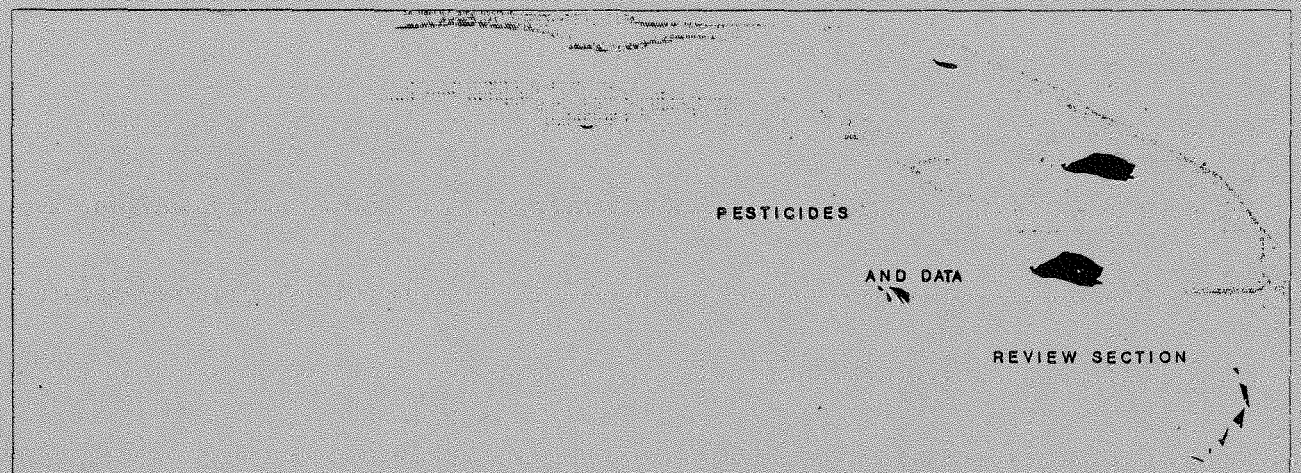

PESTICIDES AND GROUND WATER INVESTIGATIONS

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PESTICIDES AND DATA REVIEW SECTION
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PESTICIDES AND DATA REVIEW SECTION

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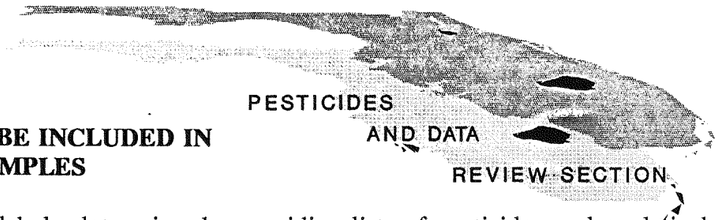
PESTICIDES AND DATA REVIEW SECTION

INTRODUCTION

This document has been produced in order to provide information to Department of Environmental Regulation personnel, private consultants, researchers, and other interested persons on the availability of analytical techniques for the detection of pesticide residues in environmental water samples. The techniques listed here do not include those needed for tests to comply with state or federal drinking water standards. This document will be helpful to those who are interested in determining if contamination of ground water or surface water has occurred as a result of pesticide application, storage, or disposal of a pesticide-related waste product. This document is a revision of an earlier version produced in February 1989.



A. PESTICIDES TO BE INCLUDED IN ANALYSIS OF SAMPLES

This document will help determine, by providing lists of pesticides and analytical techniques, which pesticides to include in sample analysis requests. The first two tables contain analytical techniques. Table I cites the EPA approved methodologies for water samples by method number; Table II cites the method by analyte. Sections B through E are pesticides which are commonly used on agricultural crops, in turf and ornamental plant production and maintenance, and in aquatic weed control.

To determine which pesticides should be included in sample analysis, first determine which pesticides were used or disposed of in the particular situation. One approach is to conduct an interview with persons familiar with pesticide use at the site. An onsite inspection may also be necessary. Empty containers at the site and containers in storage areas can provide a great deal of information on pesticide use. The following Sections will familiarize you with the possible pesticides that may be associated with a particular crop or enterprise. For example, if the site is a golf course, the list of golf course pesticides can be reviewed prior to interviews or site visits. Pesticide use may vary widely from site to site, so determining which pesticides were actually used is important.

Once a determination of pesticide use is made, Table II can be used to determine if it is possible to analyze for that chemical in water samples. If the chemical is not included in this list, there is no EPA approved methodology for it in water samples. If it is listed, Table I can be used to determine what other chemicals can be detected using the same method. It may be possible in some situations to have water samples analyzed for a number of pesticides using only a few methods. Remember, these tables are to serve only as a guideline. The particular method used by the FDER Laboratory or any other laboratory is determined by the individual lab. It is suggested that request for analysis be discussed with the laboratory official, in the case of FDER Laboratory - Dr. Bill Coppenger - prior to request for analysis. At the time you discuss analytical methods and detection limits you should determine methods for sample collection and handling.

If the analyte does not have an EPA approved method, contact the Pesticides and Data Review Section in Tallahassee, Dr. Bill Coppenger or Dr. Liang Lin both of the Tallahassee Laboratory. Other methods may exist or it may be possible to modify an existing method to include it.

PESTICIDES
AND DATA
REVIEW SECTION

TABLE I

EPA APPROVED METHODS FOR WATER SAMPLES BY METHOD NUMBER

EPA Method Number	Chemical Name	CAS #
1	Alachlor	15972-60-8
1	Ametryn	834-12-8
1	Atraton	111-44-4
1	Atrazine	1912-24-9
1	Bromacil	314-40-9
1	Butachlor	23184-66-9
1	Butylate	2008-41-5
1	Carboxin	5234-68-5
1	Chlorpropham	101-21-3
1	Cycloate	1134-23-2
1	Demeton-S	126-75-0
1	Diazinon	333-41-5
1	Dichlorvos	62-73-7
1	Diphenamid	957-51-7
1	Disulfoton	298-04-4
1	Disulfoton Sulfone	
1	Disulfoton Sulfide	
1	EPTC	563-12-2
1	Ethoprop	13194-48-4
1	Fenamiphos	22224-92-6
1	Fenarimol	60168-88-9
1	Fluridone	59756-60-4
1	Hexazinone	51235-04-2
1	Merphos	150-50-5
1	Methyl Paraoxon	
1	Metolachlor	51218-45-2
1	Metribuzin	21087-64-9
1	Mevinphos	7786-34-7
1	MGK 264	
1	Molinate	2212-67-1
1	Napropamide	15299-99-7
1	Norflurazon	27314-13-2
1	Pebulate	1114-71-2
1	Prometon	1610-18-0
1	Prometryn	7287-19-6
1	Pronamide	23950-58-5
1	Propazine	139-40-2
1	Simazine	122-34-9
1	Simetryn	1014-70-6
1	Stirofos	22248-79-9
1	Tebuthiuron	34014-18-1

EPA Method Number	Chemical Name	CAS #
1	Terbacil	5902-51-2
1	Terbufos	13071-79-9
1	Terbutryn	886-50-0
1	Triadimefon	43121-43-3
1	Tricyclazole	41814-78-2
1	Vernolate	1929-77-7
2	Aldrin	309-00-2
2	BCH-alpha	319-84-6
2	BCH-beta	319-85-7
2	BCH-delta	319-86-8
2	BCH-gamma	58-89-9
2	Chlordane-alpha	5103-71-9
2	Chlordane-gamma	5103-74-2
2	Chloroneb	
2	Chlorobenzilate	1861-32-1
2	Chlorthalonil	2921-88-2
2	DCPA	1861-32-1
2	4,4-DDD	72-54-8
2	4,4-DDE	72-55-9
2	4,4-DDT	50-29-3
2	Dieldrin	60-57-1
2	Endosulfan I	959-98-8
2	Endosulfan II	33212-65-9
2	Endosulfan Sulfate	1031-07-8
2	Endrin	72-20-8
2	Endrin Aldehyde	7421-93-4
2	Etridiazole	2593-15-9
2	Heptachlor	76-44-8
2	Heptachlor Epoxide	1024-57-3
2	Hexachlorobenzene	118-74-1
2	Methoxychlor	72-43-5
2	Permethrin, cis	52645-53-1
2	Permethrin, trans	52645-53-1
2	Propachlor	1918-16-7
2	Trifluralin	1582-09-8
3	Acifluorfen	
3	Bentazon	25057-89-0
3	Chloramben	133-90-4

EPA Method Number	Chemical Name	CAS #
3	2,4-D	94-75-7
3	Dalapon	75-99-0
3	2,4-DB	94-82-6
3	DCPA Acid Metabolite	
3	Dicamba	1918-00-9
3	Dicamba, 5-Hydroxy	
3	3,5-Dichlorobenzoic Acid	
3	Dichlorprop	120-36-5
3	Dinoseb	88-85-7
3	4-Nitrophenol	100-02-7
3	PCP	608-93-5
3	Picloram	1918-02-1
3	2,4,5-T	93-76-5
3	2,4,5-TP	93-72-1
4	Atrazine dealkylated	
4	Barban	101-27-9
4	Carbofuran Phenol	
4	Carbofuran Phenol-3KET	
4	Carboxin Sulfoxide	
4	Cyanazine	21725-46-2
4	Diuron	330-54-1
4	Fenamiphos Sulfone	
4	Fenamiphos Sulfoxide	
4	Fluometuron	2164-17-2
4	Linuron	330-55-2
4	Metribuzin DA	35045-02-4
4	Metribuzin DADK	
4	Metribuzin DK	36507-37-0
4	Neburon	555-37-3
4	Pronamide Metabolite	
4	Propanil	709-98-8
4	Propham	122-42-9
4	Swep	1918-18-9
5	Aldicarb	116-06-3
5	Aldicarb Sulfone	1646-88-4
5	Aldicarb Sulfoxide	1646-87-3
5	Baygon	114-26-1
5	Carbaryl	63-25-2
5	Carbofuran	1563-66-2

