



WASHINGTON'S AGRICULTURAL CHEMICAL USAGE, 2005

NATIONAL AGRICULTURAL STATISTICS SERVICE
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Potato Highlights

Chemical Usage

Fall Potatoes: Eight fall producing States were included in the 2005 survey: Colorado, Idaho, Maine, Michigan, Minnesota, North Dakota, Washington, and Wisconsin. **Nitrogen** averaged 4.1 applications per field with a total of 180.3 million pounds applied to 99 percent of the fall potato acreage. **Phosphate** was applied to 98 percent of the fall potato acres, with a total of 132.5 millions pounds applied. A total of 145.4 million pounds of **Potash** were applied to 92 percent of the planted acreage. **Sulfur** recorded 41.3 million pounds applied to 72 percent of the acres planted.

The total pounds of all pesticides were down for fall potatoes in 2005 compared to 2003. Herbicides were applied to 92 percent of the fall potato acreage in 2005 in the 8 Program States. **Metribuzin** was the most widely applied herbicide, applied to 74 percent of the planted acreage treated, at a rate of 0.441 pounds per acre per crop year. The next three most widely applied herbicides applied to fall potatoes, **Pendimethalin**, **Rimsulfuron**, **EPTC**, were applied to 31, 27, and 24 percent of the acres planted, respectively.

Of the insecticides covering 79 percent of the 2005 fall potato acreage, the three most commonly applied were **Imidacloprid**, **Cyfluthrin**, and **Esfenvalerate**, and 38, 29, and 27 percent, respectively. Fungicide treatments were applied to 90 percent of the fall potato acreage in the Program States. **Mancozeb** was used most commonly, as it was applied to 61 percent of the planted acres at a rate of 4.215 pounds per acre per crop year.

Pest Management Practices

To prevent pests, 69 percent of the farms chopped, sprayed, mowed, plowed, or burned field edges, lanes, ditches, roadways, or fence lines. In addition, 91 percent of the potato acreage had been rotated with some other crop over the past three years to control pests. Ninety-eight percent of the potato acreage was scouted for weeds, insects or mites, and diseases, and the scouting was performed by the operator, partner, or family member on at least 53 percent of the farms.

Fall Potatoes: Chemical Applications, Total Acreage & Percentage Receiving Applications, Major States & Total, 2003 & 2005

State	Planted Acreage		Percent of Acres Treated & Total Applied 1/								Area Receiving & Total Applied 2/							
			Nitrogen		Phosphate		Potash		Sulfur		Herbicide		Insecticide 3/		Fungicide		Other	
	2003	2005	2003	2005	2003	2005	2003	2005	2003	2005	2003	2005	2003	2005	2003	2005		
	1,000 Acres		Percent								Percent							
CO	73	58	98	92	96	86	90	64	-	89	84	78	71	57	90	78	57	34
ID	360	325	100	100	95	99	86	92	-	82	89	90	78	65	78	81	57	49
ME	66	58	100	100	100	100	100	100	-	-	100	100	88	91	100	100	21	12
MI	46	44	100	99	98	94	98	100	-	58	94	98	99	97	96	98	48	2
MN	60	46	100	100	94	100	92	81	-	55	94	97	69	97	98	98	4	8
ND	117	92	97	100	92	100	84	96	-	54	82	89	80	76	99	96	3	7
OR 4/	43		100		96		84		-		95		83		94		70	
PA 4/	15		100		99		99		-		91		99		96		6	
WA	163	154	100	100	85	98	82	92	-	89	94	96	97	97	99	99	77	70
WI	81	68	100	100	99	99	100	99	-	72	94	99	99	97	99	99	38	49
Total	1,024	845	100	99	94	98	88	92	-	72	91	92	84	79	91	90	47	40

1/ Refers to acres receiving one or more applications of a specific ingredient.

2/ Refers to acres reported as receiving one or more applications of a specific pesticide class.

3/ Total applied excludes Bt's (*Bacillus thuringiensis*). Quantities are not available because amounts of active ingredient are not comparable between products.

