

TABLE 3. (continued)

Treatment	Acres seeded <sup>1</sup>	Acres seeded	Method		
			Drill box	Auger	Other
	(1000)	(%)	(%)	(%)	(%)
<b>Oats</b>					
Captan + diazinon + lindane	2.9	0.2	.	100.0	.
Captan + thiabendazole	1.4	0.1	59.6	40.4	.
Carboxin	22.7	2.0	34.9	61.5	3.6
Carboxin + maneb + lindane	3.0	0.3	.	100.0	.
Carboxin + thiram	9.1	0.8	8.2	87.1	4.7
Formaldehyde	2.0	0.2	12.0	88.0	.
Imazalil	0.4	0.0	.	100.0	.
Lindane	5.0	0.4	.	100.0	.
Maneb	2.2	0.2	100.0	.	.
Maneb + lindane	82.2	7.1	41.9	49.3	8.8
<b>Total</b>	<b>130.8</b>	<b>11.4</b>	<b>35.4</b>	<b>58.0</b>	<b>6.5</b>
<b>Flax</b>					
Captan + thiabendazole	0.3	0.2	.	100.0	.
Carboxin	2.1	1.2	9.8	90.2	.
Carboxin + maneb + lindane	1.4	0.8	100.0	.	.
Maneb + lindane	2.2	1.3	68.4	31.6	.
Mercury	1.4	0.8	100.0	.	.
<b>Total</b>	<b>7.4</b>	<b>4.3</b>	<b>60.7</b>	<b>39.3</b>	<b>.</b>
<b>Soybean</b>					
Benomyl	2.8	0.4	100.0	.	.
Captan + thiabendazole	0.3	0.1	100.0	.	.
Carboxin	3.8	0.6	25.0	75.0	.
Carboxin + captan	0.9	0.1	100.0	.	.
Carboxin + maneb + lindane	0.9	0.1	100.0	.	.
Carboxin + thiram	9.8	1.5	70.4	29.6	.
Maneb + lindane	7.9	1.2	.	100.0	.
Thiram	5.4	0.9	67.8	32.2	.
Yield enhancing agent, chitin	2.4	0.4	.	48.0	52.0
<b>Total</b>	<b>34.3</b>	<b>5.4</b>	<b>48.1</b>	<b>48.3</b>	<b>3.6</b>
<b>Potato</b>					
Mancozeb	37.9	27.1	.	40.2	59.8
Maneb + streptomycin + bark	0.5	0.4	.	100.0	.
Thiabendazole	1.6	1.2	.	72.7	27.3
Thiophanate methyl	4.7	3.3	.	.	100.0
Zineb + douglas fir bark	7.4	5.3	.	63.4	36.6
Zineb + streptomycin + bark	49.9	35.6	.	.	100.0
<b>Total</b>	<b>102.1</b>	<b>75.6</b>	<b>.</b>	<b>21.2</b>	<b>78.8</b>

<sup>1</sup>Acres reported seeded to treated seed include multiple applications to the same acreage totaled as separate values and seed treatment products applied as a tank mixture were totaled separately unless applied as a commercial premix.

**TABLE 4. ON-FARM SEED TREATMENT: Total acres treated for wheat, barley, oats, flax, soybean and potato, and method of application, North Dakota, 1989**

Treatment	Acres seeded	Acres seeded	Method		
			Drill box	Auger	Other
	(1000)	(%)	(%)	(%)	(%)
Benomyl	2.8	0.0	100.0	.	.
Captan	1.6	0.0	100.0	.	.
Captan + diazinon + lindane	13.1	0.1	.	100.0	.
Captan + lindane	12.7	0.1	13.8	86.2	.
Captan + thiabendazole	34.0	0.2	36.1	63.9	.
Carboxin	1672.9	10.6	16.1	77.2	6.7
Carboxin + captan	0.9	0.0	100.0	.	.
Carboxin + captan + lindane	3.8	0.0	100.0	.	.
Carboxin + maneb + lindane	261.2	1.7	19.3	73.0	7.7
Carboxin + thiram	779.7	5.0	16.0	78.3	5.7
Formaldehyde	29.6	0.2	27.9	66.7	5.5
Imazalil	218.6	1.4	11.3	72.9	15.8
Lindane	287.5	1.8	15.1	83.4	1.5
Mancozeb	57.2	0.4	1.8	58.6	39.6
Maneb	60.1	0.4	28.2	71.8	.
Maneb lindane	2805.8	17.9	27.9	69.2	2.9
Maneb + streptomycin + bark	0.5	0.0	.	100.0	.
Maneb + thiabendazole	4.5	0.0	.	100.0	.
Maneb+ thiabendazole + lindane	33.0	0.2	8.9	91.1	.
Mercury	1.4	0.0	100.0	.	.
TCMTB	3.4	0.0	.	100.0	.
Thiabendazole	1.6	0.0	.	72.7	27.3
Thiophanate methyl	4.7	0.0	.	.	100.0
Thiram	5.4	0.0	67.8	32.2	.
Thiram + thiabendazole	30.9	0.2	29.2	70.8	.
Yield enhancing agent, chitin	14.3	0.1	20.3	71.0	8.6
Zineb	1.5	0.0	100.0	.	.
Zineb + douglas fir bark	11.2	0.1	34.2	41.7	24.1
Zineb + streptomycin + bark	49.9	0.3	.	.	100.0
<b>Total</b>	<b>6403.9</b>	<b>40.8</b>	<b>21.4</b>	<b>72.7</b>	<b>5.9</b>

TABLE 5. WHEAT: Herbicide, Insecticide, Fungicide and Desiccant usage and application method. North Dakota, 1989.

	Acres treated <sup>2</sup>	Acres treated	Applications				Applicator		Method of application	
			1	2	3	4	Farm operator	Custom	Aerial	Ground
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
<b>Herbicide<sup>1</sup></b>	<b>(1000)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>
2,4-D	553.4	5.1	100.0	.	.	.	84.4	15.6	17.6	82.4
2,4-D amine	3287.5	30.4	99.9	0.1	.	.	87.4	12.6	6.8	93.2
2,4-D ester	1866.8	17.3	99.7	0.3	.	.	89.1	10.9	7.6	92.4
Acifluorfen + bentazon	1.2	0.0	100.0	.	.	.	.	100.0	.	100.0
Amitrole	2.2	0.0	100.0	.	.	.	100.0	.	.	100.0
Atrazine	4.1	0.0	100.0	.	.	.	86.8	13.2	.	100.0
Barban	36.5	0.3	100.0	.	.	.	61.0	39.0	34.2	65.8
Bromoxynil	90.1	0.8	97.6	2.4	.	.	88.0	12.0	1.2	98.8
Bromoxynil + MCPA	315.2	2.9	98.5	1.5	.	.	89.0	11.0	7.3	92.7
Butylate + safener + atrazine	4.5	0.0	100.0	.	.	.	100.0	.	.	100.0
Chloramben	2.8	0.0	100.0	.	.	.	50.8	49.2	.	100.0
Chlorsulfuron	315.9	2.9	100.0	.	.	.	84.5	15.5	5.8	94.2
Clopyralid + 2,4-D	85.5	0.8	99.7	0.3	.	.	85.0	15.0	8.0	92.0
Cyanazine + atrazine	5.7	0.1	100.0	.	.	.	58.8	41.2	41.2	58.8
Dicamba	2380.5	22.0	99.9	0.1	.	.	88.6	11.4	6.2	93.8
Dicamba + 2,4-D	3.8	0.0	100.0	.	.	.	100.0	.	.	100.0
Diclofop	665.5	6.2	99.9	0.1	.	.	75.5	24.5	22.3	77.7
Diclofop + bromoxynil + MCPA	16.4	0.2	100.0	.	.	.	54.8	45.2	44.1	55.9
Difenzoquat	74.5	0.7	100.0	.	.	.	89.3	10.7	5.7	94.3
DPX-M6316	1010.9	9.4	99.5	0.5	.	.	89.2	10.8	14.5	85.5
EPTC + safener	0.4	0.0	100.0	.	.	.	100.0	.	.	100.0
Fenoxaprop + MCPA + 2,4-D	144.8	1.3	98.5	1.5	.	.	78.6	21.4	4.2	95.8
Glyphosate	26.3	0.2	81.7	18.3	.	.	81.3	18.7	13.0	87.0
Glyphosate + 2,4-D	19.2	0.2	100.0	.	.	.	92.5	7.5	.	100.0
Glyphosate + dicamba	12.0	0.1	100.0	.	.	.	100.0	.	.	100.0
Imazamethabenz	63.6	0.6	100.0	.	.	.	88.3	11.7	10.8	89.2
MCPA	108.9	1.0	100.0	.	.	.	90.1	9.9	7.0	93.0
MCPA + dicamba	1.1	0.0	100.0	.	.	.	100.0	.	.	100.0
MCPA amine	1686.1	15.6	99.9	0.1	.	.	88.5	11.5	10.2	89.8
MCPA ester	747.3	6.9	100.0	.	.	.	91.3	8.7	3.9	96.1
Metsulfuron	944.4	8.7	100.0	.	.	.	89.2	10.8	12.3	87.7
Pendimethalin	1.5	0.0	100.0	.	.	.	.	100.0	.	100.0
Picloram	60.8	0.6	100.0	.	.	.	79.7	20.3	16.8	83.2
Propanil + MCPA	11.7	0.1	100.0	.	.	.	85.6	14.4	.	100.0
Sethoxydim	12.3	0.1	100.0	.	.	.	100.0	.	.	100.0
Triallate	545.0	5.0	100.0	.	.	.	90.6	9.4	3.2	96.8
Triallate + trifluralin	197.3	1.8	100.0	.	.	.	90.3	9.7	1.7	98.3
Trifluralin	1772.7	16.4	99.4	0.6	.	.	95.5	4.5	1.6	98.4
<b>All herbicides</b>	<b>17078.3</b>	<b>158.1</b>	<b>99.8</b>	<b>0.2</b>	<b>.</b>	<b>.</b>	<b>88.4</b>	<b>11.6</b>	<b>8.1</b>	<b>91.9</b>
<b>Insecticide</b>										
Carbaryl	41.7	0.4	97.9	2.1	.	.	51.2	48.8	48.6	51.4
Carbofuran	192.2	1.8	79.5	19.1	1.4	.	48.9	51.1	61.0	39.0
Chlorpyrifos	18.6	0.2	100.0	.	.	.	44.7	55.3	54.5	45.5
Dimethoate	8.1	0.1	100.0	.	.	.	95.0	5.0	.	100.0
Encapsulated methyl parathion	2.0	0.0	100.0	.	.	.	.	100.0	100.0	.
Esfenvalerate	50.0	0.5	100.0	.	.	.	67.2	32.8	37.4	62.6
Ethyl parathion	20.0	0.2	98.0	2.0	.	.	.	100.0	100.0	.
Fenvalerate	10.4	0.1	100.0	.	.	.	57.0	43.0	43.0	57.0
Fonofos	0.7	0.0	100.0	.	.	.	100.0	.	.	100.0
Malathion	11.8	0.1	100.0	.	.	.	86.8	13.2	12.5	87.5
Methyl parathion	21.1	0.2	100.0	.	.	.	.	100.0	100.0	.
Trichlorafon	2.9	0.0	100.0	.	.	.	.	100.0	100.0	.
<b>All insecticides</b>	<b>379.5</b>	<b>3.5</b>	<b>89.3</b>	<b>10.0</b>	<b>0.7</b>	<b>.</b>	<b>47.9</b>	<b>52.1</b>	<b>57.5</b>	<b>42.5</b>

