



WISCONSIN AGRICULTURAL CHEMICAL USE

Corn and Potatoes, Fall 2014



The National Agricultural Statistics Service (NASS) Agricultural Chemical Use Program is the U.S. Department of Agriculture's official source of statistics about on-farm and post-harvest fertilizer and pesticide use and pest management practices.

In the fall of 2014, NASS collected data about chemical use and pest management practices used on corn and potatoes production. The data was collected as part of the Agricultural Resource Management Survey (ARMS) and the results are presented here. The results are based on 4,500 surveys sent to producers in the 19 program states in 2014; there were 285 responses from Wisconsin producers. The 19 program states in the 2014 ARMS were Colorado, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, Pennsylvania, South Dakota, Texas, Washington, and Wisconsin.

Uses of ARMS Data

Farm organizations, commodity groups, agribusiness, Congress, State Departments of Agriculture, and the USDA use information from ARMS to evaluate the production practices, resource use, and the financial performance of farm/ranch businesses and to make policy decisions affecting agriculture.

In general, farmers benefit from ARMS data indirectly. They see the information through contact with representatives from farm/commodity groups or extension advisors in reports issued by State colleges and universities, in farm magazines, newspapers, and on radio or TV broadcasts. Most respondents probably do not realize the data come from the ARMS but may be affected by the farm policy decisions that are made.

A few specific examples of how these data are used include:

- The National Corn Growers Association used data from past studies in their sustaining innovation media message, showing that farmers have increased corn production while reducing land, fertilizer, and chemical use.
- It will provide accurate real world information to update models that simulate the carbon footprint of corn and corn ethanol production.
- It will be used in the re-registration of existing pesticides and in the registration of new pesticides.

Markets cannot operate efficiently without accurate and timely information. As with all USDA reports everyone, from the smallest farmer to the largest agribusiness firm, has free and equal access to the results from this survey. This access to information allows farmers to stay on equal footing with agribusiness firms and others who market agricultural commodities.

<p>USDA-NASS WISCONSIN FIELD OFFICE 2811 AGRICULTURE DRIVE MADISON, WI 53718</p> <p>PHONE: 800-789-9277 FAX: 855-271-9802</p> <p>E-MAIL: NASSRFOUMR@NASS.USDA.GOV</p> <p>Greg Bussler, State Statistician</p>	<p><i>TO WISCONSIN PRODUCERS: This report contains results collected from the annual Agricultural Resource Management Survey. Your operation, large or small, represents Wisconsin agriculture. We appreciate your assistance in providing timely and accurate data. Thank you for your support.</i></p> <p style="text-align: right;"><i>~Greg Thessen, Director, Upper Midwest Region</i></p>
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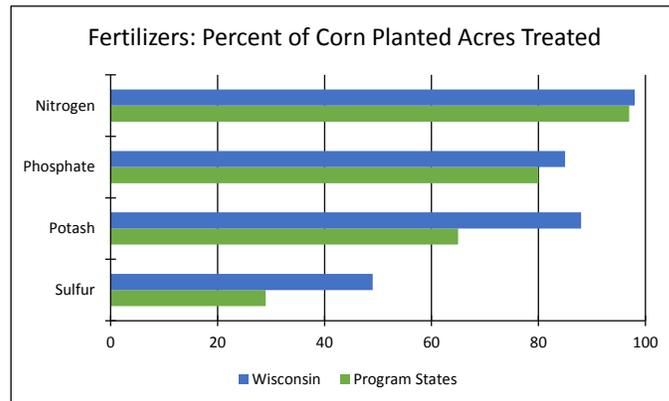
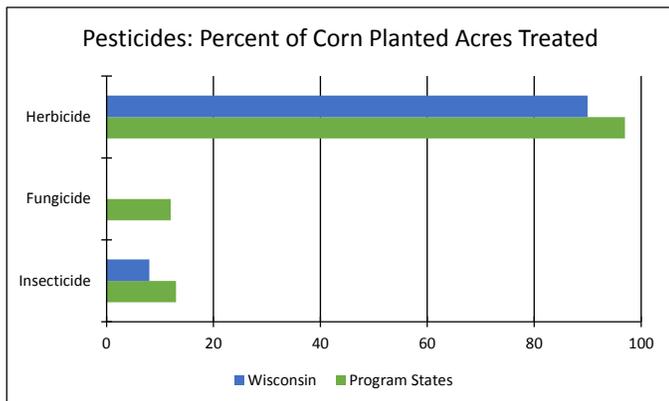
OUR CONFIDENTIALITY PLEDGE

