2020 STATUS REPORT
PESTICIDE CONTAMINATION
PREVENTION ACT

Annual Report

California Environmental Protection Agency
Department of Pesticide Regulation
Environmental Monitoring Branch

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Report PCPA20

EXECUTIVE SUMMARY

SUMMARY

Food and Agricultural Code (FAC) section 13144(b) requires the Department of Pesticide Regulation (DPR) to annually post the following information to DPR's website:

- A list of pesticide active ingredients (A.I.s) registered for agricultural use with groundwater protection data gaps.
- A list of the pesticide A.I.s on the Groundwater Protection List (GWPL).
- The sales and use information for pesticide A.I.s on the GWPL.

As part of the registration process, DPR obtains environmental fate data for each A.I., which includes information on the mobility and persistence of that pesticide. Pesticides that exceed the specific numerical values (SNVs) established by DPR have a greater potential to contaminate groundwater because they are both mobile and persistent in the environment. If the pesticide, when applied, has the potential to pollute groundwater, then it is placed on the GWPL as per FAC section 13145(d).

The 2020 Status Report lists 105 A.I.s that are on the GWPL. This report includes the mean physical-chemical values (with respect to the SNVs), registration status, current California sales and use data, and mode of action for each listed A.I.

There are no data gaps for the currently registered agricultural pesticides; the data requirements for registration are satisfied.

BACKGROUND

The Pesticide Contamination Prevention Act (PCPA) of 1985 added sections 13141–13152 to the FAC and established a set of data requirements for identifying potential groundwater contaminants. As required by the PCPA, registrants of agricultural use pesticides must provide DPR with data on the environmental fate of the A.I.s in their products. DPR established threshold values, or SNVs, for water solubility, soil adsorption, hydrolysis half-life, aerobic soil metabolism half-life, and anaerobic soil metabolism half-life. SNVs provide a basis for estimating the relative risk of groundwater contamination posed by agricultural use pesticides.

As required by the PCPA (FAC section 13145[d]), DPR established the Groundwater Protection List (GWPL) (Title 3, California Code of Regulations [3 CCR] section 6800) to identify pesticides that have been detected in groundwater and those that pose a risk to groundwater when applied. 3 CCR section 6800(a) includes pesticides that have been detected in groundwater in California and whose use is regulated to mitigate or prevent further pollution. 3 CCR section 6800(b) includes registered agricultural use pesticides that exceed the SNVs and are applied or

injected into the soil or require flood or furrow irrigation within 72 hours after the application. DPR monitors for pesticides included in 3 CCR section 6800(b) to determine whether they have migrated to groundwater. If any are found to have migrated to groundwater because of agricultural use, the PCPA requires DPR to conduct a formal review to determine if the pesticide's use can continue as currently allowed, with modified use restrictions, or if all uses should be prohibited.

Effective 2015, the PCPA was amended and directs the development of a peer reviewed method, using the SNVs, that estimates a pesticide's potential for groundwater contamination (FAC section 13145[e]). This method is under scientific peer review and will supersede the current process for placing pesticides on the GWPL.

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REPORT REQUIREMENTS PURSUANT TO THE PESTICIDE CONTAMINATION PREVENTION ACT

Food and Agricultural Code (FAC) section 13144(b) requires DPR to annually post the following information to the department's website for pesticides registered for agricultural use in California:

1. A list of each pesticide A.I., other specified ingredient, or degradation product of a pesticide A.I. for which there is a groundwater protection data gap.

2. The Groundwater Protection List established pursuant to subdivision (d) of Section 13145 (Table 1).

3. Provide for each pesticide A.I. listed pursuant to number 2, the amount sold in California for the most recent year of available data and where and for what purpose the pesticide was used (Table 2).

The information is presented in two sections:

1. Status of the Groundwater Protection Data Gaps and

2. Physical-Chemical Parameters, Sales, Use, and Mode of Action for Pesticide Active Ingredients on the GWPL, which lists the properties of pesticides identified as potential groundwater pollutants and the SNVs established by DPR.

SECTION 1: STATUS OF THE GROUNDWATER PROTECTION DATA GAPS

In 1985, the PCPA required registrants to submit mobility, persistence, and environmental fate data, as stipulated in FAC section 13143(a), for then-registered agricultural pesticides or face penalties. At that time 147 pesticides were subject to the data call-in. As of 2002, all of those historical data gaps have been filled.

