS	Tobacco, sunflowers	FS
Bicep II Magnum, etc.	FS	FS	FS	FS	FS	FS	Tobacco, sunflowers	FS

Table 8. Guidelines for Crop Rotation in Fields Previously Treated with Corn Herbicides (cont.)

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
BURNDOWN FOR NO-TILL CORN (cont.)								
Corvus	Anytime	17 mo.	4 mo.	10 mo.	9 mo.	11 mo.	Triticale, cereal, rye	4 mo.
							Barley, sweet corn, popcorn	9 mo.
							Rice	10 mo.
							Alfalfa, green and dry beans, oats, sunflower, canola, potato, sugar beet, and all other crops	17 mo.
Guardsman Max	Anytime	Anytime	DNR	FY	FY	FY	Sugar beet, tobacco, vegetables (including dry beans), spring seeded small grains, or small seeded legumes and grasses	DNR
Lexar EZ	Anytime	Anytime	Applied Before June 1st = FY	Applied Before June 1st = FY	Applied Before June 1st = FY	FY	Small cereal grains, rice	FY
			Applied After June 1st = DNR	Applied After June 1st = DNR	Applied After June 1st = DNR		All other crops	18 mo.
Prowl H20, etc.	12–20 mo.	10–20 mo.	4–14 mo.	Anytime	Anytime	Anytime	Crops labeled for preplant incorporation	FY
							All other crops	24 mo.
							Edible beans, fruiting vegetables, lentil, peas, sunflower	Anytime
							Alfalfa	6 mo.
							Barley	4–14 mo.
							Proso millet, annual or perennial grass crops or mixtures	10–20 mo.
							Red beet, spinach, sugar beet	12–20 mo.
Sharpen	Anytime	Anytime	Anytime	1.5–4 mo.	1–3 mo.	4–9 mo.	Sweet corn	0.5–4 mo.
							Small grains	0–3 mo.
							Rice	0–4 mo.
							Chickpea, edible pea, dry field pea, lentil	0–6 mo.
							Sugar beet, sunflower, all other crops	4–9 mo.
Princep, etc.						No information provided by label.		
Verdict	Anytime	Anytime	FY	FY	1–4 mo.	FY	Fall seeded cereal crops	4 mo.
							All other crops	FY

Table 8. Guidelines for Crop Rotation in Fields Previously Treated with Corn Herbicides (cont.)

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
BURNDOWN FOR NO-TILL CORN (cont.)								
Zidua	Anytime	6–12 mo.	1–6 mo.	1–4 mo.	0–4 mo.	4 mo.	Alfalfa	10 mo.
							Canola	12–18 mo.
							Edible beans, succulent edible beans, and other edible beans	11 mo.
							Grasses grown for seed	18 mo.
							Lentil	6–8 mo.
							Potato	4 mo.
							Field pea (dry)	4–8 mo.
							Rice	10–24 mo.
							Small grains (other than wheat)	11–18 mo.
							Sugar beet	12–15 mo.
All other crops	18 mo.							
POST (OVER THE TOP) FOR NO-TILL CORN								
2, 4-D	OLC	OLC	OLC	OLC	OLC	OLC		
Armezon, Impact	Anytime	9 mo.	3 mo.	9 mo.	9 mo.	9 mo.	Corn (all)	0 mo.
							Cereal grain, grass grown for seed, rice	3 mo.
							Alfalfa, potato, sunflower	9 mo.
							Canola, dry beans, pea, snapbean, sugar beet	9–18 mo.
							All other crops	18 mo.
Basagran	FS	FS	FS	FS	FS	FS	Tobacco	FS
Callisto	Anytime	Anytime	4 mo.	10 mo.	10 mo.	10 mo.	Asparagus, cranberry, flax, Kentucky bluegrass grown for seed, pearl millet, oats, rhubarb, ryegrass (perennial and annual) grown for seed, sugarcane, tall fescue grown for seed	Anytime
							Small grain cereals (including barley and rye)	4 mo.
							Alfalfa, blueberry, canola, currant, lingonberry, okra, peas, potato, rice, snapbeans, sunflowers, tobacco	10 mo.
							Cucurbits, dry beans, red clover, sugar beets, all other rotational crops	18 mo.
Capreno	Anytime	10 mo.	4 mo.	10 mo..	10 mo.	11 mo.	Triticale	4 mo.
							Barley, white corn, sweet corn, popcorn, spring oats, spring seeded alfalfa, rice	10 mo.
							Tobacco	12 mo.
							Alfalfa, green and dry beans, oats, sunflower, canola, potato, sugar beet, all other crops	18 mo.
Clarity, etc.	FS	FS	FS	FS	FS	FS	Tobacco	FS

Table 8. Guidelines for Crop Rotation in Fields Previously Treated with Corn Herbicides (cont.)

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
POST (OVER THE TOP) FOR NO-TILL CORN (cont.)								
Glyphosate, etc. (RR Only)	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Sunflowers	Anytime
							Tobacco	1 mo.
Halex GT (RR Only)	Anytime	Anytime	120 d.	10 mo.	10 mo.	10 mo.	Barley, oats, rye	120d
							Alfalfa, canola, flax, grasses grown for seed (Kentucky bluegrass, perennial ryegrass, tall fescue), potatoes, sunflowers, tobacco	10 mo.
							Cucurbits, dry beans, red clover, snapbeans, sugar beets, all other rotational crops	18 mo.
Laudis	Anytime	10 mo.	4 mo.	8 mo.	10 mo.	11 mo.	Sweet corn, popcorn	10 mo.
							Cereal grains (except corn and sorghum), sugarcane, grass grown for seed, Timothy	4 mo.
							Onion	8 mo.
							Peas, rice, potato, canola, alfalfa, tomato, snapbeans, sugar beets, dry beans (All others not listed in 18-month restriction)	10 mo.
							Tobacco	12 mo.
							Cucurbits, dry beans (red, kidney, cranberry bean, noncommercial garden types and varieties), sunflower, all other crops	18 mo.
Lexar EZ	Anytime	Anytime	Applied Before June 1st = FY	Applied Before June 1st = FY	Applied Before June 1st = FY	FY	Small cereal grains, rice	FY
			Applied After June 1st = DNR	Applied After June 1st = DNR	Applied After June 1st = DNR		All other crops	18 mo.
Liberty 280 (LLink Only)	Anytime	180 d	70d	Anytime	Anytime	180 d	Canola, sweet corn, rice, sugar beets	Anytime
							Root and tuber vegetables, leafy vegetables, brassica leafy vegetables, small grains (barley, buckwheat, oats, rye, teosinte, triticale)	70 d
							All other crops	180 d

Table 8. Guidelines for Crop Rotation in Fields Previously Treated with Corn Herbicides (cont.)