EPA Method Number	Chemical Name	CAS #
5	Carbofuran 3-OH	16655-82-6
5	Methiocarb	2032-85-7
5	Methomyl	16752-77-5
5	Oxamyl	23135-22-0
6	ETU	
101	Butachlor	23184-66-9
101	Propachlor	1918-16-7
102	Propachlor	1918-16-7
103	ZAC	
103	Ziram	137-30-4
104	Benfluralin	1861-40-1
104	Ethalfuralin	55283-68-6
104	Isopropalin	33820-53-0
105	Benomyl	17804-35-2
105	Carbendazim	10605-21-7
106	Carbendazim	10605-21-7
108	Bolstar	35400-43-2
109	Bromacil	314-40-9
109	Hexazinone	51235-04-2
109	Methomyl	16752-77-5
109	Terbacil	5902-51-2
110	Busan	
111	Carbofuran	1563-66-2
112	Chlorobenzilate	510-15-6
113	Chlorpyrifos	2921-88-2
113	Chlorpyrifos Methyl	5598-13-0

EPA Method Number	Chemical Name	CAS #
114	Coumaphos	56-76-4
115	Cyanazine	21725-46-2
116	Cyanazine (Bladex)	
116	Stirofos	916-11-5
118	Deet	134-62-3
119	Dichlorvos	62-73-7
119	Mevinphos	7786-34-7
119	Naled	300-76-5
120	Dichlorvos	62-73-7
120	Mevinphos	7786-34-7
120	Naled	300-76-5
121	6-Dinitrophenol	
122	Dinoseb	88-85-7
123	Ethion	563-12-2
124	Etridiazole	2593-15-9
125	Fensulfothion	115-90-2
126	Fenthion	55-38-9
127	Glyphosate	1071-83-6
128	Mancozeb	8065-67-6
129	Maneb	12327-38-2
130	Mephosfolan	950-10-7
130	Phorate	298-02-2
130	Terbufos	13071-79-9
131	Metham	137-42-8

EPA Method Number	Chemical Name	CAS #
132	Methomyl	16752-77-5
133	Methomyl	16752-77-5
134	Mevinphos	7786-34-7
135	Profluralin	26399-36-0
137	Triadimefon	43121-43-3
138	Trichloronate	327-98-0
139	Tricyclazole	41814-78-2
140	Glyphosate	1071-83-6
141	Bromacil	314-40-9
141	Hexazinone	51235-04-2
141	Terbacil	5902-51-2
142	Ziram	137-30-4
143	Propachlor	1918-16-7
144	Fluometuron	2164-17-2
145	Metribuzin	21087-64-9
401	Ferbam	14484-64-1
401	Niacide	8011-66-3
401	ZAC	
401	Zineb	12122-67-7
401	Ziram	137-30-4
402	Carbendazim	10605-21-7
403	Carbofuran	1563-66-2
404	Chlorobenzilate	510-15-6
404	Profluralin	26399-36-0
404	Terbutryn	886-50-0

EPA Method Number	Chemical Name	CAS #
405	2,4-DB, Isobutyl Ester	51550-64-2
405	2,4-DB, Isoctyl Ester	1320-15-6
406	Dinoseb	88-85-7
407	Dinoseb	88-85-7
408	Methomyl	16752-77-5
409	Cyanazine	21725-46-2
504	Dibromochloropropane (DBCP)	96-12-8
504	Ethylene Dibromide (EDB)	106-93-4
505	Chlordane	57-74-9
505	Dieldrin	60-57-1
505	Endrin	72-20-8
505	Heptachlor	76-44-8
505	Heptachlor Epoxide	1024-57-3
505	Hexachlorobenzene	118-74-1
505	Lindane	58-89-9
505	Toxaphene	8001-35-2
515	Dalapon	75-99-0
515	Dicamba	1918-00-9
515	Dinoseb	88-85-7
515	Pentachlorophenol	87-86-5
515	Picloram	1918-02-1
531	Carbofuran	1563-66-2
531	Carbaryl	63-25-2
531	Oxamyl	23135-22-0
531	Aldicarb Sulfoxide	1646-87-3
531	3-Hydroxycarbofuran	16655-82-6
531	Aldicarb Sulfone	1646-88-4
531	Methomyl	16752-77-5
531	Aldicarb (Temik)	116-06-3
601	2-Chloroethylvinyl ether	110-75-8
601	1,2-Dichloropropane	78-87-5
601	Dibromochloromethane	124-48-1

EPA Method Number	Chemical Name	CAS #
601	1,2-Dichloroethane	107-06-2
601	1,1,2,2-Tetrachloroethane	79-34-5
601	Vinyl Chloride	75-01-4
601	1,2-Dichloroethene, trans	156-60-5
601	1,1,1-Trichloroethane	71-55-6
601	1,3-Dichlorobenzene	541-73-1
601	1,1,2-Trichloroethane	79-00-5
601	1,3-Dichloropropane, trans	10061-02-6
601	Dichlorodifluoromethane	75-71-8
601	1,3-Dichloropropene, cis	10061-01-5
601	1,4-Dichlorobenzene	106-46-7
601	Chloroethane	75-00-3
601	Trichlorofluromethane	75-69-4
601	Bromomethane (Methyl Bromide)	74-83-9
601	1,2-Dichlorobenzene	95-50-1
601	Trichloroethane	79-01-6
601	Chloromethane	74-87-3
601	Chloroform	67-66-3
601	1,1-Dichloroethene	75-35-4
601	Methylene Chloride	75-09-2
601	Bromodichloromethane	75-27-4
601	Carbon Tetrachloride	56-23-5
601	Chlorobenzene	108-90-7
601	1,1-Dichloroethane	75-34-3
601	Bromform	75-25-2
601	Tetrachloroethene	127-18-4
602	Benzene	71-43-2
602	1,2-Dichlorobenzene	95-50-1
602	Chlorobenzene	108-90-7
602	1,3-Dichlorobenzene	541-73-1
602	Toluene	108-88-3
602	1,4-Dichlorobenzene	106-46-7
602	Ethyl Benzene	100-41-4
603	Acrolein (Aqualin)	107-02-8
603	Acrylonitrile (Acritet)	107-13-1
604	4-Nitrophenol	100-02-7
604	2,4-Dinitrophenol	51-28-5

EPA Method Number	Chemical Name	CAS #
604	2-Nitrophenol	88-75-5
604	4-Chloro-3-methylphenol	59-50-7
604	Pentachlorophenol	87-86-5
604	2-Methyl-4,6-dinitrophenol	534-52-1
604	2,4-Dichlorophenol	120-83-2
604	2-Chlorophenol	95-57-8
604	2,4,6-Trichlorophenol	88-06-2
604	Phenol	108-95-2
604	2,4-Dimethylphenol	105-67-9
604.1	Dichlorophene	97-23-4
604.1	Hexachlorophene	70-30-4
605	Benzidine	92-87-5
605	3,3-Dichlorobenzidine	91-94-1
606	Bis (2-ethylhexl)phthalate	117-81-7
606	Di-N-Octyl Phthalate	117-84-0
606	Di-N-Butyl Phthalate	84-74-2
606	Diethyl Phthalate	84-66-2
606	Dimethyl Phthalate	131-11-3
606	Butyl Benzyl Phthalate	85-68-7
607	N-Nitrosodi-N-propylamine	621-64-7
607	N-Nitrosodiphenylamine	86-30-6
607	N-Nitrosodimethylamine	62-75-9
608	Endosulfan II	33213-65-9
608	Chlordane	57-74-9
608	PCB 1232	11141-16-5
608	4,4-DDT	50-29-3
608	Endosulfan I	959-98-8
608	PCB 1260	11096-82-5
608	PCB 1221	1104-28-2
608	Endosulfan Sulfate	1031-07-8
608	PCB 1016	12674-11-2
608	Endrin Aldehyde	7421-93-4
608	4,4-DDE	72-55-9
608	Endrin	72-20-8
608	Delta BHC	319-86-8
608	Toxaphene	8001-35-2

EPA Method Number	Chemical Name	CAS #
608	PCB 1242	53469-21-9
608	PCB 1248	12672-29-6
608	Beta BHC	319-85-7
608	Alpha BHC	319-84-6
608	PCB 1254	11097-69-1
608	4,4'-DDD	72-54-8
608	Heptachlor Epoxide	1024-57-3
608	Dieldrin	60-57-1
608	Gamma BHC	58-89-9
608	Heptachlor	76-44-8
608	Aldrin	309-00-2
608.1	Chloropropylate	5836-10-2
608.1	Etridiazole	2593-15-9
608.1	Propachlor	1918-16-7
608.1	Dibromochloropropane (DBCP)	96-12-8
608.1	Chlorobenzilate	510-15-6
608.1	Chloroneb	2675-77-6
608.1	PCNB	82-68-8
608.2	Chlorothalonil	1897-45-6
608.2	DCPA	1861-32-1
608.2	Dichloran	99-30-9
608.2	Methoxychlor	72-43-5
608.2	Permethrin	52645-53-1
609	2,6-Dinitrotoluene	608-20-2
609	2,4-Dinitrotoluene	121-14-2
609	Isophorone	78-59-1
609	Nitrobenzene	98-95-3
610	Acenaphthene	83-32-9
610	Fluorene	86-73-7
610	Chrysene	218-01-9
610	Anthracene	120-12-7
610	Fluoranthene	206-44-0
610	Phenanthrene	85-01-8
610	Indeno (1,2,3,cd) pyrene	193-39-5
610	Benzo(b)fluoranthene	205-99-2