<sup>1</sup>Herbicides applied as a tank mixture were considered separately unless a commercial premix was used.

<sup>2</sup>Multiple applications to the same acreage were totaled as separate values. Thus, acres treated can exceed 100% of planted acres.

TABLE 5. (continued)

	Acres treated <sup>2</sup>	Acres treated	Applications				Applicator		Method of application	
			1	2	3	4	Farm operator	Custom	Aerial	Ground
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
<b>Fungicide</b>	(1000)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Mancozeb	35.7	0.3	96.7	3.3	.	.	60.9	39.1	51.6	48.4
Maneb	0.6	0.0	100.0	.	.	.	.	100.0	100.0	.
Maneb + zinc	14.0	0.1	.	100.0	.	.	.	100.0	100.0	.
Propiconazole	128.8	1.2	100.0	.	.	.	15.7	84.3	83.8	16.2
Triphenyltin hydroxide	2.2	0.0	100.0	.	.	.	.	100.0	.	100.0
All fungicides	181.2	1.7	91.7	8.3	.	.	23.2	76.8	77.8	22.2

<sup>1</sup>Herbicides applied as a tank mixture were considered separately unless a commercial premix was used.

<sup>2</sup>Multiple applications to the same acreage were totaled as separate values. Thus, acres treated can exceed 100% of planted acres.

TABLE 6. BARLEY: Herbicide, Insecticide, Fungicide and Desiccant usage and application method. North Dakota, 1989.

	Acres treated <sup>2</sup>	Acres treated	Applications				Applicator		Method of application	
			1	2	3	4	Farm operator	Custom	Aerial	Ground
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
<b>Herbicide<sup>1</sup></b>	(1000)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
2,4-D	120.3	4.3	100.0	.	.	.	94.0	6.0	11.1	88.9
2,4-D amine	729.2	26.0	99.9	0.1	.	.	91.7	8.3	5.8	94.2
2,4-D ester	324.9	11.6	100.0	.	.	.	93.0	7.0	3.5	96.5
Amitrole	0.8	0.0	100.0	.	.	.	100.0	.	.	100.0
Barban	22.6	0.8	100.0	.	.	.	42.4	57.6	57.6	42.4
Benefin	3.2	0.1	100.0	.	.	.	100.0	.	.	100.0
Bentazon	0.8	0.0	100.0	.	.	.	100.0	.	.	100.0
Bromoxynil	34.2	1.2	100.0	.	.	.	87.5	12.5	11.0	89.0
Bromoxynil + MCPA	125.2	4.5	96.7	3.3	.	.	92.3	7.7	7.0	93.0
Chloramben	0.9	0.0	100.0	.	.	.	100.0	.	.	100.0
Chlorsulfuron	38.4	1.4	100.0	.	.	.	84.8	15.2	1.9	98.1
Clopyralid + 2,4-D	13.9	0.5	100.0	.	.	.	91.9	8.1	.	100.0
Cyanazine	0.2	0.0	100.0	.	.	.	100.0	.	.	100.0
Cyanazine + atrazine	3.7	0.1	100.0	.	.	.	.	100.0	100.0	.
Dicamba	220.5	7.9	100.0	.	.	.	89.7	10.3	8.8	91.2
Diclofop	130.6	4.7	98.3	1.7	.	.	78.4	21.6	18.9	81.1
Diclofop + bromoxynil + MCPA	3.7	0.1	100.0	.	.	.	95.4	4.6	.	100.0
Difenzoquat	27.8	1.0	100.0	.	.	.	93.4	6.6	6.6	93.4
DPX-M6316	316.1	11.3	100.0	.	.	.	87.5	12.5	13.8	86.2
Endothall	4.0	0.1	100.0	.	.	.	100.0	.	.	100.0
Fenoxaprop + MCPA + 2,4-D	1.9	0.1	100.0	.	.	.	48.4	51.6	.	100.0

<sup>1</sup>Herbicides applied as a tank mixture were considered separately unless a commercial premix was used.

<sup>2</sup>Multiple applications to the same acreage were totaled as separate values. Thus, acres treated can exceed 100% of planted acres.

TABLE 6. (continued)

	Acres treated <sup>2</sup>	Acres treated	Applications				Applicator		Method of application	
			1	2	3	4	Farm operator	Custom	Aerial	Ground
<b>Herbicide (cont.)<sup>1</sup></b>	<b>(1000)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>
Glyphosate	5.9	0.2	29.9	70.1	.	.	80.7	19.3	19.3	80.7
Glyphosate + 2,4-D	6.6	0.2	100.0	.	.	.	92.8	7.2	7.2	92.8
Glyphosate + dicamba	1.0	0.0	100.0	.	.	.	100.0	.	.	100.0
Imazamethabenz	17.6	0.6	100.0	.	.	.	68.8	31.2	31.2	68.8
MCPA	22.3	0.8	100.0	.	.	.	97.9	2.1	.	100.0
MCPA amine	564.7	20.2	99.4	0.6	.	.	92.0	8.0	7.6	92.4
MCPA ester	202.8	7.2	100.0	.	.	.	93.5	6.5	5.2	94.8
Metsulfuron	221.1	7.9	100.0	.	.	.	89.5	10.5	9.8	90.2
Picloram	9.5	0.3	100.0	.	.	.	100.0	.	.	100.0
Propanil + MCPA	8.1	0.3	100.0	.	.	.	73.8	26.2	26.2	73.8
Sethoxydim	1.9	0.1	100.0	.	.	.	100.0	.	.	100.0
Triallate	167.7	6.0	100.0	.	.	.	89.5	10.5	2.0	98.0
Triallate + trifluralin	56.4	2.0	100.0	.	.	.	96.5	3.5	.	100.0
Trifluralin	358.1	12.8	100.0	.	.	.	92.4	7.6	5.0	95.0
<b>All herbicides</b>	<b>3766.7</b>	<b>134.5</b>	<b>99.6</b>	<b>0.4</b>	<b>.</b>	<b>.</b>	<b>90.5</b>	<b>9.5</b>	<b>7.8</b>	<b>92.2</b>
<b>Insecticide</b>										
Carbaryl	10.2	0.4	100.0	.	.	.	36.6	63.4	63.4	36.6
Carbofuran	71.9	2.6	74.5	22.2	3.3	.	49.8	50.2	61.4	38.6
Chlorpyrifos	3.1	0.1	100.0	.	.	.	8.5	91.5	44.1	55.9
Dimethoate	6.1	0.2	100.0	.	.	.	85.9	14.1	13.1	86.9
Encapsulated methyl parathion	3.0	0.1	100.0	.	.	.	27.9	72.1	72.1	27.9
Esfenvalerate	7.8	0.3	67.8	32.2	.	.	96.5	3.5	3.5	96.5
Ethyl parathion	5.0	0.2	100.0	.	.	.	.	100.0	100.0	.
Fenvalerate	7.7	0.3	100.0	.	.	.	90.6	9.4	9.4	90.6
Malathion	0.6	0.0	100.0	.	.	.	.	100.0	75.7	24.3
Methyl parathion	2.3	0.1	100.0	.	.	.	30.5	69.5	69.5	30.5
<b>All insecticides</b>	<b>117.6</b>	<b>4.2</b>	<b>82.3</b>	<b>15.7</b>	<b>2.0</b>	<b>.</b>	<b>51.9</b>	<b>48.1</b>	<b>53.5</b>	<b>46.5</b>
<b>Fungicide</b>										
Mancózeb	5.6	0.2	70.5	29.5	.	.	29.5	70.5	67.0	33.0
Propiconazole	32.3	1.2	100.0	.	.	.	14.4	85.6	98.1	1.9
<b>All fungicides</b>	<b>37.9</b>	<b>1.4</b>	<b>95.6</b>	<b>4.4</b>	<b>.</b>	<b>.</b>	<b>16.6</b>	<b>83.4</b>	<b>93.5</b>	<b>6.5</b>