If a registrant of an agricultural use pesticide lacks the data required by the PCPA, they may apply for an interim registration, as stipulated in FAC sections 13161-13170. DPR can defer, for up to three years, the submission of no more than three of the following registration data requirements:

- Efficacy
- Octanol-water partition coefficient (K_{OW})
- Soil photolysis
- Field dissipation
- PCPA study that must be repeated to correct errors or conducted under California conditions or guidelines, providing the weight of evidence from all other submitted data support a scientific judgment in favor of interim registration

Except for efficacy data, the deferral of any of the other data results in a "groundwater protection data gap" as defined in FAC section 13142(f). Currently, there are no interim registrations for agricultural use products and, therefore, no groundwater protection data gaps.

SECTION 2: PHYSICAL-CHEMICAL PARAMETERS, SALES, USE, AND MODE OF ACTION FOR ACTIVE INGREDIENTS EXCEEDING THE SPECIFIC NUMERICAL VALUES

FAC section 13144(a) requires DPR to establish thresholds known as SNVs for water solubility, K_{oc}, hydrolysis half-life, aerobic soil metabolism half-life, anaerobic soil metabolism half-life, and field dissipation half-life. These parameters are correlated with the potential of a pesticide to leach to groundwater; pesticides detected in groundwater tend to be more mobile and persistent than those not detected in groundwater. Water solubility and K_{oc} are considered indicators of the mobility of an A.I. within the soil, while the half-lives for hydrolysis, aerobic and anaerobic soil metabolism, and field dissipation are considered indicators of the persistence of the A.I. in the soil.

Statistical comparison procedures were used to calculate the SNVs. Based on nationwide groundwater studies, a list of pesticide A.I.s was created and separated into two groups: (1) A.I.s that had been detected in groundwater as a result of legal agricultural use (leachers) and (2) A.I.s that had been sampled for and not detected in groundwater as a result of legal agricultural use (nonleachers). Values for the physical-chemical parameters of A.I.s in each group were determined from the open literature and DPR-approved studies submitted by pesticide registrants in fulfillment of the data call-in requirements in FAC section 13143. The

data for each parameter were tested for their usefulness in discriminating between leachers and nonleachers by determining whether the means of the two groups were significantly different. The tests showed that the means of the data for water solubility, hydrolysis half-life, K_{oc}, and the anaerobic soil metabolism half-life for chemicals identified as leachers were significantly different from the means of chemicals identified as nonleachers. The SNVs for these properties were established as those values that would accurately identify as leachers 90 percent of the chemicals detected in groundwater due to agricultural use (Wilkerson and Kim, 1986). The means of the two groups for aerobic soil metabolism, however, were not significantly different. Because the PCPA requires DPR to establish an SNV for each physical-chemical parameter, the SNV for the aerobic soil metabolism half-life was set at a value that minimized its importance in the discrimination procedure. Details on the establishment and subsequent revisions to the SNVs can be found in prior reports (Johnson, 1991; Johnson, 1989; Johnson, 1988). The SNVs currently in regulation (3 CCR section 6804) are:

(a) Water solubility	3 ppm
(b) K_{oc}	1,900 cm^3/g
(c) Hydrolysis half-life	14 days
(d) Aerobic soil metabolism half-life	610 days
(e) Anaerobic soil metabolism half-life	9 days

No values have been established for field dissipation because of insufficient data. In 1989, the SNVs were established by regulation in 3 CCR section 6804 and were last updated in 1993.

DPR typically receives multiple studies for each physical-chemical parameter, which are then averaged together before being compared to their respective SNV. The data included in these studies are evaluated thoroughly and only those that meet certain conditions are included in the average. For solubility, only studies conducted at 20°C are considered. Hydrolysis studies must be carried out between 19°C and 31°C and at a pH between 6.0 and 8.0. These criteria were chosen to reflect ambient, environmental conditions; experiments carried out under extreme temperatures or pH might not be an accurate reflection of a pesticide's fate in the field. Soil adsorption, aerobic soil metabolism, and anaerobic soil metabolism do not have similar requirements.

Currently, A.I.s are placed on the GWPL if they have the potential to pollute groundwater using SNVs for physical and chemical characteristics identified in FAC section 13144(a) and if the following are true about their application method:

- applied to or injected into the soil by ground-based application equipment or by chemigation, or
- the application is followed, within 72 hours, by flood or furrow irrigation

As part of the 2015 PCPA amendment, DPR is reevaluating the procedure for placing A.I.s on the GWPL. DPR developed a more discriminating statistical approach to identify potential leachers. This procedure is currently under scientific peer review and will replace the SNVs.

