

## 2003 CORN CHEMICAL USAGE

Nitrogen was applied to 96 percent of the total 2003 corn planted acreage in the Program States: Colorado, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, New York, North Carolina, North Dakota, Ohio, Pennsylvania, South Dakota, Texas, and Wisconsin. Corn growers used an average of 1.7 applications per acre while applying 78 pounds of nitrogen per treatment. This computes to a crop year rate per acre of 136 pounds per acre. In the Program States, 79 percent of the corn planted acreage received a phosphate application, while potash was applied to 64 percent of the planted acreage.

Herbicides were applied to 95 percent of the corn-planted acreage in 2003, in the Program States. Atrazine continued to be the most widely applied herbicide with 68 percent of the planted acreage being treated. It was applied at a rate of 1.04 pounds per acre. Acetochlor, at 26 percent of the planted acres treated, was the second most widely applied herbicide, followed by glyphosate and S-metolachlor, both applied to 19 percent of the planted corn acreage treated in the Program States.

In 2003, 29 percent of the corn planted acreage was treated with insecticides in the Program States. Cyfluthrin and tebufenpyrad were the most widely applied insecticides, both applied to 7 percent of the acres planted to corn in the States surveyed.

### CORN: Acreage, Percent Receiving Chemicals, Number of Applications, Rates per Application, Selected States, 2003

State	Area Planted 1,000 Acres	Nitrogen			Phosphate			Potash			Herbicide	Insecticide
		Area Applied 1/ Percent	Appli- cations Number	Rate per Appli- cation Pounds	Area Applied 1/ Percent	Appli- cations Number	Rate per Appli- cation Pounds	Area Applied 1/ Percent	Appli- cations Number	Rate per Appli- cation Pounds	Area Applied 1/ Percent	Area Applied 1/ Percent
IA	12,400	93	1.4	94	59	1.0	61	65	1.0	80	96	14
<b>MN</b>	<b>7,200</b>	<b>95</b>	<b>1.6</b>	<b>74</b>	<b>89</b>	<b>1.0</b>	<b>44</b>	<b>73</b>	<b>1.0</b>	<b>64</b>	<b>95</b>	<b>13</b>
WI	3,750	99	1.8	55	90	1.0	38	89	1.1	61	98	22
<b>Total 2/</b>	<b>72,770</b>	<b>96</b>	<b>1.7</b>	<b>78</b>	<b>79</b>	<b>1.1</b>	<b>53</b>	<b>64</b>	<b>1.0</b>	<b>78</b>	<b>95</b>	<b>29</b>

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

2/ Refers to 18 major corn states including: CO, IL, IN, IA, KS, KY, MI, MN, MO, NE, NY, NC, ND, OH, PA, SD, TX and WI.

### CORN: Frequency and Extent of Chemical Usage by Active Ingredient, Minnesota, 2003 1/

Active Ingredient	Area Applied 2/	Applications	Rate per Application	Rate per Year	Total Applied
	Percent	Number	Pounds	Pounds	1,000 Pounds
<b>Herbicides</b>					
Acetochlor	30	1.0	1.73	1.73	3,683
Atrazine	45	1.0	0.63	0.64	2,112
Bromoxynil	3	1.0	0.31	0.31	63
Clopyralid	8	1.0	0.10	0.10	54
Dicamba	11	1.0	0.26	0.26	210
Dicamba, Dimet. salt	4	1.0	0.09	0.09	24
Dicamba, Pot. salt	8	1.0	0.34	0.34	183
Diflufenzopyr-sodium	4	1.0	0.04	0.04	13
Dimethenamid-P	5	1.0	0.08	0.08	30
Flumetsulam	8	1.0	0.04	0.04	20
Glufosinate-ammonium	9	1.0	0.27	0.29	198
Glyphosate	22	1.2	0.72	0.91	1,427
Mesotrione	18	1.0	0.11	0.11	144
Metolachlor	3	1.0	2.13	2.13	392
Nicosulfuron	21	1.0	0.02	0.02	30
Primisulfuron	4	1.0	0.02	0.02	5
Rimsulfuron	17	1.0	0.01	0.01	12
S-Metolachlor	12	1.0	1.93	1.93	1,682
<b>Insecticides</b>					
Chlorpyrifos	3	1.0	1.17	1.17	214

1/ Planted acres in 2003 for Minnesota were 7.20 million acres.