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
POST (OVER THE TOP) FOR NO-TILL CORN (cont.)								
Accent Q	Anytime	10-18 mo.	4 mo.	10 mo.	15 d	10-18 mo. (pH level dependent)	Winter cereals (barley, oat, rye)	4 mo.
							Spring cereals (barley, oat, rye, wheat)	8 mo.
							Popcorn, sweet corn, dry beans, peas, snapbeans	10 mo.
							Alfalfa, red clover	12 mo.
							Sunflower, sugar beet, potatoes, all other crops	10–18 mo. (pH level dependent)
Permit Plus	1 mo.	2 mo.	2 mo.	4 mo.	9 mo.	6 mo.	IR/IMR field corn, soybeans (sulfonylurea-tolerant), rice	Anytime
							IT field corn	1 mo.
							Dry beans, sugarcane, snapbeans	1.5 mo.
							Barley (winter), forage grasses, oats, proso millet, rye (winter), seed corn, sorghums, spring cereal crops	2 mo.
							Popcorn, sweet corn	3 mo.
							Tomato (transplant)	8 mo.
							Alfalfa, clovers, field pea, pea, potato, cucumber, pumpkin, squash	9 mo.
							Peppers	10 mo.
							Eggplant, radish	12 mo.
							Cabbage, canola, carrot, mint	15 mo.
							Broccoli, cauliflower, collards, leeks, onion, lettuce crops, sunflower	18 mo.
							Sugar beet, red beet, spinach	24 mo.
Realm Q	Anytime	10 mo.	4 mo.	10 mo.	10 mo.	10 mo.	Winter cereals	4 mo.
							Spring cereals (barley, oat, wheat)	9 mo.
							Alfalfa, canola, popcorn, sweet corn, flax, potatoes, sunflowers, sweet potato/yam, tobacco	10 mo.
							All other crops	18 mo.
Status	120d	120 d	120 d	120 d	120 d	120 d	Tobacco, sunflowers	120 d

Table 8. Guidelines for Crop Rotation in Fields Previously Treated with Corn Herbicides (cont.)

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
POST (DIRECTED) FOR NO-TILL CORN								
Lorox, etc.	Anytime	Anytime	N/A	4 mo.	Anytime	12 mo.	All labeled crops (asparagus, bulb, carrot, celeriac, celery, coriander/cilantro, dill, horseradish, hybrid poplar, parsley, parsnip, dry peas, potato, rhubarb, edamame)	Anytime
							All other crops except cereals, where only barley, oats, rye can be planted	4 mo.
							All other cereals	12 mo.
Gramoxone SL, etc.	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	All rotational crops	Anytime
PRE-HARVEST FOR NO-TILL CORN								
2, 4-D	OLC	OLC	OLC	OLC	OLC	OLC		
Glyphosate, etc.	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Sunflowers	Anytime
							Tobacco	1 mo.
Aim	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Any registered crops	Anytime
							Nonlisted crops	12 mo.

KEY TO ABBREVIATIONS

NOL = No crop rotation restriction interval is listed on label

FY = Following year

DNR = Do not rotate in the season following application

FS = Following spring

OLC = Only labeled crops can be planted in the same year

Table 9. Guidelines for Crop Rotation in Fields Previously Treated with Soybean Herbicides

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
BURNDOWN FOR SOYBEANS								
2, 4-D, etc.	OLC	OLC	OLC	OLC	OLC	OCL		
Clarity, etc.	FS	FS	FS	FS	FS	FS	Tobacco, sunflowers	FS
Firstshot	14 d	14 d	Anytime	14 d	1-7 d	30 d	Barley, rice, triticale	Anytime
							All other crops	45 d
Leadoff	Anytime	10-18 mo.	3-4 mo.	1-10 mo.	1-10 mo.	1.5 mo.	Potato, tomato	1 mo.
							Sweet potato/yam, tobacco	1.5 mo.
							Winter cereals	3-4 mo.
							Spring cereals	9 mo.
							Popcorn, sweet corn, seed corn, cucumber, flax, snapbeans, dry beans, sunflower	10 mo.
							Alfalfa, canola, peas, rice, red clover, sugar beet	10-18 mo.
All other crops	18 mo.							

Table 9. Guidelines for Crop Rotation in Fields Previously Treated with Soybean Herbicides (cont.)

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
BURNDOWN FOR SOYBEANS (cont.)								
Goal 2XL	10 mo.	10 mo.	10 mo.	7 d	7 d	60 d	Conifer, grape/kiwi, treefruit/nut/ citrus (all transplanted)	0 d
							Garlic, onion (all transplanted)	0–30 d
							Celery, pepper, strawberries, tomato (all transplanted)	30 d
							Potato, watermelon, dry bean, other legume vegetables, safflower	60 d
							Sugar beet, cantaloupe	60–90 d
							Tomato	60–120 d
							Carrot, other root/tuber crops, cabbage, cauliflower	90 d
							Lettuce, pepper, squash, other cucurbits	90–120 d
							Other brassica crops, other leafy vegetables, other fruiting vegetables	120 d
							Onion, other bulb vegetables	180 d
Small grain crops (barley, buckwheat, pearl millet, proso millet, oats, popcorn, rice, rye, triticale, wild rice)	10 mo.							
Glyphosate	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Sunflowers	Anytime
							Tobacco	1 mo.
Canopy EX	7 mo.	9-12 mo.	3-4 mo.	8-10 mo.	Anytime	6-8 mo.	Cereal grains, pasture grasses	3–4 mo.
							Popcorn	9 mo.
							Tobacco, tomato, rice, alfalfa	9–10 mo.
							Dry beans, kidney beans, peas, snapbean, clover	9–12 mo.
							Sweet corn, cabbage, canola, cucumber, flax, lentils, mustard, pumpkin, sunflower, watermelon	18 mo.
Carrot, onion, sugar beet, sweet potato, yam, potato, all other crops	18–30 mo.							

Table 9. Guidelines for Crop Rotation in Fields Previously Treated with Soybean Herbicides (cont.)