<sup>1</sup>Herbicides applied as a tank mixture were considered separately unless a commercial premix was used.

<sup>2</sup>Multiple applications to the same acreage were totaled as separate values. Thus, acres treated can exceed 100% of planted acres.

Table 7. OATS: Herbicide, Insecticide, Fungicide and Desiccant usage and application method. North Dakota, 1989.

	Acres treated <sup>2</sup>	Acres treated	Applications				Applicator		Method of application	
			1	2	3	4	Farm operator	Custom	Aerial	Ground
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
<b>Herbicide<sup>1</sup></b>	<b>(1000)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>
2, 4-D	28.4	2.5	100.0	.	.	.	75.1	24.9	14.4	85.6
2,4-D amine	158.8	13.8	99.1	0.9	.	.	84.4	15.6	6.6	93.4
2,4-D ester	48.9	4.3	100.0	.	.	.	78.5	21.5	16.7	83.3
Amitrole	0.9	0.1	100.0	.	.	.	100.0	.	.	100.0
Bentazon	0.2	0.0	100.0	.	.	.	100.0	.	.	100.0
Bromoxynil	6.3	0.5	100.0	.	.	.	100.0	.	.	100.0
Bromoxynil + MCPA	16.3	1.4	100.0	.	.	.	91.1	8.9	8.9	91.1
Chlorsulfuron	18.5	1.6	100.0	.	.	.	96.6	3.4	10.8	89.2
Clopyralid + 2,4-D	0.5	0.0	100.0	.	.	.	.	100.0	100.0	.
Dicamba	103.8	9.0	99.3	0.7	.	.	88.4	11.6	4.6	95.4
DPX-M6316	4.3	0.4	85.2	14.8	.	.	85.2	14.8	.	100.0
Glyphosate	1.1	0.1	100.0	.	.	.	.	100.0	77.6	22.4
Glyphosate + 2,4-D	1.0	0.1	100.0	.	.	.	100.0	.	.	100.0
MCPA	9.2	0.8	100.0	.	.	.	89.9	10.1	3.6	96.4
MCPA amine	244.3	21.2	100.0	.	.	.	89.3	10.7	6.0	94.0
MCPA ester	37.6	3.3	100.0	.	.	.	92.0	8.0	.	100.0
Metsulfuron	9.1	0.8	100.0	.	.	.	100.0	.	.	100.0
Picloram	4.1	0.4	99.7	0.3	.	.	84.2	15.8	.	100.0
Propanil + MCPA	2.3	0.2	100.0	.	.	.	100.0	.	.	100.0
Triallate	2.5	0.2	100.0	.	.	.	45.1	54.9	.	100.0
Trifluralin	1.8	0.2	100.0	.	.	.	100.0	.	.	100.0
<b>All herbicides</b>	<b>699.8</b>	<b>60.9</b>	<b>99.6</b>	<b>0.4</b>	<b>.</b>	<b>.</b>	<b>87.0</b>	<b>13.0</b>	<b>6.8</b>	<b>93.2</b>
<b>Insecticide</b>										
Carbaryl	0.3	0.0	100.0	.	.	.	100.0	.	.	100.0
Carbofuran	1.9	0.2	52.5	47.5	.	.	81.2	18.8	18.8	81.2
Esfenvalerate	1.8	0.2	25.9	74.1	.	.	25.9	74.1	74.1	25.9
Ethyl parathion	3.2	0.3	100.0	.	.	.	.	100.0	100.0	.
Fenvalerate	4.7	0.4	2.4	97.6	.	.	2.4	97.6	97.6	2.4
Methyl parathion	0.2	0.0	100.0	.	.	.	.	100.0	100.0	.
<b>All insecticides</b>	<b>12.2</b>	<b>1.1</b>	<b>44.0</b>	<b>56.0</b>	<b>.</b>	<b>.</b>	<b>20.2</b>	<b>79.8</b>	<b>79.8</b>	<b>20.2</b>

<sup>1</sup>Herbicides applied as a tank mixture were considered separately unless a commercial premix was used.

<sup>2</sup>Multiple applications to the same acreage were totaled as separate values. Thus, acres treated can exceed 100% of planted acres.

**Table 8. FLAX: Herbicide, Insecticide, Fungicide and Desiccant usage and application method. North Dakota, 1989.**

	Acres treated <sup>2</sup>	Acres treated	Applications				Applicator		Method of application	
			1	2	3	4	Farm operator	Custom	Aerial	Ground
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
<b>Herbicide<sup>1</sup></b>	<b>(1000)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>
2,4-D amine	2.6	1.5	100.0	.	.	.	42.5	57.5	31.0	69.0
2,4-D ester	1.7	1.0	100.0	.	.	.	54.1	45.9	25.2	74.8
Bromoxynil	6.0	3.5	100.0	.	.	.	100.0	.	.	100.0
Bromoxynil + MCPA	0.5	0.3	100.0	.	.	.	100.0	.	.	100.0
Butylate + safener + atrazine	0.4	0.2	100.0	.	.	.	100.0	.	.	100.0
Chlorsulfuron	2.5	1.5	100.0	.	.	.	100.0	.	.	100.0
Clopyralid + 2,4-D	0.3	0.2	100.0	.	.	.	100.0	.	.	100.0
Dicamba	0.4	0.2	100.0	.	.	.	100.0	.	.	100.0
Diclofop	0.9	0.5	100.0	.	.	.	100.0	.	.	100.0
DPX-M6316	1.9	1.1	100.0	.	.	.	42.4	57.6	57.6	42.4
EPTC	1.4	0.8	100.0	.	.	.	100.0	.	.	100.0
Fluazifop-P	1.7	1.0	100.0	.	.	.	100.0	.	.	100.0
Glyphosate + 2,4-D	0.8	0.5	100.0	.	.	.	100.0	.	.	100.0
MCPA	3.0	1.8	100.0	.	.	.	84.5	15.5	15.8	84.2
MCPA amine	48.0	28.2	100.0	.	.	.	98.7	1.3	1.3	98.7
MCPA ester	6.9	4.0	100.0	.	.	.	88.0	12.0	12.0	88.0
Picloram	3.6	2.1	100.0	.	.	.	100.0	.	.	100.0
Sethoxydim	13.9	8.2	100.0	.	.	.	78.5	21.5	19.3	80.7
Triallate	1.8	1.1	100.0	.	.	.	100.0	.	.	100.0
Triallate + trifluralin	1.1	0.6	100.0	.	.	.	100.0	.	.	100.0
Trifluralin	53.8	31.7	100.0	.	.	.	91.7	8.3	4.6	95.4
<b>All herbicides</b>	<b>153.2</b>	<b>90.1</b>	<b>100.0</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>91.7</b>	<b>8.3</b>	<b>6.1</b>	<b>93.9</b>
<b>Insecticide</b>										
Carbaryl	0.2	0.1	100.0	.	.	.	100.0	.	.	100.0
Carbofuran	3.5	2.0	100.0	.	.	.	.	100.0	85.3	14.7
Ethyl parathion	0.4	0.2	100.0	.	.	.	.	100.0	100.0	.
Fenvalerate	0.3	0.2	100.0	.	.	.	.	100.0	100.0	.
Malathion	0.3	0.2	100.0	.	.	.	.	100.0	100.0	.
<b>All insecticides</b>	<b>4.7</b>	<b>2.7</b>	<b>100.0</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>3.6</b>	<b>96.4</b>	<b>85.4</b>	<b>14.6</b>

<sup>1</sup>Herbicides applied as a tank mixture were considered separately unless a commercial premix was used.

