

MARYLAND PESTICIDE SURVEY STATISTICS

2020 REPORT



INTRODUCTION

This publication contains estimates for specific pesticides used in Maryland during calendar year 2020. Published estimates include the combined pesticide usage of farm operators, certified private pesticide applicators, and commercially licensed businesses and public agencies.

All data were compiled by the Maryland Field Office of the National Agricultural Statistics Service (NASS) in cooperation with the Pesticide Regulation Section of the Maryland Department of Agriculture. Staff of the Pesticide Regulation Section provided technical assistance in survey planning and analysis of final summary tabulations. Data collection and summarization were completed by NASS, with access to record level data limited to NASS office personnel. All record-level data collected by NASS are confidential and protected by Title 7 of the U.S. Code.

Methodology

A survey was conducted in 2021 to estimate the amounts and types of pesticides applied in calendar year 2020 by Maryland farm operators, certified private pesticide applicators, commercially licensed businesses, and public agencies. The survey consisted of a sample of 1,500 farmers, 2,845 certified private applicators, 1,371 commercially licensed businesses, and 264 public agencies permitted to apply pesticides. Lists of certified applicators, businesses, and public agencies were provided by the Pesticide Regulation Section of the Maryland Department of Agriculture. The farm operator sample was selected from a comprehensive list of farm operators maintained by NASS.

In February 2021, questionnaires were mailed to all sampled operations, businesses, and agencies, with a reminder postcard mailing and second questionnaire mailing to non-respondents occurring in April 2021. Responses were received from 687 (46%) of the sampled farmers, 808 (28%) certified private applicators, 188 (14%) commercially licensed businesses, and 58 (22%) public agencies. Response was voluntary and not required by law.

Data were reviewed for completeness and accuracy and all amounts reported were converted to pounds of active ingredient. Following questionnaire review, data were keyed and summarized utilizing SAS statistical software and data analysis was conducted by NASS statisticians. Active ingredients were totaled and expanded to a State level based solely on the population of each sector, final sample sizes and survey response. The population assumed to represent total usage of the target populations.

Results

Pesticide active ingredient estimates are published only when there were a sufficient number of reports and/or amounts applied. Active ingredients reported without sufficient number of reports or amounts less than one pound is listed on a separate table with a total amount estimated. Published data are listed in descending order by pounds of active ingredient and in alphabetical order. The top 20 pesticides (in terms of total pounds), the top 10 pesticides by county, the top 10 pesticides by season, the top 10 pesticides for certain targeted crops, the top 10 by class (insecticides, herbicides, fungicides, and other) are provided in separate tables. Common formulation and type for pesticides published comparisons tables are also provided.

State Pesticide Usage Publishable Estimates - Ranked According to Pounds Used

Rank	Pesticide Common Name	lbs		Rank	Pesticide Common Name	lbs
1	All Glyphosate	565,481		47	Dithiopyr	3,560
2	Atrazine	270,656		48	Diazinon	3,428
3	S-Metolachlor	186,824		49	Iprodione	3,308
4	All 2;4-D	121,509		50	Fludioxonil	3,207
5	Paraquat	83,095		51	Thiencarbazone-methy	3,103
6	Chlorfenapyr	82,620		52	Dicamba; digly. salt	2,906
7	Chlorothalonil	77,692		53	Sulfometuron methyl	2,876
8	Simazine	76,660		54	Pyriproxyfen	2,730
9	Fipronil	52,740		55	Butoxyethyl triclopy	2,578
10	Mineral oil	33,140		56	Acephate	2,564
11	Imidacloprid	30,338		57	MCPP-P; DMA Salt	2,503
12	Dicamba; dimet. salt	27,935		58	Piperonyl butoxide	2,445
13	Sulfur	25,761		59	Calcium polysulfide	2,400
14	Pendimethalin	25,659		60	Ziram	2,380
15	Bifenthrin	25,047		61	Prodiamine	2,374
16	Metolachlor	21,767		62	Ethephon	2,337
17	Metribuzin	20,198		63	Trinexapac-ethyl	2,269
18	Copper sulfate	18,665		64	Pydiflumetofen	2,258
19	Mesotrione	17,611		65	Cyproconazole	2,235
20	Tembotrione	13,989		66	Difenoconazole	2,217
21	Mancozeb	13,627		67	Pyroxasulfone	2,192
22	Azoxystrobin	13,046		68	Fosetyl-al	2,096
23	Pelargonic acid	11,664		69	Sodium metaborate	2,078
24	Lambda-cyhalothrin	10,917		70	Bentazon	2,060
25	Mono-potassium salt	10,287		71	Clopyralid mono salt	1,993
26	Tebuconazole	9,025		72	Carbaryl	1,977
27	Fomesafen Sodium	8,831		73	Malathion	1,962
28	Dicamba; BAPMA salt	8,802		74	Penthiopyrad	1,858
29	Acetochlor	8,331		75	Propamocarb hydroch.	1,638
30	Thiophanate-methyl	8,223		76	Linuron	1,630
31	Propiconazole	8,176		77	Diquat dibromide	1,620
32	Clethodim	7,284		78	Fluazinam	1,590
33	Permethrin	6,625		79	Thiram	1,504
34	Fluopyram	6,401		80	Quinclorac	1,491
35	Copper hydroxide	6,373		81	Imazethapyr	1,325
36	MCPA; 2-ethylhexyl	6,369		82	Sodium chlorate	1,318
37	Isoxaflutole	6,311		83	Copper ethanolamine	1,264
38	Glufosinate-ammonium	5,496		84	Chlorimuron-ethyl	1,210
39	Dipot. endothall	5,445		85	Dicamba; sodium salt	1,161
40	Captan	5,296		86	Oryzalin	1,141
41	Sulfentrazone	4,938		87	Bicyclopyrone	1,097
42	Beta-cyfluthrin	4,475		88	Pyraclostrobin	1,041
43	Flumioxazin	3,887		89	Halosulfuron	988
44	Clomazone	3,668		90	Chlorpyrifos	956
45	Aminocyclopyrachlor	3,629		91	Trifluralin	955
46	Dimethoate	3,615		92	Fluroxypyr 1-MHE	953