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
BURNDOWN FOR SOYBEANS (cont.)								
Envive	8-10 mo.	12 mo.	4 mo.	9-10 mo.	Anytime	8 mo.	Barley, ryegrass, winter rye	4 mo.
							Alfalfa, oats, rice, tobacco	10 mo.
							Clover, peas, dry beans, kidney beans, snapbeans, tomato	12 mo.
							Cabbage, cucumber, flax, lentils, mustards, pumpkin, sunflower, sweet corn, watermelon, canola, carrot, onion, potato, sugar beet, all other crops	18 mo.
Sharpen	Anytime	Anytime	Anytime	1.5-4 mo.	1-3 mo.	4-9 mo.	Sweet corn	0.5-4 mo.
							Small grains	0-3 mo.
							Rice	0-4 mo.
							Chickpea, edible pea, dry field pea, lentil	0-6 mo.
							Sugar beet, sunflower, all other crops	4-9 mo.
Synchrony XP	7 mo.	9 mo.	3 mo.	8-9 mo.	Anytime	6-15 mo.	Cereal grains, pasture grasses (such as fescue and ryegrass)	3 mo.
							Dry beans, kidney beans, peas, snapbean, popcorn, tobacco, tomato,	9 mo.
							Alfalfa, clover	9-12 mo.
							Rice	9-15 mo.
							Cabbage, canola, cucumber, flax, lentils, mustards, pumpkins, sunflower, sweet corn, watermelon	18 mo.
							Carrots, onion, potato, sweet potato, Irish potato, sugar beet, all other crops	30 mo.
Valor SX	1 mo.	1 mo.	1 mo.	1 mo.	Anytime	Anytime	Tobacco, sunflowers	1 mo.
Liberty	Anytime	180 d	70 d	Anytime	Anytime	180 d	Canola, sweet corn, rice, sugar beets	Anytime
							Root and tuber vegetables, leafy vegetables, brassica leafy vegetables, small grains (barley, buckwheat, oats, rye, teosinte, triticale)	70 d
							All other crops	180 d
Metribuzin	4 mo.	18 mo.	4-8 mo.	18 mo.	4 mo.	18 mo.	Alfalfa, asparagus, forage grasses, sainfoin, sugarcane, tomatoes	4 mo.
							Barley	4-8 mo.
							Lentils, peas	8 mo.
							Potato, rice	12 mo.
							Sugar beets, onion, other roots crops, all other crops	18 mo.

Table 9. Guidelines for Crop Rotation in Fields Previously Treated with Soybean Herbicides (cont.)

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
BURNDOWN FOR SOYBEANS (cont.)								
Verdict	Anytime	Anytime	FY	FY	1–4 mo.	FS	Fall seeded cereal crops	4 mo.
							All other crops	FY
Gramoxone SL, etc.	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	All rotational crops	Anytime
PRE-EMERGENCE (INCORPORATED) FOR SOYBEANS								
Prowl H20, etc.	12–20 mo.	10–20 mo.	4–14 mo.	Anytime	Anytime	Anytime	Crops labeled for preplant incorporation	FY
							All other crops	24 mo.
							Edible beans, fruiting vegetables, lentil, peas, sunflower	Anytime
							Alfalfa	6 mo.
							Barley	4–14 mo.
							Proso millet, annual or perennial grass crops or mixtures	10–20 mo.
							Red beet, spinach, sugar beet, all other crops	12–20 mo.
Treflan	Anytime	12 mo.	Anytime	Anytime	Anytime	Anytime	Tobacco, sunflowers	Anytime
PRE-PLANT OR PRE-EMERGENCE (SURFACE) FOR SOYBEANS								
Authority First/Sonic	10–18 mo.	12 mo.	4 mo.	12–18 mo.	Anytime	12 mo.	Dry shelled beans and peas, succulent peas	9 mo.
							Rice	10 mo.
							Popcorn, sweet corn, seed corn	10–18 mo.
							Alfalfa, barley, lima beans, oats, rye, snapbeans	12 mo.
							Potato	18 mo.
							Canola	24 mo.
							Sugar beet, sunflower, tobacco, all other crops	30 mo.
Authority MTZ	4–10 mo.	12–18 mo.	4 mo.	12–18 mo.	Anytime	12 mo.	Sugarcane, tomato	Anytime
							Barley	4 mo.
							Rice	10 mo.
							Alfalfa, asparagus, dry beans, potatoes, sunflower, tobacco	12 mo.
							Sweet corn, all other crops	18 mo.
							Canola	24 mo.
							Sugar beets	24–36 mo.
Authority XL	18 mo.	18 mo.	4 mo.	18 mo.	Anytime	36 mo.	Barley, rye	4 mo.
							Oats, alfalfa, rice, tobacco, tomato, dry beans, clover, cucumber, flax, pumpkin, sunflower, sweet corn, watermelon, cabbage, lentils, mustard	18 mo.
							Canola, carrot, onion, potato, sugar beet, all other crops	36 mo.

Table 9. Guidelines for Crop Rotation in Fields Previously Treated with Soybean Herbicides

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
PRE-PLANT OR PRE-EMERGENCE (SURFACE) FOR SOYBEANS (cont.)								
Boundary	4 mo.	12 mo.	4.5 mo.	12 mo.	Anytime	12 mo.	Potatoes	Anytime
							Winter barley, alfalfa	4.5 mo.
							Peas, rice, spring barley, spring wheat	8 mo.
							Asparagus, forage grasses, lentils, sainfoin, sugarcane, tomatoes, all other crops	12 mo.
							Onions, sugar beets, other root crops	18 mo.
Broadaxe XC	10 mo.	10 mo.	4.5 mo.	12–18 mo.	Anytime	4 mo.	Dry shell peas, sunflowers	Anytime
							Horseradish, potatoes, tomatoes	4 mo.
							Barley, rye, triticale	4.5 mo.
							Rice, tobacco	10 mo.
							Alfalfa, cereal grains (oats, pearl millet, proso millet, teosinte, wild rice)	12 mo.
							Popcorn, sweet corn,	18 mo.
							Sugar beets	36 mo.
Canopy DF	10 mo.	12 mo.	4 mo.	10 mo.	Anytime	18 mo.	Barley, ryegrass, winter rye	4 mo.
							Alfalfa, rice, tobacco, tomato	10 mo.
							Clover, dry beans, kidney beans, snapbeans, peas	12 mo.
							Cucumber, flax, pumpkins, sunflower, sweet corn, watermelon, cabbage, canola, lentils, mustards	18 mo.
							Carrot, onion, potato, sugar beets, all other crops	30 mo.
Canopy EX	7 mo.	9–12 mo.	3–4 mo.	8–10 mo.	Anytime	6–8 mo.	Cereal grains, pasture grasses	3–4 mo.
							Popcorn	9 mo.
							Tobacco, tomato, rice, alfalfa	9–10 mo.
							Dry beans, kidney beans, peas, snapbean, clover	9–12 mo.
							Sweet corn, cabbage, canola, cucumber, flax, lentils, mustard, pumpkin, sunflower, watermelon	18 mo.
							Carrot, onion, sugar beet, sweet potato, yam, potato, all other crops	18–30 mo.