<sup>2</sup>Multiple applications to the same acreage were totaled as separate values. Thus, acres treated can exceed 100% of planted acres.

Table 9 . CORN: Herbicide, Insecticide, Fungicide and Desiccant usage and application method. North Dakota, 1989.

	Acres treated <sup>2</sup>	Acres treated	Applications				Applicator		Method of application	
			1	2	3	4	Farm operator	Custom	Aerial	Ground
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
<b>Herbicide<sup>1</sup></b>	<b>(1000)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>
2,4-D	6.2	0.7	100.0	.	.	.	49.8	50.2	14.4	85.6
2,4-D amine	25.2	2.9	94.7	5.3	.	.	87.3	12.7	.	100.0
2,4-D ester	15.8	1.8	93.6	6.4	.	.	73.8	26.2	13.3	86.7
Alachlor	77.9	8.8	100.0	.	.	.	71.9	28.1	.	100.0
Atrazine	54.3	6.2	100.0	.	.	.	75.3	24.7	4.1	95.9
Atrazine + metolachlor	13.0	1.5	100.0	.	.	.	100.0	.	.	100.0
Barban	1.2	0.1	100.0	.	.	.	100.0	.	.	100.0
Bentazon	0.1	0.0	100.0	.	.	.	100.0	.	.	100.0
Bromoxynil	17.1	1.9	100.0	.	.	.	85.6	14.4	6.7	93.3
Clopyralid + 2,4-D	1.1	0.1	100.0	.	.	.	78.0	22.0	.	100.0
Cyanazine	186.5	21.2	100.0	.	.	.	77.6	22.4	0.7	99.3
Cyanazine + atrazine	5.9	0.7	100.0	.	.	.	100.0	.	.	100.0
Dicamba	136.7	15.5	98.3	1.7	.	.	90.3	9.7	7.3	92.7
Dicamba + atrazine	16.2	1.8	100.0	.	.	.	64.2	35.8	4.8	95.2
Diclofop	1.3	0.2	100.0	.	.	.	.	100.0	.	100.0
Diquat	2.2	0.2	100.0	.	.	.	100.0	.	.	100.0
EPTC + safener	289.5	32.9	99.4	0.6	.	.	83.8	16.2	1.9	98.1
EPTC + safener + extender	4.1	0.5	100.0	.	.	.	56.0	44.0	.	100.0
Ethalfuralin	0.8	0.1	100.0	.	.	.	100.0	.	.	100.0
Glyphosate	2.8	0.3	100.0	.	.	.	100.0	.	.	100.0
Glyphosate + dicamba	6.9	0.8	100.0	.	.	.	100.0	.	.	100.0
MCPA amine	3.3	0.4	100.0	.	.	.	92.6	7.4	.	100.0
MCPA ester	0.6	0.1	100.0	.	.	.	100.0	.	.	100.0
Metolachlor	30.8	3.5	100.0	.	.	.	82.8	17.2	.	100.0
Metribuzin	0.3	0.0	100.0	.	.	.	100.0	.	.	100.0
Metsulfuron	4.5	0.5	100.0	.	.	.	100.0	.	.	100.0
Paraquat	7.1	0.8	100.0	.	.	.	100.0	.	8.7	91.3
Pendimethalin	50.3	5.7	100.0	.	.	.	69.9	30.1	0.9	99.1
Picloram	0.7	0.1	100.0	.	.	.	100.0	.	.	100.0
Propachlor	3.1	0.4	100.0	.	.	.	100.0	.	85.9	14.1
Tridiphane	8.3	0.9	100.0	.	.	.	98.0	2.0	.	100.0
Trifluralin	2.5	0.3	100.0	.	.	.	61.0	39.0	.	100.0
<b>All herbicides</b>	<b>976.0</b>	<b>110.9</b>	<b>99.3</b>	<b>0.7</b>	<b>.</b>	<b>.</b>	<b>81.4</b>	<b>18.6</b>	<b>2.8</b>	<b>97.2</b>
<b>Insecticide</b>										
Carbaryl	0.3	0.0	100.0	.	.	.	100.0	.	.	100.0
Carbofuran	6.6	0.7	100.0	.	.	.	100.0	.	.	100.0
Chlorpyrifos	13.1	1.5	100.0	.	.	.	100.0	.	.	100.0
Encapsulated methyl parathion	2.7	0.3	100.0	.	.	.	.	100.0	100.0	.
Esfenvalerate	3.7	0.4	41.8	58.2	.	.	27.9	72.1	72.1	27.9
Fenvalerate	4.0	0.5	92.3	7.7	.	.	87.3	12.7	12.7	87.3
Fonofos	0.4	0.0	100.0	.	.	.	100.0	.	.	100.0
Phorate	0.4	0.0	100.0	.	.	.	100.0	.	.	100.0
Terbufos	63.4	7.2	100.0	.	.	.	89.3	10.7	.	100.0
<b>All insecticides</b>	<b>94.6</b>	<b>10.8</b>	<b>97.4</b>	<b>2.6</b>	<b>.</b>	<b>.</b>	<b>86.6</b>	<b>13.4</b>	<b>6.2</b>	<b>93.8</b>

<sup>1</sup>Herbicides applied as a tank mixture were considered separately unless a commercial premix was used.

<sup>2</sup>Multiple applications to the same acreage were totaled as separate values. Thus, acres treated can exceed 100% of planted acres.



**Table 10 . SUNFLOWER: Herbicide, Insecticide, Fungicide and Desiccant usage and application method. North Dakota, 1989.**

	Acres treated <sup>2</sup>	Acres treated	Applications				Applicator		Method of application	
			1	2	3	4	Farm operator	Custom	Aerial	Ground
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
<b>Herbicide<sup>1</sup></b>	<b>(1000)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>
2,4-D	1.5	0.1	100.0	.	.	.	100.0	.	.	100.0
2,4-D amine	0.2	0.0	100.0	.	.	.	100.0	.	.	100.0
Alachlor	1.8	0.1	100.0	.	.	.	91.9	8.1	.	100.0
Chloramben	0.8	0.1	100.0	.	.	.	100.0	.	.	100.0
Cycloate	4.3	0.3	100.0	.	.	.	100.0	.	.	100.0
Dicamba	1.2	0.1	100.0	.	.	.	100.0	.	.	100.0
EPTC	5.8	0.4	100.0	.	.	.	100.0	.	.	100.0
Ethalfuralin	326.3	24.7	99.4	0.6	.	.	83.8	16.2	3.2	96.8
Fenoxaprop + MCPA + 2,4-D	0.8	0.1	100.0	.	.	.	100.0	.	.	100.0
Glyphosate	2.1	0.2	100.0	.	.	.	20.1	79.9	14.4	85.6
Glyphosate + 2,4-D	1.0	0.1	100.0	.	.	.	100.0	.	.	100.0
Imazamethabenz	10.4	0.8	100.0	.	.	.	98.5	1.5	.	100.0
MCPA amine	2.2	0.2	100.0	.	.	.	100.0	.	.	100.0
MCPA ester	0.2	0.0	100.0	.	.	.	.	100.0	100.0	.
Paraquat	3.1	0.2	.	100.0	.	.	100.0	.	.	100.0
Pendimethalin	17.2	1.3	100.0	.	.	.	52.4	47.6	.	100.0
Picloram	3.0	0.2	100.0	.	.	.	100.0	.	.	100.0
Triallate	15.5	1.2	100.0	.	.	.	99.2	0.8	.	100.0
Triallate + trifluralin	0.4	0.0	100.0	.	.	.	100.0	.	.	100.0
Trifluralin	857.4	65.0	99.6	0.4	.	.	94.9	5.1	2.7	97.3
<b>All herbicides</b>	<b>1255.2</b>	<b>95.1</b>	<b>99.3</b>	<b>0.7</b>	<b>.</b>	<b>.</b>	<b>91.5</b>	<b>8.5</b>	<b>2.7</b>	<b>97.3</b>
<b>Insecticide</b>										
Carbaryl	4.2	0.3	100.0	.	.	.	1.3	98.7	98.7	1.3
Carbofuran	39.3	3.0	100.0	.	.	.	52.0	48.0	48.0	52.0
Chlorpyrifos	2.1	0.2	100.0	.	.	.	46.4	53.6	53.6	46.4
Endosulfan	1.5	0.1	100.0	.	.	.	100.0	.	.	100.0
Esfenvalerate	43.0	3.3	89.2	10.8	.	.	11.6	88.4	76.4	23.6
Ethyl parathion	303.2	23.0	79.8	20.2	.	.	9.8	90.2	94.8	5.2
Fenvalerate	149.7	11.3	95.3	4.7	.	.	30.9	69.1	84.1	15.9
Fonofos	0.8	0.1	100.0	.	.	.	50.0	50.0	50.0	50.0
Malathion	66.0	5.0	68.3	31.7	.	.	7.0	93.0	93.0	7.0
Methidathion	1.6	0.1	100.0	.	.	.	.	100.0	100.0	.
Methyl parathion	168.7	12.8	73.0	13.5	13.6	.	4.8	95.2	99.4	0.6
Terbufos	0.6	0.0	100.0	.	.	.	100.0	.	.	100.0
<b>All insecticides</b>	<b>780.7</b>	<b>59.1</b>	<b>82.1</b>	<b>14.9</b>	<b>2.9</b>	<b>.</b>	<b>15.1</b>	<b>84.9</b>	<b>89.9</b>	<b>10.1</b>
<b>Fungicide</b>										
Mancozeb	26.5	2.0	89.6	10.4	.	.	.	100.0	100.0	.
Maneb	4.1	0.3	100.0	.	.	.	.	100.0	100.0	.
Propiconazole	1.6	0.1	.	100.0	.	.	.	100.0	100.0	.
<b>All fungicides</b>	<b>32.2</b>	<b>2.4</b>	<b>86.3</b>	<b>13.7</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>100.0</b>	<b>100.0</b>	<b>.</b>
<b>Desiccant</b>										
Sodium chlorate	3.1	0.2	100.0	.	.	.	.	100.0	79.1	20.9
<b>All desiccants</b>	<b>3.1</b>	<b>0.2</b>	<b>100.0</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>100.0</b>	<b>79.1</b>	<b>20.9</b>