State Pesticide Usage Publishable Estimates - Ranked According to Pounds Used

Rank	Pesticide Common Name	lbs		Rank	Pesticide Common Name	lbs
93	Triadimefon	931		139	Oxyfluorfen	216
94	Dicamba	911		140	Imazapyr; iso. salt	212
95	Indaziflam	909		141	Indoxacarb	208
96	Deltamethrin	798		142	Prohexadione calcium	205
97	Triethylamine triclo	791		143	Cloransulam-methyl	204
98	Saflufenacil	760		144	Mefenoxam	200
99	Metconazole	735		145	Pyrethrins	197
100	Cyprodinil	731		146	Hexythiazox	188
101	Thifensulfuron	712		147	Chlorantraniliprole	185
102	Fluazifop-P-butyl	707		148	Nicosulfuron	179
103	Bensulide	662		149	Chloropicrin	175
104	Prothioconazole	645		150	Acifluorfen; sodium	175
105	Phosmet	641		151	Methoxyfenozide	171
106	Basic copper sulfate	637		152	Cyazofamid	168
107	Spirotetramat	635		153	(7S)-Hydroprene	149
108	Acetamiprid	611		154	Acibenzolar-S-Methyl	142
109	Cyfluthrin	600		155	Polyoxin D zinc salt	138
110	Picoxystrobin	600		156	Fluthiacet-methyl	136
111	MCPA; dimethyl. salt	567		157	Ethalfuralin	122
112	Dimethenamid-P	551		158	Tribenuron-methyl	114
113	Zeta-cypermethrin	542		159	Streptomycin sulfate	113
114	Pyrimethanil	511		160	Dinotefuran	111
115	Isoxaben	495		161	Imazamox	111
116	Diflufenzopyr-sodium	464		162	Copper oxide	105
117	Cypermethrin	463		163	Napropamide	104
118	Prosulfuron	435		164	Prallethrin	104
119	Ametoctradin	418		165	Fluxapyroxad	103
120	Esfenvalerate	416		166	Flumiclorac-pentyl	95
121	Copper chloride hyd.	391		167	Spinosad	94
122	Reynoutria sachaline	384		168	Benefin	92
123	Fenbuconazole	361		169	Spinetoram	90
124	Mandipropamide Techn	338		170	Buprofezin	90
125	Dimethomorph	314		171	Flutriafol	88
126	Imazosulfuron	308		172	Sethoxydim	84
127	Diuron	284		173	Copper (metallic)	69
128	Clopyralid	282		174	Fenhexamid	68
129	Trifloxystrobin	282		175	Abamectin	67
130	Boscalid	278		176	Halauxifen-methyl	62
131	Rimsulfuron	261		177	Imazapic-ammonium	61
132	Lactofen	248		178	Propanoic acid	61
133	Cyantraniliprole	243		179	Terbacil	58
134	Paclobutrazol	241		180	Topramezone	58
135	Thiamethoxam	225		181	Pinoxaden	55
136	Alk. dim. benzyl 60%	223		182	Oxadiazon	54
137	Alk. dim. ethbz. am.	223		183	Kantor	54
138	Hydrogen peroxide	218		184	Myclobutanil	50

State Pesticide Usage Publishable Estimates - Ranked According to Pounds Used

Rank	Pesticide Common Name	lbs		Rank	Pesticide Common Name	lbs
185	Triisopropanolamine	49				
186	Fluridone	48				
187	Indolebutyric acid	39				
188	Aluminum phosphide	35				
189	Pymetrozine	34				
190	Flumetsulam	34				
191	Fenoxaprop-p-ethyl	34				
192	Metsulfuron-methyl	33				
193	Octacide-264	30				
194	Fenpropathrin	29				
195	Silicon dioxide	27				
196	Peroxyacetic acid	26				
197	Prometon	23				
198	Azadirachtin	23				
199	Diphacinone	22				
200	Fluvalinate	22				
201	Benzovindiflupyr	21				
202	Flurprimidol	21				
203	Carfentrazone-ethyl	21				
204	Quinoline	19				
205	Alkyl. dim. benz. am	18				
206	Dimethyldioctyl	18				
207	Fluopicolide	17				
208	Metrafenone	14				
209	Boric acid	13				
210	Flupyradifurone	13				
211	Famoxadone	12				
212	Cymoxanil	12				
213	Benzyladenine	11				
214	Oxathiapiprolin	10				
215	Copper octanoate	9				
216	Borax decahydrate	8				
217	Cytokinins	7				
218	Ethofenprox	7				
219	Bacillus amyloliquefaciens st	4				
220	Imazapyr	4				
221	Zoxamide	2				
222	Phenothrin	1				
223	Brodifacoum	1				
Total Active Ingredients Publishable		2,090,242				
Total Active Ingredients Non-Publishable		3,023,486				
Total Active Ingredients Reported		5,113,728				

State Pesticide Usage Publishable Estimates - Alphabetical

Rank	Pesticide Common Name	lbs		Rank	Pesticide Common Name	lbs
153	(7S)-Hydroprene	149		128	Clopyralid	282
175	Abamectin	67		71	Clopyralid mono salt	1,993
56	Acephate	2,564		143	Cloransulam-methyl	204
108	Acetamiprid	611		173	Copper (metallic)	69
29	Acetochlor	8,331		121	Copper chloride hyd.	391
154	Acibenzolar-S-Methyl	142		83	Copper ethanolamine	1,264
150	Acifluorfen; sodium	175		35	Copper hydroxide	6,373
136	Alk. dim. benzyl 60%	223		215	Copper octanoate	9
137	Alk. dim. ethbz. am.	223		162	Copper oxide	105
205	Alkyl. dim. benz. am	18		18	Copper sulfate	18,665
4	All 2;4-D	121,509		133	Cyantraniliprole	243
1	All Glyphosate	565,481		152	Cyazofamid	168
188	Aluminum phosphide	35		109	Cyfluthrin	600
119	Ametoctradin	418		212	Cymoxanil	12
45	Aminocyclopyrachlor	3,629		117	Cypermethrin	463
2	Atrazine	270,656		65	Cyproconazole	2,235
198	Azadirachtin	23		100	Cyprodinil	731
22	Azoxystrobin	13,046		217	Cytokinins	7
219	Bacillus amyloliquefaciens	4		96	Deltamethrin	798
106	Basic copper sulfate	637		48	Diazinon	3,428
168	Benefin	92		94	Dicamba	911
103	Bensulide	662		28	Dicamba; BAPMA salt	8,802
70	Bentazon	2,060		52	Dicamba; digly. salt	2,906
201	Benzovindiflupyr	21		12	Dicamba; dimet. salt	27,935
213	Benzyladenine	11		85	Dicamba; sodium salt	1,161
42	Beta-cyfluthrin	4,475		66	Difenoconazole	2,217
87	Bicyclopyrone	1,097		116	Diflufenzopyr-sodium	464
15	Bifenthrin	25,047		112	Dimethenamid-P	551
216	Borax decahydrate	8		46	Dimethoate	3,615
209	Boric acid	13		125	Dimethomorph	314
130	Boscalid	278		206	Dimethyldioctyl	18
223	Brodifacoum	1		160	Dinotefuran	111
170	Buprofezin	90		199	Diphacinone	22
55	Butoxyethyl triclopy	2,578		39	Dipot. endothall	5,445
59	Calcium polysulfide	2,400		77	Diquat dibromide	1,620
40	Captan	5,296		47	Dithiopyr	3,560
72	Carbaryl	1,977		127	Diuron	284
203	Carfentrazone-ethyl	21		120	Esfenvalerate	416
147	Chlorantraniliprole	185		157	Ethalfuralin	122
6	Chlorfenapyr	82,620		62	Ethephon	2,337
84	Chlorimuron-ethyl	1,210		218	Ethofenprox	7
149	Chloropicrin	175		211	Famoxadone	12
7	Chlorothalonil	77,692		123	Fenbuconazole	361
90	Chlorpyrifos	956		174	Fenhexamid	68
32	Clethodim	7,284		191	Fenoxaprop-p-ethyl	34
44	Clomazone	3,668		194	Fenpropathrin	29