Table 9. Guidelines for Crop Rotation in Fields Previously Treated with Soybean Herbicides (cont.)

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
PRE-PLANT OR PRE-EMERGENCE (SURFACE) FOR SOYBEANS (cont.)								
Command	9 mo.	9 mo.	12 mo.	Anytime	Anytime	9 mo.	Sweet potato, tobacco, tuberous and corm vegetables, pepper, squash	Anytime
							Cabbage, popcorn, sweet corn, seed corn, cucurbits, dry bean, peas, potato, pumpkin (processing), rice, snapbean, sugar beet, tomato	9 mo.
							All other crops	12 mo.
Dual II Magnum	Anytime	Anytime	4.5 mo.	Anytime	Anytime	Anytime	Root vegetables, bulb vegetable, fruiting vegetables (except cucurbits or tabasco peppers, tuberous and corm vegetables, leaf petiole vegetables, head and stem brassica vegetables)	60 d
							Alfalfa	4 mo.
							Clover	9 mo.
							Tobacco, buckwheat, rice	Following spring
							Food or feed crops, not listed; all other crops	12 mo.
Envive	8–10 mo	12 mo.	4 mo.	9–10 mo.	Anytime	8 mo.	Barley, ryegrass, winter rye	4 mo.
							Alfalfa, oats, rice, tobacco	10 mo.
							Clover, peas, dry beans, kidney beans, snapbeans, tomato, clover	12 mo.
							Cabbage, cucumber, flax, lentils, mustards, pumpkin, sunflower, sweet corn, watermelon, canola, carrot, onion, potato, sugar beet, all other crops	18 mo.
							Sweet potatoes/yams	30 mo.
Fierce	7 d–1 mo.	18 mo.	1–2 mo.	45 d–2 mo.	Anytime	4 mo.	Potato, sunflower, sweet potato	4 mo.
							Field peas	6 mo.
							Lentils	6–7 mo.
							Alfalfa	10 mo.
							Rice	10–12 mo.
							Edible peas and other edible beans (except field peas)	11 mo.
							Small grains (other than wheat)	11–12 mo.
							Sugar beet	15 mo.
Grasses grown for seed, all other crops	18 mo.							

Table 9. Guidelines for Crop Rotation in Fields Previously Treated with Soybean Herbicides (cont.)

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
PRE-PLANT OR PRE-EMERGENCE (SURFACE) FOR SOYBEANS (cont.)								
Fierce XLT	10–18 mo.	18 mo.	10–18 mo.	18–30 mo.	Anytime	18-30 mo.	Alfalfa, barley, clover, rice, rye, ryegrass, tobacco, tomato	18 mo.
							Cabbage, cucumber, flax, lentils, mustard, pumpkin, sunflower, sweet corn, watermelon, dry bean, kidney bean, pea, snapbean, canola, carrot, onion, potato, sugar beet, all other crops	18–30 mo.
Intrro	FY	FY	FY	FY	FY	FY	Sunflower, dry beans, lima beans, woody ornamentals, sweet corn, popcorn, seed corn, barley, buckwheat, millet (pearl and proso), oats, rye, teosinte, triticale, wild rice, alfalfa, clover spp., lespedeza spp., lupin spp., sainfoil, trefoil spp., vetch spp., crown vetch, milk vetch spp.	FY
Metribuzin	4 mo.	18 mo.	4–8 mo.	18 mo.	4 mo.	18 mo.	Alfalfa, asparagus, forage grasses, sainfoin, sugarcane, tomatoes	4 mo.
							Barley	4–8 mo.
							Lentils, peas	8 mo.
							Potato, rice	12 mo.
							Sugar beets, onion, other root crops, all other crops	18 mo.
Outlook	Anytime	Anytime	N/A	Anytime	Anytime	Anytime	Dry bean, sugar beet, popcorn, seed corn, sweet corn, garlic, horseradish, onion (dry bulb, green), perennial grasses grown for seed, potato, shallots (dry bulb), winter squash	Anytime
							Any other crop	FY
Prefix	10 mo.	10–18 mo.	4.5 mo.	1 mo.	Anytime	10 mo.	Dry bean, snapbean	Anytime
							Potato	1 mo.
							Barley, oat, rye	4.5 mo.
							Pea, pepper, rice, tomato	10 mo.
							Alfalfa, sugar beet, sunflower, all other crops	18 mo.

Table 9. Guidelines for Crop Rotation in Fields Previously Treated with Soybean Herbicides (cont.)

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
PRE-PLANT OR PRE-EMERGENCE (SURFACE) FOR SOYBEANS (cont.)								
Prowl H20, etc.	12–20 mo.	10–20 mo.	4–14 mo.	Anytime	Anytime	Anytime	Crops labeled for preplant incorporation	FY
							All other crops	24 mo.
							Edible beans, fruiting vegetables, lentil, peas, sunflower	Anytime
							Alfalfa	6 mo.
							Barley	4–14 mo.
							Proso millet, annual or perennial grass crops or mixtures	10–20 mo.
							Red beet, spinach, sugar beet, all other crops	12–20 mo.
Python 80 WDG	Anytime	12 mo.	4 mo.	18 mo.	Anytime	4 mo.	Alfalfa, dry beans, lima beans, peas, barley, oats, rye, snapbean, sweet potato	4 mo.
							Rice	6 mo.
							Seeding of cover crops, forage grasses, popcorn, tobacco	9 mo.
							Potatoes	12 mo.
							Sunflower, sweet corn	18 mo.
							Sugar beet, canola	26 mo.
Sequence	Anytime	Anytime	4.5 mo	Anytime	Anytime	Anytime	Legume vegetables (succulent and dry), potatoes, sunflowers, tomatoes (transplanted)	Anytime
							Alfalfa	4 mo.
							Barley, oats, rye	4.5 mo.
							Tomatoes (planted)	6 mo.
							Clover	9 mo.
Root crops, tobacco, buckwheat, rice, cabbage, peppers, stone fruits, tree nuts	FY							
Valor SX	1 mo.	1 mo.	1 mo.	1 mo.	Anytime	Anytime	Tobacco, sunflowers	1 mo.
Valor XLT	10–18 mo.	10–18 mo.	4 mo.	10–30 mo.	Anytime	18-30 mo. (pH level dependent)	Barley, ryegrass, winter rye	4 mo.
							Rice	9–18 mo.
							Tobacco	10–18 mo.
							Tomato, alfalfa	12–18 mo.
							Dry bean, kidney bean, pea, snapbean	12–30 mo.
							Cabbage, cucurbits, flax, lentils, mustards, pumpkin, sunflower, sweet corn, watermelon, canola, carrot, onion, potato, sugar beet, all other crops	18–30 mo.