Table 1. Pesticide active ingredients on the Groundwater Protection List and their respective mean physical-chemical values.

Active Ingredient	Registered (R) or Not Registered (NR)	Solubility (ppm) SNV > 3	K_{oc} (cm^3/g) SNV < 1,900	Aerobic metabolism (days) SNV > 610	Anaerobic metabolism (days) SNV > 9	Hydrolysis (days) SNV > 14
2,4-D, 2-ethylhexyl ester	R	1	46	34	333	1
2,4-D, diethanolamine salt	R	657,000	46	34	333	39[a]
2,4-D, dimethylamine salt	R	657,000	46	34	333	39[a]
2,4-D, isooctyl ester	R	1	46	34	333	1
Acephate	R	818,000	3	3	6	169
Alachlor	NR	200	131	20	5	30[a]
Aldicarb	NR	5,870	239	2	2	28[a]
Aminocyclopyrachlor	R	4,650	32	66	Stable	30[a]
Aminocyclopyrachlor, potassium salt	R	4,650	32	66	Stable	30[a]
Aminopyralid, triisopropanolamine salt	R	205,000	15	204	363	31[a]
Atrazine	R	33	93	146	159	30[a]
Azoxystrobin	R	6	581	112	119	31[a]
Bensulfuron methyl	R	281	332	75	168	103
Bensulide	R	6	16,600	432	1,890	220
Bentazon, sodium salt	R	530	116	40	365	30[a]
Bispyribac-sodium	R	73,000	272	50	101	476
Boscalid	R	5	772	347	303	30[a]
Bromacil	R	929	17	347	73	30[a]
Carbaryl	R	116	375	6	87	12
Chlorantraniliprole	R	1	330	523	184	30
Chloropicrin	R	2,000	25	3	<10	191[a]
Chlorothalonil	R	1	1,790	35	8	49[a]
Chlorsulfuron	R	28,300	35	28	162	1,230
Clomazone	R	1,100	244	66	19	34[a]
Clothianidin	R	259	160	214	27	33[a]
Cycloate	R	95	12,900	43	109	30[a]
Cyprodinil	R	16	1,470	126	183	32[a]
Dazomet	R	3,630	W[b]	1	14	1
Diazinon	R	60	1,580	40	16	138
Dicamba, diglycolamine salt	R	675,000	5	10	88	30[a]

Active Ingredient	Registered (R) or Not Registered (NR)	Solubility (ppm) SNV > 3	K_{oc} (cm^3/g) SNV < 1,900	Aerobic metabolism (days) SNV > 610	Anaerobic metabolism (days) SNV > 9	Hydrolysis (days) SNV > 14
Dicamba, dimethylamine salt	R	675,000	5	10	88	30[a]
Dicamba, sodium salt	R	675,000	5	10	88	30[a]
Dichlobenil	R	21	0	91	1,040	1,810
Dicloran	R	6	804	549	66	72[a]
Dimethenamid-P	R	1,450	223	20	53	30[a]
Dimethoate	R	39,800	11	2	22	68
Dimethomorph	R	12	1,360	75	26	30[a]
Dinotefuran	R	39,800	30	51	77	365
Dithiopyr	R	1	1,040	871	21,700	30[a]
Diuron	R	36	499	372	995	1,290
EPTC	R	345	170	42	65	30[a]
Ethofumesate	R	50	150	93	Stable	2,900
Ethoprop	R	843	161	34	130	449
Fenamidone	R	8	388	7	1,120	411
Flazasulfuron	R	1	168	57	24	17
Fludioxonil	R	2	1,610	102	365	30[a]
Fluopicolide	R	3	337	415	561	330
Flutolanil	R	10	905	852	5,650	30[a]
Fosetyl-al	R	136,000	325	1	2	30[a]
Fosthiazate	R	10	55	34	32	135
Halosulfuron-methyl	R	1,650	124	51	23	14
Hexazinone	R	29,800	642	222	232	56[a]
Imazamox, ammonium salt	R	4,410	58	134	213	30[a]
Imazapyr, isopropylamine salt	R	11,300	348	507	30	30[a]
Imazethapyr, ammonium salt	R	351	54	2,410	568	30[a]
Imidacloprid	R	514	262	997	27	30[a]
Indaziflam	R	3	496	99	180	30[a]
Iprodione	R	12	W	64	32	5
Isoxaben	R	2	351	205	30	1,270
Linuron	R	77	341	22	102	262
Malathion	R	125	291	3	30	6