- **Names, addresses, and personal identifiers are fully protected by NASS with the force of law.** Title 7, U.S. Code, Section 2276 and the Confidential Information Protection and Statistical Efficiency Act **prohibit public disclosure** of individual information.
- **Only authorized** persons working for NASS as employees or sworn agents, who are subject to fines and imprisonment for unauthorized disclosure, can access individual record data and only for approved official purposes.
- **Data security** is a top priority during preparation of NASS reports.
- Published statistics from NASS surveys and censuses **will not** disclose reported data from an individual.

CORN

Pesticides: Herbicide active ingredients were applied to 90 percent of the corn acres planted in Wisconsin. Atrazine was the most widely used pesticide overall, and was the active ingredient with the greatest total amount. Insecticide active ingredient was applied to 8 percent of corn acres planted Wisconsin.

Fertilizers: Of the three primary macronutrients, nitrogen (N) was the most widely used on corn. Wisconsin farmers applied nitrogen to 98 percent of planted acres at an average rate of 104 pounds per acre per year. Macronutrients phosphate (P) and potash (K) were applied to the majority of acres, at an average rate of 38 and 64 pounds per acre per year, respectively. The secondary macronutrient, sulfur (S), was applied to 49 percent of acres planted to corn.



Active Ingredient	Wisconsin			Program States ¹		
	Planted Acres Treated (%)	Rate Applied per Year (lbs/acre)	Total Lbs Applied (1,000 lbs)	Planted Acres Treated (%)	Rate Applied per Year (lbs/acre)	Total Lbs Applied (1,000 lbs)
Pesticide Use on Corn						
FUNGICIDE:						
TOTAL FUNGICIDE	(D)		(D)	12		1,162
HERBICIDE:						
Acetochlor	22	0.983	861	29	1.256	28,685
Atrazine	53	0.693	1,456	55	1.018	45,231
Clopyralid	13	0.069	35	13	0.072	752
Dicamba, DIGLY. Salt	2	0.103	6	1	0.186	117
Dicamba, Sodium Salt	5	0.087	17	6	0.092	472
Diflufenopyr-sodium	3	0.029	4	6	0.036	177
Dimethenamid-P	6	0.673	157	4	0.630	2,130
Flumetsulam	13	0.028	14	13	0.030	315
Glyphosate	12	0.937	440	11	0.907	7,979
Glyphosate ISO. Salt	37	0.839	1,244	38	0.889	27,221
Glyphosate POT. Salt	19	1.034	768	24	1.159	22,560
Mesotrione	28	0.119	133	27	0.115	2,529
Metolachlor	2	1.477	140	1	1.175	935
S-Metolachlor	28	1.263	1,404	27	1.106	23,600
Tembotrione	15	0.068	41	6	0.072	336
Thiencarbazone-Methy	13	0.014	7	9	0.023	167
TOTAL HERBICIDE	90		6,952	97		176,291
INSECTICIDE:						
TOTAL INSECTICIDE	8		22	13		1,684
Fertilizer Use on Corn						
Nitrogen	98	104	407,600	97	144	11,244,700
Phosphate	85	38	127,900	80	64	4,072,000
Potash	88	64	222,200	65	82	4,285,800
Sulfur	49	16	31,700	29	15	345,400

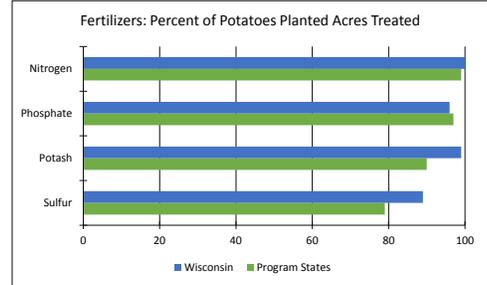
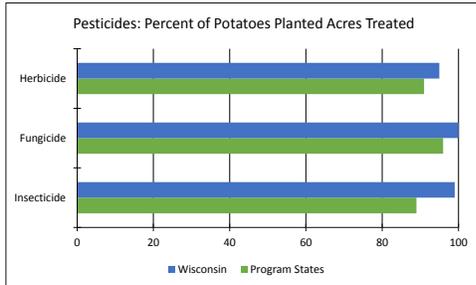
¹ The 15 program states surveyed about corn in the 2014 ARMS were Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, Pennsylvania, South Dakota, Texas, and Wisconsin.