4/ Oregon and Pennsylvania were not surveyed in 2005.

- Not Applicable.

Source: "Agricultural and Chemical Usage - 2005 Field Crops Summary"

Fall Potatoes: Agricultural Chemical Applications, Washington, 2005 1/

Agricultural Chemicals 2/	Area Applied 3/		Applications		Rate Per Application		Rate Per Crop Year		Total Applied	
	2003	2005	2003	2005	2003	2005	2003	2005	2003	2005
Fertilizers:	Percent		Number		Pounds Per Acre				Million Pounds	
Nitrogen	100	100	3.6	2.8	73	86	265	245	43.1	37.8
Phosphate	85	98	1.9	1.9	121	108	239	201	33.2	30.2
Potash	82	92	1.3	1.6	169	166	229	269	30.7	38.2
Sulfur	-	89	-	1.7	-	42	-	70	-	9.5
Herbicides:	Percent		Number		Pounds Per Acre				1,000 Pounds	
EPTC	40	38	1.1	1.0	3.19	3.444	3.54	3.465	228	202
Glufosinate-ammonium	17	9	1.0	1.0	0.37	0.363	0.37	0.364	11	5
Glyphosate iso.salt	-	11	-	1.0	-	0.412	-	0.420	-	7
Metribuzin	76	76	1.0	1.1	0.44	0.421	0.44	0.475	55	56
Pendimethalin	19	40	1.0	1.0	0.53	0.700	0.54	0.705	17	44
Rimsulfuron	14	32	1.0	1.0	0.02	0.018	0.02	0.018	4/	1
S-Metolachlor	-	3	-	1.0	-	1.241	-	1.241	-	7
Trifluralin	17	7	1.2	1.0	0.63	0.511	0.79	0.511	21	5
Insecticides:										
Aldicarb	25	35	1.0	1.0	2.84	2.924	2.84	2.924	116	159
Carbofuran	7	-	1.0	-	0.25	-	0.27	-	3	-
Cyfluthrin	51	33	1.3	2.0	0.03	0.029	0.04	0.060	3	3
Dimethoate	14	12	2.0	2.0	0.42	0.358	0.84	0.715	19	13
Esfenvalerate	13	60	1.2	1.7	0.04	0.031	0.05	0.053	1	5
Ethoprop	14	6	1.0	1.1	3.97	5.012	3.97	5.378	91	47
Imidacloprid	53	29	1.3	1.9	0.05	0.041	0.06	0.078	5	3
Methamidophos	57	49	1.6	1.7	0.94	0.927	1.54	1.556	144	117
Methomyl	-	9	-	1.1	-	0.505	-	0.549	-	7
Oxamyl	14	41	2.6	2.2	0.82	0.790	2.19	1.731	51	110
Permethrin	-	10	-	1.6	-	0.120	-	0.188	-	3
Phorate	14	-	1.0	-	3.07	-	3.07	-	72	-
Propargite	31	-	1.0	-	1.81	-	1.94	-	97	-
Pymetrozine	10	-	1.8	-	0.09	-	0.16	-	3	-
Thiamethoxam	-	6	-	1.0	-	0.087	-	0.087	-	1
Fungicides:										
Azoxystrobin	39	47	1.3	1.8	0.42	0.116	0.58	0.211	37	15
Boscalid	-	15	-	1.0	-	0.272	-	0.272	-	6
Chlorothalonil	62	64	2.4	2.2	0.98	0.923	2.41	2.064	242	204
Copper hydroxide	6	14	1.2	1.9	0.72	0.605	0.91	1.152	9	26
Cymoxanil	12	33	1.1	2.7	0.12	0.124	0.14	0.334	3	17
Famoxadone	-	9	-	1.0	-	0.097	-	0.097	-	1
Fenamidone	-	3	-	1.0	-	0.179	-	0.179	-	1
Fluazinam	67	59	1.5	1.9	0.24	0.235	0.37	0.457	40	42
Iprodione	42	-	1.1	-	0.74	-	0.87	-	60	-
Mancozeb	83	67	3.0	3.0	1.44	1.386	4.32	4.111	583	427
Mefenoxam	29	40	1.0	1.7	0.27	0.146	0.29	0.248	14	15
Metalaxyl	13	-	1.2	-	0.20	-	0.25	-	6	-
Metiram	9	40	3.3	2.4	1.60	1.545	5.41	3.678	80	224
PCNB	38	26	1.7	2.0	1.77	2.000	3.00	3.917	184	155
Propamocarb hydroch.	-	6	-	1.8	-	0.727	-	1.305	-	12
Pyraclostrobin	10	11	1.4	1.4	0.12	0.116	0.17	0.156	3	3
Sulfur	39	20	2.1	2.7	3.09	2.544	6.66	6.800	423	208
Zoxamide	-	7	-	1.0	-	0.075	-	0.077	-	1
Other Chemicals:										
Dichloropropene	12	20	1.0	1.0	157.83	160.396	157.83	160.396	3,189	4,892
Diquat dibromide	23	30	1.0	1.1	0.44	0.419	0.46	0.466	18	21
Maleic hydrazide	18	27	1.0	1.0	1.90	1.866	1.90	1.866	57	77
Metam-sodium	55	45	1.0	1.0	173.42	157.959	173.42	157.959	15,527	10,868
Paraquat	3	5	1.0	1.0	0.36	0.384	0.38	0.384	2	3