Table 9. Guidelines for Crop Rotation in Fields Previously Treated with Soybean Herbicides (cont.)

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
POSTEMERGENCE (OTT) FOR SOYBEANS (cont.)								
Firstrate	9 mo.	9 mo.	4 mo.	9 mo.	Anytime	9 mo.	Alfalfa, popcorn, seed corn, rice, dry beans, lima beans, oats, peas, snapbeans	9 mo.
							Tobacco (transplanted)	10 mo.
							Barley	12 mo.
							Potatoes, sweet corn, tobacco, all other crops	18 mo.
							Sugar beets, sunflowers	30 mo.
Flexstar, etc.	10 mo.	18 mo.	4 mo.	Anytime	Anytime	4 mo.	Dry bean, snapbean, potato, edamame	Anytime
							Lima bean, succulent pea, small grains such as barley, rye	4 mo.
							Seed corn, sweet corn, pepper (transplanted), popcorn, pumpkin, rice, tomato (transplanted), watermelon	10 mo.
							Succulent bean (other than edamame, snapbean, and lima bean), cantaloupe, cucumber, edible podded beans and peas not otherwise specified, eggplant, dry pea, pepper (direct seeded), squash, sweet potato, tomato (direct seeded)	12 mo.
							All other crops	8 mo.
Flexstar GT	10 mo.	18 mo.	4 mo.	Anytime	Anytime	10 mo.	Dry bean, snapbean, potato, edamame	Anytime
							Lima bean, succulent pea, small grains such as barley, rye	4 mo.
							Seed corn, sweet corn, pepper (transplanted), popcorn, pumpkin, rice, tomato (transplanted), watermelon	10 mo.
							Succulent bean (other than edamame, snapbean, lima bean), cantaloupe, cucumber, edible podded beans and peas not otherwise specified, eggplant, dry pea, pepper (direct seeded), squash, sunflower, sweet potato, tomato (direct seeded)	12 mo.
							All other crops	18 mo.
Fusilade DX	60 d	60 d	60 d	Anytime	Anytime	Anytime	Tobacco, sunflowers	Anytime

Table 9. Guidelines for Crop Rotation in Fields Previously Treated with Soybean Herbicides (cont.)

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
POSTEMERGENCE (OTT) FOR SOYBEANS (cont.)								
Glyphosate, etc. (FOR USE ON ROUNDUP READY SOYBEANS ONLY)	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Sunflowers	Anytime
							Tobacco	1 mo.
Liberty (FOR USE ON LIBERTY LINK SOYBEANS ONLY)	Anytime	180 d	70 d	Anytime	Anytime	180 d	Canola, sweet corn, rice, sugar beets	Anytime
							Root and tuber vegetables, leafy vegetables, brassica leafy vegetables, small grains (barley, buckwheat, oats, rye, teosinte, triticale)	70 d
							All other crops	180 d
Poast Plus	30 d	30 d	30 d	Anytime	Anytime	Anytime	Tobacco, sunflowers	Anytime
Permit Plus (FOR USE ON SULFONYLUREA-TOLERANT SOYBEANS ONLY)	1 mo.	2 mo.	2 mo.	4 mo.	Anytime (sulfonylurea-tolerant) 9 mo. regular soybean)	6 mo.	IR field corn, IMR field corn, rice	Anytime
							IT field corn	1 mo.
							Dry bean, sugarcane, snapbean	1.5 mo.
							Winter barley, forage grasses, oats, proso millet, winter rye, seed corn, spring cereal crops	2 mo.
							Popcorn, sweet corn	3 mo.
							Tomato (transplant)	8 mo.
							Alfalfa, clovers, field peas, peas, potatoes, cucumbers, pumpkins, squash	9 mo.
							Peppers	10 mo.
							Eggplant, radish	12 mo.
							Cabbage, canola, carrot, mint	15 mo.
							Broccoli, cauliflower, collards, leeks, onions, lettuce crops, sunflowers	18 mo.
Sugar beet, red beet, spinach	24 mo.							
Prefix	10 mo.	10–18 mo.	4.5 mo.	1 mo.	Anytime	10 mo.	Dry bean, snapbean	Anytime
							Potato	1 mo.
							Barley, oat, rye	4.5 mo.
							Pea, pepper, rice, tomato	10 mo.
							Alfalfa, sugar beet, sunflower, all other crops	18 mo.

Table 9. Guidelines for Crop Rotation in Fields Previously Treated with Soybean Herbicides (cont.)

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
POSTEMERGENCE (OTT) FOR SOYBEANS (cont.)								
Pursuit	8.5 mo.	18 mo.	4 mo.	18 mo.	Anytime	Anytime	Clearfield corn, lima beans, peas, southern peas, soybeans	Anytime
							Snapbeans	2 mo.
							Alfalfa, clearfield wheat, clover, edible beans (other than lima beans), rye	4 mo.
							Seed corn	8.5 mo.
							Barley, tobacco (transplanted)	9.5 mo.
							Lettuce, oats, popcorn, safflower, sunflower, sweet corn	18 mo.
							Flax, potatoes	26 mo.
							All other crops	48 mo.
Raptor	8.5 mo.	9 mo.	3 mo.	9 mo.	Anytime	9 mo.	Clearfield crops (canola, corn, lentil, rice, sunflower, wheat), dry beans, dry peas, edamame, English peas, lima beans (succulent), snapbeans	Anytime
							Alfalfa	3 mo.
							Rye	4 mo.
							Seed corn, popcorn, sweet corn	8.5 mo.
							Broccoli, cabbage, cantaloupe, carrot, cucumber, lettuce, millet, oats, onion, pepper, potato, pumpkin, rice, squash, sunflower, tobacco, tomato, turnip, watermelon	9 mo.
							Barley, lentil (non-Clearfield)	9–18 mo.
							Canola (non-Clearfield), condiment mustard, all other crops	18 mo.
							Sugar beet, table beet	18–26 mo.

Table 9. Guidelines for Crop Rotation in Fields Previously Treated with Soybean Herbicides (cont.)