(D) Withheld to avoid disclosing data for individual operations.

POTATOES

Pesticides: Herbicide active ingredients were applied to 95 percent of the potatoes acres planted in Wisconsin. Chlorothalonil was the most widely used pesticide overall, and Metam-Sodium was the active ingredient with the greatest total amount. Fungicide and insecticide active ingredients were applied to 100 percent and 99 percent of potatoes acres planted, respectively, in Wisconsin.

Fertilizers: Of the three primary macronutrients, nitrogen (N) was the most widely used on potatoes. Wisconsin farmers applied nitrogen to 100 percent of planted acres at an average rate of 237 pounds per acre per year. Macronutrients phosphate (P) and potash (K) were applied to the majority of acres, at an average rate of 88 and 329 pounds per acre per year, respectively. The secondary macronutrient, sulfur (S), was applied to 89 percent of acres planted to potatoes.



Active Ingredient	Wisconsin			Program States ¹		
	Planted Acres Treated (%)	Rate Applied Per Year (lbs/acre)	Total Lbs Applied (1,000 lbs)	Planted Acres Treated (%)	Rate Applied Per Year (lbs/acre)	Total Lbs Applied (1,000 lbs)
Pesticide Use on Potatoes						
FUNGICIDE:						
Azoxystrobin	70	0.212	9	56	0.155	71
Boscalid	73	0.281	13	34	0.320	91
Chlorothalonil	96	8.849	543	70	3.538	2,018
Copper hydroxide	13	2.287	18	14	1.539	182
Cymoxanil	39	0.185	5	24	0.160	32
Difenoconazole	43	0.188	5	31	0.158	40
Mancozeb	71	4.327	196	61	3.559	1,790
Mandipropamide technical	41	0.195	5	28	0.166	38
Mefenoxam	61	0.351	14	44	0.256	93
PCNB	37	4.634	109	4	3.849	140
Propamocarb hydroch	24	0.908	14	4	1.406	45
Pyraclostrobin	48	0.217	7	23	0.157	30
Triphenyltin hydrox.	75	0.280	13	20	0.256	43
Zoxamide	52	0.257	8	24	0.252	50
TOTAL FUNGICIDE	100		987	96		6,018
HERBICIDE:						
Linuron	73	0.660	31	13	0.660	71
Metolachlor	6	1.329	5	2	1.519	21
Metribuzin	61	0.470	18	75	0.443	271
Pendimethalin	63	0.809	33	38	0.813	257
Rimsulfuron	75	0.017	1	30	0.020	5
S-Metolachlor	3	1.086	2	18	1.386	201
TOTAL HERBICIDE	95		96	91		1,683
INSECTICIDE:						
Clothianidin	36	0.091	2	4	0.093	3
Imidacloprid	15	0.251	2	36	0.192	57
Spinosad	45	0.082	2	11	0.129	12
Thiamethoxam	56	0.062	2	27	0.097	22
TOTAL INSECTICIDE	99		16	89		892
OTHER CHEMICALS:						
Diquat dibromide	84	0.793	42	37	0.564	170
Maleic hydrazide	33	1.623	35	11	1.817	167
Metam-Sodium	46	164.603	4,820	20	171.299	27,788
TOTAL OTHER CHEMICALS	96		4,913	67		69,474
Fertilizer Use on Potatoes						
Nitrogen	100	237	15,000	99	205	166,100
Phosphate	96	88	5,400	97	129	102,700
Potash	99	329	20,800	90	149	109,800
Sulfur	89	75	4,200	79	64	42,000

¹ The 8 program states surveyed about potatoes in the 2014 ARMS were Colorado, Idaho, Maine, Michigan, Minnesota, North Dakota, Washington, and Wisconsin.

Pest Management Practices: Scouting for weeds was the top pest management practice on **corn** acreage. Scouting for diseases, insects, and mites were the top pest management practices on **potatoes** acreage.