EPA Method Number	Chemical Name	CAS #
610	Naphthalene	91-20-3
610	Pyrene	129-00-0
610	Dibenzo(a,h)anthracene	53-70-3
610	Benzo(a)anthracene	56-55-3
610	Benzo(a)pyrene	50-32-8
610	Acenaphthylene	208-96-8
610	Benzo(ghi)perylene	191-24-2
610	Benzo(k)fluoranthene	207-08-9
611	Bis(2-chloroisopropyl)ether	108-60-1
611	Bis(2-chloroethyl)ether	111-44-4
611	Bis(2-chlorethoxy)methane	111-91-1
611	4-Bromophenyl Phenyl Ether	101-55-3
611	4-Chlorophenyl Phenyl Ether	7005-72-3
612	Hexachlorobenzene	118-74-1
612	Hexachlorocyclopentadiene	77-47-4
612	1,2-Dichlorobenzene	95-50-1
612	1,4-Dichlorobenzene	106-46-7
612	Hexachlorobutadiene	87-68-3
612	2-Chloronaphthalene	91-58-7
612	1,3-Dichlorobenzene	541-73-1
612	Hexachloroethane	67-72-1
612	1,2,4-Trichlorobenzene	120-82-1
613	2,3,7,8-TCDD	1746-01-6
614	Disulfoton	298-04-4
614	Parathion Ethyl	56-38-2
614	Azinphos Methyl	86-50-0
614	Parathion Methyl	298-00-0
614	Ethion	563-12-2
614	Demeton	8065-48-3
614	Diazinon	333-41-5
614	Malathion	121-75-5
615	2,4-DB	94-82-6
615	Dichloroprop	120-36-5
615	2,4,5-T	93-76-5
615	Dalapon	75-99-0
615	Dicamba	1918-00-9

EPA Method Number	Chemical Name	CAS #
615	MCPA	94-74-6
615	MCPP	93-72-1
615	2,4,5-TP	93-72-1
615	Dinoseb	88-85-7
616	Kinoprene	42588-37-4
616	Methoprene	40596-69-8
616	Resmethrin	10453-86-8
616	Cycloprate	54460-46-7
617	PCB 1254	11097-69-1
617	PCB 1016	12674-11-2
617	Toxaphene	8001-35-2
617	Captan	133-06-2
617	Methoxychlor	72-43-5
617	Trifluralin	1582-09-8
617	Beta BHC	319-85-7
617	Mirex	2385-85-5
617	Carbophenothion	786-19-6
617	PCB 1221	1104-28-2
617	Isodrin	465-73-6
617	4,4'-DDD	72-54-8
617	PCB 1242	53469-21-9
617	PCB 1232	11141-16-5
617	Chlordane	5103-74-2
617	PCB 1248	12672-29-6
617	PCNB	82-68-8
617	Endrin	72-20-8
617	Endosulfan Sulfate	1031-07-8
617	Endrin Aldehyde	7421-93-4
617	Delta BHC	319-86-8
617	Strobane	8001-50-1
617	Endosulfan II	33213-65-9
617	Endosulfan I	959-98-8
617	4,4-DDE	72-55-9
617	Aldrin	309-00-2
617	Dichloran	99-30-9
617	Alpha BHC	319-84-6
617	Perthane	72-56 0
617	Dicofol	115-32-2
617	Gamma BHC	58-89-9

EPA Method Number	Chemical Name	CAS #
617	PCB 1260	11096-82-5
617	Heptachlor Epoxide	1024-57-3
617	4,4-DDT	50-29-3
617	Heptachlor	76-44-8
618	Ethylene Dibromide (EDB)	106-93-4
618	Chloropicrin	76-06-2
619	Atrazine	1912-24-9
619	Secbumeton	26259-45-0
619	Simazine	122-34-9
619	Simetryn	1014-70-6
619	Propazine	139-40-2
619	Prometon	1610-18-0
619	Ametryn	834-12-8
619	Terbutryn	886-50-0
619	Atraton	1610-17-9
619	Prometryn	7287-19-6
619	Terbuthylazine	5915-41-3
620	Diphenylamine	122-39-4
622	Trichloronate	327-98-0
622	Ronnel	299-84-3
622	Azinphos Methyl	86-50-0
622	Naled	300-76-5
622	Diazinon	333-41-5
622	Disulfoton	298-04-4
622	Bolstar	35400-43-2
622	Dichlorvos	62-73-7
622	Mevinphos	7786-34-7
622	Demeton	8065-48-3
622	Fensulfothion	115-90-2
622	Merphos	150-50-5
622	Tokuthion	34643-46-4
622	Stirofos	961-11-5
622	Phorate	298-02-2
622	Fenthion	55-38-9
622	Chlorpyrifos Methyl	5598-13-0
622	Parathion Methyl	298-00-0

EPA Method Number	Chemical Name	CAS #
622	Ethoprop	13194-48-4
622	Chlorpyrifos	2921-88-2
622	Coumaphos	56-72-4
622.1	Phosmet	732-11-6
622.1	Dichlofention	97-17-6
622.1	Thionazin	297-97-2
622.1	Aspon	3244-90-4
622.1	Fenitrothion	122-14-5
622.1	Famphur	52-85-7
622.1	Fonofos	944-22-9
624	Trichloroethane	79-01-6
624	1,2-Dichlorobenzene	95-50-1
624	Vinyl Chloride	75-01-4
624	1,1-Dichloroethane	75-34-3
624	1,1,2,2-Tetrachloroethane	79-34-5
624	1,1-Dichloroethene	75-35-4
624	1,4-Dichlorobenzene	106-46-7
624	Tetrachloroethene	127-18-4
624	Trichlorofluromethane	75-69-4
624	1,2-Dichloroethane	107-06-2
624	1,1,2-Trichloroethane	79-00-5
624	1,3-Dichloropropene, cis	10061-01-5
624	Toluene	108-88-3
624	1,3-Dichlorobenzene	541-73-1
624	1,2-Dichloroethene, trans	156-60-5
624	1,2-Dichloropropane	78-87-5
624	1,3-Dichloropropane, trans	10061-02-6
624	1,1,1-Trichloroethane	71-55-6
624	Chloroethane	75-00-3
624	Bromomethane (Methyl Bromide)	74-83-9
624	Bromform	75-25-2
624	Bromodichloromethane	75-27-4
624	Methylene Chloride	75-09-2
624	Dibromochloromethane	124-48-1
624	2-Chloroethylvinyl ether	110-75-8
624	Chlorobenzene	108-90-7
624	Carbon Tetrachloride	56-23-5
624	Benzene	71-43-2
624	Ethyl Benzene	100-41-4

EPA Method Number	Chemical Name	CAS #
624	Chloroform	67-66-3
624	Chloromethane	74-87-3
625	Diethyl Phthalate	84-66-2
625	Dieldrin	60-57-1
625	Aldrin	309-00-2
625	Dimethyl Phthalate	131-11-3
625	Endosulfan I	959-98-8
625	PCB 1016	12674-11-2
625	PCB 1232	11141-16-5
625	3,3-Dichlorobenzidine	91-94-1
625	Indeno(1,2,3,cd)pyrene	193-39-5
625	Isophorone	78-59-1
625	PCB 1242	53469-21-9
625	2-Methyl-4,6-dinitrophenol	51-28-5
625	2-Chlorophenol	95-57-8
625	2,4-Dinitrotoluene	121-14-2
625	Pentachlorophenol, salt	
625	2,4-Dimethylphenol	105-67-9
625	N-Nitrosodiphenylamine	86-30-6
625	Heptachlor	76-44-8
625	2,4-Dichlorophenol	120-83-2
625	Naphthalene	91-20-3
625	2-Chloronaphthalene	91-58-7
625	Nitrobenzene	98-95-3
625	2,6-Dinitrotoluene	608-20-2
625	PCB 1248	12672-29-6
625	N-Nitrosodi-N-propylamine	621-64-7
625	Hexachlorobenzene	118-74-1
625	Heptachlor Epoxide	1024-57-3
625	Hexachlorobutadiene	87-68-3
625	4,4-DDE	72-55-9
625	Hexachloroethane	67-72-1
625	PCB 1254	11097-69-1
625	Hexachlorocyclopentadiene	77-47-4
625	PCB 1260	11096-82-5
625	4,4'-DDD	72-54-8
627	Isopropalin	33820-53-0
627	Enfluralin	
627	Ethalfuralin	55283-68-6

EPA Method Number	Chemical Name	CAS #
627	Profluralin	26399-36-0
627	Benfluralin	1861-40-1
627	Trifluralin	1582-09-8
629	Cyanazine	21725-46-2
630	Amobam	3566-10-7
630	Carban	
630	Thiram	137-26-8
630	ZAC	
630	Dimethyldithiocarbamate, Na	128-04-1
630	Metham	137-42-8
630	Zineb	12122-67-7
630	Ferbam	14484-64-1
630	Nabam	142-59-6
630	Busan 40	51026-28-9
630	KN Methyl	137-41-7
630	Polyram	9006-42-2
630	AOP	
630	Ziram	137-30-4
630	Mancozeb	8065-67-6
630	Niacide	8011-66-3
630	Busan 85	128-03-0
630	Maneb	12327-38-2
630.1	Thiram	137-26-8
630.1	Nabonate	138-93-2
630.1	Ferbam	14484-64-1
630.1	Busan 40	51026-28-9
630 1	Busan 85	128-03-0
630 1	Nabam	142-59-6
630.1	Mancozeb	8065-67-6
630.1	Metham	137-42-8
630.1	Dimethyldithiocarbamate, Na	128-04-1
630.1	Amobam	3566-10-7
630.1	Ziram	137-30-4
630.1	EXD	502-55-6
630.1	Zineb	12122-67-7
630.1	KN Methyl	137-41-7