<sup>1</sup>Herbicides applied as a tank mixture were considered separately unless a commercial premix was used.

<sup>2</sup>Multiple applications to the same acreage were totaled as separate values. Thus, acres treated can exceed 100% of planted acres.

**Table 11. SOYBEAN: Herbicide, Insecticide, Fungicide and Desiccant usage and application method. North Dakota, 1989.**

	Acres treated <sup>2</sup>	Acres treated	Applications				Applicator		Method of application	
			1	2	3	4	Farm operator	Custom	Aerial	Ground
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
<b>Herbicide<sup>1</sup></b>	<b>(1000)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>
2,4-D ester	0.2	0.0	100.0	.	.	.	100.0	.	.	100.0
Acifluorfen	110.6	17.3	93.1	6.9	.	.	92.8	7.2	7.8	92.2
Alachlor	8.0	1.2	100.0	.	.	.	100.0	.	.	100.0
Atrazine	1.9	0.3	100.0	.	.	.	100.0	.	.	100.0
Bentazon	254.3	39.7	95.9	4.1	.	.	89.6	10.4	8.5	91.5
Bromoxynil + MCPA	0.4	0.1	100.0	.	.	.	100.0	.	.	100.0
Chloramben	11.7	1.8	100.0	.	.	.	100.0	.	.	100.0
Clopyralid + 2,4-D	0.5	0.1	100.0	.	.	.	100.0	.	.	100.0
Cyanazine	2.0	0.3	100.0	.	.	.	100.0	.	.	100.0
Diallate	3.7	0.6	100.0	.	.	.	100.0	.	.	100.0
Dicamba	0.4	0.1	100.0	.	.	.	100.0	.	.	100.0
Diclofop	0.6	0.1	.	100.0	.	.	.	100.0	100.0	.
Difenzoquat	0.5	0.1	100.0	.	.	.	100.0	.	100.0	.
DPX-M6316	11.8	1.8	61.9	38.1	.	.	96.5	3.5	9.0	91.0
EPTC	0.8	0.1	100.0	.	.	.	100.0	.	.	100.0
Ethalfuralin	148.7	23.2	100.0	.	.	.	84.8	15.2	11.4	88.6
Fenoxaprop	1.6	0.3	100.0	.	.	.	100.0	.	.	100.0
Fluazifop-P	3.4	0.5	100.0	.	.	.	100.0	.	.	100.0
Glyphosate	3.5	0.5	100.0	.	.	.	80.8	19.2	19.2	80.8
Glyphosate + 2,4-D	1.3	0.2	.	100.0	.	.	100.0	.	.	100.0
Imazethapyr	0.2	0.0	100.0	.	.	.	100.0	.	.	100.0
Lactofen	1.3	0.2	100.0	.	.	.	100.0	.	.	100.0
Metribuzin	31.9	5.0	94.6	5.4	.	.	94.2	5.8	.	100.0
Pendimethalin	1.9	0.3	100.0	.	.	.	40.1	59.9	.	100.0
Quizalofop	3.7	0.6	74.2	25.8	.	.	100.0	.	.	100.0
Sethoxydim	27.1	4.2	100.0	.	.	.	78.1	21.9	16.5	83.5
Triallate	11.6	1.8	100.0	.	.	.	66.7	33.3	13.6	86.4
Triallate + trifluralin	0.2	0.0	100.0	.	.	.	100.0	.	.	100.0
Trifluralin	352.0	55.0	100.0	.	.	.	94.2	5.8	2.9	97.1
Trifluralin + alachlor	8.9	1.4	100.0	.	.	.	100.0	.	100.0	.
<b>All herbicides</b>	<b>1004.4</b>	<b>156.9</b>	<b>97.3</b>	<b>2.7</b>	<b>.</b>	<b>.</b>	<b>90.9</b>	<b>9.1</b>	<b>7.5</b>	<b>92.5</b>
<b>Insecticide</b>										
Azinphos-methyl	0.6	0.1	100.0	.	.	.	.	100.0	100.0	.
Carbaryl	8.1	1.3	72.0	.	28.0	.	44.6	55.4	55.4	44.6
Carbofuran	76.8	12.0	64.1	32.6	.	3.4	56.0	44.0	47.8	52.2
Chlorpyrifos	3.4	0.5	45.0	55.0	.	.	55.0	45.0	37.5	62.5
Esfenvalerate	103.2	16.1	52.4	24.0	4.1	19.5	56.8	43.2	48.7	51.3
Ethyl parathion	6.4	1.0	31.4	68.6	.	.	.	100.0	100.0	.
Fenvalerate	8.7	1.4	86.3	13.7	.	.	24.4	75.6	75.6	24.4
Malathion	3.9	0.6	100.0	.	.	.	33.2	66.8	66.8	33.2
Methyl parathion	2.5	0.4	100.0	.	.	.	.	100.0	100.0	.
Pyrethroid	4.4	0.7	100.0	.	.	.	64.8	35.2	64.8	35.2
Trichlorafon	1.5	0.2	100.0	.	.	.	.	100.0	100.0	.
<b>All insecticides</b>	<b>219.6</b>	<b>34.3</b>	<b>60.6</b>	<b>26.1</b>	<b>3.0</b>	<b>10.4</b>	<b>51.7</b>	<b>48.3</b>	<b>52.8</b>	<b>47.2</b>

<sup>1</sup>Herbicides applied as a tank mixture were considered separately unless a commercial premix was used.

<sup>2</sup>Multiple applications to the same acreage were totaled as separate values. Thus, acres treated can exceed 100% of planted acres.

**Table 12. DRY BEAN: Herbicide, Insecticide, Fungicide and Desiccant usage and application method. North Dakota, 1989.**

