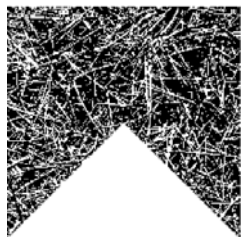


# IPM



## General Pesticide Information

Alabama Pest Management Handbook for 2009

### FEDERAL RESTRICTED USE PESTICIDES – JUNE 2004\*

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RESTRICTED USE PESTICIDE:

FOR RETAIL SALE TO AND APPLICATION ONLY BY CERTIFIED APPLICATORS  
OR PERSONS UNDER THEIR DIRECT SUPERVISION.

\*Current copies of this list are found at the EPA Restricted Use Pesticide Web site: <http://www.epa.gov/opprd001/rup>  
This information is provided for reference purposes only. Although the information provided here was accurate and current when first created, it is now outdated and current copies are not available from the EPA.

Chemical	Trade Names (not all listed)	Criteria
Acetamide	Guardsman Herbicide	Ground water
Acetic Acid	Shotgun herbicide	Emulsifiable concentrate
Acetochlor	Harness, Surpass, Doubleplay Topnotch, others	Ground water
Acrolein	Magnacide H&B Aqualin	Human inhalation hazard, avian & aquatic residue effects
Alachlor	Intrro	Oncogenic
Aldicarb	Temik	Highly toxic, accident history
Aluminum Phosphide	Gastoxin, Quik-Fume, Detia	Acute inhalation toxicity
Amitraz	Mitac, Taktic (insecticide, miticide)	Possible oncogenicity
Amitrole	Amizol	Possible oncogenicity
Arsenic Acid	Dessicant L-10, Hy-Yield H-10, others	Oncogenic, mutagenic, fetotoxic & reproductive effects
Arsenic Pentoxide	Osmoste K-33, CCA Wolmanac, others	Possible oncogenic, mutagenic, fetotoxic & reproductive effects
Atrazine	Aatrex 4L, Atrazine, Bicep, Surpass, others (Mixtures with other herbicides)	Ground water, worker exposure
Avermectin	Zephyr, Agri-Mek	Toxic fish, mammals, aquatic organisms
Avitrol	Avitrol	Hazard to fish & non-target birds
Azinphosmethyl	Guthion, Ketokil No. 52, Azinphos-Methyl, others	Acute inhalation toxicity, hazard to avian, aquatic & mammalian species
Bendiocarb	Turcam, Turcam plus	Aquatic & avian toxicity

Chemical	Trade Names (not all listed)	Criteria
Bifenthrin	Capture, Brigade, Talstar	Aquatic & avian toxicity
Bis (tributyltin) oxide	Interlux Micron, Interswift Navicote 2000, BKA007, others	Aquatic toxicity
Carbofuran (N,I)	Furadan	Acute inhalation and avian toxicity of granular formulations
Chlorophacinone	Rozol Tracking Powder,	Inhalation hazard, food contamination potential
Chloropicrin	Timberfume, DowFume MC-33, Terr-0-Gas, Metabrom, others	Acute inhalation hazard, hazard to non-target organisms
Chlorothoxyfos	Fortress	Acute human, avian & aquatic invertebrate toxicity
Chlorpyrifos	Lorsban	Avian & aquatic toxicity
Chromic Acid	Osrose K-33, Chromic acid, others	Mutagenic, teratogenic, oncogenic & fetotoxic effects
Clofentezine	Apollo SC	All uses
Coal tar	60/40 Creosote coal tar	Oncogenic & mutagenic effects
Coaltar creosote	Creosote oil, creosote solution, others	Oncogenic & mutagenic effects
Coumaphos	Co-Ral	Acute oral toxicity
Creosote Oil	Original Carbolineum, Osmoplastic SD	Possible oncogenic & mutagenic effects
Cube resins	NUSYN, Noxfish, Cube Powder & others	Chronic eye effects, inhalation hazard
Cuprous Oxide	Osmos ACC 50%, Red Seamate, others	Possible toxicity
Cyfluthrin	Baythroid2, Aztec, Tempo 2, Legend, Renounce	Acute human toxicity, toxic to fish & other aquatic organisms
Cyhalothrin	Karate C50	Toxic to fish & other aquatic organisms
Cypermethrin	Ammo, Cynoff	Oncogenic, hazard to non-target organisms
Deltamethrin	Delta Guard, Striker, Decis	Highly toxic to aquatic organisms
Diazinon	Diazinon, Knox Out NL, others	Toxic to avian & aquatic organisms
Dichloenil	Sewer out II, Sanaform Vaporooter	Conditional
Dicloropropene	Brom 70/30, Telone C-35, & others	Probable human carcinogen, acutely toxic by oral and inhalation routes
Diclofop Methyl	Hoelon 3 EC, Brestan H47	Oncogenic
Dicrotophos	Chiles' Go-Better, Mauget Inject A-Cide B	Acute dermal toxicity, residue effects on avian species
Diflubenzuron	Dimilin, Micromite	Hazard to wildlife

Chemical	Trade Names (not all listed)	Criteria
Dioxathion	Cooper Del-Tox Delnav	All EC concentrations greater than 30%, all solutions 3% & greater, acute dermal toxicity
Disulfoton	Di-syston	All emulsifiable concentrates 65% and greater, all emulsifiable concentrates and concentrate solutions 21% and greater with fensulfothion 43% and greater, all emulsifiable concentrates 32% and greater in combination with 32% fensulfothion and greater, acute dermal and inhalation toxicity
Emamectin Benzoate	Proclaim	Toxic to fish
Endrin	Velsicol Endrin	Acute dermal toxicity, non-target organism
Ethion	Ethion 8	Acute toxicity
Ethoprop	Mocap, Holdem	All EC 40% and greater & all granular formulations, all fertilizer formulations, acute dermal toxicity
Ethyl parathion	Parathion 4, Phoskill, others	Inhalation and dermal toxicity, residue effects on mammalian, avian & aquatic organisms
Fenamiphos	Nemacur	All formulations 35% or greater, acute dermal toxicity, inhalation toxicity, avian acute oral toxicity
Fenbutatin-oxide	Vendex 50	Highly toxic to aquatic organisms
Fenitrothion	Sumiton 8E	Forestry uses, potential adverse effects on aquatic & avian species
Fenpropathrin	Danitrol, Tame	Toxic to fish & other aquatic organisms
Fenthion	Baytex, Mosquitocide 700	Acute toxicity to birds, fish and aquatic invertebrates
Fenvalerate	Asana XL, Fury 1.5	Possible adverse effects on aquatic organisms
Fipronil	Regent, Icon	Conditional registration
Hydrogen cyanamide	Dormex	Corrosive to skin & eyes
Lambda-Cyhalothrin	Karate, Scimitar, Demand, Warrior	Toxicity to fish & aquatic invertebrates
Lindane	Lindane, Or-Cal Metam-S.A.U., others	(RPAR decision) Possible oncogenic
Magnesium Phosphide	Phostoxin, Magnaphos, Fami-Cel Plate	Inhalation hazard
Methamidophos	Monitor 4	Acute dermal toxicity, residue effects on avian species
Methidathion	Supracide	Residue effects on avian species
Methiocarb	Mesurol 75WP	Possible hazard to avian, fish and other aquatic organisms

