

WASHINGTON AGRICULTURAL CHEMICAL USAGE 2002 Vegetables Summary August 2003



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CHEMICAL USAGE OVERVIEW

Vegetable chemical usage data for selected Washington vegetable crops are presented in the accompanying releases. These data are the results of the Vegetable Chemical Usage Survey that was conducted in the fall of 2002. This survey was designed to collect data on pesticides applied to selected vegetable crops in 2002. A sampling of producers in major vegetable growing states, across the United States, was chosen to establish the estimation base. The probability nature of the survey allowed for estimates that are representative of chemical use on all targeted vegetables in each of the participating states. Survey results include estimates of the percent of area treated, number of applications, rates per application, rates per crop year, and total pounds of chemical applied. Data are summarized for the active ingredients of pesticides and other chemicals applied. Pesticide data were collected for specific formulations of trade name products and then converted to active ingredients. Therefore, the estimates associated with a particular active ingredient may represent applications of several trade name products. Pesticide application rates also reflect partial coverage applications as a result of band, spot, and alternate row spraying techniques. This survey excludes any chemical treatments applied to the vegetables after harvest. Data on fertilizer applications were not collected during the 2000 Vegetable Chemical Usage Survey, but were collected in 2002.

Targeted crops in Washington included asparagus, processing carrots, processing sweet corn, dry onions, and processing green peas. Chemical use releases for all five crops surveyed in Washington, and crops surveyed in other states, are available upon request or via the internet. Thanks are given to the many Washington vegetable producers and contractors who provided the information summarized in these reports. Detailed reports, such as these, would not be possible without their voluntary cooperation.

Terms and Definitions

Active ingredient is the specific chemical which kills or controls the target pests. Usage data are reported by pesticide product and are converted to an amount of active ingredient. A single method of conversion has been chosen for active ingredients having more than one way of being converted. For example in this report, copper compounds are expressed in their metallic copper equivalent, and others such as 2,4-D and glyphosate are expressed in their acid equivalent.

Agricultural chemicals refer to the active ingredients in fertilizers and pesticides. Pesticides include any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, and any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant. Pests targeted by pesticides include weeds, insects, fungi, and other forms of life.

Herbicides--weeds, insecticides--insects, fungicides--fungi, and other chemicals --other forms of life, make up the four classes of pesticides presented in this report. Miticides and nematicides are included as insecticides, while soil fumigants, growth regulators, defoliants, and desiccants are included as other chemicals. This report excludes pesticides used for seed treatments, for spot treatment, and for postharvest applications to the commodity.

Crop year refers to the period immediately following harvest for the previous crop through harvest of the current crop. **Rate per application** refers to the average number of pounds of a fertilizer primary nutrient or pesticide active ingredient applied to an acre of land in one application. The rate reflects the effect of band, spot, or alternate row middle spraying. **Rate per crop year** is the average number of pounds applied of an ingredient to one acre of land over the entire crop year, counting multiple applications. **Number of applications** is the average number of times a treated acre receives a specific agricultural chemical. **Area applied** represents the percentage of crop acres receiving one or more applications of a specific agricultural chemical. This report does not contain **acre treatments**. However, acre treatments can be calculated by multiplying the acres planted by the percent of area applied and the average number of applications.

Trade name is the trademark name given to a specific formulation of a pesticide product. A formulation contains a specific concentration of the active ingredient, carrier materials, and other ingredients such as emulsifiers and wetting agents. Some formulations as in the case of pre-mixes, can contain more than one active ingredient. The **common name** is an officially recognized name for an active ingredient. This report shows active ingredient by common name.

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TRADE NAMES, COMMON NAMES, AND CLASSES

The following is a list showing common name, associated class, and trade name of active ingredients in this publication. The classes are herbicides (H), insecticides (I), fungicides (F), and other chemicals (O). This list is provided as an aid in reviewing pesticide data. Pre-mixes are not cataloged. The list is not complete for all pesticides used on the vegetable crops surveyed and NASS does not mean to imply use of any specific trade name.