	Acres treated <sup>2</sup>	Acres treated	Applications				Applicator		Method of application	
			1	2	3	4	Farm operator	Custom	Aerial	Ground
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
<b>Herbicide<sup>1</sup></b>	<b>(1000)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>
Bentazon	156.0	31.2	91.6	8.4	.	.	96.9	3.1	2.8	97.2
Bromoxynil + MCPA	5.1	1.0	100.0	.	.	.	100.0	.	.	100.0
Butylate + safener	4.9	1.0	100.0	.	.	.	100.0	.	.	100.0
Chloramben	13.8	2.8	100.0	.	.	.	36.4	63.6	.	100.0
EPTC	34.6	6.9	100.0	.	.	.	85.6	14.4	.	100.0
Ethalfuralin	248.8	49.8	100.0	.	.	.	93.6	6.4	0.4	99.6
Fluazifop-P	0.9	0.2	100.0	.	.	.	100.0	.	.	100.0
Glyphosate	4.3	0.9	100.0	.	.	.	100.0	.	.	100.0
Metolachlor	1.0	0.2	100.0	.	.	.	100.0	.	.	100.0
Metribuzin	0.6	0.1	100.0	.	.	.	100.0	.	.	100.0
Pendimethalin	2.6	0.5	100.0	.	.	.	69.9	30.1	.	100.0
Sethoxydim	9.8	2.0	100.0	.	.	.	92.7	7.3	.	100.0
Triallate	12.6	2.5	100.0	.	.	.	100.0	.	.	100.0
Trifluralin	170.3	34.1	100.0	.	.	.	93.0	7.0	5.1	94.9
All herbicides	665.2	133.0	98.0	2.0	.	.	92.8	7.2	2.1	97.9
<b>Insecticide</b>										
Aldicarb	1.3	0.3	100.0	.	.	.	100.0	.	.	100.0
Carbaryl	2.3	0.5	100.0	.	.	.	.	100.0	100.0	.
Carbofuran	13.4	2.7	100.0	.	.	.	62.4	37.6	37.6	62.4
Disulfoton	4.1	0.8	100.0	.	.	.	.	100.0	100.0	.
Esfenvalerate	23.9	4.8	86.3	13.7	.	.	61.1	38.9	38.9	61.1
Ethyl parathion	2.3	0.5	100.0	.	.	.	.	100.0	100.0	.
Fenvalerate	3.4	0.7	100.0	.	.	.	2.0	98.0	98.0	2.0
Methyl parathion	2.8	0.6	100.0	.	.	.	.	100.0	100.0	.
All insecticides	53.5	10.7	93.9	6.1	.	.	45.5	54.5	54.5	45.5
<b>Fungicide</b>										
Benomyl	0.1	0.0	100.0	.	.	.	100.0	.	.	100.0
Mancozeb	2.4	0.5	100.0	.	.	.	100.0	.	.	100.0
Sulfur + copper	2.8	0.6	100.0	.	.	.	100.0	.	.	100.0
All fungicides	5.4	1.1	100.0	.	.	.	100.0	.	.	100.0
<b>Desiccant</b>										
Sodium chlorate	1.5	0.3	100.0	.	.	.	.	100.0	100.0	.
All desiccants	1.5	0.3	100.0	.	.	.	.	100.0	100.0	.

<sup>1</sup>Herbicides applied as a tank mixture were considered separately unless a commercial premix was used.

<sup>2</sup>Multiple applications to the same acreage were totaled as separate values. Thus, acres treated can exceed 100% of planted acres.

Table 13. POTATO: Herbicide, Insecticide, Fungicide and Desiccant usage and application method. North Dakota, 1989.

	Acres treated <sup>2</sup>	Acres treated	Applications				Applicator		Method of application	
			1	2	3	4	Farm operator	Custom	Aerial	Ground
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
<b>Herbicide<sup>1</sup></b>	<b>(1000)</b>	<b>(%)</b>								
2, 4-D ester	3.0	2.2	.	100.0	.	.	100.0	.	.	100.0
Diallate	3.9	2.8	100.0	.	.	.	100.0	.	.	100.0
Difenzoquat	0.4	0.3	100.0	.	.	.	100.0	.	.	100.0
EPTC	10.5	7.5	100.0	.	.	.	100.0	.	.	100.0
Metolachlor	10.1	7.2	100.0	.	.	.	100.0	.	.	100.0
Pendimethalin	5.0	3.6	100.0	.	.	.	100.0	.	.	100.0
Trifluralin	26.6	19.0	79.9	.	16.7	3.4	71.5	28.5	20.1	79.9
All herbicides	59.6	42.6	77.3	14.7	6.7	1.4	83.5	16.5	13.1	86.9
<b>Insecticide</b>										
Carbofuran	81.8	58.5	69.2	20.8	9.9	.	99.0	1.0	1.0	99.0
Encapsulated methyl parathion	1.4	1.0	.	100.0	.	.	100.0	.	.	100.0
Endosulfan	32.2	23.0	54.4	45.6	.	.	100.0	.	.	100.0
Esfenvalerate	23.7	16.9	98.7	1.3	.	.	95.2	4.8	4.8	95.2
Ethyl parathion	3.9	2.8	100.0	.	.	.	.	100.0	100.0	.
Fenvalerate	73.3	52.4	17.7	75.4	6.9	.	80.1	19.9	19.9	80.1
Malathion	0.5	0.3	100.0	.	.	.	.	100.0	100.0	.
Oxamyl	2.5	1.8	100.0	.	.	.	100.0	.	.	100.0
Phorate	66.7	47.6	100.0	.	.	.	100.0	.	.	100.0
Phosphamidon	68.3	48.8	84.2	15.8	.	.	87.6	12.4	12.4	87.6
All insecticides	354.3	253.0	68.2	28.1	3.7	.	91.7	8.3	8.3	91.7
<b>Fungicide</b>										
Mancozeb	97.7	69.2	14.9	4.0	66.3	14.9	53.9	46.1	46.1	53.9
Maneb	3.0	2.1	100.0	.	.	.	100.0	.	.	100.0
Maneb + zinc	21.7	15.5	36.5	63.5	.	.	82.8	17.2	17.2	82.8
Metiram + maneb	24.0	17.2	14.2	27.7	58.0	.	37.5	62.5	62.5	37.5
Thiabendazole	3.4	2.4	100.0	.	.	.	100.0	.	.	100.0
*Triphenyltin hydroxide	119.7	85.5	4.8	59.9	35.3	.	100.0	.	.	100.0
All fungicides	269.5	191.9	14.1	36.4	44.4	5.2	76.9	23.1	23.1	76.9
<b>Desiccant</b>										
Diquat	12.9	9.2	100.0	.	.	.	21.9	78.1	34.3	65.7
Sodium chlorate	1.7	1.2	.	100.0	.	.	.	100.0	100.0	.
Sulfuric acid	4.1	2.9	100.0	.	.	.	5.6	94.4	.	100.0
All desiccants	18.6	13.3	90.9	9.1	.	.	16.3	83.7	32.8	67.2

<sup>1</sup>Herbicides applied as a tank mixture were considered separately unless a commercial premix was used.

<sup>2</sup>Multiple applications to the same acreage were totaled as separate values. Thus, acres treated can exceed 100% of planted acres.

\*The use of this chemical is possibly overstated because of two reports of multiple applications to large acreages.

**Table 14. SUGAR BEET: Herbicide, Insecticide, Fungicide and Desiccant usage and application method. North Dakota, 1989.**

	Acres treated <sup>2</sup>	Acres treated	Applications				Applicator		Method of application	
			1	2	3	4	Farm operator	Custom	Aerial	Ground
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
<b>Herbicide<sup>1</sup></b>	<b>(1000)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>
Bromoxynil + MCPA	2.6	1.4	100.0	.	.	.	100.0	.	.	100.0
Clopyralid	12.7	7.0	100.0	.	.	.	98.2	1.8	3.5	96.5
Cycloate	28.0	15.6	100.0	.	.	.	86.9	13.1	32.8	67.2
Desmedipham	97.9	54.3	44.3	30.5	9.8	15.4	100.0	.	17.2	82.8
Desmedipham + phenmedipham	199.6	110.8	22.9	56.9	4.9	15.3	99.6	0.4	.	100.0
Diallate	1.4	0.8	100.0	.	.	.	.	100.0	.	100.0
Diethatyl	23.1	12.8	100.0	.	.	.	89.3	10.7	.	100.0
Endothall	15.0	8.3	48.4	51.6	.	.	100.0	.	.	100.0
EPTC	2.3	1.3	100.0	.	.	.	55.0	45.0	.	100.0
Ethofumesate	3.3	1.8	100.0	.	.	.	100.0	.	.	100.0
Glyphosate	0.4	0.2	100.0	.	.	.	100.0	.	.	100.0
Sethoxydim	124.8	69.3	77.7	16.8	5.5	.	94.5	5.5	6.0	94.0
Trifluralin	8.1	4.5	100.0	.	.	.	56.5	43.5	.	100.0
<b>All herbicides</b>	<b>519.3</b>	<b>288.2</b>	<b>53.0</b>	<b>33.1</b>	<b>5.0</b>	<b>8.8</b>	<b>96.2</b>	<b>3.8</b>	<b>6.5</b>	<b>93.5</b>
<b>Insecticide</b>										
Aldicarb	11.1	6.2	100.0	.	.	.	100.0	.	.	100.0
Carbofuran	3.3	1.8	100.0	.	.	.	82.6	17.4	17.4	82.6
Chlorpyrifos	27.7	15.4	100.0	.	.	.	89.0	11.0	12.1	87.9
Encapsulated methyl parathion	0.3	0.2	100.0	.	.	.	100.0	.	.	100.0
Ethyl parathion	0.3	0.2	100.0	.	.	.	.	100.0	.	100.0
Fenvalerate	2.2	1.2	100.0	.	.	.	81.9	18.1	18.1	81.9
Malathion	7.1	3.9	.	100.0	.	.	100.0	.	.	100.0
Phorate	1.7	0.9	100.0	.	.	.	100.0	.	100.0	.
Terbufos	68.1	37.8	97.9	2.1	.	.	100.0	.	.	100.0
<b>All insecticides</b>	<b>121.8</b>	<b>67.6</b>	<b>93.0</b>	<b>7.0</b>	<b>.</b>	<b>.</b>	<b>96.4</b>	<b>3.6</b>	<b>4.9</b>	<b>95.1</b>
<b>Fungicide</b>										
Benomyl	3.9	2.2	.	100.0	.	.	100.0	.	.	100.0
Mancozeb	3.4	1.9	.	100.0	.	.	.	100.0	100.0	.
Sulfur	3.9	.2	.	100.0	.	.	100.0	.	.	100.0
Triphenyltin hydroxide	50.8	28.2	71.3	17.9	.	10.8	12.0	88.0	88.0	12.0
<b>All fungicides</b>	<b>62.0</b>	<b>34.4</b>	<b>58.3</b>	<b>32.9</b>	<b>.</b>	<b>8.8</b>	<b>22.5</b>	<b>77.5</b>	<b>77.5</b>	<b>22.5</b>

<sup>1</sup>Herbicides applied as a tank mixture were considered separately unless a commercial premix was used.