State Pesticide Usage Publishable Estimates - Alphabetical

Rank	Pesticide Common Name	lbs		Rank	Pesticide Common Name	lbs
9	Fipronil	52,740		124	Mandipropamide Techn	338
102	Fluazifop-P-butyl	707		144	Mefenoxam	200
78	Fluazinam	1,590		19	Mesotrione	17,611
50	Fludioxonil	3,207		99	Metconazole	735
190	Flumetsulam	34		151	Methoxyfenozide	171
166	Flumiclorac-pentyl	95		16	Metolachlor	21,767
43	Flumioxazin	3,887		208	Metrafenone	14
207	Fluopicolide	17		17	Metribuzin	20,198
34	Fluopyram	6,401		192	Metsulfuron-methyl	33
210	Flupyradifurone	13		10	Mineral oil	33,140
186	Fluridone	48		25	Mono-potassium salt	10,287
92	Fluroxypyr 1-MHE	953		184	Myclobutanil	50
202	Flurprimidol	21		163	Napropamide	104
156	Fluthiacet-methyl	136		148	Nicosulfuron	179
171	Flutriafol	88		193	Octacide-264	30
200	Fluvalinate	22		86	Oryzalin	1,141
165	Fluxapyroxad	103		182	Oxadiazon	54
27	Fomesafen Sodium	8,831		214	Oxathiapiprolin	10
68	Fosetyl-al	2,096		139	Oxyfluorfen	216
38	Glufosinate-ammonium	5,496		134	Pacllobutrazol	241
176	Halauxifen-methyl	62		5	Paraquat	83,095
89	Halosulfuron	988		23	Pelargonic acid	11,664
146	Hexythiazox	188		14	Pendimethalin	25,659
138	Hydrogen peroxide	218		74	Penthiopyrad	1,858
161	Imazamox	111		33	Permethrin	6,625
177	Imazapic-ammonium	61		196	Peroxyacetic acid	26
220	Imazapyr	4		222	Phenothrin	1
140	Imazapyr; iso. salt	212		105	Phosmet	641
81	Imazethapyr	1,325		110	Picoxystrobin	600
126	Imazosulfuron	308		181	Pinoxaden	55
11	Imidacloprid	30,338		58	Piperonyl butoxide	2,445
95	Indaziflam	909		155	Polyoxin D zinc salt	138
187	Indolebutyric acid	39		164	Prallethrin	104
141	Indoxacarb	208		61	Prodiamine	2,374
49	Iprodione	3,308		142	Prohexadione calcium	205
115	Isoxaben	495		197	Prometon	23
37	Isoxaflutole	6,311		75	Propamocarb hydroch.	1,638
183	Kantor	54		178	Propanoic acid	61
132	Lactofen	248		31	Propiconazole	8,176
24	Lambda-cyhalothrin	10,917		118	Prosulfuron	435
76	Linuron	1,630		104	Prothioconazole	645
36	MCPA; 2-ethylhexyl	6,369		64	Pydiflumetofen	2,258
111	MCPA; dimethyl. salt	567		189	Pymetrozine	34
57	MCPPP-P; DMA Salt	2,503		88	Pyraclostrobin	1,041
73	Malathion	1,962		145	Pyrethrins	197
21	Mancozeb	13,627		114	Pyrimethanil	511

State Pesticide Usage Publishable Estimates - Alphabetical

Rank	Pesticide Common Name	lbs				
54	Pyriproxyfen	2,730				
67	Pyroxasulfone	2,192				
80	Quinclorac	1,491				
204	Quinoline	19				
122	Reynoutria sachaline	384				
131	Rimsulfuron	261				
3	S-Metolachlor	186,824				
98	Saflufenacil	760				
172	Sethoxydim	84				
195	Silicon dioxide	27				
8	Simazine	76,660				
82	Sodium chlorate	1,318				
69	Sodium metaborate	2,078				
169	Spinetoram	90				
167	Spinosad	94				
107	Spirotetramat	635				
159	Streptomycin sulfate	113				
41	Sulfentrazone	4,938				
53	Sulfometuron methyl	2,876				
13	Sulfur	25,761				
26	Tebuconazole	9,025				
20	Tembotrione	13,989				
179	Terbacil	58				
135	Thiamethoxam	225				
51	Thiencarbazone-methy	3,103				
101	Thifensulfuron	712				
30	Thiophanate-methyl	8,223				
79	Thiram	1,504				
180	Topramezone	58				
93	Triadimefon	931				
158	Tribenuron-methyl	114				
97	Triethylamine triclo	791				
129	Trifloxystrobin	282				
91	Trifluralin	955				
185	Triisopropanolamine	49				
63	Trinexapac-ethyl	2,269				
113	Zeta-cypermethrin	542				
60	Ziram	2,380				
221	Zoxamide	2				
	TOTAL	2,090,242				

Pesticides Reported But Not Publishable 1

Name	Type
(S)-S 3307	O
1-Octanol	O
Acequinocyl	I
All 2;4-DB	H
All 2;4-DP	H
Allethrin	I
Aminopyralid potassium salt	H
Amitraz	I
Amm. Soap Fatty Acid	O
Ammonium pelargonate	H
Asulam; sodium salt	H
Bacillus amyloliquefac F727	F
Bacillus mycoides Isolate J	I
Bacillus pumilus	F
Bacillus subtilis	F
Beauveria bassiana	I
Bifenazate	I
Bromacil	H
Bromadiolone	O
Bromethalin	O
Bromoxynil octanoate	H
Bt israelen BMP 144; sol;spor;insect tox	O
Bt kurstaki ABTS-351	I
Bt kurstaki BMP123	I
Bt kurstaki SA-12; sol;spor;insect tox	O
Burkholderia A396 cells & media	I
Butenoic Acid Hydro.	O
Calcium hypochlorite	O
Canola oil	I
Capric acid	O
Caprylic acid	O
Carbon	O
Chlorethoxyfos	I
Chlorine	O
Chlormequat chloride	O
Chlorophacinone	O
Chlorpyrifos-methyl	I
Chlorsulfuron	H
Chromobac subtsugae PRAA4-1 cells and spent media	I
Clofentezine	I
Clopyralid; triethanolamine	O
Clothianidin	I
Copper ethylenediamine complex	H
Copper triethanolamine complex	O
Cuprammonium acetate	O
Cycloate	H

Pesticides Reported But Not Publishable 1

Name	Type
Cyflufenamid	F
Cyflumetofen	I
Cyromazine	I
D-Limonene	H
DCPA	H
Daminozide	O
Decanol	O
Decyldimethyloctyl	O
Dicamba; Pot. salt	H
Dicamba; iso salt	H
Dichlorvos	I
Dicrotophos	I
Didecyl dim. ammon.	O
Difethialone	O
Diflubenzuron	I
Dimethenamid	H
Disod. Octa. tetra.	I
Dodecadien-1-ol	O
Dodecanol	O
Dodine	F
E-8-Dodecenyl acetat	O
EPTC	H
Emamectin benzoate	I
Etoxazole	I
Etridiazole	F
Fenamidone	F
Fenbutatin-oxide	I
Fenpyroximate	I
Ferric sodium EDTA	I
Flazasulfuron	H
Flonicamid	I
Flucarbazone-sodium	H
Flufenacet	H
Flutolanil	F
Fomesafen	H
Foramsulfuron	H
Gamma-cyhalothrin	I
Gibberellic acid	O
Gibberellins A4A7	O
Gossypure	O
Halofenozide	I
Hexadecadien (Z;Z)	O
Hexazinone	H
Imazethapyr; ammon.	H
Isofetamid	F
Isopropyl alcohol	O