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
POSTEMERGENCE (OTT) FOR SOYBEANS (cont.)								
Reflex	10 mo.	18 mo.	4 mo.	Anytime	Anytime	4 mo.	Dry bean, snapbean, potato, edamame	Anytime
							Lima bean, succulent pea, small grains such as barley, rye	4 mo.
							Seed corn, sweet corn, pepper (transplanted), popcorn, pumpkin, rice, tomato, watermelon	10 mo.
							Succulent bean (other than edamame, snapbean, and lima bean), cantaloupe, cucumber, edible podded beans and peas not otherwise specified, eggplant, dry pea, pepper (direct seeded), squash, sweet potato, tomato	12 mo.
							All other crops	18 mo.
Resource	Anytime	30 d	30 d	30 d	Anytime	30 d	All other crops	30 d
Scepter	9.5 mo.	11 mo.	3 mo.	18 mo.	Anytime	11 mo.	Rice	FS
							IMI corn, tobacco	9.5 mo.
							Barley, edible beans, oats	11 mo.
							All other crops	18 mo.
							Sugar beets, red table beets	45 mo.
Select Max	NOL	NOL	NOL	NOL	NOL	NOL	NOL	NOL
Storm	100 d	100 d	40 d	100 d	Anytime	Anytime	Rice	Anytime
							Small cereal grains	40 d
							All other crops	100 d
Synchrony XP	7 mo.	9 mo.	3 mo.	8-9 mo.	Anytime	6-15 mo.	Cereal grains, pasture grasses (such as fescue and ryegrass)	3 mo.
							Dry beans, kidney beans, peas, snapbean, popcorn, tobacco, tomato	9 mo.
							Alfalfa, clover	9–12 mo.
							Rice	9–15 mo.
							Cabbage, canola, cucumber, flax, lentils, mustards, pumpkins, sunflower, sweet corn, watermelon	18 mo.
							Carrots, onion, potato, sweet potato, Irish potato, sugar beet, all other crops	30 mo.
Ultra Blazer	100 d	100 d	40 d	100 d	Anytime	Anytime	Rice, strawberries	Anytime
							Small cereal grains	40 d
							All other crops	100 d

Table 9. Guidelines for Crop Rotation in Fields Previously Treated with Soybean Herbicides (cont.)

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
POSTEMERGENCE (OTT) FOR SOYBEANS (cont.)								
Zidua	Anytime	6–12 mo.	1–6 mo.	1–4 mo.	0–4 mo.	4 mo.	Alfalfa	10 mo.
							Canola	12–18 mo.
							Edible beans, succulent edible beans, and other edible beans	11 mo.
							Grasses grown for seed	18 mo.
							Lentil	6–8 mo.
							Potato	4 mo.
							Field pea (dry)	4–8 mo.
							Rice	10–24 mo.
							Small grains (other than wheat)	11–18 mo.
							Sugar beet	12–15 mo.
All other crops	18 mo.							
POSTEMERGENCE (DIRECTED) FOR SOYBEANS								
2, 4-DB	OLC	OLC	OLC	OLC	OLC	OLC		
Lorox, etc.	Anytime	Anytime	N/A	4 mo.	Anytime	12 mo.	All labeled crops (asparagus, bulb, carrot, celeriac, celery, coriander/cilantro, dill, horseradish, hybrid poplar, parsley, parsnip, dry peas, potato, rhubarb, edamame)	Anytime
							All other crops except cereals where only barley, oats, rye can be planted	4 mo.
							All other cereals	12 mo.
Metribuzin	4 mo.	18 mo.	4–8 mo.	18 mo.	4 mo.	18 mo.	Alfalfa, asparagus, forage grasses, sainfoin, sugarcane, tomatoes	4 mo.
							Barley	4–8 mo.
							Lentils, peas	8 mo.
							Potato, rice	12 mo.
							Sugar beets, onion, other root crops, all other crops	18 mo.
Gramoxone SL, etc.	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	All rotational crops	Anytime

Table 9. Guidelines for Crop Rotation in Fields Previously Treated with Soybean Herbicides (cont.)

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
HARVEST AIDS FOR SOYBEANS								
Aim	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	All labeled crops Nonlabeled crops	Anytime 12 mo.
Glyphosate, etc.	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Sunflowers Tobacco	Anytime 1 mo.
Sharpen	Anytime	Anytime	Anytime	1.5-4 mo.	1-3 mo.	4-9 mo.	Sweet corn Small grains Rice Chickpea, edible pea, dry field pea, lentil Sugar beet, sunflower, all other crops	0.5-4 mo. 0-3 mo. 0-4 mo. 0-6 mo. 4-9 mo.
Gramoxone SL, etc.	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	All rotational crops	Anytime

KEY TO ABBREVIATIONS

NOL = No Crop Rotation Restriction Interval is Listed on Label

FY = Following Year

DNR = Do Not Rotate in the Season following Application

FS = Following Spring

OLC = Only Labeled Crops can be Planted in the Same Year

Table 10. Guidelines for Crop Rotation in Fields Previously Treated with Cotton Herbicides

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
BURNDOWN (NO-TILL/REDUCED TILL)								
2, 4-D	OLC	OLC	OLC	OLC	OLC	OLC		
Aim	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	All labeled crops	Anytime
							Nonlabeled crops	12 mo.
Clarity	FS	FS	FS	FS	FS	FS	Tobacco	FS
Glyphosate, etc.	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Sunflowers	Anytime
							Tobacco	1 mo.
Gramoxone SL, etc.	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	All rotational crops	Anytime
Harmony Extra	14 d	14 d	Anytime	14 d	7 d	45 d	Sunflower, tobacco	45 d
Karmex	FS	FX	12 mo.	FS	12 mo.	12 mo.	All other crops	12 mo.
Sharpen	Anytime	Anytime	Anytime	1.5–4 mo.	1–3 mo.	4–9 mo.	Sweet corn	0.5–4 mo.
							Small grains	0–3 mo.
							Rice	0–4 mo.
							Chickpea, edible pea, dry field pea, lentil	0–6 mo.
							Sugar beet, sunflower, all other crops	4–9 mo.
Valor SX	1 mo.	1 mo.	1 mo.	1 mo.	Anytime	Anytime	Tobacco	1 mo.
PREEMERGENCE								
Command	9 mo.	9 mo.	12 mo.	Anytime	Anytime	9 mo.	Sweet potato, tobacco, tuberous and corm vegetables, pepper, squash	Anytime
							Cabbage, popcorn, sweet corn, seed corn, cucurbits, dry bean, peas, potato, pumpkin (processing), rice, snapbean, sugar beet, tomato	9 mo.
							All other crops	12 mo.
Cotoran	8 mo.	9 mo.	3 mo.	12 mo.	9 mo.	8 mo.	Sweet corn	8 mo.
							Rice	9 mo.
							All other crops	12 mo.
Karmex	FS	FS	12 mo.	FS	12 mo.	12 mo.	All other crops	12 mo.
Dual II Magnum	Anytime	Anytime	4.5 mo.	Anytime	Anytime	Anytime	Root vegetables, bulb vegetable, fruiting vegetables (except cucurbits or tabasco peppers, tuberous and corm vegetables, leaf petiole vegetables, head and stem brassica vegetables	60 d
							Alfalfa	4 mo.
							Clover	9 mo.
							Tobacco, buckwheat, rice	Following spring
							Food or feed crops not listed, all other crops	12 mo.