<sup>2</sup>Multiple applications to the same acreage were totaled as separate values. Thus, acres treated can exceed 100% of planted acres.

**Table 15. ALFALFA HAY: Herbicide, Insecticide, Fungicide and Desiccant usage and application method. North Dakota, 1989.**

	Acres treated <sup>2</sup>	Acres treated	Applications				Applicator		Method of application	
			1	2	3	4	Farm operator	Custom	Aerial	Ground
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
<b>Herbicide<sup>1</sup></b>	<b>(1000)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>
2,4-D	0.2	0.0	100.0	.	.	.	.	100.0	.	100.0
2,4-D amine	0.5	0.0	100.0	.	.	.	48.3	51.7	.	100.0
2,4-D ester	0.1	0.0	100.0	.	.	.	100.0	.	.	100.0
Bromoxynil	0.1	0.0	100.0	.	.	.	100.0	.	.	100.0
Dicamba	0.4	0.0	100.0	.	.	.	27.2	72.8	.	100.0
EPTC + safener	0.4	0.0	100.0	.	.	.	.	100.0	100.0	.
Glyphosate	0.4	0.0	100.0	.	.	.	100.0	.	.	100.0
Picloram	0.5	0.0	100.0	.	.	.	64.4	35.6	.	100.0
Trifluralin	2.2	0.1	100.0	.	.	.	63.3	36.7	.	100.0
All herbicides	4.8	0.3	100.0	.	.	.	56.2	43.8	7.8	92.2
<b>Insecticide</b>										
Carbaryl	2.0	0.1	100.0	.	.	.	87.5	12.5	9.9	90.1
Carbofuran	8.7	0.6	89.1	4.4	6.5	.	80.4	19.6	19.6	80.4
Chlorpyrifos	2.6	0.2	100.0	.	.	.	100.0	.	.	100.0
Encapsulated methyl parathion	3.2	0.2	100.0	.	.	.	100.0	.	.	100.0
Esfenvalerate	0.4	0.0	100.0	.	.	.	100.0	.	.	100.0
Fenvalerate	1.6	0.1	100.0	.	.	.	100.0	.	.	100.0
Malathion	1.7	0.1	100.0	.	.	.	79.7	20.3	20.3	79.7
All insecticides	20.2	1.3	95.3	1.9	2.8	.	88.6	11.4	11.1	88.9

<sup>1</sup>Herbicides applied as a tank mixture were considered separately unless a commercial premix was used.

<sup>2</sup>Multiple applications to the same acreage were totaled as separate values. Thus, acres treated can exceed 100% of planted acres.

**Table 16. OTHER HAY: Herbicide, Insecticide, Fungicide and Desiccant usage and application method. North Dakota, 1989.**

	Acres treated <sup>2</sup>	Acres treated	Applications				Applicator		Method of application	
			1	2	3	4	Farm operator	Custom	Aerial	Ground
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
<b>Herbicide<sup>1</sup></b>	<b>(1000)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>
2,4-D	0.5	0.0	74.5	25.5	.	.	100.0	.	.	100.0
2,4-D amine	2.6	0.1	100.0	.	.	.	99.1	0.9	.	100.0
2,4-D ester	4.3	0.2	100.0	.	.	.	100.0	.	.	88.6
Dicamba	1.3	0.1	100.0	.	.	.	100.0	.	.	100.0
MCPA amine	0.9	0.0	100.0	.	.	.	100.0	.	.	100.0
MCPA ester	0.4	0.0	100.0	.	.	.	100.0	.	.	100.0
Picloram	5.5	0.3	100.0	.	.	.	96.8	3.2	.	95.6
Trifluralin	0.5	0.0	96.4	3.6	.	.	100.0	.	.	100.0
All herbicides	15.9	0.8	99.1	0.9	.	.	98.7	1.3	.	95.4
<b>Insecticide</b>										
Carbaryl	0.4	0.0	100.0	.	.	.	100.0	.	.	100.0
Carbofuran	0.2	0.0	100.0	.	.	.	100.0	.	100.0	.
Chlordane	0.1	0.0	.	100.0	.	.	100.0	.	.	100.0
Ethyl parathion	0.5	0.0	100.0	.	.	.	.	100.0	100.0	.
All insecticides	1.2	0.1	90.5	9.5	.	.	61.1	38.9	58.4	41.6

<sup>1</sup>Herbicides applied as a tank mixture were considered separately unless a commercial premix was used.

<sup>2</sup>Multiple applications to the same acreage were totaled as separate values. Thus, acres treated can exceed 100% of planted acres.<sup>1</sup>

**Table 17. PASTURE: Herbicide, Insecticide, Fungicide and Desiccant usage and application method. North Dakota, 1989.**

	Acres treated <sup>2</sup>	Acres treated	Applications				Applicator		Method of application	
			1	2	3	4	Farm operator	Custom	Aerial	Ground
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
<b>Herbicide<sup>1</sup></b>	<b>(1000)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>
2,4-D	17.7	0.2	31.7	68.3	.	.	74.8	25.2	23.1	76.9
2,4-D amine	43.1	0.4	81.7	18.3	.	.	61.1	38.9	28.5	71.5
2,4-D ester	34.6	0.3	98.3	1.7	.	.	66.7	33.3	32.5	67.5
Amitrole	1.2	0.0	96.1	3.9	.	.	100.0	.	.	100.0
Clopyralid + 2,4-D	0.3	0.0	100.0	.	.	.	100.0	.	.	100.0
Cyanazine + atrazine	0.4	0.0	100.0	.	.	.	100.0	.	.	100.0
Dicamba	14.0	0.1	98.7	1.3	.	.	45.8	54.2	54.2	45.8
Dicamba + 2,4-D	3.3	0.0	15.1	84.9	.	.	15.1	84.9	.	100.0
Glyphosate	0.9	0.0	100.0	.	.	.	100.0	.	.	100.0
MCPA amine	5.0	0.0	100.0	.	.	.	95.2	4.8	4.8	95.2
MCPA ester	2.5	0.0	97.7	2.3	.	.	14.6	85.4	85.4	14.6
Picloram	75.5	0.7	78.7	21.3	.	.	80.7	19.3	13.8	86.2
Trifluralin	1.0	0.0	98.8	1.2	.	.	100.0	.	.	100.0
<b>All herbicides</b>	<b>199.6</b>	<b>2.0</b>	<b>80.1</b>	<b>19.9</b>	.	.	<b>69.9</b>	<b>30.1</b>	<b>24.1</b>	<b>75.9</b>
<b>Insecticide</b>										
Carbaryl	1.1	0.0	100.0	.	.	.	83.9	16.1	16.1	83.9
Carbofuran	1.8	0.0	100.0	.	.	.	27.6	72.4	72.4	27.6
Chlorpyrifos	0.1	0.0	100.0	.	.	.	100.0	.	.	100.0
Ethyl parathion	0.2	0.0	100.0	.	.	.	.	100.0	100.0	.
Malathion	3.9	0.0	100.0	.	.	.	.	100.0	100.0	.
<b>All insecticides</b>	<b>7.2</b>	<b>0.1</b>	<b>100.0</b>	.	.	.	<b>21.6</b>	<b>78.4</b>	<b>78.4</b>	<b>21.6</b>

<sup>1</sup>Herbicides applied as a tank mixture were considered separately unless a commercial premix was used.

<sup>2</sup>Multiple applications to the same acreage were totaled as separate values. Thus, acres treated can exceed 100% of planted acres.