Pesticides Reported But Not Publishable 1

Name	Type
Kaolin	I
Kinoprene	I
MCPPP-P-potassium	H
MSMA	H
Maleic hydrazide	O
Mefluidide; diet.	O
Mesosulfuron-Methyl	H
Metalaxyl	F
Metaldehyde	O
Metam-sodium	O
Methiocarb	I
Methomyl	I
Methyl anthranilate	O
Methyl bromide	O
NAA; Sodium	O
Naphthalene	O
Neem oil	I
Neem oil; clar. hyd.	I
Nitrapyrin	O
Norflurazon	H
Novaluron	I
Noviflumuron	O
Octadecadien (E;Z)	O
Octadecadien (Z;Z)	O
Oxamyl	I
Oxytetracycline hydrochloride	O
Paecilomyces fumosor	O
Penoxsulam	H
Phenmedipham	H
Phorate	I
Picloram; K salt	H
Picloram; triisoprop	H
Pirimiphos-methyl	I
Potassium Phosphate	F
Potassium bicarbon.	F
Potassium salts	I
Potassium silicate	O
Prohydrojasmon	O
Prometryn	H
Propazine	H
Pyraflufen-ethyl	H
Pyridaben	I
Pyridalyl	I
Pyrifluquinazon	I
Pyroxsulam	H
S-Absciscic Acid	O

Pesticides Reported But Not Publishable 1

Name	Type
S-Methoprene	I
Silica gel	I
Sodium Percarbonate	F
Sodium hypochlorite	O
Sodium nitrate	O
Spirodiclofen	O
Spiromesifen	I
Streptomyces lydicus	F
Strychnine	O
Sulfoxaflor	I
Tea tree oil	F
Tebuthiuron	H
Tefluthrin	I
Tetramethrin	I
Thiazine	I
Thidiazuron	O
Tolfenpyrad	I
Tribufos	O
Triclopyr	H
Tricosene	I
Triflumizole	F
Triforine	F
Triphenyltin hydrox.	F
Tritconazole	F
Z-8-Dodecanol	O
Z-8-Dodecen acetate	O
Zinc phosphide	O
<p>1Not publishable due to disclosure or less than 1 pound reported.</p>	<p>F = Fungicide H =Herbicide I = Insecticide O = Other</p>

Top 10 Publishable Pesticides Usage by Crop in 2020

FIELD

Rank	Pesticide Common Name	Type	Pounds Active Ingredient
1	All Glyphosate	H	525,078
2	Atrazine	H	268,835
3	S-Metolachlor	H	183,741
4	All 2;4-D	H	96,609
5	Paraquat	H	80,779
6	Simazine	H	76,546
7	Dicamba; dimet. salt	H	27,087
8	Pendimethalin	H	22,754
9	Metolachlor	H	21,464
10	Metribuzin	H	20,175

FRUIT

Rank	Pesticide Common Name	Type	Pounds Active Ingredient
1	Sulfur	F	23,181
2	Mono-potassium salt	F	9,256
3	Mancozeb	F	8,735
4	Copper hydroxide	F	5,709
5	Captan	F	4,661
6	Azoxystrobin	F	3,450
7	Diazinon	I	2,724
8	Ziram	F	2,380
9	Calcium polysulfide	F	2,221
10	Mineral oil	I	2,155

FOREST

Rank	Pesticide Common Name	Type	Pounds Active Ingredient
1	All 2;4-D	H	899
2	All Glyphosate	H	865
3	Butoxyethyl triclopy	H	208

VEGETABLES

Rank	Pesticide Common Name	Type	Pounds Active Ingredient
1	Chlorothalonil	F	3,808
2	All Glyphosate	H	2,867
3	S-Metolachlor	H	2,765
4	Paraquat	H	1,187
5	Atrazine	H	980
6	Mono-potassium salt	F	659
7	Pendimethalin	H	631
8	All 2;4-D	H	533
9	Copper hydroxide	F	526
10	Azoxystrobin	F	518

Top 10 Publishable Pesticides Usage by Crop in 2020

NURSERY

Rank	Pesticide Common Name	Type	Pounds Active Ingredient
1	Mineral oil	I	9,699
2	All Glyphosate	H	2,487
3	Chlorothalonil	F	1,484
4	All 2;4-D	H	389
5	Acephate	I	211
6	Pendimethalin	H	197
7	Oxyfluorfen	H	190
8	Prodiamine	H	178
9	Thiophanate-methyl	F	140
10	Flumioxazin	H	101

INDUSTRIAL

Rank	Pesticide Common Name	Type	Pounds Active Ingredient
1	Chlorfenapyr	I	82,614
2	Fipronil	I	34,238
3	Bifenthrin	I	19,011
4	Imidacloprid	I	16,912
5	Beta-cyfluthrin	I	1,003
6	Deltamethrin	I	797
7	Lambda-cyhalothrin	I	681
8	Piperonyl butoxide	I	578
9	Cyfluthrin	I	470
10	Esfenvalerate	I	412

ORNAMENTAL

Rank	Pesticide Common Name	Type	Pounds Active Ingredient
1	Mineral oil	I	13,383
2	Chlorothalonil	F	12,803
3	All Glyphosate	H	9,581
4	All 2;4-D	H	7,852
5	MCPA; 2-ethylhexyl	H	2,778
6	Imidacloprid	I	2,179
7	Azoxystrobin	F	1,778
8	Prodiamine	H	1,493
9	Butoxyethyl triclopy	H	1,220
10	Dithiopyr	H	842

TURF

Rank	Pesticide Common Name	Type	Pounds Active Ingredient
1	Chlorothalonil	F	31,191
2	Thiophanate-methyl	F	7,423
3	All 2;4-D	H	6,067
4	Iprodione	F	3,149
5	Dithiopyr	H	2,689
6	Fosetyl-al	F	1,903
7	Propiconazole	F	1,684
8	MCPA; 2-ethylhexyl	H	1,498
9	Fluazinam	F	1,479
10	Mancozeb	F	1,385

Top 10 Publishable Pesticides Usage by Crop in 2020

AQUATIC

Rank	Pesticide Common Name	Type	Pounds Active Ingredient
1	Copper sulfate	F	18,642
2	Dipot. endothall	H	5,074
3	Chlorothalonil	F	2,271
4	Diquat dibromide	H	1,417
5	Flumioxazin	H	1,362
6	Copper ethanolamine	H	1,264
7	All Glyphosate	H	372
8	Imazapyr; iso. salt	H	61
9	Fluridone	H	48

RIGHTS OF WAY

Rank	Pesticide Common Name	Type	Pounds Active Ingredient
1	All Glyphosate	H	21,929
2	All 2;4-D	H	8,933
3	Aminocyclopyrachlor	H	3,629
4	Sulfometuron methyl	H	2,643
5	Oryzalin	H	1,025
6	Indaziflam	O	826
7	Butoxyethyl triclopy	H	244
8	Pelargonic acid	O	25
9	Diquat dibromide	H	17
10	Prometon	H	15

REGULATORY

Rank	Pesticide Common Name	Type	Pounds Active Ingredient
1	All Glyphosate	H	672
2	Clopyralid mono salt	H	598
3	Imazapyr; iso. salt	H	88
4	Imazapic-ammonium	H	61
5	Fluazifop-P-butyl	H	29
6	Fenoxaprop-p-ethyl	H	8