Chemical	Trade Names (not all listed)	Criteria
Methomyl	Lannate, Lannabait	As sole active ingredient in 1% to 2.5% bait (except 1% fly bait), all concentrated solution formulations, 90% wettable powder (not in water soluble bag), accident history, residual effects on mammalian species
Methyl Bromide	Dowfume MC-33, Terr-O-Gas, Pic-Brom, others	All formulations, accident history, acute toxicity
Methyl Isothiocyanate	Degussa Methyl isothiocyanate, Mite-Fume	Ready to use wood preservative
Methyl Parathion	M-Parathion (several)	All foliar applications restricted based on residue effects on mammalian & avian species, hazard to bees, acute dermal toxicity
Metolachlor	Drexel Trizmiet 11	Emulsifiable concentrate
Mevinphos	Phosdrin, Duraphos	All emulsifiable and liquid concentrates, 2% dusts, acute dermal toxicity and residue effects on mammalian and avian species
Niclosamide	Bayluscide	Acute inhalation toxicity, effects on aquatic organisms
Nicotine	4-tin, Fulex	Liquid and dry formulations 14% active & greater, acute inhalation toxicity and effects on aquatic organisms
Nitrogen, Liquid	Liquid Nitrogen (termiticide)	Highly corrosive to skin & eyes
Oxamyl	Vydate	Avian toxicity, acute oral and inhalation toxicity
Oxydemeton Methyl	Metasystox-R, Harpoon,	Reproductive effects
Paraquat	Surefire, HerbiQuat, Cyclone, Gamoxone	All formulations and concentrations except pressurized spray formulations containing 0.44% paraquat bis (methyl sulfate) and 15% petroleum distillates as active ingredients, liquid fertilizer containing 0.25% paraquat dichloride and 0.03% atrazine, accident history, human toxicological data
Pentachlorophenol & PentaSodium Salt	Penta, Permatox, Mitrol G-ST, Pentacon	Possible oncogenic, mutagenic, reproductive and fetotoxic effects.
Permethrin	Pounce, Ambush, others	Highly toxic to aquatic organisms, oncogenicity
Phorate	Thimet, Milo bait, Holdem, Rampart, others	All granular formulations, acute oral & dermal toxicity, residue effects on mammals
Phosterbupirim	Aztec	Granular formulations
Picloram	Tordon 22 K, Grazon P+D, others	Hazard to non-target organisms
Piperonyl Butoxide	Vex, NUSYN, Scourge, others	Mixed with other restricted chemicals

Chemical	Trade Names (not all listed)	Criteria
Profenphos	Curacron 6E/8E	Corrosive to eyes
Pronamide	Kerb	All 50% wettable powders
Propanoic Acid	Silverado	Emulsifiable concentrate
Propetamphos	Zoecon	Emulsifiable concentrate, indoor use
Pyrethrins	SunGro Buggone II	Chronic eye effects
Resmethrin	SBP-1382, Scourge, Oblique, others	Acute fish toxicity
Rotenone	Noxfish, Rotenone, Prentox, others	Chronic eye and inhalation effects
S-Fenvalerate	Asana XL Insecticide	Adverse effects to aquatic organisms
Simazine	Simazine, Printrex, Simazat	Some products, ground water concern
Sodium cyanide	M-44 cyanide, DRC-1339	Inhalation hazard, hazard to non-target species
Sodium dichromomate	Osmoplastic SD, CSI 70%	Mutagenic, teratogenic, oncogenic, fetotoxic
Sodium fluoroacetate	Compound 1080 Livestock protection collar	Acute oral toxicity, hazard to non-target species, accident history
Sodium hydroxide	Angus Hot Rod	Acute toxicity hazard - inhalation, eyes, dermal
Sodium methyl-dithiocarbamat	Vapam, Meltham, Vaporooter, Sodcure	Dermal toxicity and teratogenicity
Starlicide	Compound DRC-1339, Gull Toxicant	Hazard to non-target species
Strychnine	Gopher Getter, Cooke Quick, others	All dry bait, pellet and powder formulations, acute oral toxicity, hazard to non-target species
Sulfotepp	Dithio Insecticidal Smoke	Sprays and smoke generatore, inhalation hazard
Sulfuric Acid	Sulfuric Acid, others	Extremely corrosive, acute toxicity
Sulfuryl Fluoride	Termafume, Vikane	Acute inhalation hazard
Sulprofos	Bolstar 6	Wildlife hazard
Tefluthrin	Force	Environmental concern
Terbufos	Counter	All formulations with active ingredient 15% or greater, acute oral and dermal toxicity, avian residue effects
TFM	TFM Bar, Sea lamprey larvacide	Requires specialized training, equipment and clothing
Tralomethrin	Scout, Striker	Toxic to aquatic organisms
Tributyltin Fluoride	Polyflo Anti-Fouling Paint, others	Acute toxicity to aquatic organisms, including shellfish

Chemical	Trade Names (not all listed)	Criteria
Tributyltin Methacrylate	AmerCoat 698, Interswift, others	Acute toxicity to aquatic organisms, including shellfish
Trisopropranolamine	Toram 101	Hazard to non-target plants
Triphenyltin Hydroxide	Duter, Supertin 4L, Pro-Tex & others	Possible mutagenic effects
Zinc Phosphide	Bonide, Orchard Mouse Bait, Mouse-Con, others	All bait formulations, hazard to non-target species, acute oral and inhalation hazard

\*Current copies of this list are found at the EPA Restricted Use Pesticide Web site: <http://www.epa.gov/opprd001/rup>

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## ALABAMA RESTRICTED USE LIST

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All pesticides classified as restricted by the United States Environmental Protection Agency under requirements of the Federal Insecticide, Fungicide, and Rodenticide Act are also designated as Restricted Use pesticides under the Alabama Pesticides Act of 1971. These restricted pesticides, in addition to the ones on the federal list, are listed below:

- Methyl Bromide . . . . . All formulations
  - Phosphorus . . . . . White or yellow
  - Tordon. . . . . All formulations
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## NAMES, CLASSIFICATION, AND TOXICITY OF PESTICIDES

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### 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), pyrethroids (SyP), botanicals (Bot.), microbials (M), insect growth regulators (IGR), fumigants (Fum.), inorganics (Inor.), repellents (Rep.), 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 LD<sub>50</sub> 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 LD<sub>50</sub>, the greater the toxicity. Although most LD<sub>50</sub> 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 (LD<sub>50</sub>) 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 LD<sub>50</sub> values which, unless stated otherwise, are for the active ingredient. EPA would not necessarily assign the same category shown in the tables.