	Wisconsin				Program States			
	Corn		Potatoes		Corn ¹		Potatoes ²	
	% of Area Planted	% of Operations	% of Area Planted	% of Operations	% of Area Planted	% of Operations	% of Area Planted	% of Operations
Avoidance								
Crop or plant variety chosen for specific pest resistance	57	53	68	57	57	54	41	37
Planting locations planned to avoid cross infestation of pests	26	28	74	69	24	22	48	50
Planting or harvesting dates adjusted	25	26	33	54	21	20	43	45
Rotated crops during past 3 years	81	79	100	100	84	84	97	97
Row spacing, plant density, or row directions adjusted	17	11	39	49	19	16	42	42
Monitoring								
Diagnostic laboratory services used for pest detection via soil or plant tissue analysis	17	9	68	73	13	9	69	62
Field mapping data used to assist decisions	20	16	8	18	18	15	28	23
Scouted								
-established process used	31	23	94	86	23	19	60	58
-for pests due to a pest advisory warning	10	8	51	53	9	7	41	38
-for pests due to a pest development model	17	11	50	46	10	8	37	34
-for pests or beneficial organisms-not scouted	15	24	(Z)	(Z)	7	13	1	1
-for pests or beneficial organism by conducting gen. observations while performing routine tasks	22	22	(Z)	2	26	29	11	15
-for pests or beneficial organism by deliberately going to the crop acres or growing areas	63	54	100	98	67	58	88	84
Scouted for diseases	67	56	100	98	80	69	99	98
-by employee	3	3	31	22	1	1	24	17
-by farm supply company or chemical dealer	19	19	2	1	14	15	11	10
-by independent crop consultant or commercial scout	26	20	61	59	16	13	28	26
-by operator, partner, or family member	53	58	6	18	68	71	38	47
Scouted for insects & mites	64	54	100	100	81	70	98	97
-by employee	3	3	31	21	1	1	24	18
-by farm supply company or chemical dealer	21	22	2	1	15	15	11	11
-by independent crop consultant or commercial scout	27	20	62	59	17	14	28	26
-by operator, partner, or family member	49	54	5	18	67	70	37	46
Scouted for weeds	85	76	87	93	92	86	97	96
-by employee	2	2	36	23	1	1	25	18
-by farm supply company or chemical dealer	22	22	3	1	13	14	10	9
-by independent crop consultant or commercial scout	20	15	50	49	15	11	24	23
-by operator, partner, employee, or family member	56	61	11	26	70	73	41	51
Weather data used to assist decisions	57	51	99	90	57	56	89	86
Written or electronic records kept to track pest activity	39	28	95	87	34	29	61	57
Prevention								
Beneficial insect or vertebrate habitat maintained	20	14	42	37	14	13	24	25
Crop residues removed or burned down	10	11	8	11	9	10	14	14
Equipment & implements cleaned after field work to reduce spread of pests	32	31	66	71	35	33	88	82
Field edges, ditches, or fence lines were chopped, sprayed, mowed, plowed, or burned	35	37	77	66	56	50	86	82
Field left fallow previous year to manage insects	4	2	(NA)	(NA)	1	1	(NA)	(NA)
Flamer used to kill weeds	1	(Z)	1	4	1	(Z)	7	7
No-till or minimum till used	66	61	64	47	67	67	29	26
Plowed down crop residue using conventional tillage	33	41	77	78	32	33	70	74
Seed treated for insect or disease control after purchase	14	10	64	56	23	19	77	73
Water management practices used	2	1	87	76	8	5	55	47
Suppression								
Beneficial organisms applied or released	1	(Z)	1	6	1	1	3	4
Biological pesticides applied	4	3	27	23	10	10	15	12
Buffer strips or border rows maintained to isolate organic from non-organic crops	5	6	35	31	8	7	18	16
Floral lures, attractants, repellants, pheromone traps, or biological pest controls used	2	1	2	9	1	(Z)	8	10
Ground covers, mulches, or other physical barriers maintained	51	56	80	75	47	46	62	63
Pesticides with different mechanisms of actions to keep pest from becoming resistant to pesticides	29	31	95	86	32	32	82	76
Scouting data compared to published information to assist decisions	30	26	63	72	24	21	49	45
Trap crop grown to manage insects	3	2	1	4	2	2	1	3

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² The 8 program states surveyed about potatoes in the 2014 ARMS were Colorado, Idaho, Maine, Michigan, Minnesota, North Dakota, Washington, and Wisconsin.

(Z) Less than half the rounding unit. (NA) Not available.

Complete data from the 2014 agricultural chemical use survey for corn are available on the NASS website at http://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Chemical_Use/

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