OTHER

Rank	Pesticide Common Name	Type	Pounds Active Ingredient
1	Fipronil	I	18,451

F = Fungicide H =Herbicide I = Insecticide O = Other

Top 10 Publishable Pesticide Usage by County in 2020

County	Active Ingredient	TYPE	Pounds of Active Ingredient
ALLEGANY	All 2;4-D	H	2,324
	All Glyphosate	H	2,150
	Bifenthrin	I	463
	Butoxyethyl triclopy	H	186
ANNE ARUNDEL	Chlorfenapyr	I	82,079
	All Glyphosate	H	15,119
	Bifenthrin	I	12,775
	Atrazine	H	5,106
	Fipronil	I	3,086
	S-Metolachlor	H	2,273
	Imidacloprid	I	1,763
	All 2;4-D	H	1,708
	Simazine	H	1,631
	Beta-cyfluthrin	I	471
BALTIMORE	Chlorothalonil	F	18,462
	All 2;4-D	H	13,621
	All Glyphosate	H	8,088
	Thiophanate-methyl	F	6,031
	S-Metolachlor	H	2,420
	Atrazine	H	2,373
	Propiconazole	F	1,522
	Fosetyl-al	F	1,470
	Prodiamine	H	1,466
	MCPP-P; DMA Salt	H	1,394
CALVERT	Atrazine	H	6,089
	All Glyphosate	H	5,584
	All 2;4-D	H	4,789
	MCPA; 2-ethylhexyl	H	1,675
	Butoxyethyl triclopy	H	743
	Prodiamine	H	632
	Bifenthrin	I	575
	Dicamba	H	490
	MCPP-P; DMA Salt	H	403
	Quinclorac	H	395
CAROLINE	All Glyphosate	H	32,351
	Atrazine	H	24,649
	S-Metolachlor	H	11,823
	All 2;4-D	H	1,458
	Butoxyethyl triclopy	H	402
	Prothioconazole	F	241
	Bifenthrin	I	193
	Glufosinate-ammonium	H	190
	Imidacloprid	I	124
	Clethodim	H	111

Top 10 Publishable Pesticide Usage by County in 2020

GARRETT	All Glyphosate	H	14,111
	Atrazine	H	6,878
	S-Metolachlor	H	6,541
	All 2;4-D	H	2,723
	Mesotrione	H	517
	Rimsulfuron	H	3
HARFORD	All Glyphosate	H	22,896
	S-Metolachlor	H	5,858
	Atrazine	H	4,830
	Paraquat	H	3,488
	All 2;4-D	H	2,208
	Mesotrione	H	584
	Simazine	H	424
	Bicyclopyrone	H	140
HOWARD	Fipronil	I	11,787
	Imidacloprid	I	7,894
	All Glyphosate	H	3,114
	Chlorothalonil	F	1,609
	Mancozeb	F	1,515
	All 2;4-D	H	546
	Thiophanate-methyl	F	138
	Carbaryl	I	84
	Mono-potassium salt	F	60
	Dicamba	H	58
KENT	All Glyphosate	H	83,106
	Atrazine	H	44,202
	S-Metolachlor	H	33,867
	Simazine	H	19,320
	All 2;4-D	H	7,967
	Propiconazole	F	4,065
	Mesotrione	H	2,492
	Metribuzin	H	1,863
	Azoxystrobin	F	1,335
	Lambda-cyhalothrin	I	1,250
MONTGOMERY	All Glyphosate	H	57,296
	S-Metolachlor	H	45,690
	Atrazine	H	27,921
	Paraquat	H	19,507
	Chlorothalonil	F	11,225
	All 2;4-D	H	2,954
	Lambda-cyhalothrin	I	1,389
	Thiophanate-methyl	F	1,165
	Sulfur	F	1,108
	Metribuzin	H	931

Top 10 Publishable Pesticide Usage by County in 2020

WASHINGTON	All Glyphosate	H	25,762
	Atrazine	H	13,182
	S-Metolachlor	H	6,798
	Mancozeb	F	6,719
	All 2;4-D	H	6,275
	Imidacloprid	I	6,116
	Bifenthrin	I	5,869
	Pendimethalin	H	2,344
	Captan	F	2,186
	Mesotrione	H	1,180
WICOMICO	All Glyphosate	H	66,422
	Atrazine	H	27,880
	All 2;4-D	H	21,620
	Simazine	H	21,207
	S-Metolachlor	H	15,959
	Paraquat	H	5,327
	Permethrin	I	3,847
	Mesotrione	H	2,008
	Flumioxazin	H	493
	Lambda-cyhalothrin	I	302
WORCESTER	All Glyphosate	H	24,376
	Atrazine	H	16,477
	All 2;4-D	H	8,818
	S-Metolachlor	H	8,107
	Iprodione	F	1,021
	Imazethapyr	H	872
	Mesotrione	H	623
	Chlorothalonil	F	608
	Flumioxazin	H	586
	Thiophanate-methyl	F	420
			F = Fungicide
			H =Herbicide
			I = Insecticide
			O = Other