Toxicity Category	Signal Words Required on Label by EPA	Oral LD <sub>50</sub> (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

Names, Classification, and Toxicity of Pesticides					
Pesticide Name	Other Names (all not listed)	Class	Toxicity Category	Acute LD <sub>50</sub> Values	
				Oral (mg/kg) White Rats	Dermal (mg/kg) Rabbits
Insecticides, Miticides, and Nematicides					
abamectin	Ascend*, Clinch*, Varsity*	Misc.	IV	5000	2000
acephate	Orthene*	OP	III	866-945	10,250
aldicarb	Temik*	Car.	I	0.93	5
aldrin		CH	I	39-60	50-100 (rat)
allethrin		SyP	III	920	
aluminum phosphide	Phosfume*, 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)
<i>Bacillus popilliae</i>	Doom*, milky disease spores, Japademic*	M	IV	non-toxic	
<i>Bacillus thuringiensis</i>	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	Tempo SC Ultra*	SyP	IV	960-1150	>2000 (rat)
bifenthrin	Capture*, Talstar*	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
calcium arsonate		Inor.	II	298	
calcium polysulfide	lime sulfur, Polycal*	Inor.	IV		caustic
carbaryl	Sevin*	Car.	III	500-850	4000 (rat)
carbofuran	Furadan*	Car.	I	11	10,200
carbophenothion	Trithion*	OP	I	6.8-36.9	1270
carbosulfan	Advantage*	Car.	II	209	
chlorbenside	Chlorocide*	CH	III	2000	
chlordane	Many	CH	II	367-515	200-2000
chlordecone	Kepone*	CH	II	114-140	345-475
chlordimeform	Fundal*, Galecron*, chlorophenamidine	Misc.	II	127-352	3000
chlorfenvinphos	Cpd 4072*, Supona*	OP	I	10-39	400-4700
chlorobenzilate	Acaraben*, Akar*	CH	III	2784-3880	10,200 (4E)
chlorophenamidine	chlordimeform, Fundal*, Galecron*	Misc.	II	127-352	3000
chloropicrin	Larvicide*	Misc.	I	250	200 ppm (vapor)

Pesticide Name	Other Names (all not listed)	Class	Toxicity Category	Acute LD <sub>50</sub> Values	
				Oral (mg/kg) White Rats	Dermal (mg/kg) Rabbits
Insecticides, Miticides, and Nematicides (cont.)					
chloropropylate	Acaralate*	CH	III	5000 (2EC)	
chlorpyrifos	Chlorpyrifos*, Dursban*, Lorsban*, Killmaster II*	OP	II	97-276	2000
chlorpyrifos-methyl	Reldan*	OP	III	1000-3700	2000
clothianidin	Poncho*	Neonico- tinoid	IV	>2000	>4000 (rat)
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	Baythroid*	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	Decis*	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
dibromochloropropane	DBCP, Nemagon*, Fumazone*	Fum.	II	170-300	1420
dibutyl phthalate	DBP	Rep.	IV	8000	
dichlofenthion	Mobilawn*, VC-13*	OP	II	270	
dichloro diphenyl trichloroethane	DDT	CH	III	113	2510 (rat)
dichloropropene	Telone* II	Fum.	II	250-500	500 ppm (vapor)
dichlorvos (dichlorphos)	DDVP	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
dimethoate	Cygon*, De-Fend*, Dimethoate*, Rebelate*	OP	II	215	400-610 (rat)
dinitroresol	DNOC	Misc.	I	20-50	200-600 (rat)
dinocap	Karathane*	Misc.	III	980	4700
dinoseb	DNBP	Misc.	I	40-60	80-200
dioxathion	Delnav*, Deltic*	OP	I	45	235 (rat)
disulfoton	Di-Syston*	OP	I	2-12	6-25 (rat)
d-phenothrin	sumithrin	SyP	IV	10,000	10,000 (rat)

Pesticide Name	Other Names (all not listed)	Class	Toxicity Category	Acute LD <sub>50</sub> Values	
				Oral (mg/kg) White Rats	Dermal (mg/kg) Rabbits
Insecticides, Miticides, and Nematicides (cont.)					
d-trans allethrin		SyP	III	860	
dymet		OP	III	2000	8000
endosulfan	Thiodan*	CH	I	30-110	359
endrin		CH	I	7-15	15 (rat)
EPN		OP	I	26	420
esfenvalerate	Asana*	SyP	II	75	2000
ethion		OP	I	208	915
ethoprop	Mocap*	OP	I	61.5	2.4
ethyl parathion	parathion	OP	I	4-13	55 (rat)
ethylene dibromide	EDB, Soilbrom*	Fum.	II	146	200 ppm (vapor)
famphur	Warbex*	OP	I	36-62	2730
fenamiphos	Nemacur*	OP	I	8.1-9.6	178-225
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
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
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	Proaxis*, Prolex*	SyP		2500	>5000
heptachlor		CH	II	147-220	2000
hydramethylnon	Amdro*, Probait*, Siege Pro*	Misc.	III	1131-1300	5000
hydropene	Altozar*	IGR	IV	34,000	4550
imidacloprid	Admire*, Gaucho*, Marathon II*, Provado*, Trimax *(cotton)	Misc.	II-III	450	>5000 (rat)
indoxacarb	Advion*, Avaunt*, Steward*	Car.		751-3619	>5000 (rat)
isazofos	Triumph*	OP	I	60	3100
isofenphos	Amaze*, Oftanol*	OP	I	28-38	163-315
kinoprene	Enstar*	IGR	III	5900-6000	9000
lambda-cyhalothrin	Karate* with Zeon Technology, Warrior* with Zeon Technology	SyP	II	79	632-696
lead arsenate		Inor.	I	100	
leptophos	Phosvel*	OP	II	52.8	10,000 (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

Pesticide Name	Other Names (all not listed)	Class	Toxicity Category	Acute LD <sub>50</sub> Values	
				Oral (mg/kg) White Rats	Dermal (mg/kg) Rabbits
Insecticides, Miticides, and Nematicides (cont.)					
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	MesuroI*	Car.	II	10-130	2000
methiodothion	Supracide*	OP	I	44	200
methomyl	Lannate*, Nudrin*	Car.	I	17-24	5000
methoprene	Altosid*, Diacon II*, Extinguish* Precor*	IGR	IV	34,600	3000
methoxychlor	Marlate*	CH	III	6000	6000 (rat)
methoxyfenozide	Intrepid*	Misc.	IV	>5000	>5000
methyl bromide		Fum.	II	200 ppm (vapor)	
methyl parathion	Cheminova Methyl*, Methyl Parathion, Pennacap-M*	OP	I	9-25	300-400
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	non-toxic	
mirex	Dechlorane*	CH	III	306	800
monocrotophos	Azodrin*	OP	I	8-23	354
naled	Dibrom*	OP	II	430	1100
naphthalene		Fum.	III	2400	2500 (rat)
nicotine		Bot.	I	50-60	50
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
parathion	ethyl parathion	OP	I	4-13	55 (rat)
paris green		Inor.	II	22	2400 (rat)
permethrin	Atroban*, Ectiban*, Permethrin*, Pounce*, Pramax*, Torpedo*	SyP	III	4000	2000
phorate	Thimet*, Phorate*	OP	I	2-4	2.5-6.2 (rat)
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