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

**2003 BARLEY CHEMICAL USAGE**

Nitrogen was applied to 93 percent of the 2003 barley planted acreage in the following Program States: California, Idaho, Minnesota, Montana, North Dakota, Pennsylvania, South Dakota, Utah, Washington, Wisconsin, and Wyoming. Nitrogen applications ranged from 37 percent of the acres treated in Wisconsin to 99 percent in Washington. Barley growers used an average of 1.4 applications per acre while applying 40 pounds of nitrogen per treatment. This computes to a crop year rate per acre of 60 pounds. In the Program States, 79 percent of the acres of barley planted received a phosphate application, while potash was applied to 29 percent of the acreage planted to barley.

Herbicides were applied to 93 percent of the barley planted acreage in 2003. MCPA was the most widely applied herbicide with 45 percent of the planted acreage being treated. It was applied at a rate of 0.32 pounds per acre. The next three most widely applied herbicides for barley, namely 2, 4-D, bromoxynil, and fenoxaprop, were applied to 30, 29, and 28 percent, respectively, of the planted barley acreage.

In 2003, 3 percent of the barley planted acreage was treated with insecticides. The insecticides applied to barley were all put on less than one percent of the planted acres; therefore, no area applied values were published. Based on total pounds applied, methyl parathion at 9,000 pounds, was the most widely used insecticide on barley acres planted in the Program States. Fungicides were applied to 7 percent of the barley planted acreage in the States in the survey program.

**BARLEY: Acreage, Percent Receiving Chemicals,  
Number of Applications, Rates per Application, Selected States, 2003**

State	Area Planted 1,000 Acres	Nitrogen			Phosphate			Potash			Herbicide	Insecticide
		Area Applied 1/ Percent	Appli- cations Number	Rate per Appli- cation Pounds	Area Applied 1/ Percent	Appli- cations Number	Rate per Appli- cation Pounds	Area Applied 1/ Percent	Appli- cations Number	Rate per Appli- cation Pounds	Area Applied 1/ Percent	Area Applied 1/ Percent
<b>MN</b>	<b>190</b>	<b>91</b>	<b>1.4</b>	<b>45</b>	<b>87</b>	<b>1.0</b>	<b>32</b>	<b>66</b>	<b>1.0</b>	<b>32</b>	<b>89</b>	<b>8</b>
ND	2,050	98	1.7	33	91	1.0	27	20	1.0	10	98	4
SD	75	82	1.2	32	78	1.1	29	13	1.0	18	86	2/
WI	55	37	1.0	24	36	1.0	33	44	1.0	74	21	2/
<b>Total 3/</b>	<b>4,850</b>	<b>93</b>	<b>1.4</b>	<b>40</b>	<b>79</b>	<b>1.0</b>	<b>29</b>	<b>29</b>	<b>1.0</b>	<b>20</b>	<b>93</b>	<b>3</b>

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

2/ Data not published due to insufficient number of reports.

3/ Refers to eleven major barley states including: CA, ID, MN, MT, ND, PA, SD, UT, WA, WI and WY.

**BARLEY: Frequency and Extent of Chemical Usage  
By Active Ingredient, Minnesota, 2003 1/**

Ingredient	Area Applied 2/	Applications	Rate per Application	Rate per Year	Total Applied
	Percent	Number	Pounds per Acre	Pounds per Acre	1,000 Pounds
<b>Herbicides</b>					
2,4-D	23	1.0	0.52	0.52	22
Bromoxynil	30	1.0	0.23	0.24	14
Bromoxynil octanoate	16	1.0	0.27	0.27	8
Fenoxaprop	43	1.0	0.06	0.06	5
Fluroxypyr	10	1.0	0.11	0.11	2
MCPA	63	1.0	0.29	0.29	35
Thifensulfuron	16	1.0	0.02	0.02	1
Tribenuron-methyl	6	1.0	0.005	0.005	3/
<b>Insecticides</b>					
Methyl parathion	5	1.3	0.12	0.16	1
<b>Fungicides</b>					
Propiconazole	19	1.1	0.06	0.07	3
Pyraclostrobin	5	1.0	0.05	0.05	1
Tebuconazole	14	1.0	0.11	0.11	3

