



Minnesota Ag News – Chemical Use

Barley: Fall 2023



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Cooperating with the Minnesota Department of Agriculture

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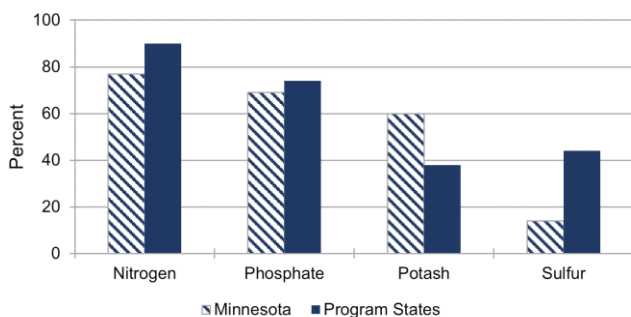
The National Agricultural Statistics Service (NASS) Agricultural Chemical Use Program is the U.S. Department of Agriculture's official source of statistics about on-farm and post-harvest fertilizer and pesticide use and pest management practices.

In the fall of 2023, NASS collected data for the 2023 crop year, the one-year period beginning after the 2022 harvest and ending with the 2023 harvest, about chemical use and pest management practices used on barley production. The data was collected as part of the Agricultural Resource Management Survey (ARMS) and the results are presented here.

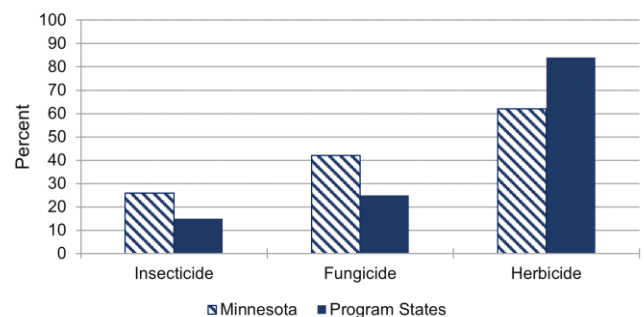
Fertilizer Use: Of the three primary macronutrients, nitrogen was the most widely used on barley acres planted in Minnesota. Farmers applied nitrogen to 77 percent of planted acres at an average rate of 84 pounds per acre per year. Macronutrients phosphate and potash were applied at an average rate of 49 and 47 pounds per acre per year, respectively. The secondary macronutrient, sulfur, was applied to 14 percent of acres planted to barley.

Pesticide Use: Herbicide active ingredients were applied to 62 percent of the barley acres planted. Bromoxynil octanoate was the most widely used pesticide on barley acres, and was also the active ingredient with the greatest total amount applied. Fungicides and insecticides were applied to 42 and 26 percent of barley acres planted in Minnesota, respectively.

**Fertilizers, Barley Planted Acres Treated
Minnesota and Program States: 2023**



**Pesticides, Barley Planted Acres Treated
Minnesota and Program States: 2023**



Pesticide Use on Barley - Minnesota and Program States: 2023

Active ingredient	Minnesota			Program states ¹		
	Planted acres treated ² (percent)	Yearly rate (lbs per acre)	Total applied (1,000 lbs)	Planted acres treated ² (percent)	Yearly rate (lbs per acre)	Total applied (1,000 lbs)
Fungicide						
Propiconazole	19	0.083	1	17	0.107	53
Prothioconazole	22	0.100	1	5	0.100	16
Tebuconazole	32	0.159	3	5	0.100	14
Total ³	42		7	25		173
Herbicide						
Bromoxynil Heptan	36	0.099	2	25	0.096	70
Bromoxynil Octanoate	38	0.114	3	38	0.161	179
Methanone	33	0.031	1	23	0.032	22
Pinoxaden	15	0.050	(Z)	28	0.051	42
Total ³	62		11	84		1,880
Insecticide						
Lambda-Cyhalothrin	21	0.025	(Z)	11	0.026	9
Total ³	26		(Z)	15		15

(Z) Less than half of the unit shown.