Top 20 Publishable Pesticides in 2020 Compared to 2014, 2011, 2004, 2000

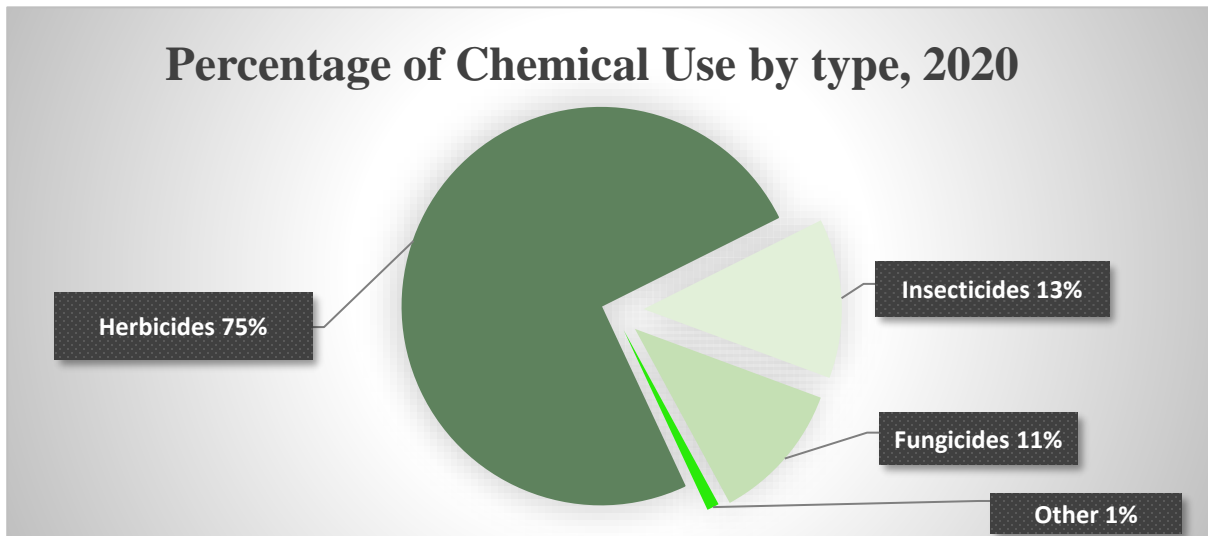
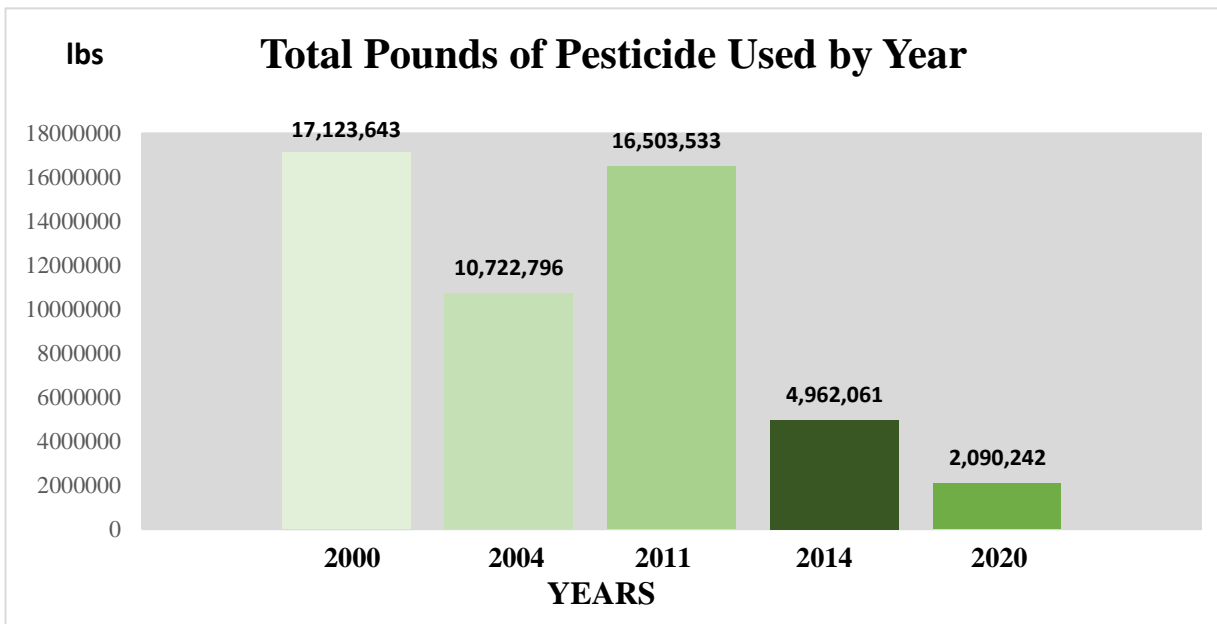
Rank	Pesticide Common Name	Type	2020	2014	2011	2004	2000
			Total Amount Applied (lbs)	Total Amount Applied (lbs)	Total Amount Applied (lbs)	Total Amount Applied (lbs)	Total Amount Applied (lbs)
1	All Glyphosate	H	565,481	634,954	721,154	2,821,085	950,269
2	Atrazine	H	270,656	256,548	381,321	1,109,475	618,515
3	S-Metolachlor	H	186,824	144,532	555,807	872,768	109,566
4	All 2;4-D	H	121,509	171,077	439,538	199,141	225,426
5	Paraquat	H	83,095	103,654	137,874	127,869	156,131
6	Chlorfenapyr	I	82,620	2,181	-	-	-
7	Chlorothalonil	F	77,692	119,158	61,069	1,529,493	115,194
8	Simazine	H	76,660	229,855	200,734	72,883	301,427
9	Fipronil	I	52,740	216,180	21,380	15,696	78
10	Mineral oil	I	33,140	60,981	141,270	-	-
11	Sodium Percarbonate	F	31,093	1,457	-	-	-
12	Imidacloprid	I	30,338	150,286	231,323	128,707	131,773
13	Canola oil	H	28,091	22	-	-	-
14	Dicamba; dimet. salt	H	27,935	6,401	-	-	-
15	Sulfur	H	25,761	7,105	-	-	-
16	Pendimethalin	I	25,659	154,511	30,957	51,682	533,715
17	Bifenthrin	H	25,047	20,355	-	-	-
18	Metolachlor	H	21,767	40,030	-	246,509	1,000,654
19	Metribuzin	F	20,198	6,027	-	-	-
20	Copper sulfate	F	18,665	6,716	-	-	-

F = Fungicide	
H =Herbicide	
I = Insecticide	
O = Other	

Comparison of Pesticides Use Classes Reported in 2020, 2014, 2011, 2000, 1997

Pesticide Class		2020	2014	2011	2004	2000
Total Usage	Pounds	2,090,242	4,962,061	16,503,533	10,722,796	17,123,643
Herbicides	Pounds	1,558,424	2,299,757	3,406,867	6,310,097	4,619,656
	% of Total	75%	46%	21%	59%	27%
Insecticides	pounds	272,388	2,143,238	831,769	875,511	1,104,249
	% of Total	13%	43%	5%	8%	6%
Fungicides	Pounds	238,604	420,560	538,940	3,387,026	599,556
	% of Total	11%	9%	3%	32%	4%
Others ₁	Pounds	20,826	98,506	11,725,957	150,162	10,800,182
	% of Total	1%	2%	71%	1%	63%

Includes Wood Preservatives, Antifoulants, Molluscicides, Repellents and Rodenticides



Top 10 Publishable Pesticides by Season in 2020

SPRING		
Active Ingredient	Class	Total Amount Applied (lbs)
All Glyphosate	H	268,665
Atrazine	H	249,276
S-Metolachlor	H	173,144
Paraquat	H	77,575
All 2;4-D	H	70,776
Simazine	H	65,754
Dicamba; dimet. salt	H	26,900
Metribuzin	H	19,540
Metolachlor	H	19,128
Mineral oil	I	17,456

SUMMER		
Active Ingredient	Class	Total Amount Applied (lbs)
All Glyphosate	H	98,234
Chlorothalonil	F	46,214
All 2;4-D	H	18,812
Copper sulfate	F	18,642
Atrazine	H	12,862
Pendimethalin	H	10,302
S-Metolachlor	H	10,098
Imidacloprid	I	9,967
Fomesafen Sodium	H	7,954
Dipot. endothall	H	5,445

FALL		
Active Ingredient	Class	Total Amount Applied (lbs)
All Glyphosate	H	3,816
Chlorothalonil	F	3,139
All 2;4-D	H	2,177
Paraquat	H	1,980
Dicamba; dimet. salt	H	386
Butoxyethyl triclopy	H	366
Tebuconazole	F	320
Quinclorac	H	299
Iprodione	F	270
Imazapyr; iso. salt	H	134

WINTER		
Active Ingredient	Class	Total Amount Applied (lbs)
All Glyphosate	H	478
Indaziflam	O	19

SPRING AND FALL		
Active Ingredient	Class	Total Amount Applied (lbs)
All 2;4-D	H	6,090
MCPA; 2-ethylhexyl	H	3,415
All Glyphosate	H	1,883
Imidacloprid	I	752
Butoxyethyl triclopy	H	677
Dicamba	H	341
Hexythiazox	I	177

ALL FOUR SEASONS		
Active Ingredient	Class	Total Amount Applied (lbs)
Fipronil	I	38,570
All Glyphosate	H	23,225
Chlorfenapyr	I	21,376
Bifenthrin	I	12,993
Chlorothalonil	F	11,173
Imidacloprid	I	9,978
Lambda-cyhalothrin	I	1,169
All 2;4-D	H	960
Beta-cyfluthrin	I	837
Deltamethrin	I	797

SPRING, SUMMER AND FALL		
Active Ingredient	Class	Total Amount Applied (lbs)
All Glyphosate	H	169,180
All 2;4-D	H	22,325
Sulfur	F	21,586
Fipronil	I	13,483
Chlorothalonil	F	9,551
Mono-potassium salt	F	8,088
Imidacloprid	I	7,247
Bifenthrin	I	7,074
Atrazine	H	6,747
Aminocyclopyrachlor	H	3,629

F = Fungicide

H = Herbicide

I = Insecticide

O = Other

Top 10 Publishable Pesticide Usage by Type in 2020

FUNGICIDES		
Rank	Pesticide Common	Total Amount Applied (lbs)
1	Chlorothalonil	77,692
2	Sulfur	25,761
3	Copper sulfate	18,665
4	Mancozeb	13,627
5	Azoxystrobin	13,046
6	Mono-potassium salt	10,287
7	Tebuconazole	9,025
8	Thiophanate-methyl	8,223
9	Propiconazole	8,176
10	Fluopyram	6,401