1/ Planted acreage in 2003 for Washington was 163,000 acres and in 2005 it was 154,000 acres.

2/ Insufficient reports in 2003 to publish data for the following chemicals: **Herbicides:** Clethodim, Glyphosate, Metolachlor, S-Metolachlor. **Insecticides:** Carbaryl, Diazinon, Disulfoton, Endosulfan, Indoxacarb, Methyl parathion, Permethrin, Phosmet, Spinosad, Thiamethoxam. **Fungicides:** Copper amm. complex, Copper oxychlo. sul., Copper resinate, Dicloran, Dimethomorph, Flutolanil, Propamocarb hydroch., Triphenyltin hydrox., Zoxamide. **Other Chemicals:** Busan 881, Chloropicrin, Endothall, Sulfuric acid. Insufficient reports in 2005 to publish data for the following chemicals: **Herbicides:** 2,4-D, 2-EHE, 2,4-D, dimeth. salt, Carfentrazone-ethyl, Clethodim. **Insecticides:** Acetamiprid, Carbaryl, Carbofuran, Diazinon, Endosulfan, Indoxacarb, Novaluron, Phorate, Phosmet, Propargite, Pymetrozine, Pyrethrins, Spinosad, Spiromesifen. **Fungicides:** Copper amm. complex, Copper chloride hyd., Copper sulfate, Dicloran, Dimethomorph, Flutolanil, Iprodione, Maneb, Trifloxystrobin, Triphenyltin hydrox. **Other Chemicals:** Chloropicrin, Endothall, GABA, L-Glutamic acid, Metam-potassium.

3/ Refers to acres receiving one or more applications of a specific agricultural chemical.

4/ Total applied is less than 500 lbs.

Note: Data may not multiply across due to rounding.

Source: "Agricultural and Chemical Usage - 2005 Field Crops Summary"

Trade Names, Common Names, and Classes

The following is a list of 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 field crops and NASS does not mean to imply use of any specific trade name.