Active Ingredient	Registered (R) or Not Registered (NR)	Solubility (ppm) SNV > 3	K_{oc} (cm^3/g) SNV < 1,900	Aerobic metabolism (days) SNV > 610	Anaerobic metabolism (days) SNV > 9	Hydrolysis (days) SNV > 14
Mefenoxam (Metalaxyl-M)	R	26,000	163	60	W	1,000
Mesotrione	R	9,840	56	18	7	30[a]
Metalaxyl	R	8,410	163	62	68	1,000
Metaldehyde	R	190	35	67	223	6,150
Metconazole	R	30	1710	639	120	33
Methiocarb	R	27	655	64	64	24
Methomyl	R	54,700	43	46	1	30[a]
Metolachlor	R	493	190	26	61	200
Metribuzin	R	1,030	106	140	276	4,760
Myclobutanil	R	164	518	66	62	30[a]
Napropamide	R	74	726	455	51	35[a]
Nitrapyrin	R	72	333	30	59	8
Norflurazon	R	34	617	172	348	2,650
Orthosulfamuron	R	629	538	25	58	24
Oryzalin	R	3	807	63	10	28[a]
Penoxsulam	R	470	119	57	8	30[a]
Phorate	R	29	543	3	14	3
Prometon	R	715	124	459	61	1,130
Prometryn	R	33	277	274	316	28[a]
Propamocarb hydrochloride	R	101,000	619	77	92	30[a]
Propanil	R	152	518	2	3	5,000
Propiconazole	R	100	656	72	211	30[a]
Propyzamide	R	13	889	392	762	42[a]
Prothioconazole	R	768	1760	1	71	30[a]
Pyraclostrobin	R	2	9,300	136	3	30[a]
Pyrazon	NR	380	13,800	124	489	30[a]
Rimsulfuron	R	3,750	49	21	18	7
S-metolachlor	R	480	185	38	61	200
Siduron	R	22	201	895	3,770	30[a]
Simazine	R	6	340	110	71	28[a]
Sulfentrazone	R	400	169	331	3,300	291

Active Ingredient	Registered (R) or Not Registered (NR)	Solubility (ppm) SNV > 3	K_{oc} (cm^3/g) SNV < 1,900	Aerobic metabolism (days) SNV > 610	Anaerobic metabolism (days) SNV > 9	Hydrolysis (days) SNV > 14
Sulfometuron-methyl	R	4,250	89	52	116	30[a]
Tebuconazole	R	32	1,000	597	1,260	28[a]
Tebuthiuron	R	2,600	90	1,220	1,520	395[a]
Thiamethoxam	R	4,100	64	229	19	6,080
Thiencarbazone-methyl	R	342	100	36	60	146
Thiobencarb	R	28	530	37	306	160[a]
Thiophanate-methyl	R	25	225	1	2	41
Triadimefon	R	64	365	6	23	1,760
Triallate	R	3	60	47	20	1,170
Triclopyr, butoxyethyl ester	R	7	62	13	27	7
Triclopyr, triethylamine salt	R	234,000	62	13	1,600	274[a]
Triflumizole	R	18	1,240	23	67	116
Triticonazole	R	8	523	220	235	30[a]

[a] No degradation occurred during the study. The half-life is greater than the value listed, which is the length of the study.
[b] Study has been waived.

Table 2. Pesticide sales and use reported during 2019 for pesticide active ingredients on the Groundwater Protection List and a description of their use (CDPR, 2022a; CDPR, 2022b; Meister, 2012; Tomlin, 2003).