HERBICIDES		
Rank	Pesticide Common	Total Amount Applied (lbs)
1	All Glyphosate	565,481
2	Atrazine	270,656
3	S-Metolachlor	186,824
4	All 2;4-D	121,509
5	Paraquat	83,095
6	Simazine	76,660
7	Dicamba; dimet. salt	27,935
8	Pendimethalin	25,659
9	Metolachlor	21,767
10	Metribuzin	20,198

INSECTICIDES		
Rank	Pesticide Common	Total Amount Applied (lbs)
1	Chlorfenapyr	82,620
2	Fipronil	52,740
3	Mineral oil	33,140
4	Imidacloprid	30,338
5	Bifenthrin	25,047
6	Lambda-cyhalothrin	10,917
7	Permethrin	6,625
8	Beta-cyfluthrin	4,475
9	Dimethoate	3,615
10	Diazinon	3,428

Top 10 Publishable Pesticide Usage by Type in 2020

OTHER		
Rank	Pesticide Common	Total Amount Applied (lbs)
1	Pelargonic acid	11,664
2	Ethephon	2,337
3	Trinexapac-ethyl	2,269
4	Sodium chlorate	1,318
5	Indaziflam	909
6	Reynoutria sachaline	384
7	Paclobutrazol	241
8	Alk. dim. benzyl 60%	223
9	Alk. dim. ethbz. am.	223
10	Hydrogen peroxide	218

Integrated Pest Management (IPM)

	Year	Never	Sometimes	ALMOST ALWAYS	Not Applicable
		<i>percent (%)</i>			
Monitoring Practices such as scouting for pests, soil testing, field mapping, etc	2020	13	19	28	22
	2014	14	14	54	18
Avoidance practices such as crop rotation, alternate planting dates, companion cropping, trapping, etc.	2020	13	28	40	19
	2014	12	17	52	19
Preventative practices such as mowing, burning, chopping, tillage, etc.	2020	11	15	52	22
	2014	10	25	52	13
Suppression practices such as biological pesticides, mating disruptors, beneficial organisms, genetically modified products, etc.	2020	12	15	52	22
	2014	33	19	28	20

FORMS,
QUESTIONNAIRE
and, SURVEY
RELATED
MATERIALS



Maryland Department of Agriculture

Office of Plant Industries and Pest Management

Larry Hogan, Governor
Boyd K. Rutherford, Lt. Governor
Joseph Bartenfelder, Secretary
Julianne A. Oberg, Deputy Secretary

Pesticide Regulation

The Wayne A. Cawley, Jr. Building
50 Harry S. Truman Parkway
Annapolis, Maryland 21401
www.mda.maryland.gov

Agriculture | Maryland's Leading Industry

410.841.5710 Baltimore/Washington
410.841.2765 Fax
800.492.5590 Toll Free

Dear Reporter:

I am writing to request your participation in the enclosed Maryland Department of Agriculture (MDA)/USDA National Agricultural Statistics Service (NASS) - Maryland Field Office 2020 Pesticide Usage Survey. MDA and NASS have conducted eight similar pesticide surveys between 1985 and 2014. This survey is the only comprehensive measure of pesticide use in Maryland and helps MDA develop the most appropriate programs for Maryland farmers and pest control operators.

With your cooperation, this survey will also provide information necessary for rational decisions regarding pesticide usage, laws and regulations. The survey results provide a reliable, source of public information for all members of our industry, as well as for industry representatives working with policy makers at the State and national levels.

Please complete the enclosed survey and the recertification information form and return it to NASS according to the instruction provided. Pesticides are a major input in the production of agricultural commodities; however, to keep the costs of using pesticides from exceeding the benefits, knowledge of the extent of their application is of utmost importance. Eligible applicators that complete the Pesticide Survey will obtain full credit towards their pesticide applicator certification.

If we do not hear from you by April 19, 2021, we will attempt to contact you to arrange a telephone interview.

Your participation is crucial, and your responses are confidential. We will never share your name or the name of your operation. The results of this survey will be available in aggregate form only, ensuring that no individual operation or producer can be identified, as required by federal law.

Thank you for your time and your assistance with this important project. If you have any questions about this survey, please contact Shareefah Williams at shareefah.williams@usda.gov or 301-347-8179.

Sincerely,

Joseph Bartenfelder, Secretary
Maryland Department of Agriculture



United States Department of Agriculture
 National Agricultural Statistics Service
 Maryland Field Office
 Cooperating with the Maryland Department of Agriculture



**RE-CERTIFICATION
 FULLCREDIT INFORMATION
 MEETING NUMBER: 20210258**

OMB No. 0535-0218
 Approval Expires: 11/30/2023

MD Certification ID Number: ()()()()()()

(Please PRINT name exactly as it appears on your registration card.)

Name: _____

Birth Date: (mm/dd/yy) _____ / _____ / _____

Address*: _____

*(only needed when applicator certification ID is unknown.)

Last 4 digits of the Social Security Number: _____

*(only needed when the applicator Certification ID is unknown)

CONFIDENTIALITY

All Maryland participants completing the 2020 Pesticide Survey and wishing to receive pesticide re-certification credit, must provide the above information. This is the same information asked for at a regular re-certification meeting.

By signing below, the certified applicator (or Enumerator agent) acknowledges that ONLY the information on this sheet will be given to the Maryland Department of Agriculture. And that the information will be used only for the purpose of granting a core re-certification credit. None of the actual survey data will be shared with that State agency.

Certified Applicator (or Enumerator) Signature*:

 Signature

 Date

The information you provide will be used for statistical purposes only. Your responses will be kept confidential and any person who willfully discloses ANY identifiable information about you or your operation is subject to a jail term, a fine, or both. This survey is conducted in accordance with the Confidential Information Protection provisions of Title V, Subtitle A, Public Law 107-347 and other applicable Federal laws. For more information on how we protect your information please visit: <https://www.nass.usda.gov/confidentiality>. Response to this survey is voluntary. According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number is 0535-0218. The time required to complete this information collection is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

MARYLAND PESTICIDE USAGE SURVEY - 2020

OMB No. 0535-0218
Approval Expires: 11/30/2023
Project Code: 970
Survey ID: 3785



USDA/NASS
National Operations Division
9700 Page Avenue, Suite 400
St. Louis, MO 63132-1547
Phone: 1-888-424-7828
Fax: 1-855-415-3687
Email: nass@nass.usda.gov

Please make corrections to name, address, and ZIP Code, if necessary.

The information you provide will be used for statistical purposes only. Your responses will be kept confidential and any person who willfully discloses ANY identifiable information about you or your operation is subject to a jail term, a fine, or both. This survey is conducted in accordance with the Confidential Information Protection provisions of Title V, Subtitle A, Public Law 107-347 and other applicable Federal laws. For more information on how we protect your information please visit: <https://www.nass.usda.gov/confidentiality>. Response is voluntary.

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Please refer to the "Instruction Sheet" on Page 2 to aid in the completion of this survey.

1. Did you or your business or your agency apply pesticides in 2020?

- 0001 Yes - Go to Question 2.
3 No - Go to Page 11, Question 5.

2. Are you a commercial business?

- 0002 Yes - Go to Page 2 and complete the table for all pesticides that your business applied in 2020 for your customers.
3 No - Go to Question 3.