Class	Common Name	Trade Name
I	aldicarb	Temik 15G
F	azoxystrobin	Amistar, Quadris, Uniform
F	boscalid	Endura, Pristine
I	carbofuran	Furadan 4F
F	chlorothalonil	Bravo 500, Bravo S, Bravo Ultrex, Bravo Weather Stik, Bravo ZN, Chloronil 720, Chlorothalonil 4L, Chlorothalonil 720 F, Echo 720, Echo 90DF, Echo Zn, Equus 500 ZN, Equus 720, Equus DF, Ridomil Gold+ Bravo Liquid, Ridomil Gold/Bravo
F	copper hydroxide	Champ Formula 2, Champ Formula II DF, Coppercide 50, Kocide 101, Kocide 2000, Kocide 4.5 LF, Kocide DF, Kocide LF, Nu-Cop 50DF, Ridomil Gold Copper
I	cyfluthrin	Aztec 2.1% Granular, Aztec 4.67% Granular, Baythroid 2, Leverage 2.7
F	cymoxanil	Curzate 60DF, Curzate M-8, Tanos
O	dichloropropene	Telone C-17, Telone II
I	dimethoate	Dimate 4EC, Dimethoate 2.67 EC, Dimethoate 400, Dimethoate 4EC, Dimethoate 5 lb., Dimethoate E-267
H	diquat dibromide	Diquat, Reglone
H	EPTC	Eptam 7-E, Eradicane 6.7E
I	esfenvalerate	Asana, Asana XL
I	ethoprop	Mocap 15G, Mocap EC
F	famoxadone	Tanos
F	fenamidone	Reason 500 SC
H	fluzinam	Omega 500F
H	glufosinate-ammonium	Ignite, Liberty, Liberty ATZ, Rely Herbicide
H	glyphosate iso. salt	Accord, Buccaneer Herbicide, ClearOut 41 Plus, Cornerstone, Credit, Credit Duo Extra, Durango, Follow Master, Follow Star, Field Master, Gly Star Original, Gly Star Plus, Gly-4 Plus, Glyphos X-TRA, Glyphomax, Glyphosate 4, Glyphosate Original, Helosate Plus, Hi-Yield Killzall, Honcho, Landmaster BW, Mad Dog Glyphosate, Mirage, Protocol, RT Master, Ranger, Roundup Custom, Roundup D-Pak, Roundup Original, Roundup Original II, Roundup Original Max, Roundup Pro, Roundup Super Concentrate, Roundup Ultra, Roundup Ultra Dry, Roundup Ultra Max, Roundup Weather Max
H	glyphosate	Glyphomax XRT, Sequence, Touchdown Herbicide, Touchdown Total
I	imidacloprid	Admire 2 Flowable, Leverage 2.7, Provado 1.6 Flowable, Trimax
F	iprodione	Rovral 4 Flowable
O	maleic hydrazide	Maleic hydrazide 1.5, Royal MH-30, Royal MH-30 SG, Royal MH-30 Xtra, Super Sprout Stop
F	mancozeb	Curzate M-8, Dithane 75DF Rainshield, Dithane DF/70, Dithane F-45 Rainshield, Dithane M-45, Gavel 75DF, Mancozeb 80% WP, Manex II, Manzate 200, Manzate 75DF, Manzate Flowable, Manzate Pro-Stick, Penncozeb, Penncozeb 75DF, Ridomil Gold MZ
F	mefenoxam	Ridomil Gold + Bravo Liquid, Ridomil Gold Copper, Ridomil Gold EC, Ridomil Gold MZ, Ridomil Gold PC, Ridomil Gold PC GR, Ridomil Gold Platinum, Ridomil Gold/Bravo, Ultra Flourish, Uniform
F	metalaxyl	Prevail
O	metam-sodium	Metam CLR 42%, Nemasol 42%, Sectagon 42, Vapam, Vapam HL
I	methamidophos	Monitor 4, Monitor 4 Spray
I	methomyl	Lannate LV, Lannate SP
F	metiram	Polyram 80DF, Polyram 80WP
H	metribuzin	Axiom DF, Boundary, Lexone DF, Metri DF, Sencor 4, Sencor 50WP, Sencor DF
I	oxamyl	Vydate C-LV, Vydate L
F	PCNB	Blocker 10G, Blocker 4F, PCNB 2-E, Prevail, Ridomil Gold PC, Ridomil Gold PC GR, Terraclor Super X 18.8G, Terraclor Super X Emulsifiable
H	paraquat	Cyclone, Cyclone Concentrate, Gramox Extra, Gramoxone Extra, Gramoxone Max, Gramoxone Super, Starfire
H	pendimethalin	Pendimax 3.3, Pendimethalin, Prowl, Prowl 3.3 EC, Prowl DG, Prowl H20
I	permethrin	Ambush, Arctic 3.2 EC, Perm-UP 3.2 EC, Permethrin 3.2 AG, Permethrin 3.2 EC, Pounce 1.5G, Pounce 3.2EC, Waylay 3.2 AG
I	phorate	Phorate 15G, Phorate 20-G, Thimet 10-G, Thimet 15-G, Thimet 20-G
F	propamocarb hydroch.	Previcur Flex
I	propargite	Comite, Comite II, Omite 6E
I	pymetrozine	Fulfill
F	pyraclostrobin	Headline, Pristine
H	rimsulfuron	Accent Gold, Basis, Basis Gold, Matrix, Steadfast, Steadfast ATZ
H	S-Metolachlor	Bicep II Magnum, Bicep Lite II Magnum, Boundary, Brawl, Camix, Cinch, Cinch ATZ, Dual II Magnum, Dual II Magnum SI, Dual IIG Magnum, Dual Magnum, Lexar, Lumax, Sequence
F	Sulfur	Bravo S, Kumulus DF, Microspray Wettable Sulfur, Microthiol Disperss, Microthiol Special, Sulfur Flowable, Super Six, Thiolut
I	Thiamethoxam	Actara, Centric, Plantinum, Ridomil Gold Platinum
H	Trifluralin	Treflan 5, Treflan E.C., Treflan HFP, Treflan M.T.F., Treflan TR-10, Tri-4, Trific 60DF, Trifluralin 10G, Trifluralin 4, Trilin, Trust 4EC
F	Zoxamide	Gavel 75DF