1/ Planted acres in 2003 for Minnesota were 190,000 acres.

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

3/ Total applied is less than 500 lbs.

## 2003 FALL POTATOES CHEMICAL USAGE

The 10 survey states totaled 1.0 million planted acres in 2003. Nitrogen was applied to 100 percent of the fall potato acreage in the ten Program States which includes Colorado, Idaho, Maine, Michigan, Minnesota, North Dakota, Oregon, Pennsylvania, Washington, and Wisconsin. Nitrogen applications averaged 4.0 per acre. Phosphate was applied to 94 percent of the fall potato acreage and potash was applied to 88 percent in the States surveyed.

Herbicides were applied to 91 percent of the fall potato acreage in 2003 in the ten Program States. Metribuzin was the most widely applied herbicide, applied to 69 percent of the planted acreage being treated. Insecticide applications were reported on 84 percent of the total fall potato planted acreage, while fungicide applications were reported on 91 percent.

### FALL POTATOES: Acreage, Percent Receiving Chemicals, Number of Applications, Rates per Application, Major States, 2003

State	Area Planted	Nitrogen			Phosphate			Potash			Herbicide	Insecticide
		Area Applied 1/	Applications	Rate per Application	Area Applied 1/	Applications	Rate per Application	Area Applied 1/	Applications	Rate per Application	Area Applied 1/	Area Applied 1/
	1,000											
	Acres	Percent	Number	Pounds	Percent	Number	Pounds	Percent	Number	Pounds	Percent	Percent
MN	60	100	2.2	65	94	1.1	74	92	1.3	113	94	69
ND	117	97	3.6	40	92	1.4	64	84	1.2	112	82	80
WI	81	100	6.6	37	99	2.1	70	100	3.9	80	94	99
<b>Total 2/</b>	1,024	100	4.0	53	94	1.7	94	88	1.6	106	91	84

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

2/ Refers to ten majors fall potato states including; CO, ID, ME, MI, MN, ND, OR, PA, WA and WI.

### FALL POTATOES: Frequency and Extent of Usage by Active Ingredient, Minnesota, 2003 1/

Active Ingredient	Area Applied 2/	Applications	Rate per Application	Rate per Year	Total Applied
	Percent	Number	Lbs. Per Acre	Lbs. Per Acre	1,000 Pounds
<b>Herbicides</b>					
Linuron	9	1.0	1.01	1.01	6
Metribuzin	57	1.0	0.39	0.42	14
Rimsulfuron	16	1.0	0.02	0.02	3/
S-Metolachlor	11	1.0	1.07	1.07	7
<b>Insecticides</b>					
Cyfluthrin	26	1.2	0.03	0.03	1
Esfenvalerate	16	1.6	0.02	0.03	3/
Imidacloprid	37	1.4	0.08	0.11	3
Thiamethoxam	28	1.1	0.03	0.04	1
<b>Fungicides</b>					
Azoxystrobin	27	1.6	0.11	0.19	3
Chlorothalonil	66	4.7	0.90	4.30	171
Mancozeb	66	3.9	1.38	5.42	216
Mefenoxam	30	1.0	0.45	0.45	8
Metiram	17	2.7	1.27	3.45	35
Triphenyltin hydrox	29	2.4	0.12	0.28	5
<b>Other Chemicals</b>					
Diquat	57	1.4	0.36	0.52	18

1/ Planted acres in 2003 for Minnesota were 60,000 acres.

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

3/ Total applied is less than 500 lbs.