Pesticide Name	Other Names (all not listed)	Class	Toxicity Category	Acute LD <sub>50</sub> Values	
				Oral (mg/kg) White Rats	Dermal (mg/kg) Rabbits
Insecticides, Miticides, and Nematicides (cont.)					
profenofos	Curacron*	OP	II	358	472
propargite	Omite*, Comite*	Misc.	III	2200	
propoxur	Baygon*, aprocarb	Car.	II	70-200	500
pyrethrum	pyrethrins	Bot.	III	1500	1800 (rat)
pyriproxifen	Distance*, Esteem*	pyridine	III	>5000	>2000
resmethrin	Chryson*, Synthrin*	SyP	III	4240	2500
ronnel	Korlan*, Trolene*, Viozene*	OP	III	1740	1000-2000
rotenone	derris, cube, timbo	Bot.	II	132-1500	940
ryania		Bot.	III	1200	4000
sabadilla		Bot.	III	4000	
sodium fluorite	various	Inor.	I	75 (man)	
spinosad	Tracer*, Spintor	Misc.	IV	>5000	>5000
sulfotepp	Bladafume*	OP	I	7-10	
sulprofos	Bolstar*	OP	II	107	820
sumithrin	d-phenothrin	SyP	IV	10,000	10,000 (rat)
TDE	DDD, Rothane*	CH	III	3400	4000
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	Cruiser*	Neonico- tinoid	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*	SyP	II	157	>5000
Fungicides and Bactericides					
anilazene	Dyrene*	T	III	5000	9400
basic copper fungicides	fixed copper	Inor.			
benomyl	Benlate*	BZ	IV	10,000	10,000
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	
calomel	mercurous chloride	Inor.	II	210	

Pesticide Name	Other Names (all not listed)	Class	Toxicity Category	Acute LD <sub>50</sub> Values	
				Oral (mg/kg) White Rats	Dermal (mg/kg) Rabbits
Fungicides and Bactericides (cont.)					
captafol	Difolatan*	DO	IV	5000-6200	
captan	Orthocide*	DO	I, III	9000	
carboxin	Vitavax*	OX	I, III	3820	8000
chloroneb	Demosan*, Tersan SP*	SA	IV	5000	5000 (75WP)
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	
corrosive sublimate	bichloride of mercury	Inor.	I	1-5	
dichloran	DCNA, Botran*	SA	IV	5000	
dichloropropene	Telone II*	Fum.	I	250-500	500 ppm (vapor)
dinocap	Karathane*	DN	III	980	
ditranil	dichloran	SA	IV	5000	
dodemorph acetate	Milban*	Misc.	I	4180 (EC)	
dodine	Cyprex*	AN	II	1000	1500
fenaminosulf	Lesan*	Misc.	I	75	100 (rat)
fenarimol	Rubigan*	PY	III	2500	
ferbam	carbamate	DC	IV	17,000	
fixed copper	basic copper fungicides, various commercial products	Inor.	III	3000+	
folpet	Phaltan*	DO	IV	10,000	
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	
mercuric chloride	corrosive sublimate	Inor.	I	1-5	
mercurous chloride	calomel	Inor.	II	210	
metalaxyl	Ridomil*, Apron*	AC	II	669	3100 (rat)
metam-sodium	Vapam*, Busan 1020*	DC	III	1700-1800 (formulation)	3100
methyl bromide		Fum.	II	200 ppm (vapor)	
methyl isothiocyanate	Vorlex*	Fum.	II	538	4700
metiram	Polyram*	DC	IV	10,000	
orthophenylphenol		Misc.	III	2700	
oxycarboxin	Plantvax*	OX	III	2000	16,000

Pesticide Name	Other Names (all not listed)	Class	Toxicity Category	Acute LD <sub>50</sub> Values	
				Oral (mg/kg) White Rats	Dermal (mg/kg) Rabbits
Fungicides and Bactericides (cont.)					
parinol	Parnon*	Misc.	III	5000	
pentachlorophenol	PCP, penta	SA	I, II	50-140	
phosethyl Al	Aliette*	OP	IV	5400	
piperalin	Pipron*	Misc.	III	2500	
propamincarb 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	Agriomycin*, Agriprep*, Phytomycin*	AB	IV	9000	
sulfur	brimstone	Inor.	IV	low toxicity	
thiabendazole	Bioguard*, Tobaz*, Mertect*	BZ	III	3100	
thiophanate	Topsin E*	BZ	IV	15,000	
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	
triphenyltin acetate	Brestan*	OT	II	140-298	
triphenyltin hydroxide	Du-Ter*	OT	II	156-345	
vinclozolin	Ronilan*	IM	IV	10,000	
Herbicides					
2,4-D	Various formulations		II, III	T-600	>2000
2,4-DB	Butoxone*, Butyrac*		III	>3500	>2000
2,4-DP (dichlorprop)	Weedone 2,4-DP*		II, III	T-800	T-1400
AAtrex*	atrazine, Atrazine*		III	WP-5100	WP-9300
Accent*	nicosulfuron, NIC-IT*		III	DF>5000	DF>2000
Acclaim*	fenoxaprop, Whip*		III	T-3310	T>2000
acetochlor	Surpass*, TopNotch*		I	T-2148	T-4166
Achieve*	tralkoxydim		III	T>5000	T>2000
acifluofen	Ultra Blazer*		I	4790	3250
Aim*	carfentrazone, Quicksilver*		IV	4077	DF>4000
alachlor	Micro-Tech*		III	1782	>5000
ametryn	Evik*		III	WP-1750	WP-10,000
amitrol R.U.	Amitrol*		IV	T-5000	T-2000
Amitrol*	amitrole R.U.		IV	T-5000	T-2000
Arsenal*	imazapyr, Habitat*		III	>5000	>2000
Assure*	quizalofop		IV	EC-5700	EC-5000
asulam	Asulox*		IV	T-5000	T-2000
Asulox*	asulam		IV	T-5000	T-2000
atrazine	AAtrex*, Atrazine*		III	WP-5100	WP-9300
Atrazine*	atrazine, AAtrex*		III	WP-5100	WP-9300

Pesticide Name	Other Names	Class	Toxicity Category	Acute LD <sub>50</sub> Values	
				Oral (mg/kg) White Rats	Dermal (mg/kg) Rabbits
Herbicides (cont.)					
Axial*	pinoxaden			EC-3129	EC>2000
Balan*	benefin		I	500	>2000
Banvel*	dicamba, Clarity*, Vanquish*		III	L-1028	2000
Barricade*	prodiamine		III	DF>5000	DF>2000
Basagran*	bentazon		II	T-1100	2500 (rat)
Beacon*	primisulfuron		III	T-5050	T>2010
benefin	Balan*		I	500	>2000
bensulide	Betasan*, Prefar*		III	T-1770	EC-10,000
bentazon	Basagran*		II	T-1100	2500 (rat)
Betasan*	bensulide		III	T-1770	EC-10,000
bispyribac-sodium	Velocity*		III	2635	>2000
bromacil	Hyvar*		III	T-5200	T-5000
bromoxynil	Buctril*		II	T-440	T-3660
Buctril*	bromoxynil		II	T-440	T-3660
Butoxone*	2,4-DB, Butyrac*		III	>3500	>2000
Butyrac*	2,4-DB, Butoxone*		III	>3500	>2000
Cadre*	imazapic, Impose*, Plateau*		III	DF>5000	DF>5000
Caparol*	prometryne, Cotton-Pro*		II	WP-3750	3100
carfentrazone	Aim*, Quicksilver*		IV	4077	DF>4000
Casoron*	dichlobenil		III	T-3160	2460
Certainty*	Outrider*, sulfosulfuron		IV	T>5000	T>5000
chlorsulam-methyl	First Rate*		III	T>5000	T>2000
chlorimuron	Classic*		III	T-4100	2000
chlorsulfuron	Corsair*		III	T-5545	T-3400
Cimarron*	Escort*, Manor*, metsulfuron methyl		III	DF>5000	DF>2000
Clarity*	dicamba, Banvel*, Vanquish*		III	T-1707	T>2000
Classic*	chlorimuron		III	T-4100	2000
clethodim	Envoy*, Prism*, Select*		II	T-1630	T>5000
clomazone	Command*		II	T-1564	T-2000
clopyralid	Lontrel*, Stinger*, Transline*		III	T-4300	T>2000
Cobra*	lactofen		I	EC-2533	EC-2000
Command*	clomazone		II	T-1564	T-2000
Corsair*	chlorsulfuron		III	T-5545	T-3400
Cotoran*	fluometuron		II	WP-1840	10,000
Cotton-Pro*	prometryne, Caparol*		III	T-4550	T>2020
Curbit*	ethalfluralin, Sonalan*		II	3300	T>5000
Dacthal*	DCPA		IV	T-3000	10,000
DCPA	Dacthal*		IV	T-3000	10,000
Devrinol*	napropamide		III	T-5000	>5000
dicamba	Banvel*, Clarity*, Vanquish*		III	L-1028	2000
dichlobenil	Casoron*		III	T-3160	2460
diclofop-methyl	Hoelon*		III	EC-2020	2000 (rat)
diclosulam	Strongarm*		IV	>5000	>2000
Dimension*	dithiopyr		II	EC>3600	EC>5000
dimethenamid	Frontier*, Outlook*		I	T-1570	D>2000

