

Use Trends of Cholinesterase-Inhibiting Pesticides: Cumulative Acres Treated

[Text files](#) of data are available. The reported cumulative acres treated 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. Acres treated totals are cumulative, meaning that if a one-acre field was treated three times in a year, the cumulative acres treated would equal three acres. Cumulative acres treated totals include pesticide use reports (PURs) with unit treated equal to acres (A) or square feet (S), the latter of which was converted to acres. PURs with volume (cubic feet, etc.), weight (tons, lbs, etc.), or miscellaneous units (bins, holes, etc.) are not included in the acres treated totals. Most nonagricultural PURs are not required to report acres treated, so the acres treated totals are predominantly agricultural pesticide uses. If pounds were reported for a year but acres treated is zero, then the pesticide use was non-agricultural. The total for acres treated may be less than the sum of the table rows because the total is adjusted to prevent the overcounting of acreage for pesticide products with more than one active ingredient. 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	0	0	0	3	8	5	0	0	0	830
Acephate	122,703	163,105	173,542	177,380	158,447	155,266	128,238	122,153	113,575	136,874
Aldicarb	166	0	0	0	0	0	0	0	0	0
Azinphos-methyl	0	< 1	0	0	0	0	0	0	0	0
Bendiocarb	0	0	0	0	0	0	0	0	0	0
Bensulide	85,657	94,211	79,796	77,374	85,846	85,338	90,366	93,678	90,701	102,841
Butylate	12	0	8	0	0	0	0	0	0	0
Carbaryl	108,805	136,319	116,667	106,725	99,823	98,844	108,678	108,335	106,094	107,957
Carbophenothion	0	0	0	< 1	0	0	< 1	0	0	0
Chlorpropham	117	132	224	46	98	129	146	88	0	0
Chlorpyrifos	1,108,167	829,326	641,560	691,173	432,121	6,999	7,489	2,759	167	263
Coumaphos	0	62	0	0	< 1	0	0	0	0	0
Crotoxyphos	0	0	0	0	0	0	0	0	0	0
Cycloate	19,124	21,088	23,495	23,962	20,943	23,472	21,461	20,866	20,296	19,437
Ddvp	3,307	6,282	3,317	787	12	829	735	868	2,192	1,301

Chemical	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Ddvp, other related	1,879	539	1,805	0	1	600	418	554	1,681	1,113
Desmedipham	4,797	887	893	275	1,021	1,082	157	760	0	1
Diazinon	32,862	27,004	24,353	24,579	17,936	18,253	20,432	15,990	17,360	15,455
Dicrotophos	23	0	0	0	0	0	0	0	0	0
Dimethoate	725,386	627,043	531,530	499,453	436,246	466,481	443,976	294,209	272,650	275,158
Dioxathion	0	0	0	0	0	0	0	0	0	0
Dioxathion, other related	0	0	0	0	0	0	0	0	0	0
Disulfoton	1,157	204	16	0	0	0	0	0	0	0
Epn	0	0	2	0	0	0	5	62	0	2
Eptc	89,126	91,525	100,883	104,142	91,173	74,744	72,473	52,168	57,474	48,720
Ethephon	414,279	363,812	452,937	552,299	495,629	501,533	423,199	382,361	383,364	394,844
Ethion	0	306	0	30	0	94	0	0	< 1	0
Ethoprop	844	591	575	582	1,712	1,682	2,299	2,466	3,428	3,084
Fenamiphos	465	0	0	20	0	0	0	0	0	0
Fenoxycarb	58	15	33	76	20	6	11	3	51	5
Fenthion	0	0	60	0	0	< 1	0	0	0	0
Formetanate hydrochloride	28,234	31,515	41,115	36,188	38,494	40,361	32,178	51,017	50,872	63,312
Malathion	285,266	266,900	218,785	204,397	217,048	200,956	218,918	157,273	173,969	172,167
Methamidophos	0	0	0	2	0	0	0	0	0	0
Methidathion	3,564	453	198	27	138	6	0	13	0	0
Methiocarb	2,409	2,444	1,771	1,934	1,380	1,133	945	844	303	222
Methomyl	449,913	453,848	433,670	386,649	375,205	339,451	412,002	369,029	384,261	319,074
Methyl parathion	0	298	60	0	27	4	75	177	7	2
Methyl parathion, other related	0	36	18	0	0	0	4	0	0	0
Mevinphos	51	51	23	0	136	123	150	0	0	1

Chemical	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Mevinphos, other related	51	51	23	0	136	123	150	0	0	1
Molinate	< 1	1	< 1	0	0	0	0	0	0	0
Naled	139,823	164,587	175,205	175,253	190,237	218,432	145,264	137,633	142,397	114,309
Oxamyl	75,324	21,033	3,301	40,943	90,629	108,677	64,609	28,745	41,780	92,335
Oxydemeton-methyl	9,096	7,355	7,883	3,555	3,111	17	0	< 1	< 1	0
Parathion	1	207	82	60	0	304	80	0	0	86
Parathion, other related	0	10	4	0	0	0	0	0	0	86
Phenmedipham	5,425	1,304	1,515	722	1,630	1,626	517	1,060	506	389
Phorate	25,700	14,682	16,300	23,653	20,590	24,751	14,039	8,011	8,246	2,902
Phosacetin	0	0	0	< 1	3	4	0	0	0	0
Phosmet	21,122	10,336	11,297	7,751	8,407	9,538	16,737	10,488	6,529	2,708
Phosphamidon	0	0	35	0	0	4	0	0	13	0
Phosphamidon, other related	0	0	35	0	0	4	0	0	13	0
Propamocarb	0	7	0	0	0	13	38	22	41	8
Propamocarb hydrochloride	106,352	82,246	74,435	72,551	68,770	67,874	75,435	70,425	80,281	65,132
Propetamphos	3,621	0	0	0	0	0	0	0	0	0
Propoxur	178	39	19	0	25	0	0	0	0	9
Ronnel	0	0	0	0	0	2	0	0	0	0
S,s,s-tributyl phosphorotrithioate	15,139	7,582	7,725	10,624	11,007	6,091	5,106	5,449	3,997	2,776
Sodium dimethyl dithio carbamate	0	0	6	10	1	0	0	0	0	0
Temephos	0	0	0	0	0	0	0	0	0	0
Tetrachlorvinphos	3	1,044	5	3	0	0	< 1	0	10	0
Thiobencarb	107,636	148,349	197,836	178,307	172,814	190,273	177,061	116,302	69,377	139,075

Chemical	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Thiodicarb	0	0	0	0	0	0	0	0	0	0
Triallate	3,918	3,221	3,665	1,064	2,525	1,023	191	599	286	582
Trichlorfon	0	0	0	0	0	0	0	< 1	< 1	0
Total	3,994,930	3,577,120	3,343,899	3,402,276	3,042,119	2,644,333	2,482,850	2,053,029	2,030,155	2,081,795