EPA Method Number	Chemical Name	CAS #
631	Benomyl	17804-35-2
631	Carbendazim	10605-21-7
632	Carbaryl	63-25-2
632	Fenuron	101-42-8
632	Linuron	330-55-2
632	Neburon	555-37-3
632	Propham	122-42-9
632	Swep	1918-18-9
632	Propoxur	114-26-1
632	Fluometuron	2164-17-2
632	Carbofuran	1563-66-2
632	Diuron	330-54-1
632	Monuron	150-68-5
632	Methomyl	16752-77-5
632	Mexacarbate	315-18-4
632	Barban	101-27-9
632	Chlorpropham	101-21-3
632	Methiocarb	2032-65-1
632	Monuron-TCA	140-41-0
632	Oxamyl	23135-22-0
632	Aminocarb	2032-59-9
632	Siduron	1982-49-6
632	Fenuron-TCA	4482-55-7
633	Bromacil	314-40-9
633	Tricyclazole	41814-78-2
633	Triadimefon	43121-43-3
633	Deet	134-62-3
633	Hexazinone	51235-04-2
633	Terbacil	5902-51-2
633	Metribuzin	21087-64-9
633.1	MGK 264-A	136-45-8
633.1	Pronamide	23950-58-5
633.1	MGK 326	113-38-4
633.1	MGK 264-B	136-45-8
633.1	Fenarimol	60168-88-9
634	Vinyl Chloride	75-01-4
634	Pebulate	1114-71-2
634	Vernolate	1929-77-7

EPA Method Number	Chemical Name	CAS #
634	Cycloate	1134-23-2
634	EPTC	759-94-4
634	Molinate	2212-67-1
634	Butylate	2008-41-5
635	Rotenone	83-79-4
636	Bensulide	741-58-2
637	MBTS	120-78-5
637	TCMTB	21564-17-0
638	Oryzalin	19044-88-3
639	Bendiocarb	22781-23-3
640	Mercaptobenzothiazole	149-30-4
641	Thiabendazole	148-79-8
642	Phenol	108-95-2
642	Biphenyl	
642	Ortho Phenyl	
643	Bentazon	133-90-4
644	Picloram	1918-02-1
645	Butachlor	23184-66-9
645	Diphenamide	957-51-7
645	Fluridone	59756-60-4
645	Lethane	112-56-1
645	Norflurazon	27314-13-2
701	Dichlofenthion	97-17-6
701	Dioxathion	

TABLE II

EPA APPROVED METHODS FOR WATER SAMPLES BY ANALYTE

Chemical Name	CAS #	EPA Method Number
1,1,1-Trichloroethane	71-55-6	601 624
1,1,2,2-Tetrachloroethane	79-34-5	601 624
1,1,2-Trichloroethane	79-00-5	601 624
1,1-Dichloroethane	75-34-3	601 624
1,1-Dichloroethene	75-35-4	601 624
1,2,4-Trichlorobenzene	120-82-1	612 625
1,2-Dichlorobenzene	95-50-1	601 602 612 624 625
1,2-Dichloroethane	107-06-2	601 624
1,2-Dichloroethene, trans	156-60-5	601 624
1,2-Dichloropropane	78-87-5	601 624

Chemical Name Method	CAS #	EPA Number
1,3-Dichlorobenzene	541-73-1	601 602 612 624 625
1,3-Dichloropropane, trans	10061-02-6	601 624
1,3-Dichloropropene, cis	10061-01-5	601 624
1,4-Dichlorobenzene	106-46-7	601 602 612 624 625
2,3,7,8-TCDD	1746-01-6	613
2,4,5-T	93-76-5	3 615
2,4,5-TP	93-72-1	3 615
2,4,6-Trichlorophenol	108-95-2	625
2,4,6-Trichlorophenol	88-06-2	604
2,4-D	94-75-7	3 615
2,4-DB	94-82-6	3 615
2,4-DB, Isobutyl Ester	51550-64-2	405
2,4-DB, Isoctyl Ester	1320-15-6	405

Chemical Name Method	CAS #	EPA Number
2,4-Dichlorophenol	120-83-2	604 625
2,4-Dimethylphenol	105-67-9	604 625
2,4-Dinitrophenol	51-28-5	604
2,4-Dinitrotoluene	121-14-2	609 625
2,6-Dinitrotoluene	608-20-2	609 625
2-Chloroethylvinyl ether	110-75-8	601 624
2-Chloronaphthalene	91-58-7	612 625
2-Chlorophenol	95-57-8	604 625
2-Methyl-4,6-dinitrophenol	51-28-5	625
2-Methyl-4,6-dinitrophenol	534-52-1	604
2-Nitrophenol	88-75-5	604
2-Nitrophenol	534-52-1	625
3,3-Dichlorobenzidine	91-94-1	605
3,5-Dichlorobenzoic Acid		3 625
3-Hydroxycarbofuran	16655-82-6	531

Chemical Name Method	CAS #	EPA Number
4,4'-DDD	72-54-8	2 608 617 625
4,4-DDE	72-55-9	2 608 617 625
4,4-DDT	50-29-3	2 608 617 625
4-Bromophenyl Phenyl Ether	101-55-3	611 625
4-Chloro-3-methylphenol	59-50-7	604 625
4-Chlorophenyl Phenyl Ether	7005-72-3	611
4-Nitrophenol	100-02-7	3 604
4-NitroPhenol	88-75-5	625
6-Dinitrophenol		121
AOP		630
Acenaphthene	83-32-9	610 625
Acenaphthylene	208-96-8	610 625
Acifluorfen	25057-89-0	3

Chemical Name Method	CAS #	EPA Number
Acrolein (Aqualin)	107-02-8	603
Acrylonitrile (Acritet)	107-13-1	603
Alachlor	15972-60-8	1
Aldicarb (Temik)	116-06-3	5 531
Aldicarb Sulfone	1646-88-4	5 531
Aldicarb Sulfoxide	1646-87-3	5 531
Aldrin	309-00-2	2 608 617 625
Ametryn	834-12-8	1 619
Aminocarb	2032-59-9	632
Amobam	3566-10-7	630 630.1
Anthracene	120-12-7	610 625
Aspon	3244-90-4	622.1
Atraton	1610-17-9	1 619
Atrazine	1912-24-9	1 619
Atrazine, dealkylated		4

Chemical Name Method	CAS #	EPA Number
Azinphos Methyl	86-50-0	614
Barban	101-27-9	4 632
Baygon	114-26-1	5
BHC Alpha	319-84-6	2 608 617
BHC Beta	319-85-7	2
BHC Delta	319-86-8	2
BHC Gamma	58-89-9	2 608.1 617
Bendiocarb	22781-23-3	639
Benfluralin	1861-40-1	104 627
Benomyl	17804-35-2	631
Bensulide	741-58-2	636
Bentazon	133-90-4	3 643
Benzene	71-43-2	105 602 624
Benzidine	92-87-5	605 625
Benzo(a)anthracene	56-55-3	610 625

Chemical Name Method	CAS #	EPA Number
Benzo(a)pyrene	50-32-8	610 625
Benzo(b)fluoranthene	205-99-2	610 625
Benzo(ghi)perylene	191-24-2	610 625
Benzo(k)fluoranthene	207-08-9	610 625
Benzyl Butyl Phthalate	85-68-7	625
Beta BHC	319-85-7	608 617 625
Beta BHC	319-84-6	625
Bis(2-chlorethoxy)methane	111-91-1	611 625
Bis(2-chloroethyl)ether	111-44-4	611 625
Bis(2-chloroisopropyl) ether	108-60-1	611 625
Bis (2-ethylhexl)phthalate	117-81-7	606 625
Bolstar	35400-43-2	108 622
Bromacil	314-40-9	1 109 141 633

Chemical Name Method	CAS #	EPA Number
Bromodichloromethane	75-27-4	601 624
Bromform	75-25-2	601 624
Bromomethane (Methyl Bromide)	74-83-9	601 624
Busan		110
Busan 40	51026-28-9	630 630.1
Busan 85	128-03-0	630 630.1
Butachlor	23184-66-9	1 101 645
Butyl Benzyl Phthalate	85-68-7	606
Butylate	2008-41-5	1 634
Captan	133-06-2	617
Carban		630
Carbaryl	63-25-2	5 531 632
Carbendazim	10605-21-7	105 106 402 631

Chemical Name Method	CAS #	EPA Number
Carbofuran	1563-66-2	5 111 403 531 632
Carbofuran, 3-OH	16655-82-6	5
Carbofuran Phenol		4
Carbofuran Phenol-3KET		4
Carbon tetrachloride	56-23-5	601 624
Carbophenothion	786-19-6	617
Carboxin	5234-68-5	1
Carboxin Sulfoxide		4
Chloramben	94-75-7	3
Chlordane	57-74-9	505 608 625
Chlordane (gamma)	5103-74-2	2 617
Chlordane-alpha	5103-71-9	2
Chlorobenzene	108-90-7	601 602 624
Chlorobenzilate	510-15-6	112 404 608.1

Chemical Name Method	CAS #	EPA Number
Chloroethane	75-00-3	601 624
Chloroform	67-66-3	601 624
Chloromethane	74-87-3	601 624
Chloroneb	2675-77-6	2 608.1
Chlorobenzilate	1861-32-1	2
Chloropicrin	76-06-2	618
Chloropropylate	5836-10-2	608.1
Chlorothalonil	1897-45-6	608.2
Chlorpropham	101-21-3	1 632
Chlorpyrifos	2921-88-2	113 622
Chlorpyrifos Methyl	5598-13-0	113 622
Chlorthalonil	2921-88-2	2
Chrysene	218-01-9	610 625
Coumaphos	56-72-4	114 622
Cyanazine	21725-46-2	4 115 409 629

Chemical Name Method	CAS #	EPA Number
Cyanazine (Bladex)		116
Cycloate	1134-23-2	1 634
Cycloprate	54460-46-7	616
Dalapon	75-99-0	3 515 615
DCPA	1861-32-1	2 608.2
DCPA Acid Metabolite		3
Deet	134-62-3	118 633
Delta BHC	58-89-8	625
Delta BHC	319-86-8	608 617 625
Demeton	8065-48-3	614 622
Demeton-S	333-41-5	1
Di-N-Butyl Phthalate	84-74-2	606 625
Di-N-Octyl Phthalate	117-84-0	606 625
Diazinon	333-41-5	1 614 622