Table 10. Guidelines for Crop Rotation in Fields Previously Treated with Cotton Herbicides (cont.)

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
PREEMERGENCE (cont.)								
Prowl H20, etc.	12–20 mo.	10–20 mo.	4–14 mo.	Anytime	Anytime	Anytime	Crops labeled for preplant incorporation	FY
							All other crops	24 mo.
							Edible beans, fruiting vegetables, lentil, peas, sunflower	Anytime
							Alfalfa	6 mo.
							Barley	4–14 mo.
							Proso millet, annual or perennial grass crops or mixtures	10–20 mo.
							Red beet, spinach, sugar beet, all other crops	12–20 mo.
Reflex	10 mo.	18 mo.	4 mo.	Anytime	Anytime	4 mo.	Dry bean, snapbean, potato, edamame	Anytime
							Lima bean, succulent pea, small grains such as barley, rye	4 mo.
							Seed corn, sweet corn, pepper (transplanted), popcorn, pumpkin, rice, tomato, watermelon	10 mo.
							Succulent bean (other than edamame, snapbean, and lima bean), cantaloupe, cucumber, edible podded beans and peas not otherwise specified, eggplant, dry pea, pepper (direct seeded), squash, sweet potato, tomato	12 mo.
							All other crops	18 mo.
Treflan	Anytime	12 mo.	Anytime	Anytime	Anytime	Anytime	Tobacco	Anytime
Warrant	Anytime	Anytime	4 mo.	Anytime	Anytime	Anytime	Nonfood or nonfeed winter cover crops	Anytime
							Alfalfa, clover, kudzu, lespedeza, lupin, sainfoin, trefoil, velvet bean, vetch spp.	9 mo.
							Barley, bean <i>Vigna</i> spp., dried shelled bean group <i>Lupinus</i> spp., <i>Phaseolus</i> spp. broad bean (dry), chickpea, guar, lablab bean, lentil, pea (<i>Pisum</i> spp.), pigeon pea, buckwheat, millet, oats, potato, rice, rye, sugar beets, sunflowers, tobacco, teosinte, triticale, wild rice	FY

Table 10. Guidelines for Crop Rotation in Fields Previously Treated with Cotton Herbicides (cont.)

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
POSTEMERGENCE								
Assure II	30 d	30 d	30 d	Anytime	Anytime	120 d	Labeled crops	Anytime
							Nonlabeled crops	30 d
Envoke	16 mo.	16 mo.	10 mo.	3 mo.	3–16 mo.	18 mo.	Sugarcane	3 mo.
							Bell pepper, parsley, Irish potato, radish, rice, tobacco, tomato	16 mo.
							All other crops	18 mo.
Fusilade	60 d	60 d	60 d	Anytime	Anytime	Anytime	Tobacco	Anytime
Liberty 280 (LLink Only)	Anytime	180 d	70 d	Anytime	Anytime	180 d	Canola, sweet corn, rice, sugar beets	Anytime
							Root and tuber vegetables, leafy vegetables, brassica leafy vegetables, small grains (barley, buckwheat, oats, rye, teosinte, triticale)	70 d
							All other crops	180 d
Staple LX	9–10 mo.	DNR	4 mo.	Anytime	10 mo.	10 mo.	Spring wheat	4 mo
							Rice, IR field corn	9 mo
							Tobacco	10 mo
							Cabbage, cantaloupe, carrot, collard, English pea, mustard (greens), peppers, snapbean, squash, sweet corn, sweet potato, tomato, turnips, watermelon	12 mo
							Onion	DNR
							All other crops	Minimum 10 mo.

Table 10. Guidelines for Crop Rotation in Fields Previously Treated with Cotton Herbicides (cont.)

Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
POST DIRECTED								
Aim	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	All labeled crops	Anytime
							Nonlabeled crops	12 mo.
Karmex	FS	FS	12 mo.	FS	12 mo.	12 mo.	All other crops	12 mo.
Valor SX	1 mo.	1 mo.	1 mo.	1 mo.	Anytime	Anytime	Tobacco	1 mo.
Zidua	Anytime	6–12 mo.	1–6 mo.	1–4 mo.	0–4 mo.	4 mo.	Alfalfa	10 mo.
							Canola	12–18 mo.
							Edible beans, succulent edible beans, and other edible beans	11 mo.
							Grasses grown for seed	18 mo.
							Lentil	6–8 mo.
							Potato	4 mo.
							Field pea (dry)	4–8 mo.
							Rice	10–24 mo.
							Small grains (other than wheat)	11–18 mo.
							Sugar beet	12–15 mo.
							All other crops	18 mo.

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Table 11. Guidelines for Crop Rotation in Fields Previously Treated with Peanut Herbicides								
Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
PREEMERGENCE								
Dual II Magnum	Anytime	Anytime	4.5 mo.	Anytime	Anytime	Anytime	Root vegetables, bulb vegetable, fruiting vegetables (except cucurbits or tabasco peppers, peppers, tuberous and corm vegetables, leaf petiole vegetables, head and stem brassica vegetables)	60 d
							Alfalfa	4 mo.
							Clover	9 mo.
							Tobacco, buckwheat, rice	FS
							Food or feed crops not listed, all other crops	12 mo.
Glyphosate	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Tobacco	1 mo.
Outlook	Anytime	FS	4 mo.	FS	Anytime	Anytime	Dry bean, sugar beet, popcorn, seed corn, sweet corn, garlic, horseradish, onion (dry bulb, green), perennial grasses grown for seed, potato, shallots (dry bulb), winter squash	Anytime
							Any other crop	FY
Prowl H2O	Anytime	Anytime	4 mo.	Anytime	Anytime	Anytime	Crops labeled for preplant incorporation	FY
							All other crops	24 mo.
							Edible beans, fruiting vegetables, lentil, peas, sunflower	Anytime
							Alfalfa	6 mo.
							Barley	4–14 mo.
							Proso millet, annual or perennial grass crops or mixtures	10–20 mo.
							Red beet, all other crops	12–20 mo.