Active Ingredient (A.I.)	Registered (R) or Not Registered (NR)	Pounds A.I. Sold	Pounds A.I. Applied	Use	Description
2,4-D, 2-ethylhexyl ester	R	45,795	23,851	Herbicide	Selective, systemic
2,4-D, diethanolamine salt	R	5,850	3,044	Herbicide	Selective, systemic
2,4-D, dimethylamine salt	R	737,497	320,101	Herbicide	Selective, systemic
2,4-D, isooctyl ester	R	12,198	490	Herbicide	Selective, systemic
Acephate	R	203,194	158,577	Insecticide	Contact, systemic
Alachlor	NR	0	9	Herbicide	Pre-emergent
Aldicarb	NR	0	0	Insecticide	Broad spectrum
Aminocyclopyrachlor	R	0	243	Herbicide	Selective, systemic
Aminocyclopyrachlor, potassium salt	R	8,500	7,275	Herbicide	Selective, systemic
Aminopyralid, triisopropanolamine salt	R	62,175	32,092	Herbicide	Broadleaf control
Atrazine	R	30,840	21,401	Herbicide	Selective, residual
Azoxystrobin	R	274,157	288,803	Fungicide	Foliar
Bensulfuron methyl	R	2,190	632	Herbicide	Selective
Bensulide	R	349,433	312,609	Herbicide	Selective, pre-emergent
Bentazon, sodium salt	R	12,334	8,543	Herbicide	Selective, pre-emergent
Bispyribac-sodium	R	12,108	5,971	Herbicide	Selective, post-emergent
Boscalid	R	94,895	133,959	Fungicide	Broad spectrum
Bromacil	R	17,416	18,596	Herbicide	Pre-emergent
Carbaryl	R	175,785	113,531	Insecticide	Broad spectrum
Chlorantraniliprole	R	473,034	189,179	Insecticide	Soil, foliar
Chloropicrin	R	20,312,683	8,061,489	Fumigant	Space, commodity, soil
Chlorothalonil	R	1,091,412	1,163,007	Fungicide	Broad spectrum, protectant
Chlorsulfuron	R	5,567	2,953	Herbicide	Selective
Clomazone	R	0	45,197	Herbicide	Broad spectrum, pre-emergent
Clothianidin	R	34,683	20,256	Insecticide	Systemic
Cycloate	R	43,685	43,662	Herbicide	Selective, preplant
Cyprodinil	R	251,615	228,488	Fungicide	Systemic
Dazomet	R	76,006	13,317	Fumigant	Preplant

Active Ingredient (A.I.)	Registered (R) or Not Registered (NR)	Pounds A.I. Sold	Pounds A.I. Applied	Use	Description
Diazinon	R	101,343	40,113	Insecticide/nematicide	Soil/foliar/seed
Dicamba, diglycolamine salt	R	61,444	40,169	Herbicide	Selective, systemic
Dicamba, dimethylamine salt	R	21,283	15,420	Herbicide	Selective, systemic
Dicamba, sodium salt	R	4,992	4,103	Herbicide	Selective, systemic
Dichlobenil	R	98,527	85,317	Herbicide	Selective, cellulose
Dicloran	R	26,200	19,917	Fungicide	Pre/post-harvest
Dimethenamid-P	R	22,866	18,333	Herbicide	Selective, pre-emergent
Dimethoate	R	150,202	161,509	Insecticide/acaricide	Systemic
Dimethomorph	R	79,836	30,677	Fungicide	Selective, post-emergent
Dinotefuran	R	35,196	77,025	Insecticide	Selective, systemic
Dithiopyr	R	49,200	46,495	Herbicide	Pre/post-emergent
Diuron	R	408,140	171,242	Herbicide	Selective, general
EPTC	R	248,383	187,734	Herbicide	Selective
Ethofumesate	R	12,974	11,487	Herbicide	Selective
Ethoprop	R	9,375	5,950	Insecticide/nematicide	Soil
Fenamidone	R	30,876	30,247	Fungicide	Broad spectrum, foliar, soil
Flazasulfuron	R	1,431	1,514	Herbicide	Systemic, pre/post-emergent
Fludioxonil	R	48,525	37,603	Fungicide	Contact
Fluopicolide	R	24,530	6,679	Fungicide	Foliar, soil
Flutolanil	R	4,554	6,014	Fungicide	Systemic
Fosetyl-AL, technical	R	264,281	250,479	Fungicide	Systemic, preventative
Fosthiazate	R	0	0	Nematicide	Systemic
Halosulfuron-methyl	R	5,292	7,805	Herbicide	Pre/post-emergent
Hexazinone	R	2,093	48,281	Herbicide	Contact, residual
Imazamox, ammonium salt	R	7,323	6,262	Herbicide	Selective, post-emergent
Imazapyr, isopropylamine salt	R	22,193	91,123	Herbicide	Broad-spectrum, systemic
Imazethapyr, ammonium salt	R	20,077	5,641	Herbicide	Selective, pre/post-emergent
Imidacloprid	R	532,691	442,266	Insecticide	Systemic
Indaziflam	R	42,801	41,347	Herbicide	Soil, pre-emergent
Iprodione	R	502,869	108,606	Fungicide	Contact
Isoxaben	R	36,877	37,594	Herbicide	Soil, pre-emergent