Chemical Name Method	CAS #	EPA Number
Dibenzo(a,h)anthracene	53-70-3	610 625
Dibromochloromethane	124-48-1	601 624
Dibromochloropropane (DBCP)	96-12-8	504 608.1
Dicamba	1918-00-9	3 515 615
Dicamba, 5-Hydroxy		3
Dichlofenthion	97-17-6	622.1 701
Dichloran	99-30-9	617
Dichlorodifluoromethane	75-71-8	601
Dichlorophen	97-23-4	604.1
Dichloroprop	120-36-5	3 615
Dichlorvos	62-73-7	1 119 120 622
Dicofol	115-32-2	617
Dieldrin	60-57-1	2 505 608 625
Diethyl Phthalate	84-66-2	606

Chemical Name Method	CAS #	EPA Number
Dimethyl Phthalate	131-11-3	606
Dinoseb	88-85-7	3 122 406 407 515 615
Dioxathion		701
Diphenamid	957-51-7	1 645
Diphenylamine	122-39-4	620
Disulfoton	298-04-4	1 614 622
Disulfoton Sulfone		1
Disulfoton Sulfide		1
Diuron	330-54-1	4 632
Endosulfan I	959-98-8	2 608 625
Endosulfan II	33213-65-9	2 608 625
Endosulfan Sulfate	1031-07-8	2 608 625

Chemical Name Method	CAS #	EPA Number
Endrin	72-20-8	2 505 608 625
Endrin Aldehyde	7421-93-4	2 608 625
Enfluralin		627
EPTC	759-94-4	1 634
Ethalfuralin	55283-68-6	104 627
Ethion	563-12-2	123 614
Ethoprop	13194-48-4	1 622
Ethyl Benzene	100-41-4	602
Ethylene Dibromide (EDB)	106-93-4	504 618
Etridiazole	2593-15-9	2 124 608
ETU	1563-66-2	6
EXD	502-55-6	630
Famphur	52-85-7	622
Fenamiphos	22224-92-6	1
Fenamiphos Sulfone		4

Chemical Name Method	CAS #	EPA Number
Fenamiphos Sulfoxide		4
Fenarimol	60168-88-9	1 633
Fenitrothion	122-14-5	622.1
Fensulfothion	115-90-2	125 622
Fenthion	55-38-9	126 622
Fenuron	101-42-8	632
Fenuron-TCA	4482-55-7	632
Ferbam	14484-64-1	401 630 630.1
Fluometuron	2164-17-2	4 144 632
Fluoranthene	206-44-0	610
Fluorene	86-73-7	610 625
Fluridone	59756-60-4	1 645
Fonofos	944-22-9	622.1
Glyphosate	1071-83-6	127 140

Chemical Name Method	CAS #	EPA Number
Heptachlor	76-44-8	2 505 608 625
Heptachlor Epoxide	1024-57-3	2 505 608 617 625
Hexachlorobenzene	118-74-1	2 505 612 625
Hexachlorobutadiene	87-68-3	612 625
Hexachlorocyclopentadiene	77-47-4	612 625
Hexachloroethane	67-72-1	612 625
Hexachlorophene	70-30-4	604.1
Hexazinone	51235-04-2	1 109 141 633
Indeno(1,2,3,cd)pyrene	193-39-5	610 625
Isodrin	465-73-6	617
Isophorone	78-59-1	609 625

Chemical Name Method	CAS #	EPA Number
Isopropalin	33820-53-0	104 627
KN Methyl	137-41-7	630 630.1
Kinoprene	42588-37-4	616
Lethane	112-56-1	645
Lindane	58-89-9	505
Linuron	330-55-2	4 632
Malathion	121-75-5	614
Mancozeb	8065-67-6	128 630 630.1
Maneb	12327-38-2	129 630
MBTS	120-78-5	637
MCPA	94-74-6	615
MCPP	93-65-2	615
Mephosfolan	950-10-7	130
Mercaptobenzothiazole	149-30-4	640
Merphos	150-50-5	1 622
Metham	137-42-8	131 630 630.1

Chemical Name Method	CAS #	EPA Number
Methiocarb	2032-65-1	5 632
Methomyl	16752-77-5	5 109 132 133 408 531 632
Methoprene	40596-69-8	616
Methoxychlor	72-43-5	2 617
Methylene Chloride	75-09-2	601 624
Methyl Paraoxon		1
Metolachlor	51218-45-2	1
Metribuzin	21087-64-9	1 145 633
Metribuzin DA	35045-02-4	4
Metribuzin DADK		4
Metribuzin DK	36507-37-0	4
Mevinphos	7786-34-7	1 119 120 134 622
Mexacarbate	315-18-4	632

Chemical Name Method	CAS #	EPA Number
MGK 264		1
MGK 264-A	136-45-8	633.1
MGK 264-B	136-45-8	633.1
MGK 326	113-38-4	633.1
Mirex	2385-85-5	617
Molinate	2212-67-1	1 634
Monuron	150-68-5	632
Monuron-TCA	140-41-0	632
N-Nitrosodi-N-propylamine	621-64-7	607
N-Nitrosodimethylamine	62-75-9	607
N-Nitrosodiphenylamine	86-30-6	607
Nabam	142-59-6	630
Nabonate	138-93-2	630.1
Naled	300-76-5	119 120 622
Naphthalene	91-20-3	610 625
Napropamide	15299-99-7	1
Neburon	555-37-3	4 632
Niacide	8011-66-3	401 630

Chemical Name Method	CAS #	EPA Number
Nitrobenzene	98-95-3	609 625
Norflurazon	27314-13-2	1 645
Oryzalin	19044-88-3	638
Oxamyl	23135-22-0	5 531
Parathion Ethyl	56-38-2	614
Parathion Methyl	298-00-0	614
PCB 1016	12674-11-2	608 617 625
PCB 1221	1104-28-2	608 617 625
PCB 1232	11141-16-5	608 625
PCB 1242	53469-21-9	608 625
PCB 1248	12672-29-6	608 625
PCB 1254	11097-69-1	608 625
PCB 1260	11096-82-5	608 625
PCNB	82-68-8	608.1
PCP	608-93-5	3

Chemical Name Method	CAS #	EPA Number
Pebulate	1114-71-2	1 634
Pentachlorophenol	87-86-5	515 604 625
Permethrin	52645-53-1	608.2
Permethrin, cis	52645-53-1	2
Permethrin, trans	52645-53-1	2
Perthane	72-56-0	617
Phenanthrene	85-01-8	610
Phenol	108-95-2	604
Phorate	298-02-2	130 622
Phosmet	732-11-6	622.1
Picloram	1918-02-1	3 515 644
Polyram	9006-42-2	630
Profluralin	26399-36-0	135 404 627
Prometon	1610-18-0	1 619
Prometryn	7287-19-6	1 619

Chemical Name Method	CAS #	EPA Number
Pronamide	23950-58-5	1 633.1
Pronamide Metabolite		4
Propachlor	1918-16-7	2 101 102 143 608.1
Propanil	709-98-8	4
Propazine	139-40-2	1 619
Propham	122-42-9	4 632
Propoxur	114-26-1	632
Pyrene	129-00-0	625
Resmethrin	10453-86-8	616
Ronnel	299-84-3	622
Rotenone	83-79-4	635
Secbumeton	26259-45-0	619
Siduron	1982-49-6	632
Simazine	122-34-9	1 619
Simetryn	1014-70-6	1 619

Chemical Name Method	CAS #	EPA Number
Sodium Dimethyldithiocarbamate	128-04-1	630 630.1
Stirofos	961-11-5	1 116 622
Strobane	8001-50-1	617
Swep	1918-18-9	4 632
TCMTB	21564-17-0	637
Tebuthiuron	34014-18-1	1
Terbacil	5902-51-2	1 109 141 633
Terbufos	13071-79-9	1 130
Terbuthylazine	5915-41-3	619
Terbutryn	886-50-0	1 404 619
Tetrachloroethene	127-18-4	601
Thionasin	297-97-2	622.1
Thiram	137-26-8	630 630.1
Tokuthion	34643-46-4	622

Chemical Name Method	CAS #	EPA Number
Toluene	108-88-3	602 624
Toxaphene	8001-35-2	505 608 625
Triadimefon	43121-43-3	1 137 633
Trichloroethane	79-01-6	601 624
Trichlorofluromethane	75-69-4	601 624
Trichloronate	327-98-0	138 622
Tricyclazole	41814-78-2	1 139 633
Trifluralin	1582-09-8	2 617 627
Vernolate	1929-77-7	1 634
Vinyl Chloride	75-01-4	601 624 634
ZAC		103 401 630 630.1

Chemical Name Method	CAS #	EPA Number
Zineb	12122-67-7	401 630 630.1
Ziram	137-30-4	103 142 401 630

B. PESTICIDES COMMONLY USED IN THE PRODUCTION OF AGRICULTURAL CROPS

Listed below, by category, are pesticides commonly used in crop production in Florida. The pesticides listed here are those identified by pest control specialists as being commonly used as of 1991. Other pesticides not specified here may be registered for use on crops but are not listed here as being commonly used. Other pesticides may have been introduced since this list was prepared. Pesticide use records should be reviewed before deciding which pesticides to include in sample analysis for a particular site.

Some pesticides commonly used in the past are also listed under "Historical Use". These pesticides are no longer approved for use due to regulatory/voluntary label cancellation or due to withdrawal from the market place by the manufacturer. In some cases, these pesticides may be used legally for a short period of time following cancellation, to clear market channels, and may be present at some sites.