Pesticide Name	Other Names	Class	Toxicity Category	Acute LD <sub>50</sub> Values	
				Oral (mg/kg) White Rats	Dermal (mg/kg) Rabbits
Herbicides (cont.)					
diquat	Diquat*, Reward*		II	L-230	400
Diquat*	diquat, Reward*		II	L-230	400
Direx*	diuron, Karmex*		III	6100	>5000
Dismiss*	Spartan*, sulfentrazone		III	T-2689	T>2000
dithiopyr	Dimension*		II	T>5000	T>5000
diuron	Direx*, Karmex*		III	6100	>5000
Drive*	quinclorac		III	T>2610	T-2000
Dual*	metolachlor		II	EC-2534	10,000
Envoke*	trifloxysulfuron		II	>5000	>2000
Envoy*	clethodim, Prism*, Select*		II	T-1630	T>5000
EPTC	Eptam*, Eradicane*		III	T-1652	10,000
Eptam*	EPTC, Eradicane*		III	T-1652	10,000
Eradicane*	EPTC, Eptam*		III	T-1652	10,000
Escort*	metsulfuron methyl, Cimarron*, Manor*		II	T-5000	T-2000
ET*	pyraflufen		IV	>5000	>5000
ethalfluralin	Curbit*, Sonalan*		II	3300	>5000
ethofumesate	Prograss*		III	T<6400	T<20,050
Evik*	ametryn		III	WP-1750	WP-10,000
Express*	tribenuron		III	DG-5000	DG>2000
fenoxaprop	Acclaim*, Whip*		III	T-3310	T>2000
Finale*	glufosinate		II	T-1910	T-1380
Firestorm*	Gramoxone Inteon*, paraquat		I	T-120	236
First Rate*	chloransulam-methyl		III	DF>5000	DF>2000
Flexstar*	fomesafen, Reflex*		III	T-1499	T>780
fluazifop-butyl	Fusilade*		III	EC-4830	2420
flumetsulam	Python*		II	T>5000	T>2000
flumiclorac	Resource*		III	3200	2000
fluometuron	Cotoran*, Meturon*		II	WP-1840	10,000
fluridone	Sonar*		IV	T-10,000	T-2000
fluroxypyr	Spotlight*, Vista*		III	3162	>2000
fomesafen	Flexstar*, Reflex*		II	6950	>1000
foramsulfuron	Revolver*		IV	>5000	>5000
fosamine ammonium	Krenite*		IV	>5000	>5000
Frontier*	dimethenamid, Outlook*		I	T-1570	D>2000
Fusilade*	fluazifop-butyl		III	EC-4830	2420
Gallery*	isoxaben		III	T>10,000	T>2000
Garlon*	triclopyr, Remedy*		III	1338	>2000
glufosinate	Finale*		II	T-1910	T-1380
glufosinate-ammonium	Liberty*, Rely*, Ignite*		II	T-1910	T-1380
Glyfos*	glyphosate, Glyphomax*, Roundup*		III	L>5000	T>5000
Glyphomax*	glyphosate, Glyfos*, Roundup*		III	L>5000	T>5000
glyphosate	Glyfos*, Glyphomax*, Rodeo* Roundup*, Touchdown*		III	L>5000	L>5000

Pesticide Name	Other Names	Class	Toxicity Category	Acute LD <sub>50</sub> Values	
				Oral (mg/kg) White Rats	Dermal (mg/kg) Rabbits
Herbicides (cont.)					
Goal*	oxyflufen		II	T-5000	10,000
Gramoxone Inteon*	Firestorm,* paraquat		I	T-120	236
Habitat*	Arsenal*, imazapyr		III	>5000	>2000
halosulfuron	Permit*, Sandea*, Sedgehammer*		III	DF-1287	DF>5000
hexazinone	Velpar*		II	T-1690	5278 (rat)
Hoelon*	diclofop-methyl		III	EC-2020	2000 (rat)
Hyvar*	bromacil		III	T-5200	T-5000
Ignite*	glufosinate-ammonium		II	T-2030	T-1390
Illoxan*	diclofop-methyl		III	T-580	T>5000
Image*	imazaquin, Scepter*		III	>6500	>2000
imazapic	Cadre*, Impose*, Panoramic*, Plateau*		III	T>5000	T>2000
imazapyr	Arsenal*, Habitat*		III	>5000	>2000
imazaquin	Image*, Scepter*		IV	>6500	>2000
imazethapyr	Pursuit*		III	T>5000	T>2000
Impose*	Cadre*, imazapic, Panoramic*, Plateau*		III	T>5000	T>2000
isoxaben	Gallery*		III	T>10,000	T>2000
Karmex*	diuron, Direx*		III	6100	>5000
Kerb*	pronamide		IV	>5000	>2000
Krenite*	fosamine ammonium		IV	>5000	>5000
lactofen	Cobra*		I	EC-2533	EC-2000
Liberty*	glufosinate-ammonium, Rely*		II	T-1910	T-1380
linuron	Lorox*		III	>4300	>2000
Lontrel*	clopyralid, Stinger*, Transline*		III	T-4300	T>2000
Lorox*	linuron		III	>4300	>2000
Manor*	Cimarron*, Escort*, metsulfuron methyl		III	DF>5000	DF>2000
Matrix*	rimsulfuron, Tranxit*		IV	T>5000	T>5000
MCP*P*	mecoprop		III	930	4000
mecoprop	MCP*P*		III	930	4000
mesosulfuron-methyl	Osprey*		III	>2000	>2000
metham	Vapam*		III	T-820	>2000
metolachlor	Dual*		II	EC-2534	10,000
metribuzin	Sencor*		III	T-1090	20,000
metsulfuron methyl	Escort*, Manor*, Cimarron*		II	T-5000	T-2000
Meturon*	fluometuron		II	WP-1840	10,000
Micro-Tech*	alachlor		III	1782	>5000
Monument*	trifloxysulfuron-sodium		IV	WG>5000	WG>2000
MSMA	Various formulations		III	1738	>2000
nicosulfuron	Accent*, NIC-IT*		III	T>5000	T>2000
NIC-IT*	Accent*, nicosulfuron		III	DF>5000	DF>2000
norflurazon	Predict*, Solicam*, Zorial*		IV	T-8000	20,000

