

Use Trends of Cholinesterase-Inhibiting Pesticides: Pounds Applied

[Text files](#) of data are available. The reported pounds of chemicals used that are cholinesterase-inhibiting pesticides. Cholinesterase (ChE) inhibiting pesticides block the enzyme cholinesterase that breaks down acetylcholine, which can result in overstimulation of the nervous symptom. Organophosphates and carbamates are the two primary chemical classes of ChE-inhibiting pesticides, although not all pesticides in these two classes exhibit Ch-E inhibition. Values greater than one are rounded. For more information, see Pesticide Use Annual Report Data Access, References, and Definitions [Guide](#).

Chemical	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
3-iodo-2-propynyl butylcarbamate	< 1	28	2,786	2,712	1,856	1,221	1,415	1,000	1,519	1,543
Acephate	144,640	170,760	204,700	192,145	214,356	158,661	123,761	121,474	117,962	138,085
Aldicarb	126	0	0	0	0	0	0	0	0	0
Azinphos-methyl	0	1	0	1	0	0	0	0	0	0
Bendiocarb	4	1	4	3	2	2	< 1	< 1	< 1	< 1
Bensulide	319,400	346,236	294,502	285,284	312,138	312,621	336,782	341,080	328,195	383,989
Butylate	53	0	10	0	0	0	0	0	0	0
Carbaryl	131,744	155,525	221,095	107,470	128,935	113,755	110,504	99,403	85,258	84,510
Carbophenothion	0	0	0	< 1	0	0	< 1	0	0	0
Chlorpropham	4,433	4,028	6,460	5,173	5,529	7,087	3,245	2,289	1,529	1,382
Chlorpyrifos	1,312,209	1,107,435	903,260	948,004	602,946	12,817	14,121	7,507	1,825	1,933
Coumaphos	0	< 1	0	< 1	5	0	0	0	0	< 1
Crotoxyphos	0	0	< 1	0	0	0	0	0	0	< 1
Cycloate	36,566	39,767	45,627	49,844	41,749	43,661	41,520	41,710	40,466	40,321
Ddvp	4,122	4,132	3,919	3,523	3,581	3,350	4,582	3,542	4,984	4,068
Ddvp, other related	51	34	35	22	28	42	88	31	45	22
Desmedipham	530	112	168	52	77	146	13	68	0	< 1
Diazinon	61,126	52,665	48,992	72,612	33,497	40,113	45,569	36,398	43,062	39,932
Dicrotophos	5	< 1	0	0	0	0	0	0	0	0

Chemical	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Dimethoate	334,594	288,977	243,891	223,336	167,955	161,809	153,003	92,699	86,801	111,215
Dioxathion	0	0	0	< 1	0	0	0	< 1	0	0
Dioxathion, other related	0	0	0	< 1	0	0	0	< 1	0	0
Disulfoton	2,219	415	10	12	16	20	4	< 1	1	< 1
Epn	425	< 1	2	< 1	< 1	4	16	38	11	< 1
Eptc	235,271	238,017	255,431	259,751	218,451	187,734	181,345	133,018	153,863	139,645
Ethephon	348,653	319,367	399,909	485,246	433,810	445,070	348,609	318,323	335,076	344,664
Ethion	< 1	< 1	0	< 1	0	2	0	99	< 1	0
Ethoprop	3,076	1,820	2,023	2,134	5,848	5,950	7,792	9,490	14,200	13,006
Fenamiphos	865	97	143	131	< 1	0	0	0	0	< 1
Fenoxycarb	1	9	2	3	< 1	< 1	< 1	< 1	< 1	< 1
Fenthion	< 1	0	< 1	0	0	< 1	< 1	0	< 1	< 1
Formetanate hydrochloride	28,333	31,172	42,037	36,709	40,183	42,675	34,132	55,250	55,806	69,789
Malathion	502,997	443,267	355,452	334,893	361,854	325,357	360,256	252,097	450,592	272,549
Methamidophos	0	0	0	< 1	< 1	0	0	0	0	0
Methidathion	3,614	245	146	11	140	2	< 1	3	0	0
Methiocarb	3,722	3,371	2,810	2,803	2,485	1,850	1,327	1,002	568	323
Methomyl	278,690	282,520	262,111	234,580	224,668	204,233	259,254	236,164	251,962	195,333
Methyl parathion	481	182	24	5	10	4	74	54	22	< 1
Methyl parathion, other related	< 1	5	< 1	0	0	< 1	< 1	0	0	0
Mevinphos	8	9	4	0	7	150	19	0	0	< 1
Mevinphos, other related	5	6	3	0	5	100	12	0	0	< 1
Molinate	< 1	< 1	5	0	0	< 1	4	0	0	0
Naled	225,285	288,491	316,868	283,944	330,866	317,884	209,919	199,277	226,060	232,889
Oxamyl	65,785	17,236	2,466	38,302	78,741	103,801	63,438	26,011	36,711	87,942

Chemical	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Oxydemeton-methyl	8,407	6,610	3,764	1,533	1,460	9	< 1	< 1	< 1	0
Parathion	1	836	41	3	3	49	11	< 1	149	68
Parathion, other related	0	1	< 1	0	0	0	0	0	7	2
Phenmedipham	811	285	388	271	376	395	177	184	251	181
Phorate	32,683	19,519	20,378	29,897	25,477	30,815	17,841	10,604	10,109	3,452
Phosacetin	< 1	< 1	0	< 1	< 1	< 1	0	0	0	< 1
Phosmet	44,344	19,278	28,971	16,869	22,599	24,856	32,075	23,973	13,271	6,615
Phosphamidon	0	0	6	0	0	1	0	0	39	0
Phosphamidon, other related	0	0	< 1	0	0	< 1	0	0	1	0
Propamocarb	82	110	228	121	139	400	551	473	2,599	192
Propamocarb hydrochloride	99,638	78,143	67,078	66,035	61,993	63,281	72,817	69,384	78,839	64,778
Propetamphos	3,047	5	2	< 1	< 1	< 1	1	< 1	< 1	< 1
Propoxur	251	100	49	43	29	15	5	3	3	2
Ronnel	< 1	< 1	< 1	< 1	0	< 1	< 1	0	0	< 1
S,s,s-tributyl phosphorotrithioate	11,683	6,472	6,882	8,151	8,911	8,104	6,546	6,804	3,974	3,504
Sodium dimethyl dithio carbamate	16,535	9,357	18,414	18,854	11,257	4,797	1,082	7	< 1	< 1
Temephos	10	5	3	4	2	2	3	< 1	9	0
Tetrachlorvinphos	629	173	66	55	109	63	31	38	< 1	< 1
Thiobencarb	373,930	523,582	698,888	603,226	592,804	654,018	595,147	393,690	229,574	465,525
Thiodicarb	0	0	0	< 1	0	0	0	0	0	0
Triallate	5,886	4,830	5,217	1,568	3,796	1,422	286	898	326	871
Trichlorfon	11	< 1	< 1	< 1	4	7	2	< 1	< 1	1
Total	4,646,981	4,465,242	4,465,270	4,315,336	3,938,700	3,278,357	3,027,382	2,484,091	2,575,671	2,708,333