Common chemical name and brand name(s) are given, potential ground water contaminants are indicated by an *. A pesticide is identified as a potential ground water contaminant if it has a high leaching potential or has been found in ground water in the United States. Pesticides not marked as potential ground water contaminants may still be of concern under certain conditions such as mix/loading, storage or disposal ares, and may need to be included in water sample analysis.

FUMIGANTS

These are used during the pre-planting period and are injected directly into the soil.

* 1,3-Dichloropropene	- Telone
* Metam-Sodium	- Vapam
Methyl Bromide/ Chloropicrin Mixture	- Dowfume, MC,others
* Methyl Isothiocyanate/ 1,3-Dichloropropene Mixture	- Vorlex

FUMIGANTS (Cont.)

Historical Use:

* Ethylene Dibromide	- EDB, Soilbrom, others
* 1,2-Dichloropropane	- Shell D-D, others

INSECTICIDES/NEMATICIDES

These are applied to foliage (indicated by F) and/or to soil (indicated by S).

Abamectin (F)	- Agri-mek
* Acephate (F)	- Orthene
* Aldicarb (S)	- Temik
* Azinphos Methyl (F)	- Guthion
Bacillus thuringiensis (F)	- Dipel, others
* Carbaryl (S,F)	- Sevin
* Carbofuran (S,F)	- Furadan
Chlorpyrifos (S,F)	- Lorsban
Cyromazine (F)	- Trigard
* Diazinon (S,F)	- Diazinon, others
Diflubenzuron (F)	- Dimilin
* Dimethoate (S,F)	- Cygon
* Disulfoton (S)	- Disyston
* Endosulfan (F)	- Thiodan
Ethion (F)	- Ethion, others
* Ethoprop (S)	- Mocap
* Fenamiphos (S)	- Nemacur
Fenvalerate (F)	- Pydrin
Malathion (S,F)	- Cythion, others
* Methomyl (F)	- Lannate,Nudrin
* Methyl Parathion (S,F)	- numerous names
* Mevinphos (F)	- Phosdrin
* Oxamyl (S,F)	- Vydate
Oxydemeton-methyl (F)	- Metasystox R
Permethrin (F)	- Ambush, Pounce

INSECTICIDES/NEMATICIDES (Cont.)

* Methamidophos (F)	- Monitor
* Monocrotophos (F)	- Azodrin
* Phorate (S)	- Timet
Phosalone (F)	- Zolone
* Terbufos (S)	- Counter
* Thiodicarb	- Larvin

Historical Use:

Chlorodimeform (F)	- Fundal
* Parathion (S,F)	- numerous names

MITICIDES

These are foliarly applied.

Chlorobenzilate	- Acaraben
* Dicofol	- Kelthane, others
Fenbutatin Oxide	- Vendex
Fluvalinate	- Mavrik
Propargite	- Omite, Comite
Sulfur	- numerous names

Historical Use:

Cyhexatin	- Plictran

FUNGICIDES

These are usually foliarly applied. Metalaxyl may be applied foliarly or to soil.

Benomyl	- Benlate
Chloroneb	- Demosan, others
* Chlorothalonil	- Bravo
* Copper	- Kocide, others
* Iprodione	- Rovral
Mancozeb	- Manzate 200, Dithane, M45
Maneb	- Manzate, Dithane
* Metalaxyl	- Subdue
Triadimefon	- Bayleton

Historical Use:

Captafol	- Difolatan, others

HERBICIDES

These are generally applied to soil and either watered in or incorporated mechanically. Some are applied to weeds foliarly. Foliar application noted by F. Soil application unless noted.

* 2,4-Dichlorophenoxy Acetic Acid (F)	- 2,4-D, others
* Acifluorfen (F)	- Blazer
* Amitrole	- Amizine, others

HERBICIDES (Cont.)

* Atrazine	- Aatrex, others
* Benefin	- Balan
* Bentazon	- Basagran
* Bromacil	- Krovar, Hyvar
* Bromoxynil	- Buctril
Chlorimuron Ethyl	- Classic
DCPA	- Dachtal
Dichlobenil	- Casoron
* Diphenamide	- Enide
Diquat dibromide (F)	- Diquat
* Diuron	- Krovar, Karmex, others
* EPTC	- Eptam
Ethalfluralin	- Curbit, Sonalan
Fluazifop-Butyl (F)	- Fusilade
* Fluometuron	- Cotoran
Glyphosate (F)	- Round-Up
Imazethapyr (F)	- Pursuit
* Linuron	- Lorox
* Metolachlor	- Dual
* Metribuzin	- Lexone, Sencor
* Monosodium Methanearsonate	- MSMA, others
* Napropamide	- Devrinol
* Naptalam	- Alanap
Norflurazon	- Solicam
* Oryzalin (F)	- Surflan
Paraquat (F)	- Cyclone, Weedol
* Pebulate	- Tillam
* Pendimethalin	- Prowl
Sethoxydim (F)	- Poast
* Simazine	- Princep
Sulfuric acid (F)	- Enquik
* Trifluralin	- Treflan

HERBICIDES (Cont.)

Historical Use:

Alachlor	- Lasso
Chloramben	- Amiben. others
Dinoseb	- Dinitro, others

C. PESTICIDE USE BY CROP

Pesticides commonly used are listed here by crop. Also listed are some pesticides commonly used in past years but not used now due to label revocation or manufacturer cancellation. These pesticides are identified as "Historical Use" materials.

CABBAGE

Common Chemical Name	Trade Name
Bacillus thuringensis	Dipel, others
Chlorothalonil	Bravo, others
DCPA	Dachtal
Endosulfan	Thiodan
Fenamiphos	Nemacur
Mancozeb	Dithane, Manzate
Methamidophos	Monitor
Methomyl	Lannate
Napropamide	Devrinol

CARROTS

Common Chemical Name	Trade Name
Chlorothalonil	Bravo
Fentin Hydroxide	Du-ter
Fluazifop-butyl	Fusilade
Linuron	Lorox
Mancozeb	Dithane, Manzate
Methomyl	Lannate
Mineral Spirits	Stoddard Solvent
Historical Use:	
Ethyl Parathion	Parathion, others

CELERY

Common Chemical Name	Trade Name
Abamectin	Agri-mek
Bacillus thuringensis	Dipel
Chloropicrin	Chloropicrin
Chlorothalonil	Bravo
Copper	Kocide
Cyromazine	Trigard
Methamidophos	Monitor
Methyl Bromide	Bromo-O-Gas
Mineral Spirits	Stoddard Solvent
Permethrin	Ambush, Pounce
Prometryn	Caparol
Propiconazole	Tilt, Banner

CITRUS

Common Chemical Name	Trade Name
Abamectin	Agri-mek
Aldicarb	Temik
Bromacil & Diuron	Krovar
Chlorpyrifos	Lorsban
Copper	Kocide
Dicofol	Kelthane
Ethion	Ethion
Fosetyl-Al	Aliette
Fenamiphos	Nemacur
Fenbutatin hydroxide	Vendex
Glyphosate	Round-up
Metalaxyl	Ridomil
Methyl Bromide	Bromo-O-Gas
Paraquat	Cyclone, Weedol
Sulfur	Sulfur
Historical Use:	
Captafol	Difolatan

CORN (Field)

Common Chemical Name	Trade Name
Atrazine	Atrazine
Chlorpyrifos	Lorsban
Methomyl	Lannate
Terbufos	Counter
2,4 D	2,4 D
Historical Use:	
Alachlor	Lasso
Carbofuran	Furadan

CORN (Sweet)

Common Chemical Name	Trade Name
Atrazine	Atrazine
Mancozeb	Dithane, Manzate
Methomyl	Lannate
Metolachlor	Dual
Phorate	Timet
Historical Use:	
Alachlor	Lasso

COTTON

Common Chemical Name	Trade Name
Aldicarb	Temik
Chlorpyrifos	Lorsban
Diflubenzuron	Dimilin
Dicofol	Kelthane
Fenvalerate	Pydrin
Fluometuron	Cotoran
Methyl Parathion	Parathion
Methomyl	Lannate
MSMA	MSMA
Permethrin	Ambush, Pounce
Trifluralin	Treflan
Historical Use:	
Chlordimeform	Fundal

CUCUMBERS

Common Chemical Name	Trade Name
Bensulide	Prefar
Chloropicrin	Chloropicrin
Ethafluralin	Curbit
Mancozeb	Dithane, Manzate
Methamidophos	Monitor
Methomyl	Lannate
Methyl Bromide	Bromo-O-Gas
Naptalam	Alanap
Oxamyl	Vydate
Paraquat	Cyclone, Weedol

EGGPLANT

Common Chemical Name	Trade Name
Acephate	Orthene
Captafol	Difolatan
Mancozeb	Dithane, Manzate
Methyl Bromide	Bromo-O-Gas
Methomyl	Lannate
Napropamide	Devrinol
Paraquat	Cyclone, Weedol
Permethrin	Ambush, Pounce

ESCAROLE

Common Chemical Name	Trade Name
Dimethoate	Cygon
Fluazifop butyl	Fusilade
Mancozeb	Dithane, Manzate
Methomyl	Lannate
Mevinphos	Phosdrin
Paraquat	Cyclone, Weedol

GREEN PEPPER

Common Chemical Name	Trade Name
Chloropicrin	Chloropicrin
Copper	Kocide
Diquat dibromide	Diquat
Mancozeb	Dithane, Manzate
Methyl Bromide	Bromo-O-Gas
Napropamide	Devrinol
Paraquat	Cyclone, Weedol
Permethrin	Ambush, Pounce
Sulfuric acid	Enquik
Trifluralin	Treflan

HAY

Common Chemical Name	Trade Name
Methomyl	Lannate
2,4 D	2,4 D

LETTUCE

Common Chemical Name	Trade Name
Cyromazine	Trigard
Iprodione	Rovral
Mancozeb	Dithane, Manzate
Metalaxyl	Ridomil
Paraquat	Cyclone, Weedol
Permethrin	Ambush, Pounce
Thiobencarb	Bolero