Active Ingredient (A.I.)	Registered (R) or Not Registered (NR)	Pounds A.I. Sold	Pounds A.I. Applied	Use	Description
Linuron	R	65,160	50,656	Herbicide	Selective
Malathion	R	381,861	324,989	Insecticide	Nonsystemic foliar
Mefenoxam	R	141,834	96,798	Fungicide	Seed treatment, soil, foliar
Mesotrione	R	1,730	15,477	Herbicide	Foliar, pre/post-emergent
Metalaxyl	R	418	1,550	Fungicide	Seed treatment, soil, foliar
Metaldehyde	R	77,723	42,935	Molluscicide	Contact
Metconazole	R	55,217	59,123	Fungicide	Systemic
Methiocarb	R	2,249	1,848	Insecticide/acaricide	Nonsystemic
Methomyl	R	299,713	204,228	Insecticide	Broad spectrum
Metolachlor	R	43,271	72,057	Herbicide	Selective, pre-emergent
Metribuzin	R	16,181	24,787	Herbicide	Selective, systemic
Myclobutanil	R	17,370	62,985	Fungicide	Systemic, broad spectrum
Napropamide	R	27,642	17,103	Herbicide	Selective, pre-emergent
Nitrapyrin	R	651	179	Nitrification inhibitor	Selective
Norflurazon	R	0	6,960	Herbicide	Selective, preplant
Orthosulfamuron	R	0	1	Herbicide	Selective, post-emergent
Oryzalin	R	282,258	246,654	Herbicide	Selective, pre-emergent
Penoxsulam	R	5,978	6,635	Herbicide	Post-emergent
Phorate	R	39,016	30,815	Insecticide	Systemic, soil
Prometon	R	80	43	Herbicide	Pre/post-emergent
Prometryn	R	53,076	43,432	Herbicide	Selective, pre/post-emergent
Propamocarb hydrochloride	R	69,062	63,242	Fungicide	Selective
Propanil	R	2,538,648	1,855,890	Herbicide	Contact, post-emergent
Propiconazole	R	173,253	199,645	Fungicide	Foliar
Propyzamide	R	155,652	115,292	Herbicide	Pre-, post-emergent
Prothioconazole	R	0	37	Fungicide	Foliar, soil, seed treatment
Pyraclostrobin	R	109,999	133,211	Fungicide	Foliar, respiration inhibitor
Pyrazon	NR	0	1	Herbicide	Pre/early post-emergent
Rimsulfuron	R	40,184	34,561	Herbicide	Selective, systemic
S-metolachlor	R	342,268	269,555	Herbicide	Selective, preplant
Siduron	R	1,533	989	Herbicide	Selective, pre-emergent

Active Ingredient (A.I.)	Registered (R) or Not Registered (NR)	Pounds A.I. Sold	Pounds A.I. Applied	Use	Description
Simazine	R	132,339	101,274	Herbicide	Selective
Sulfentrazone	R	9,706	2,535	Herbicide	Selective, pre/post-emergent
Sulfometuron-methyl	R	1,867	14,755	Herbicide	Contact, residual
Tebuconazole	R	126,543	117,011	Fungicide	Systemic
Tebuthiuron	R	3,802	7,750	Herbicide	Nonselective
Thiamethoxam	R	94,159	58,001	Insecticide	Systemic
Thiencarbazone-methyl	R	11	22	Herbicide	Selective, post-emergent
Thiobencarb	R	476,913	654,018	Herbicide	Pre/post-emergent
Thiophanate-methyl	R	214,766	203,306	Fungicide	Systemic, broad spectrum
Triadimefon	R	929	1,192	Fungicide	Systemic
Triallate	R	2,580	1,422	Herbicide	Selective, pre-emergent
Triclopyr, butoxyethyl ester	R	137,082	76,504	Herbicide	Systemic, post-emergent
Triclopyr, triethylamine salt	R	271,884	514,586	Herbicide	Systemic, post-emergent
Triflumizole	R	9,644	28,099	Fungicide	Systemic, broad spectrum
Triticonazole	R	787	530	Fungicide	Systemic, broad spectrum
Total	105	33,634,469	19,016,914		

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