Class	Common Name	Trade Name
H	2, 4-D	several
H	2, 4-D, dimethylamine salt	Weedar 64, Range Star
I	acephate	Orthene, Acephate, Address, Orthene
H	acetic acid	2, 4-D LV 4 Ester
H	alachlor	Lasso, Bullet, Lariat, Micro-Tech, Saddle, Partner
H	ametryn	Evik
O	aminopyridine	Avitrol Cornchops-99
H	atrazine	Aatrex, Atrazine, Bullet, Laddok, Ramrod, Extrazine, Lariat, Bicep, Guardsman
I	azadirachtin	Align, Margosan-O, SuperNeem, Azatin
I	azinphos-methyl	Guthion
F	azoxystrobin	Abound, Heritage, Quadris
F	basic copper sulfate	Top Cop Tri-Basic, Basic Copper Sulfate, C-O-C-S WDG
F	benomyl	Benlate, Decco Salt
H	bensulide	Prefar
H	bentazon	Basagran, Pledge, Laddok
I	bifenthrin	Brigade, Capture, Talstar, Attain
H	bromoxynil	Buctril, Moxy, Bromoxynil
I	Bt (<i>Bacillus thuringiensis</i>)	several
O	busan 881	
H	butylate	Sutan
F	captan	Captan, Captec
I	carbaryl	Sevin, Carbaryl, Adios, Slam, Blackleaf
I	carbofuran	Furadan
H	carfentrazone-ethyl	AIM, Avalanche
O	chloropicrin	several
F	chlorothalonil	Bravo, Daconil, Ridomil, Terranil, Daconil, Echo, Ensign
I	chlorpyrifos	Dursban, Lorsban, Chlorpyrifos, Nufos
H	clethodim	Select, Prism
H	clomazone	Command, Strategy
H	clopyralid	Stinger, Hornet
F	copper ammonium complex	Copper-Count-N
F	copper hydroxide	several
F	copper oxide	Nordox
F	copper oxychloride sulfate	C-O-C-S
F	copper resinate	Tenn-Cop, Camelot
H	cyanazine	Bladex, Extrazine, Cy-Pro
H	cycloate	Ro-Neet
I	cyfluthrin	Baythroid, Aztec, Countdown
I	cypermethrin	Ammo
F	cyprodinil	Switch
H	DCPA	Dacthal
I	diazinon	several
H	dicamba	Banvel, Clarity
H	dicamba, dimethylamine salt	Range Star
H	dicamba, sodium salt	Dicamba SG
O	dichloropropene	Telone, Inline
F	dicloran	Botran, Decco Salt