LIMES

Common Chemical Name	Trade Name
Bromacil & Diuron	Krovar
Copper	Kocide
Dicofol	Kelthane
Ethion	Ethion
Metalaxyl	Ridomil
Paraquat	Cyclone, Weedol
Sulfur	Sulfur

PEANUTS

Common Chemical Name	Trade Name
Aldicarb	Temik
Benefin	Balan
Chlorothalonil	Bravo
Chlorpyrifos	Lorsban
Methomyl	Lannate
Pendimethalin	Prowl
Historical Use:	
Dinoseb	Dyanap

PECANS

Common Chemical Name	Trade Name
Aldicarb	Temik
Azinphos Methyl	Guthion
Benomyl	Benlate
Carbaryl	Sevin
Dicofol	Kelthane
Diuron	Karmex
Glyphosate	Roundup
Norflurazon	Solicam
Paraquat	Cyclone, Weedol
Phosalone	Zolone
Simazine	Princep

POTATOES

Common Chemical Name	Trade Name
Aldicarb	Temik
Mancozeb	Dithane, Manzate
Metalaxyl	Ridomil
Methomyl	Lannate
Metribuzin	Lexone, Sencor
Metolachlor	Dual
Pendimethalin	Prowl
1,3-Dichloropropene	Telone

RADISHES

Common Chemical Name	Trade Name
Chlorpyrifos	Lorsban
Mancozeb	Dithane, Manzate
Parathion	Parathion Bait

SNAP BEANS

Common Chemical Name	Trade Name
Acephate	Orthene
Benomyl	Benlate
Endosulfan	Thiodan
Maneb	Dithane, Manzate
Methomyl	Lannate
Methyl Isothiocyanate	Vorlex
Metolachlor	Dual
Pendimethalin	Prowl
Sulfur	Sulfur
Trifluralin	Treflan
1,3 Dichloropropene	Telone

SOYBEANS

Common Chemical Name	Trade Name
Acifluorfen	Blazer
Benomyl	Benlate
Bentazon	Basagran
Chlorimuron Ethyl	Classic
Chlorpyrifos	Lorsban
Diflubenzuron	Dimilin
Imazethapyr	Pursuit
Methomyl	Lannate
Methyl Parathion	Parathion
Metribuzin	Lexone, Sencor
Oryzalin	Surflan
Pendimethalin	Prowl
Permethrin	Pounce, Ambush
Thiodicarb	Larvin
Trifluralin	Treflan

SQUASH

Common Chemical Name	Trade Name
Endosulfan	Thiodan
Mancozeb	Dithane, Manzate
Metalaxyl	Ridomil
Methyl Bromide	Bromo-O-Gas
Oxamyl	Vydate
Paraquat	Cyclone, Weedol
Triadimefon	Bayleton
Methomyl	Lannate
Historical Use:	
Chloramben	Amiben

STRAWBERRIES

Common Chemical Name	Trade Name
Benomyl	Benlate
Captan	Captan
Chloropicrin	Chloropicrin
Cyhexatin	Plictran
Diazinon	Diazinon
Dicofol	Kelthane
Fenbutatin Oxide	Vendex
Methomyl	Lannate
Methyl Bromide	Bromo-O-Gas
Mevinphos	Phosdrin
Napropamide	Devrinol
Paraquat	Cyclone, Weedol
Propargite	Omite
Sulfuric acid	Enquik
Vinclozolin	Konker

SUGARCANE

Common Chemical Name	Trade Name
Atrazine	Atrazine
Carbofuran	Furadan
Diphacinone	Ramik
Monocrotophos	Azodrin
Phorate	Timet
Zinc Phosphide	Zinc Phosphide
Historical use:	
2,4 D	2,4 D

TOBACCO

Common Chemical Name	Trade Name
Acephate	Orthene
Chlorpyrifos	Lorsban
Fenamiphos	Nemacur
Iprodione	Rovral
Metalaxyl	Ridomil
Methomyl	Lannate
Napropamide	Devrinol
Pendimethalin	Prowl
1,3-Dichloropropene	Telone

TOMATO

Common Chemical Name	Trade Name
Chloropicrin	Chloropicrin
Chlorothalonil	Bravo
Copper	Kocide
Cyromazine	Trigard
Diquat Dibromide	Diquat
Mancozeb	Dithane, Manzate
Methamidophos	Monitor
Methomyl	Lannate
Methyl Bromide	Bromo-O-Gas
Metribuzin	Lexone, Sencor
Napropamide	Devrinol
Paraquat	Cyclone, Weedol
Permethrin	Ambush, Pounce
Sulfuric acid	Enquik

WATERMELON

Common Chemical Name	Trade Name
Benomyl	Benlate
Bensulide	Prefar
Captafol	Difolatan
Chlorothalonil	Bravo
Ethafluralin	Curbit
Mancozeb	Dithane, Manzate
Metalaxyl	Ridomil
Methamidophos	Monitor
Naptalam	Alanap
Paraquat	Cyclone, Weedol
Sethoxydim	Poast

WHEAT

Common Chemical Name	Trade Name
Bromoxynil	Buctril
2,4 D	2,4 D
Disulfoton	Disyston
Methomyl	Lannate
Phorate	Timet

D. PESTICIDES COMMONLY USED IN THE ORNAMENTAL AND TURF INDUSTRY

Listed below are pesticides commonly used in ornamental and turf production and maintenance. Many other pesticides may be used. These were cited in conversations with pest control specialists as being in common use.

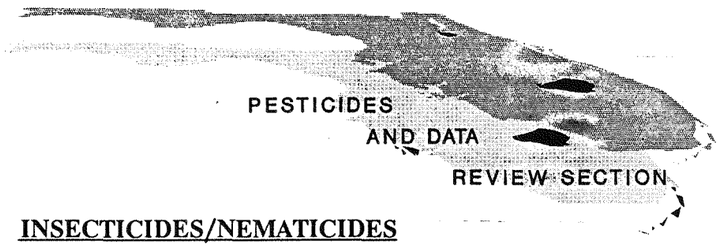
Common chemical name and brand name(s) are given, potential ground water contaminants indicated by an *. A pesticide is listed as a potential ground water contaminant if it has a high leaching potential, or has been found in ground water. Pesticides not marked as potential ground water contaminants may still be of concern under certain conditions, and may need to be included in analysis of water samples.

1) **Ornamental Production -**

FUMIGANTS

These are used rarely and would be for establishment or re-establishment of a planting. These would be injected or placed directly into or on soil.

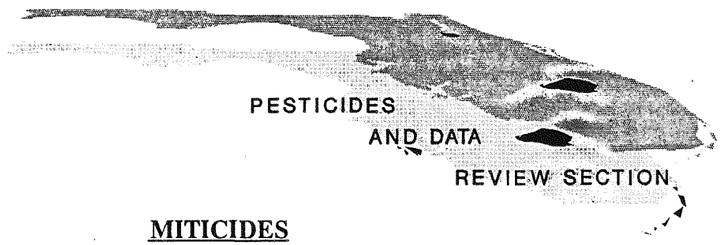
Methyl Bromide/ Chloropicrin Mixture	- Dowfume, MC, others
* Methyl Isothiocyanate/ 1,3-Dichloropropene	- Vorlex
* Metam-Sodium	- Vapam



INSECTICIDES/NEMATICIDES

These are applied to foliage (indicated by F) and/or soil (indicated by S).

Acephate (F)	- Orthene
Aldicarb (S)	- Temik
Bacillus thuringiensis (F)	- Dipel, others
Bendiocarb (F)	- Turcam, Dycarb
Carbaryl (S,F)	- Sevin
Chlorpyrifos (S,F)	- Dursban
Diazinon (S,F)	- Diazinon, others
Dimethoate (S,F)	- Cygon
Disulfoton (S,F)	- Disyston
Endosulfan (F)	- Thiodan
Ethoprop (S)	- Mocap
Fenamiphos (S)	- Nemacur
Lindane (S,F)	- Isotox, others
Malathion (S,F)	- Cythion, others
Methomyl (F)	- Lannate, Nudrin
Oxamyl (S,F)	- Vydate
Oxydemeton-Methyl (F)	- Metasystox R
Permethrin (F)	- Pounce, Ambush
Propoxur (F)	- Baygon



MITICIDES

These are foliarly applied.

Abamectin	- Avid
Bifenthrin	- Talstar
Chlorobenzilate	- Acaraben
Dicofol	- Kelthane, others
Dienochlor	- Pentac
Fenbutatin Oxide	- Vendex
Fluvalinate	- Mavrik
Propargite	- Omite

FUNGICIDES

These are primarily foliarly applied, but some are soil applied (indicated with S).

Benomyl	- Benlate
Chlorothalonil	- Daconil, others
Copper	- Kocide, others
Ethazol	- Truban, Terrazole, others
Fosetyl-al (S)	- Aliette
Iprodione	- Chipco 26019, Rovral
Mancozeb	- Manzate 200, Dithane M45
Metalaxyl (S)	- Subdue
Thiophanate Methyl (w/ ethazol)	- Ban-Rot
Triadimefon	- Bayleton
Triflorine	- Funginex

HERBICIDES

These are generally applied to soil and either watered in or incorporated mechanically. Some may be applied to weeds foliarly. Soil or Foliar application noted by S or F respectively.

Amitrole (S)	- Amizine, others
Bensulide (S)	- Betasan
Chloramben (S)	- Amiben, others
DCPA (S)	- Dachtal
Dichlobenil (S)	- Casoron
Diphenamide (S)	- Enide
Diuron (S)	- Karmex
EPTC (S)	- Eptam
Fluazifop-Butyl (F)	- Fusilade
Glyphosate (F)	- Round-Up
Oryzalin (S,F)	- Surflan
Oxadiazon (S)	- Ronstar
Paraquat (F)	- Cyclone, Weedol
Pendimethalin (S)	- Prowl
Simazine (S)	- Princep
Trifluralin (S)	- Treflan

2) **Golf Courses/Commercial Turf -**

Fumigants

These would be used only prior to establishing turf.