Fall Potatoes: Pest Management Practices, Washington and Program States, 2005

Practices	WA	Program States	WA	Program States
	Percent of Acres Receiving		Percent of Farms Utilizing	
Prevention Practices:				
No-till/minimum till used to manage pests	17	30	15	29
Plow down crop residue	76	60	81	65
Remove crop residue	44	18	35	12
Clean implements after fieldwork	92	75	82	67
Field edges/etc. chopped, mowed/etc.	96	79	90	69
Water management practices	64	53	50	39
Avoidance Practices:				
Adjust planting/harvesting dates	34	27	25	22
Rotate crops to control pests	100	91	100	88
Grow trap crop to control insects	3	3	3	3
Crop variety chosen for pest resistance	14	23	22	22
Planting locations planned to avoid pests	42	30	39	28
Monitoring Practices:				
Scouting by general observation	6	20	13	25
Deliberate scouting activities	94	79	87	74
Field was not scouted	*	1	*	1
Scouting for pests	66	50	56	46
Scouting due to pest advisory warning	62	27	45	23
Scouted due to pest development model	24	26	25	25
Scouted for weeds	100	98	100	96
Scouting for weeds was done by:				
Operator, partner, or family member	32	46	48	58
An employee	8	11	5	6
Farm supply or chemical dealer	46	15	34	11
Indep. crop consultant or comm. scout	14	28	13	26
Scouted for insects or mites	100	98	99	98
Scouting for insects or mites was done by:				
Operator, partner, or family member	31	41	47	54
An employee	8	10	5	6
Farm supply or chemical dealer	46	18	34	12
Indep. crop consultant or comm. scout	15	32	14	28
Scouted for diseases	99	98	97	98
Scouting for diseases was done by:				
Operator, partner, or family member	31	40	47	53
An employee	8	10	5	6
Farm supply or chemical dealer	46	17	35	12
Indep. crop consultant or comm. scout	15	32	13	29
Field mapping of weed problems	25	37	34	38
Soil/plant tissue analysis to detect pests	62	54	58	43
Records kept to track pests	82	58	74	48
Weather monitoring	97	79	94	79
Suppression Practices:				
Beneficial organisms	1	3	1	2
Biological pesticides	3	2	3	3
Scouting used to make decisions	53	48	51	51
Maintain ground cover or physical barriers	71	54	65	54
Adjust planting methods	27	25	30	23
Alternate pesticides with different MOA	69	64	77	58
Biological pest controls	29	10	21	13

* Percentage is less than 0.5