Pesticide Name	Other Names	Class	Toxicity Category	Acute LD <sub>50</sub> Values	
				Oral (mg/kg) White Rats	Dermal (mg/kg) Rabbits
Herbicides (cont.)					
oryzalin	Surflan*		IV	T-5000	T-2000
Osprey*	mesosulfuron-methyl		III	>2000	>2000
Oust*	sulfometuron-methyl		IV	>5000	>5000
Outlook*	dimethenamid, Frontier*		I	T-1570	D>2000
Outrider*	Certainty*, sulfosulfuron		IV	>5000	>5000
oxadiazon	Ronstar*		I, II	T-8000	8000
oxyflurofen	Goal*		II	T-5000	10,000
Panoramic*	Cadre*, imazapic, Impose*, Plateau*		III	T>5000	T>2000
paraquat	Firestorm*, Gramoxone Inteon*		I	T-150	236
Peak*	prosulfuron		III	DF-4360	DF>2020
pebulate	Tillam*		III	T-920	4640
Pendimax*	pendimethalin, Pentagon*, Pre-M*, Prowl*		II	T>5000	T>2000
pendimethalin	Pendulum*, Pentagon*, Pre-M*, Prowl*		II	EC-3380	5000
Pendulum*	pendimethalin, Pentagon*, Pre-M*, Prowl*		III	T>5000	T>2000
Pentagon*	pendimethalin, Pendulum*, Pre-M*, Prowl*		III	T>5000	T>2000
Permit*	halosulfuron, Sandea*, Sedgehammer*		III	DF-1287	DF>5000
picloram	Tordon*		II, III	T-8200	4000
pinoxaden	Axial*			EC-3129	EC>2000
Plateau*	Cadre*, imazapic, Impose*, Panoramic*		III	T>5000	T>2000
Poast*	sethoxydim, Vantage*		III	T-2700	5000 (rat)
Pramitol*	prometon		I	EC-2276	2000
Predict*	norflurazon, Solicam*, Zorial*		III	T>9000	T>20,000
Prefar*	bensulide, Betasan*		III	T-770	3950 (rat)
Pre-M*	pendimethalin, Pendulum*, Pentagon*, Prowl*		III	T>5000	T>2000
primisulfuron	Beacon*		III	T-5050	T>2010
Princep*	simazine		IV	T-5000	3100
Prism*	clethodim, Envoy*, Select*		II	T-1630	T>5000
prodiamine	Barricade*, Stonewall*		III	T>5000	T>2000
prosulfuron	Peak*		III	DF-4360	DF>2020
Prograss*	ethofumesate		III	T<6400	T<20,050
prometon	Pramitol*		I	EC-2276	2000
prometryne	Caparol*, Cotton-Pro*		II	WP-3750	3100
pronamide	Kerb*		IV	>5000	>2000
prosulfuron	Peak*		III	T-4360	T>2020
Prowl*	pendimethalin, Pendulum*, Pentagon*, Pre-M*		II	EC-3380	5000
Pursuit*	imazethapyr		III	T>5000	T>2000
pyraflufen	ET*		IV	>5000	>5000
pyridate	Tough*		III	T-4690	T>2000

Pesticide Name	Other Names	Class	Toxicity Category	Acute LD <sub>50</sub> Values	
				Oral (mg/kg) White Rats	Dermal (mg/kg) Rabbits
Herbicides (cont.)					
pyrithiobac sodium	Staple*		II	T>1000	T>2000
Python*	flumetsulam		II	T>5000	T>2000
Quicksilver*	Aim*, carfentrazone		IV	4077	DF>4000
quinclorac	Drive*		III	T>2610	T-2000
quizalofop	Assure*		IV	EC-5700	EC-5000
Reflex*	fomesafen, Flexstar*		II	6950	>1000
Rely*	glufosinate-ammonium, Liberty*		II	T-1910	T-1380
Remedy*	triclopyr, Garlon*		III	1338	>2000
Resource*	flumiclorac		III	3200	2000
Revolver*	foramsulfuron		IV	>5000	>5000
Reward*	diquat, Diquat*		I	L-230	T>400
rimsulfuron	Matrix*, Tranxit*		IV	T>5000	T>5000
Rodeo*	glyphosate		III	L>5000	L>5000
Ronstar*	oxadiazon		I, II	T-8000	8000
Roundup*	glyphosate, Glyfos*, Glyphomax*		III	L>5000	L>5000
Sandea*	halosulfuron, Permit*, Sedgehammer*		III	DF-1287	DF>5000
Scepter*	imazaquin, Image*		IV	>6500	>2000
Sedgehammer*	halosulfuron, Permit*, Sandea*		III	DF-1287	DF>5000
Select*	clethodim, Envoy*, Prism*		II	EC-3610	T>5000
sethoxydim	Poast*, Vantage*		III	T-2700	5000 (rat)
siduron	Tupersan*		IV	T>7500	T>10,000
simazine	Princep*		IV	T-5000	3100
Sinbar*	terbacil		III	T-1225	T>5000
Solicam*	norflurazon, Predict*, Zorial*		IV	T-8000	20,000
Sonalan*	ethalfluralin, Curbit*		II	3300	>5000
Sonar*	fluridone		IV	T-10,000	T-2000
Spartan*	sulfentrazone		III	T-2689	T>2000
Spike*	tebuthiuron		III	>2000	>2000
Spotlight*	fluroxypyr, Vista*		III	3162	>2000
Staple*	pyrithiobac sodium		II	T>1000	T>2000
Stinger*	clopyralid, Lontrel*, Transline*		III	SL>5000	SL>5000
Stonewall*	Barricade*, prodiamine		III	T>5000	T>2000
Strongarm*	diclosulam		IV	>5000	>2000
sulfentrazone	Dismiss*, Spartan*		III	T-2689	T>2000
sulfometuron-methyl	Oust*		IV	>5000	>5000
sulfosulfuron	Certainty*, Outrider*		IV	T>5000	T>5000
Surflan*	oryzalin		IV	T-5000	T-2000
Surpass*	acetochlor, Top Notch*		I	T-2148	T-4166
Sutan*	butylate		III	T-4659	4640
tebuthiuron	Spike*		III	>2000	>2000
terbacil	Sinbar*		III	T-1225	T>5000
Tillam*	pebulate		III	T-920	4640
TopNotch*	acetochlor, Surpass*		I	T-2148	T-4166
Tordon*	picloram		II, III	T-8200	4000
Touchdown*	glyphosate		III	L>5000	L>5000