Methyl Bromide/ Chloropicrin Mixture	- Dowfume, MC, others
Methyl Isothiocyanate/ 1,3-Dichloropropene	- Vorlex
Metam sodium	- Vapam

INSECTICIDES/NEMATICIDES

These are applied to turf (indicated by F) and to soil during turf establishment (indicated by S).

Bendiocarb	- Turcam
Carbaryl (S,F)	- Sevin
Chlorpyrifos (S,F)	- Dursban
Diazinon (S,F)	- Diazinon, others
Ethoprop (S)	- Mocap
Fenamiphos (S,F)	- Nemacur
Fenvalerate	- Pydrin
Hydramethylnon (F)	- Amdro
Isazophos	- Triumph
Isofenphos (F)	- Oftanol
Malathion (S,F)	- Cythion, others*
Methomyl	- Lannate
Permethrin (F)	- Pounce, Ambush
Pirimiphos-Ethyl	- Primicid
Propoxur	- Baygon
Trichlorfon	- Dylox, Proxol

** not for use on golf courses or commercial sod farms, but can be used for lawn maintenance*

FUNGICIDES

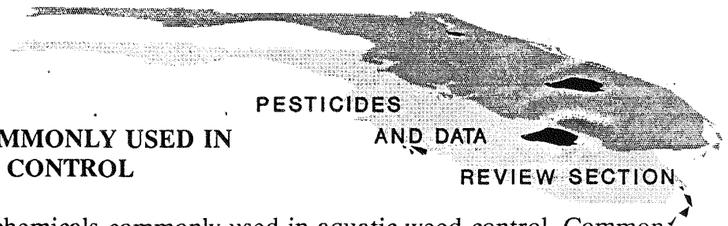
These are applied to the turf.

Anilazine	- Dyrene, others
Benomyl	- Benlate,Tersan
Chlorothalonil	- Daconil, others
Cycloheximide	- Acti-dione
Ethazol	- Koban, Terrazole
Fenaminosulf	- Lesan
Fenarimol	- Rubigan
Fosetyl Al	- Aliette
Iprodione	- Chipco 26019, Rovral
Maneb	- Manzate, Dithane, others
Metalaxyl	- Subdue
PCNB	- Terraclor
Propamocarb Hydrochloride	- Banol
Propiconazole	- Banner
Thiophanate	- Bromosan
Thiophanate Methyl	- Fungo, others
Thiram	- Tersan, others
Triadimefon	- Bayleton
Vinclozolin	- Vorlan
Zineb	- Dithane Z-78

HERBICIDES

These are generally applied to the turf (T) or used in the establishment of the turf (E), usually incorporated in the soil.

2,4 D (T)	- numerous
Asulam (T)	- Asulox
Atrazine (T)	- Aatrex, others
Benefin(E)	- Balan
Bensulide (T)	- Betasan
Bentazon (T)	- Basagran
Bromoxynil (T)	- Buctril
DCPA (T)	- Dacthal
Dicamba (T)	- Banvel, others
Diclofop Methyl (T)	- Hoelon
Disodium Methanearsonate	- DSMA, others
Imazaquin (T)	- Image
Metolachlor (E)	- Pennant
Metribuzin (T)	- Sencor, Lexone
Monosodium Methanearsonate	- MSMA, others
Oryzalin (E)	- Surflan
Oxadiazon (E)	- Ronstar
Pendimethalin (T)	- Pre-M, others
Pronamide (T)	- Kerb
Sethoxydim (T)	- Poast
Simazine (E)	- Princep



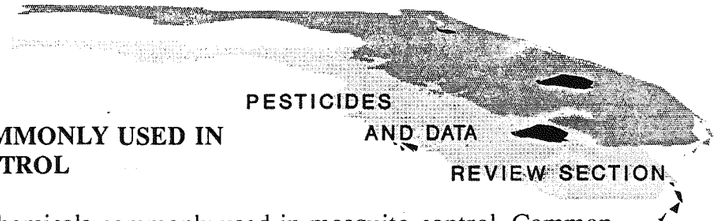
E. PESTICIDES COMMONLY USED IN AQUATIC WEED CONTROL

Listed below are chemicals commonly used in aquatic weed control. Common chemical name and brand name(s) are given and potential ground water contaminants indicated by an *. A pesticide is listed as a potential ground water contaminant if it has a high leaching potential, or has been found in ground water. Pesticides not marked as potential ground water contaminants may still be of concern under certain conditions, and may need to be included in analysis of water samples. All of the pesticides listed below are labeled for use in potable water systems with the exception of simazine, which may not be used in potable water sources.

* Copper	- Kocide, others
Diquat Dibromide	- Diquat
* Endothall	- Hydrothol, Aquothol
Fluridone	- Sonar
Glyphosate	- Round-up
* 2,4 Dichlorophenoxyacetic Acid	- 2,4 D, others
* Simazine	- Aquazine
Tebuthiuron	- Spike (in dry wetlands for Melaleuca control)

Historical Use

* Dicamba	- Banvel
* Diuron	- Karmex (still used illegally)
Dichlobenil	- Casoron



F. PESTICIDES COMMONLY USED IN MOSQUITO CONTROL

Listed below are chemicals commonly used in mosquito control. Common chemical name and brand name(s) are given and potential ground water contaminants indicated by an *. A pesticide is listed as a potential ground water contaminant if it has a high leaching potential, or has been found in ground water. Pesticides not marked as potential ground water contaminants may still be of concern under certain conditions, and may need to be included in analysis of water samples. All of the pesticides listed below are labeled for use in potable water systems with the exception of simazine, which may not be used in potable water sources.

Bacillus thuringensis israelensis (B.t.i.)	- VectoBac, Teknar, others
Temephos	- Abate
Methoprene	- Altosid
Diflubenzuron	- Dimilin
Mineral Oil	- Golden Bear 1111
Fenthion	- Baytex
Naled	- Dibrom
Malathion	- Cythion, others
Resmethrin	- Scourge
Permethrin	- Biomist, Pounce, Ambush

G. PESTICIDES REGULATED AS HAZARDOUS WASTES

PESTICIDES AND DATA REVIEW SECTION

Listed below are commonly used pesticides regulated as hazardous waste as listed in 40 CFR, 261.33 (e) and (f) [For a complete list, please refer to this citation]. Common chemical name and brand name(s) are given. Pesticide waste regulated as hazardous must be managed in accordance with Federal and State hazardous waste regulations. Contact the Department of Environmental Regulation Hazardous Waste Section at (904) 488-0300 for further information.

ACUTE TOXICITY

As listed in 40 CFR, 261.33(e).

Aldicarb	- Temik
Aldrin	- Aldrex, others
Aluminum Phosphide	- Phostoxin
Aminopyridine	- Avitrol
Dimethoate	- Cygon, others
Dinoseb	- Dinitro, others
Disulfoton	- Di-Syston
Endosulfan	- Thiodan
Endothall	- Aquothol, others
Famphur	- Warbex
Heptachlor	- Gold Crest H-60, others
Methomyl	- Lannate, Nudrin
Methyl Parathion	- Metaphos, others
Parathion	- Ethyl Parathion, others
Phorate	- Timet
Toxaphene	- Toxakil, others
Warfarin(>3%)	- Coumafene
Zinc Phosphide (>10%)	- ZP, others

PESTICIDES AND DATA REVIEW SECTION

TOXIC PESTICIDES

As listed in 40 CFR, 261.33(f).

Amitrole	- Weedazol, others
Cacodylic Acid	- Phytar, others
Chlorobenzilate	- Acaraben
Chlordane	- Chlordane, others
Diallate	- Avadex
DBCP	- Nemagon, others
1,2-D	- DD, others
1,3-D	- Telone, Vorlex
2,4-D	- Weedone, others
DDT	- DDT
Ethylene Dibromide	- EDB, Soilbrom, others
Lindane	- Isotox, others
Maleic Hydrazide	- MH-30, others
Methyl Bromide	- Brom-o-gas, others
Methoxychlor	- Marlate, others
Pronamide	- Kerb
Thiram	- Tersan, others
Warfarin (< 3%)	- Coumafene, others
Zinc Phosphide (<10%)	- ZP, others

H. **References**

Index To EPA Test Methods, EPA 901 /3-88-001

Method 1 - Determination of Nitrogen and Phosphorous Containing Pesticides in Ground Water by Gas Chromatography with a Nitrogen-Phosphorus Detector, Analyses of Samples For U.S. Environmental Protection Agency National Survey of Pesticides in Drinking Water Wells.

Method 2 - Determination of Chlorinated Pesticides in Ground Water by Gas Chromatography with an Electron Capture Detector, Analyses of Samples For U.S. Environmental Protection Agency National Survey of Pesticides in Drinking Water Wells.

Method 3 - Determination of Chlorinated Acids in Ground Water by Gas Chromatography with an Electron Capture Detector, Analyses of Samples For U.S. Environmental Protection Agency National Survey of Pesticides in Drinking Water Wells.

Method 4 - Determination of Pesticides in Ground Water by High Performance Liquid Chromatography with an Ultraviolet Detector, Analyses of Samples For U.S. Environmental Protection Agency National Survey of Pesticides in Drinking Water Wells.

Method 5 - Measurement of N-Methyl Carbamoxyloximes and N-Methyl Carbamates in Ground Water by Direct Aqueous Injection HPLC with Post Column Derivatization, Analyses of Samples For U.S. Environmental Protection Agency National Survey of Pesticides in Drinking Water Wells.

Method 6 - Determination of Ethylene Thiourea in Ground Water by Gas Chromatography with a Nitrogen-Phosphorus Detector, Analyses of Samples For U.S. Environmental Protection Agency National Survey of Pesticides in Drinking Water Wells.