3. Are you a public agency?

- 0003 Yes - Go to Page 2 and complete the table for all pesticides that your business applied in 2020 by you or a designated applicator within your agency.
3 No - Go to Question 4.

4. Are you a farmer?

- 0004 Yes - Go to Page 2 and complete the table for all pesticides you personally applied in 2020 on property that you own or lease.
3 No - Go to Page 11, Question 5.

Maryland Pesticides Instructions

Pesticide: An herbicide, insecticide, fungicide, growth regulator, nematicide, fumigant, rodenticide, repellent, wood preservative, or any other material used to manage pests.

- Please report the pesticides you, your business, or your agency **applied in 2020** in the tables. Record the EPA number or chemical product name.
- Record the county and zip code where each pesticide was applied.
- Include only the pesticide portions of a tank mix.
- Report each chemical on a separate line, even if two chemicals were applied in combination. Specify the unit of measurement with the total quantity.

PLEASE DO NOT INCLUDE ANY PESTICIDES APPLIED BY A CONTRACTOR.

Column 3 - - County Code	Column 12 - - Target Crop or Site Code
1 Allegany	1 Field Crops
3 Ann Arundel	2 Fruit
5 Baltimore	3 Vegetables
6 Baltimore City	4 Nursery/greenhouse - commercial
9 Calvert	5 Animal - Livestock and poultry
11 Caroline	6 Stored grain
13 Carroll	7 Forest
15 Cecil	8 Ornamental & lawns - interior and exterior landscapes
17 Charles	9 Turf - production
19 Dorchester	10 Seed treatment
21 Frederick	11 Aquatic
23 Garrett	12 Rights of way
25 Harford	13 Industrial/Structural - incl. structural household pests, birds, rodents, industrial weed
27 Howard	14 Fumigation - commodities, structures, grains
29 Kent	15 Public Health
31 Montgomery	16 Regulatory - PUBLIC AGENCIES ONLY
33 Prince George's	17 Demonstration/Research
35 Queen Anne's	18 Other - wood preservatives, sewer root control
37 St. Mary's	
39 Somerset	
41 Talbot	
43 Washington	
45 Wicomico	
47 Worcester	

2020 Maryland Pesticide Usage Survey Pesticide Use

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21		60		61	63	73	74	68	69	64	71
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5. Were any pesticides applied for you by a contractor in 2020?

0005 1 Yes
2 No

FARMERS: Please complete the following.

Integrated Pest Management (IPM) is a long-standing science-based, decisions making process that identifies and reduces risks from pests and pest management related strategies. It coordinates the use of pest biology, environmental information, and available technology to prevent unacceptable levels of pest damage by the most economical means, while posing the least possible risk to people, property, resources, and the environment. IPM provides an effective strategy for managing pests in all arenas from developed residential and public areas to wild lands. IPM serves as an umbrella to provide an effective, all encompassing, low-risk approach to protect resources and people from pests.

Please refer to the definition of Integrated Pest Management (above) when answering questions 6 to 9. Check the appropriate box for each question.

	Never	Sometimes	Almost Always	Not Applicable
6. Do you use resources before making pest control decisions? (i.e. scouting, Soil testing, field mapping, predictive models, pest thresholds, etc.)	0006 1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
7. Do you use preventive measures to avoid pest outbreaks? (i.e. Crop rotation, ground covers/mulches, physical barriers, adjustment of plant/harvest dates, adjustment of plant density, resistance varieties, companion cropping, trapping, etc.)	0007 1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
8. Do you use mechanical practices for pest control?(i.e. mowing, burning, chopping, tillage, etc.)	0008 1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
9. Do you use products, such as the ones listed below, for pest control? Biological pesticide, Mating Disruptors, Beneficial Organisms (insects, nematodes, pathogens), Genetically modified products (Glyphosphate – resistant soybeans, Bt corn), Dicamba Soybean resistant.	0009 1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>

10. **SURVEY RESULTS:** To receive the complete results of this survey on the release date, go to <https://www.nass.usda.gov/results>

To have a brief summary emailed to you, please enter your email address:
1095

Operation Email (if different from above)	Operation Phone:	check if cell phone <input type="checkbox"/>
9937	9936 () _____	<input type="checkbox"/>

Respondent Name:	Respondent Phone (if different from above)	check if cell phone <input type="checkbox"/>	9910 MM DD YY Date: _____
9912	9911 () _____	<input type="checkbox"/>	

This completes the survey. Thank you for your help.

OFFICE USE ONLY										
Response		Respondent		Mode		Enum.	Eval.	Change	Office Use for POID	
1-Comp 2-R 3-Inac 4-Office Hold 5-R – Est 6-Inac – Est 7-Off Hold – Est	9901	1-Op/Mgr 2-Spouse 3-Acct/Bkpr 4-Partner 9-Other	9902	1-PASI (Mail) 2-PATI (Tel) 3-PAPI (Face-to-Face) 6-Email 7-Fax 19-Other	9903	9998	9900	9985	9989 _____ - _____ - _____	
									Optional Use	
									9907	9908

MARYLAND PESTICIDE STATISTICS for 2020

Issued cooperatively by

Maryland Department of Agriculture
Joseph Bartenfelder, Secretary
Julie Oberg, Deputy Secretary

U. S. Department of Agriculture
National Agricultural Statistics Service
Hubert Hamer, Administrator

U.S. Department of Agriculture National Agricultural Statistics Service
Maryland Field Office Shareefah Williams, State Statistician

Survey Conducted and Compiled by: Northeastern Regional staff,
and phone enumerators.

Questionnaire Design by: Quonda Fayorsey.

Edit and summary conducted by: Northeastern Regional staff, Kim Nielsen,
Jennifer Rhorer, and Dana Butler.

In consultation with Maryland Department of Agriculture
Pesticide Regulation Section, Rob Hofstetter, Program Manager, Kelly Love, Agricultural Inspector,
and State Chemist Section, Tom Phillips, Program Manger

PUBLISHED December 2021

Maryland Pesticide Regulation Section

The Pesticide Regulation Section administers Maryland's Pesticide Applicator's Law, approves training courses in the handling, storage and use of pesticides, conducts examinations to determine that pesticide applicators are competent to follow prescribed pest control practices, enforces federal laws on the sale and use of pesticides, and investigates pesticide accidents or incidents and consumer complaints on pesticide misuse. To find out more, call Pesticide Regulation at (410) 841-5710.

WHY SHOULD I RESPOND TO THIS SURVEY?

The Maryland Pesticide Survey has been conducted since 1985, this survey is the only comprehensive measure of pesticide use in Maryland. The results from the survey helps the Maryland Department of Agriculture (MDA) develop appropriate programs for Maryland farmers and pest control operators. This survey also provides information necessary for rational decisions regarding pesticide usage, laws, and regulations. The survey results provide a reliable, source of public information for all members of our industry, as well as for industry representatives working with policy makers at the State and national levels.

Eligible applicators that completed the 2020 Pesticide Survey obtained full credit towards their pesticide applicator certification. Plans are in place to offer this incentive again for the next survey cycle. The National Agricultural Statistics Service (NASS) is committed to preserving the confidentiality of respondent's identities by protecting information that could be used to identify individual respondents. The results of this survey will be available in aggregate form only, ensuring that no individual operation or producer can be identified, as required by federal law. For more information about NASS's confidentiality Pledge please go to the following website (USDA - National Agricultural Statistics Service - About NASS - Confidentiality Pledge).