¹ The 14 program states surveyed about barley in the 2023 ARMS were California, Colorado, Idaho, Minnesota, Montana, North Carolina, North Dakota, Oregon, Pennsylvania, South Dakota, Virginia, Washington, Wisconsin, and Wyoming.

² Acres with multiple nutrients are counted in each category.

³ Total Fungicide, Herbicide, and Insecticide include pesticides not listed in the table.

Fertilizer Use on Barley – Minnesota and Program States: 2023

Active ingredient	Minnesota			Program states ¹		
	Planted acres treated	Yearly rate	Total applied	Planted acres treated	Yearly rate	Total applied
	(percent)	(lbs per acre)	(1,000 lbs)	(percent)	(lbs per acre)	(1,000 lbs)
Nitrogen	77	84	3,900	90	68	182,400
Phosphate	69	49	2,000	74	36	78,600
Potash	60	47	1,700	38	26	29,000
Sulfur	14	22	200	44	16	20,500

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Pest Management Practices on Barley – Minnesota and Program States: 2023

	Minnesota		Program states ¹	
	% of area planted	% of operations	% of area planted	% of operations
Avoidance				
Crop or plant variety chosen for specific pest resistance	15	12	26	23
Planting locations planned to avoid cross infestation of pests	15	11	28	26
Planting or harvesting dates adjusted	2	7	23	22
Rotated crops during past 3 years	71	82	84	84
Row spacing, plant density, or row directions adjusted	1	2	31	23
Monitoring				
Diagnostic laboratory services used for pest detection via soil or plant tissue analysis	1	1	11	7
Field mapping data used to assist decisions	27	16	21	17
Scouted -				
established process used	13	9	13	10
for pests due to a pest advisory warning	12	8	8	6
for pests due to a pest development model	10	4	6	7
for pests or beneficial organisms-not scouted	8	13	6	12
for pests or beneficial organism by conducting general observations while performing routine tasks	37	51	23	31
for pests or beneficial organism by deliberately going to the crop acres or growing areas	55	36	71	57
Scouted for diseases	84	75	79	67
Scouted for insects and mites	80	75	79	68
Scouted for weeds	88	81	92	84
Weather data used to assist decisions	37	21	62	50
Written or electronic records kept to track pest activity	58	30	41	34
Prevention				
Beneficial insect or vertebrate habitat maintained	1	3	17	17
Crop residues removed or burned down	1	2	11	13
Equipment and implements cleaned after field work to reduce spread of pests	57	62	65	55
Field edges, ditches, or fence lines chopped, sprayed, mowed, plowed, or burned	22	30	41	43
Field left fallow previous year to manage insects	0	0	10	7
Flamer used to kill weeds	1	1	2	2
No-till or minimum-till used	55	54	59	54
Plowed down crop residue using conventional tillage	8	16	26	32
Seed treated for insect or disease control after purchase	9	5	53	39
Water management practices used	1	3	16	19
Suppression				
Beneficial organisms applied or released	0	0	3	2
Biological pesticides applied	0	0	5	3
Buffer strips or border rows maintained to isolate organic from non-organic crops	2	6	10	12
Floral lures, attractants, repellants, pheromone traps, or biological pest controls used	0	0	2	1
Ground covers, mulches, or other physical barriers maintained	38	27	54	54
Pesticides with different mechanisms of action to keep pest from becoming resistant to pesticides	5	3	35	26
Scouting data compared to published information to assist decisions	0	0	0	0
Trap crop grown to manage insects	0	0	1	1

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More information and data for the USDA NASS Chemical Use Program can be found at:
[https://www.nass.usda.gov/Surveys/Guide to NASS Surveys/Chemical Use/](https://www.nass.usda.gov/Surveys/Guide%20to%20NASS%20Surveys/Chemical%20Use/).