Table 11. Guidelines for Crop Rotation in Fields Previously Treated with Peanut Herbicides (cont.)								
Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
PREEMERGENCE (cont.)								
Pursuit	8.5 mo.	18 mo.	4 mo.	18 mo.	Anytime	Anytime	Clearfield corn, lima beans, peas, southern peas	Anytime
							Snapbeans	2 mo.
							Alfalfa, clearfield wheat, clover, edible beans (other than lima beans), rye	4 mo.
							Seed corn	8.5 mo.
							Barley, tobacco (transplanted)	9.5 mo.
							Lettuce, oats, popcorn, safflower, sunflower, sweet corn	18 mo.
							Flax, potatoes	26 mo.
							All other crops	48 mo.
Sonalan	FS	FS	FS	FS	FS	FS	All labeled crops	Anytime
							Nonlabeled crops	FS
Strongarm	18 mo.	18 mo.	4 mo.	10 mo.	Anytime	Anytime	Barley	4 mo.
							Oats, rye	6 mo.
							Snapbeans	9 mo.
							Rice, tobacco	18 mo.
							Sugar beets, sunflowers, all other crops	30 mo.
Valor	1 mo.	1 mo.	1 mo.	1 mo.	Anytime	Anytime	Tobacco, sunflowers	1 mo.
POSTEMERGENCE								
2, 4-DB	OLC	OLC	OLC	OLC	OLC	OLC		
Aim	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	All labeled crops	Anytime
							Nonlabeled Crops	12 mo.
Basagran	FS	FS	FS	FS	FS	FS	Tobacco	FS
Cadre	9 mo.	18 mo.	4 mo.	18 mo.	9 mo.	Anytime	Rye	4 mo.
							Peas, snapbeans, tobacco	9 mo.
							Oats, barley, onions, sweet corn	18 mo.
							Canola, potatoes, red table beets, sugar beets	40 mo.
							All other crops	26 mo.

Table 11. Guidelines for Crop Rotation in Fields Previously Treated with Peanut Herbicides (cont.)								
Herbicide (trade name)	Field Corn	Grain Sorghum	Wheat	Cotton	Soybean	Peanut	Rotational Crops	Time Restriction
POSTEMERGENCE (cont.)								
Classic	9 mo.	15 mo.	3 mo.	9 mo.	Anytime	FS	Cereal grains, pasture grasses	3 mo.
							Alfalfa, rice, tobacco, tomato, clover, dry beans, kidney beans, snapbeans, peas	9 mo.
							Cabbage, canola, lentils, mustards, cucumber, flax, pumpkins, sunflower, sweet corn, watermelon	18 mo.
							Carrot, onion, potato (all types), sugar beets, all other crops	30 mo.
Cobra	NOL	NOL	NOL	NOL	NOL	NOL	NOL	NOL
Fusilade DX	60 d	60 d	60 d	Anytime	Anytime	Anytime	Tobacco	1 mo.
Gramoxone SL, etc.	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	All rotational crops	Anytime
Poast, etc.	Anytime	4 mo.	4 mo.	Anytime	Anytime	Anytime	All labeled crops	Anytime
							All nonlabeled crops	4 mo.
Select 2EC, etc.	30 d	30 d	30 d	Anytime	Anytime	Anytime	All labeled crops	Anytime
							All nonlabeled crops	30 d
Select Max	NOL	NOL	NOL	NOL	NOL	NOL	NOL	NOL
Storm	100 d	100 d	40 d	100 d	Anytime	Anytime	Small cereal grains	40 d
							All other crops	100 d
Ultra Blazer	100 d	100 d	40 d	100 d	Anytime	Anytime	Rice, strawberries	Anytime
							Small cereal grains	40 d
							All other crops	100 d
Warrant	Anytime	Anytime	4 mo.	Anytime	Anytime	Anytime	Nonfood or nonfeed winter cover crops	Anytime
							Alfalfa, clover, kudzu, lespedeza, lupin, sainfoin, trefoil, velvet bean, vetch spp.	9 mo.
							Barley, bean <i>Vigna</i> spp., dried shelled bean group <i>Lupinus</i> spp., <i>Phaseolus</i> spp. broad bean (dry), chickpea, guar, lablab bean, lentil, pea (<i>Pisum</i> spp.), pigeon pea, buckwheat, millet, oats, potato, rice, rye, sugar beets, sunflowers, tobacco, teosinte, triticale, wild rice	FY

KEY TO ABBREVIATIONS

NOL = No Crop Rotation Restriction Interval is Listed on Label

FY = Following Year

DNR = Do Not Rotate in the Season following Application

FS = Following Spring

OLC = Only Labeled Crops can be Planted in the Same Year

Table 12. Abbreviations Used Throughout the Alabama Pest Management Handbook

A	acre(s)	oz.	ounce(s)
ae	acid equivalent	PDS	postemergence directed spray
a.i.	active ingredient	PHI	preharvest interval
AS	aqueous suspension	POST	postemergence
bu	bushel(s)	POT	postemergence over-the-top
cu.ft.	cubic foot (feet)	PPI.....	preplant incorporated
cwt	hundredweight	ppm	parts per million
d	day	PRE	preemergence
DF	dry flowable	psi.....	pounds per square inch
E	emulsifiable	pt.	pint(s)
EC	emulsifiable concentrate	qt.	quart(s)
F	flowable	REI	restricted entry interval
F.	Fahrenheit	RWA.....	rope wick applicator
fl.oz.	fluid ounce(s)	S	sprayable
ft.	foot (feet)	SL.....	sprayable liquid
G.....	granule	SP	soluble powder
gal.	gallon(s)	sq.ft.	square foot (feet)
hr	hour	t.	teaspoon
kg	kilogram(s)	T.	tablespoon
L.....	liquid	W.....	wettable
lb.	pound	WDG.....	water dispersible granules
LC	liquid concentrate	WP	wettable powder
LD	lethal dose	<	less than
mg	milligram(s)	>	greater than
min.	minute(s)		
ml	milliliter(s)		
mo.	month		



FOR MORE INFORMATION on pesticides, pesticide safety, or submitting samples for analysis, see the following publications in the IPM series:

IPM 1293, "Safety." Safety contact information; worker protection standards; the safe use, handling, and storage of pesticides

IPM 1294, "Submitting Samples." Procedures for submitting samples for diagnosis, analysis, and identification

IPM 1295, "General Pesticide Information." Federal and state restricted use pesticide lists; pesticides and water quality

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For more information, contact your county Extension office. Visit www.aces.edu/directory.

Use pesticides **only** according to the directions on the label. Follow all directions, precautions, and restrictions that are listed. Do not use pesticides on plants that are not listed on the label

The pesticide rates in this publication are recommended **only** if they are registered with the Environmental Protection Agency or the Alabama Department of Agriculture and Industries. If a registration is changed or canceled, the rate listed here is no longer recommended. Before you apply **any** pesticide, check with your county Extension agent for the latest information.

Trade names are used **only** to give specific information. The Alabama Cooperative Extension System does not endorse or guarantee any product and does not recommend one product instead of another that might be similar.

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