Pesticide Name	Other Names	Class	Toxicity Category	Acute LD <sub>50</sub> Values	
				Oral (mg/kg) White Rats	Dermal (mg/kg) Rabbits
Herbicides (cont.)					
Tough*	pyridate		III	EC-2813	EC>4000
tralkoxydim	Achieve*		III	T>5000	T>2000
Tranxit*	Matrix*, rimsulfuron		IV	T>5000	T>5000
Transline*	clopyralid, Lontrel*, Stinger*		III	T-4300	T>2000
Treflan*	trifluralin, Trilin*		III	3738	>5000
tribenuron	Express*		III	T-5000	T>2000
triclopyr	Garlon*, Remedy*		III	1338	>2000
trifloxysulfuron	Envoke*		II	>5000	>2000
trifloxysulfuron-sodium	Monument*		IV	WG>5000	WG>2000
trifluralin	Treflan*, Trilin*		III	3738	>2000
Trilin*	trifluralin, Treflan*		III	T>5000	T>5000
Tupersan*	siduron		IV	T>7500	T>10,000
Ultra Blazer*	acifluofen		I	4790	3250
Valor*	flumioxazin		IV	WP>5000	WP>2000
Vanquish*	dicamba, Banvel*, Clarity*		III	T-1707	T>2000
Vantage*	sethoxydim, Poast*		III	T-2676	T>5000
Vapam*	metham		III	T-820	>2000
Velocity*	bispyribac-sodium		III	2635	>2000
Velpar*	hexazinone		II	T-1690	5278 (rat)
Vista*	fluroxypyr, Spotlight*		III	3162	>2000
Weedone 2,4-DP*	2,4-DP (dichlorprop)		II, III	T-800	T-1400
Whip*	fenoxaprop, Acclaim*		III	T-3310	T>2000
Zorial*	norflurazon, Predict*, Solicam*		IV	T-8000	20,000
Plant Growth Regulators–Defoliant					
BLIZZARD*	fluthiacet-methyl		III	2537	2020
DEF*	tributyl phosphorotrithioate		II	200	1000 (rat)
DROPP*	thidiazuron		IV	4000	1000
EMBARK*	mefluidide		III	4000	4000
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.

## ALABAMA 24(C) LABELS IN EFFECT THROUGH NOVEMBER 2008

A 24(C) registration is a federal registration that has been granted to the state of Alabama for a special local need.  
This registration is valid only in the state of Alabama.

Alabama Registration Number	Product Name	Use	Company Name
AL 790017	Vitavax-200 Flowable	Controls diseases in rye	Crompton
AL 800022	Riverside 912 Herbicide	Controls vegetation in pine plantations before planting	Agrilience
AL 810025	Sencor	Use on soybeans	Bayer Crop Science
AL 820033	Temik 15G Aldicarb	Use on pecans	Bayer Crop Science
AL 850008	Aquathol K	Use as aquatic herbicide	United Phosphorus
AL 870002	Dimilin 25W	Use on pines to control insects	Chemtura Corp.
AL 870008	Temik 15G	Use on pecans—split application	Bayer Crop Science
AL 880003	Furadan 4F	Controls chinch bugs on grain sorghum	FMC Corp.
AL 910005	Comite	Make two applications on peanuts	Chemtura Corp.
AL 930002	Temik 15G	Make two applications on peanuts	Bayer Crop Science
AL 930004	Dimilin 25W	Controls mosquitoes and midges	Chemtura Corp.
AL 940001	Orthene 75S Soluble Powder	Use in peanut seed hopper boxes	Valent USA Corp.
AL 940002	Furadan 4F	Use on cucurbits	FMC Corp.
AL 980004	Envoy	Use on centipede sod to control bermudagrass	Valent USA Corp.
AL 000001	PennCap M	Use on sweet potatoes to control sweet potato weevils and white-fringed beetles	United Phosphorus
AL 000002	Linex 4L	Use as a post-directed spray on cotton	Griffin Corp.
AL 000003	Stratego	Use in wheat for disease control	Bayer Crop Science
AL 020007	Super Boll	Use for bloom delay in blueberry	Griffin Corp.
AL 020008	Acephate 75SP	Use in peanut seed hopper boxes	MicroFlo Co.
AL 030003	Reflex	Use in pine seedling nurseries	Syngenta
AL 040001	Curfew	Use on turf for nematode control	Dow AgroScience
AL 040003	Aim EC	Harvest aid treatment for corn and soybeans	FMC Corp.
AL 050001	Admire 2F	Controls termites in pecan orchards	Bayer Crop Science
AL 060001	Ignite 280 5L	Use on cotton to burndown grass and broadleaf weeds	Bayer Crop Science
AL 060002	Arctic 3.2EC	Controls regeneration weevils in conifer nurseries	Agrilience
AL 060006	Permethrin 3.2EC	Controls regeneration weevils in conifer nurseries	Loveland Products
AL 070001	Reward LA	Controls hydrilla	Syngenta
AL 070004	Provado 1.6F	Controls aphids and leaf beetles in watercress	Bayer Crop Science
AL 070005	Zoro Miticide	Controls spider mites in cotton	Cheminova

## MAINTAINING WATER QUALITY

L.C. "Fudd" Graham, Research Fellow, Entomology and Plant Pathology; and John Everest, former *Extension Weed Scientist*, Professor Emeritus and Visiting Professor, Agronomy and Soils, Auburn University

Clean water is of great concern for all Americans. Almost all potable water supplies come from surface or ground water. Surface water is derived from above-ground sources such as lakes, streams, ponds, or other impounded bodies. Ground water is found in zones beneath the earth's surface, which are called aquifers. Aquifers are formations of rock, sand, or gravel in which all pore spaces are filled with water. Aquifers serve as the source of fresh water for wells and springs. Water originates as rain or melted snow, which either accumulates on the soil surface or percolates through the soil to the water table and into ground water.

Many of man's activities can have a detrimental effect on water quality. Contamination from industrial wastes, petroleum products, fertilizers, manures, and municipal sewage and septic tanks all affect the quality of our surface and ground water. Actions have been taken on a national scale to eliminate or to minimize the effects of these sources of possible contamination.

Agricultural pesticides may also contaminate aquifers or surface water sources. Pesticides enter surface and ground water because of the actions of the landowner. Pesticides can enter water directly through accidental spills, back siphoning, intentional excessive pesticide application, improper application, improper disposal of rinsates, improper container disposal, and through poorly constructed or maintained wells. These situations are all avoidable and can be prevented with greater attention to proper management practices and through upgrading application equipment.

Pesticides can enter water indirectly through normal leaching in the soil after application or through surface run-off (or surface-loss). Contamination due to surface-loss from agricultural fields can be reduced in part by modifying farming practices. Contour farming, no-till farming, and strip farming can reduce the movement and flow of water, thereby minimizing any soil erosion from sloped fields. In some cases, selecting the appropriate pesticide can reduce the potential for leaching and for surface-loss as well.

Each agricultural chemical or pesticide used today has different water solubility and other chemical characteristics

that affect its behavior in and on soils. The solubility and behavior of a pesticide in the soil is dependent in part on the soil texture, soil type (morphology), and organic-matter content. These factors all affect the degree of soil absorption of a pesticide.

Soils with a high organic-matter content or with considerable amounts of clay in their structure tend to strongly adsorb pesticides, thus reducing leaching. However, coarse-textured sandy soils low in organic matter have low adsorption, which tends to permit downward leaching of pesticides. A knowledge of your particular soil type and soil texture will help in selecting pesticides which have limited potential for surface-loss or leaching.