CLASS	COMMON NAME	TRADE NAME
H	dimethenamid	Frontier, Guardsman
H	dimethenamid-P	Outlook, Guardsman, Cygon, Dimethoate, Dimate, De-Fend, Cymate, Digon
I	dimethoate	several
I	disulfoton	Di-Syston
H	diuron	Direx, Karmex, Diuron
I	endosulfan	Thiodan, Endosulfan, Phaser, Thirethrin, Thiodan Hi-Yield Insect Spray
H	EPTC	Eptam, Eradicane
I	esfenvalerate	Asana
H	ethalfuralin	Sonalan, Curbit EC, Strategy
I	ethoprop	Holdem, Mocap
I	ethyl parathion	Parathion
I	fenamiphos	Nemacur
H	fluazifop-P-butyl	Fusilade
F	fludioxonil	Switch
H	fluroxypyr	Starane
I	fonofos	Dyfonate II
F	fosetyl-al	Aliette
O	garlic oil	Guardian, Envirepel, Garlic Barrier
O	gibberellic acid	Goemar, Cytoplex, Pro-Gibb
H	glyphosate	Ranger, Rattler, Rodeo, Roundup, Honcho, Accord, Protocol, Mirage, Glyphos, Glyphomax, Engame, Clear-Out, Gly Star Plus, Buccaneer
H	halosulfuron	Permit, Sandea
O	harpin protein	Messenger
H	imazamox	Raptor
H	imazethapyr	Pursuit
I	imidacloprid	Admire, Provado, Marathon II
O	indole-3-butyric acid	PGR-IV, Cytoplex HMS
I	indoxacarb	Avaunt Insecticide
F	iprodione	Rovral
I	kaolin	Surround WP Crop Protectant
I	lambda cyhalothrin	Karate, Warrior
O	L-glutamic acid	Auxigro
H	MCPA	Weedar, Chiptox, Rhomene, MCP Amine 4
H	MCPA, dimethylamine salt	MCPA Amine
H	MCPB	Thistrol
I	malathion	Malation 8, Fyfanon, Atrapa
O	maleic hydrazide	Royal MH-30, Sprout Stop, Maleic Hydrazide
F	mancozeb	Dithane, Manzate 200, Penncozeb, Ridomil, Manex, Acrobat, Mankocide
F	maneb	Maneb, Manex, Amazin
F	mefenoxam	Ridomil Gold, Flouronil, Flourish
H	mesotrione	Ridomil
F	metalaxyl	Ridomil
O	metaldehyde	Metaldehyde, Deadline Bullets, Slug and Snail Bait Pellets
O	metam-sodium	Vapam, Sectagon, Vapam, Metam Sodium, Metam
I	methamidophos	Monitor
I	methidathion	Supracide 2E
I	methomyl	Lannate, Methomyl
O	methyl bromide	Tri-Con, Methyl Bromide, Chloropicrin
I	methyl parathion	Methyl Parathion, Penn-cap-M, Declare
F	metiram	Polyram 80 WP
H	metolachlor	Dual, Bicep
H	metribuzin	Axion, Lexone, Sencor
I	mevinphos	Phosdrin
I	myrothecium verrucaria	Ditera Biological Nematicide
F	myclobutanil	Rally, Nova

CLASS	COMMON NAME	TRADE NAME
H	napropamide	Devrinol
H	naptalam	Alanap-L
H	neem oil	NeemGard
H	nicosulfuron	Accent, Basis
H	norflurazon	Solicam
I	oxamyl	Vydate
I	oxydemeton-methyl	Metasystox-R
H	oxyfluorfen	Goal
H	paraquat	Cyclone, Gramoxone
H	pendimethalin	Prowl, Pursuit Plus, Pendimax
I	permethrin	Ambush, Pounce, Perm-Up, Waylay, Arctic, Eight Insect Control, Blue Dragon
I	petroleum distillate	Saf-T-Side, Sunspray, JMS Stylet-Oil
H	phenmedipham	Spin-Aid
I	phosmet	Imidan
I	piperonyl butoxide	Incite, PRO-8, Pyrenone, Diatect, Thirethrin
I	potassium salts	M-Pede, Safer Insecticidal Soap
H	prometryn	Caparol, Prometryne
H	propachlor	Ramrod
F	propiconazole	Tilt, Stratego
I	pyrethrins	Rotenone, Pyrellin, Pyrenone, Evergreen Growers Spray, Diatect, Thirethrin
H	quizalofop-P-ethyl	Assure
I	rotenone	Rotenoz, Rotenone/Pyrethrins
H	S-Metolachlor	Dual Magnum, Bicep Magnum
H	sethoxydim	Poast, Ultima
H	simazine	Princep, Simazine, Sim-Trol
I	spinosad	Tracer, Success, Spin Tor 2SC
H	sulfosate	Touchdown 5
I, F	sulfur	several
F	tebuconazole	Folicur
I	tebufenozide	Confirm 2F
I	tebupirimphos	Aztec
I	tefluthrin	Force
H	terbacil	Sinbar
I	terbufos	Counter
H	triallate	Far-Go
F	trichoderma harzianum	RootShield Drench
F	vinclozolin	Ronilan, Scotts Vorlan, Curalan
H	vernolate	Surpass
I	zeta-cypermethrin	Fury, Mustang