In places where soils are very sandy or gravelly with little organic matter, a producer should select a pesticide that has only small or medium leaching potential. Use of a chemical with a large leaching potential in this situation could lead to contamination of ground water. In situations where fields have considerable slope or in areas where soil is permanently saturated with water, it is advisable to use a pesticide that has a small to medium potential for surface-loss.

In areas where ground water is quite shallow, there is a good possibility that pesticides can enter the ground water through leaching. In areas of limestone composition, it is possible that pesticides can enter ground water through developing sinkholes. In these situations, selection of pesticides used in agricultural production is critical to prevent possible contamination of surface and ground waters.

In the following tables, water quality information is listed for insecticides and acaricides and for fungicides and nematicides, respectively. The pesticides are listed alphabetically by common name. The surface-loss potential indicates the tendency of the pesticide to move with sediment in run-off. The leaching potential indicates the tendency of the pesticide to move in solution with water and to leach below the root zone into deep percolation. Water quality information for herbicides is listed with the weed control recommendations in each section.

<b>Properties of Pesticides That May Affect Water Quality</b>			
Common Name	Trade Names (not all listed)	Surface-Loss Potential	Leaching Potential
Insecticides and Acaricides			
Abamectin	Affirm, Avid	NA	NA
Acephate	Orthene	Small	Small
Aldicarb	Temik	Small	Large
Azinphosmethyl	Guthion	Large	Small
Bacillus thuringiensis	Dipel	***	***
Bendiocarb	Dycarb, Turcam	NA	NA
Bifenthrin	Capture, Talstar	NA	NA
Carbaryl	Ortho, Sevimol, Sevin	Medium	Small
Carbofuran	Furadan	Small	Large
Chinomethionate	Morestan	NA	NA
Chlorpyrifos	Dursban, Lorsban	Medium	Small
Cyfluthrin	Baythroid, Tempo	NA	NA
Cyhalothrin	Karate	NA	NA
Cypermethrin	Ammo, Cymbush, Demon	Large	Small
Demeton-S-Methyl	Metasystox	Medium	Large
Diazinon	Diazinon	Medium	Large
Dicofol	Kelthane	Large	Small
Dicrotophos	Bidrin	Small	Medium
Dienochlor	Pentac	NA	NA
Diethatyl-Ethyl	Andor	Medium	Small
Diflubenzuron	Dimilin	Large	***
Dimethoate	Cygon, Defend	Small	Medium
Disulfoton	Di-Syston	Medium	Small
Endosulfan	Thiodan	Large	Small
Esfenvalerate	Asana	Large	Small
Ethion	Ethion	Large	Small
Ethoprop (Ethoprophos)	Mocap	Medium	Large
Fenbutatin Oxide	Vendex	Large	Small
Fenitrothion	Sumithion	NA	NA
Fenoxycarb	Logic	Small	Small
Fensulfothion	Dasanit	NA	NA
Fenvalerate	Pydrin	Large	Small
Flucythrinate	Pay-Off	Large	Small
Fluvalinate	Mavrik	Large	Small
Fonofos	Dyfonate	Large	Medium
Formetanate Hydrochloride	Carzol	Large	Small
Hydramethylnon	Amdro, Combat	Large	***
Isazophos	Triumph	NA	NA
Isofenphos	Oftanol	NA	NA
Lindane	Isotox, Lindane	Large	Medium
Malathion	Cythion, Malathion	Small	Small
Metaldehyde	Metaldehyde	Large	Small
Methamidophos	Monitor	Medium	Small

Common Name	Trade Names (not all listed)	Surface-Loss Potential	Leaching Potential
Insecticides and Acaricides (cont.)			
Methidathion	Supracide	Medium	Small
Methiocarb	Mesurol	Medium	Medium
Methomyl	Lannate, Nudrin	Small	Medium
Methoxychlor	Marlate, Methoxychlor	NA	NA
Methyl Parathion	Methyl Parathion, Penncap-M	Medium	***
Mevinphos	Phosdrin	Small	Medium
Oxydemeton-Methyl	Metasystox-R	Small	Large
Parathion	Parathion	Medium	Small
Permethrin	Ambush, Pounce, Pramex	Large	Small
Petroleum Oil	Volck Oils	Small	Medium
Phorate	Thimet	Large	Medium
Phosalone	Zolone	Small	Medium
Phosmet	Imidan	Medium	Small
Profenofos	Curacron	Large	Small
Propargite	Comite, Omite	Large	Small
Prospamidon	Swat	Small	Large
Resmethrin	SBP-1382	NA	NA
Sulprofos	Bolstar	Medium	Small
Terbufos	Counter	Medium	Small
Thiodicarb	Larvin	Medium	Small
Tralomethrin	Scout	NA	NA
Trichlorfon	Dipterex, Dylox, Proxol	Small	Large
Trichloroethane	MC-96	NA	NA
Trimethacarb	Broot	Medium	Small
Fungicides and Nematicides			
Aldicarb	Temik	Small	Large
Anilazine	Dyrene	Small	Small
Benomyl	Benlate, Tersan	Medium	Small
Captan	Captec, Orthocide	NA	NA
Carbofuran	Furadan	Small	Large
Carboxin	Vitavax, Enhance	Small	Small
Chloropicrin	Telone	Small	Small
Chlorothalonil	Bravo, Daconil	Medium	Small
DCNA	Botran	Large	Small
Dichloropropene	Telone, Vorlex	Small	Medium
Dinocap	Karathane, Crotothane	Small	Small
Dodine Acetate	Cyprex	Large	Small
Ethoprop	Mocap	Medium	Large
Etridiazole	Terrazole, Truban	Large	Small
Fenamiphos	Nemacur	Medium	Medium
Fenarimol	Rubigan	Medium	Small
Ferbam	Carbamate	Medium	Medium
Fonofos	Dyfonate	Large	Medium

Common Name	Trade Names (not all listed)	Surface-Loss Potential	Leaching Potential
Fungicides and Nematicides (cont.)			
Iprodion	Rovraol	Medium	Small
Mancozeb	Dithane, Manzate	Medium	Small
Maneb	Manex	Medium	Small
Metalaxyl	Apron, Ridomil, Subdue	Small	Medium
Metam Sodium Salt	Vapam	Small	Medium
Methyl Isothiocyanate	Vorlex	Small	Medium
Metiram	Polyram	Medium	Small
Oxamyl	Vydate	Small	Large
Oxycarboxin	Plantvax	Small	Large
PCNB	Terraclor, Turfcide	Large	Small
Phosethyl-Al	Aliette	Medium	Small
Piperalin	Pipron	Medium	Small
Propiconazole	Tilt, Orbit	Medium	Medium
Terbufos	Counter	Medium	Small
Thiabendazole	Mertect 340F	NA	NA
Thiophanate-Methyl	Topsin, Fungo, Cleary's 3336	Small	Medium
Thiram	Thiram, Pro-Treat	Medium	Medium
Triadimefon	Bayleton	Medium	Medium
Triadimenol	Baytan	NA	NA
Triforine	Funginex, Ortho Triforine	Medium	Small
Vinclozolin	Ronilan, Vorlan	Medium	Medium
Ziram	Ziram	Medium	Small

NOTE: NA = Information not available.

\*\*\* = Pesticide should not leach with percolating water.

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**For more information**, call your county Extension office. It is listed in your telephone directory under your county's name.

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 cancelled, 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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