**Table 18. SUMMER FALLOW: Herbicide, Insecticide, Fungicide and Desiccant usage and application method. North Dakota, 1989.**

	Acres treated <sup>2</sup>	Acres treated	Applications				Applicator		Method of application	
			1	2	3	4	Farm operator	Custom	Aerial	Ground
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
<b>Herbicide<sup>1</sup></b>	<b>(1000)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>
2,4-D	14.2	0.3	83.1	6.0	10.8	.	88.7	11.3	.	100.0
2,4-D amine	94.4	2.2	98.9	1.1	.	.	90.1	9.9	10.9	89.1
2,4-D ester	127.9	3.0	91.5	8.5	.	.	95.7	4.3	3.8	96.2
Amitrole	0.7	0.0	.	.	.	100.0	100.0	.	.	100.0
Bromoxynil	2.6	0.1	00.0	.	.	.	100.0	.	.	100.0
Chlorsulfuron	4.8	0.1	00.0	.	.	.	94.8	5.2	5.2	94.8
Clopyralid + 2,4-D	13.1	0.3	00.0	.	.	.	86.8	13.2	5.3	94.7
Cyanazine	0.1	0.0	00.0	.	.	.	100.0	.	.	100.0
Dicamba	133.9	3.2	96.1	3.9	.	.	94.9	5.1	2.6	97.4
Diclofop	2.2	0.1	31.5	68.5	.	.	19.7	80.3	.	100.0
Ethalfuralin	0.1	0.0	100.0	.	.	.	100.0	.	.	100.0
Fenoxaprop + MCPA + 2,4-D	0.1	0.0	100.0	.	.	.	100.0	.	.	100.0
Glyphosate	74.8	1.8	78.6	19.3	2.1	.	88.5	11.5	2.9	97.1
Glyphosate + 2,4-D	127.8	3.0	77.3	15.0	7.8	.	98.0	2.0	.	100.0
Glyphosate + dicamba	69.7	1.7	70.0	22.6	7.4	.	92.2	7.8	4.4	95.6
MCPA amine	4.1	0.1	100.0	.	.	.	100.0	.	.	100.0
MCPA ester	0.8	0.0	100.0	.	.	.	75.1	24.9	.	100.0
Metsulfuron	7.6	0.2	100.0	.	.	.	94.1	5.9	.	100.0
Picloram	4.6	0.1	100.0	.	.	.	73.5	26.5	20.5	79.5
Propanil + MCPA	1.4	0.0	100.0	.	.	.	100.0	.	.	100.0
Triallate	6.6	0.2	100.0	.	.	.	77.9	22.1	.	100.0
Triallate + trifluralin	1.2	0.0	100.0	.	.	.	100.0	.	.	100.0
Trifluralin	199.2	4.7	100.0	.	.	.	98.4	1.6	0.3	99.7
<b>All herbicides</b>	<b>892.0</b>	<b>21.2</b>	<b>90.2</b>	<b>7.7</b>	<b>2.0</b>	<b>0.1</b>	<b>94.4</b>	<b>5.6</b>	<b>3.0</b>	<b>97.0</b>
<b>Insecticide</b>										
Accephate	0.1	0.0	100.0	.	.	.	100.0	.	.	100.0
Carbaryl	0.2	0.0	.	100.0	.	.	100.0	.	.	100.0
Carbofuran	4.5	0.1	95.4	4.6	.	.	19.9	80.1	95.4	4.6
Chlorpyrifos	0.8	0.0	100.0	.	.	.	.	100.0	100.0	.
Fenvalerate	0.2	0.0	100.0	.	.	.	100.0	.	.	100.0
Malathion	0.6	0.0	100.0	.	.	.	100.0	.	.	100.0
<b>All insecticides</b>	<b>6.3</b>	<b>0.2</b>	<b>93.8</b>	<b>6.2</b>	<b>.</b>	<b>.</b>	<b>30.2</b>	<b>69.8</b>	<b>80.8</b>	<b>19.2</b>

<sup>1</sup>Herbicides applied as a tank mixture were considered separately unless a commercial premix was used.

<sup>2</sup>Multiple applications to the same acreage were totaled as separate values. Thus, acres treated can exceed 100% of planted acres.



**Table 19. CRP: Herbicide, Insecticide, Fungicide and Desiccant usage and application method. North Dakota, 1989.**

	Acres treated <sup>2</sup>	Acres treated	Applications				Applicator		Method of application	
			1	2	3	4	Farm operator	Custom	Aerial	Ground
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
<b>Herbicide<sup>1</sup></b>	<b>(1000)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>
2,4-D	12.2	0.4	100.0	.	.	.	100.0	.	.	100.0
2,4-D amine	70.0	2.4	98.2	1.8	.	.	99.7	0.3	0.3	99.7
2,4-D ester	72.2	2.4	84.3	11.3	4.4	.	75.6	24.4	12.2	87.8
Bromoxynil	4.1	0.1	100.0	.	.	.	100.0	.	16.0	84.0
Chlorsulfuron	46.8	1.6	100.0	.	.	.	65.0	35.0	33.4	66.6
Clopyralid + 2,4-D	0.5	0.0	100.0	.	.	.	100.0	.	.	100.0
Dicamba	68.4	2.3	64.3	11.6	24.1	.	78.9	21.1	0.7	99.3
Diclofop	12.0	0.4	100.0	.	.	.	100.0	.	.	100.0
DPX-M6316	9.5	0.3	88.0	12.0	.	.	27.4	72.6	.	100.0
Ethalfuralin	0.3	0.0	100.0	.	.	.	100.0	.	.	100.0
Glyphosate	16.9	0.6	98.2	1.8	.	.	94.0	6.0	7.8	92.2
Glyphosate + 2,4-D	10.4	0.4	100.0	.	.	.	100.0	.	.	100.0
Glyphosate + dicamba	8.7	0.3	100.0	.	.	.	22.0	78.0	.	100.0
MCPA amine	5.4	0.2	100.0	.	.	.	90.8	9.2	9.2	90.8
MCPA ester	20.0	0.7	100.0	.	.	.	100.0	.	.	100.0
Metsulfuron	3.0	0.1	100.0	.	.	.	88.7	11.3	.	100.0
Picloram	12.6	0.4	65.3	9.5	25.2	.	68.5	31.5	29.1	70.9
Triallate + trifluralin	2.2	0.1	100.0	.	.	.	100.0	.	.	100.0
Trifluralin	2.7	0.1	100.0	.	.	.	0.6	99.4	.	100.0
<b>All herbicides</b>	<b>377.9</b>	<b>12.8</b>	<b>88.7</b>	<b>5.3</b>	<b>6.0</b>	<b>.</b>	<b>81.3</b>	<b>18.7</b>	<b>8.3</b>	<b>91.7</b>
<b>Insecticide</b>										
Carbaryl	9.4	0.3	100.0	.	.	.	7.3	92.7	88.4	11.6
Carbofuran	24.4	0.8	100.0	.	.	.	34.1	65.9	49.5	50.5
Chlorpyrifos	0.3	0.0	100.0	.	.	.	100.0	.	.	100.0
Esfenvalerate	4.0	0.1	83.8	16.2	.	.	59.0	41.0	41.0	59.0
Ethyl parathion	2.7	0.1	100.0	.	.	.	28.4	71.6	71.6	28.4
Fenvalerate	14.2	0.5	100.0	.	.	.	66.3	33.7	33.7	66.3
Malathion	5.1	0.2	5.0	95.0	.	.	61.4	38.6	39.2	60.8
Methyl parathion	0.3	0.0	100.0	.	.	.	.	100.0	100.0	.
<b>All insecticides</b>	<b>60.4</b>	<b>2.0</b>	<b>90.9</b>	<b>9.1</b>	<b>.</b>	<b>.</b>	<b>41.3</b>	<b>58.7</b>	<b>51.4</b>	<b>48.6</b>

<sup>1</sup>Herbicides applied as a tank mixture were considered separately unless a commercial premix was used.

<sup>2</sup>Multiple applications to the same acreage were totaled as separate values. Thus, acres treated can exceed 100% of planted acres.

Table 20A. HERBICIDE Usage in North Dakota, 1989.

Herbicide	Acres treated	Acres treated	Applications				Applicator		Method of application	
			1	2	3	4	Farm operator	Custom	Aerial	Ground
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
2,4-D	754.7	1.9	98.1	1.7	0.2	.	85.4	14.6	15.9	84.1
2,4-D amine	4414.0	11.2	99.7	0.3	.	.	87.9	12.1	6.8	93.2
2,4-D ester	2500.3	6.4	98.7	1.2	0.1	.	89.0	11.0	7.6	92.4
Acifluorfen	110.6	0.3	93.1	6.9	.	.	92.8	7.2	7.8	92.2
Acifluorfen + bentazon	1.2	0.0	100.0	.	.	.	.	100.0	.	100.0
Alachlor	87.6	0.2	100.0	.	.	.	74.9	25.1	.	100.0
Amitrole	5.8	0.0	87.0	0.8	.	12.2	100.0	.	.	100.0
Atrazine	60.3	0.2	100.0	.	.	.	76.9	23.1	3.7	96.3
Atrazine + metolachlor	13.0	0.0	100.0	.	.	.	100.0	.	.	100.0
Barban	60.3	0.2	100.0	.	.	.	54.8	45.2	42.3	57.7
Benefin	3.2	0.0	100.0	.	.	.	100.0	.	.	100.0
Bentazon	411.4	1.0	94.3	5.7	.	.	92.4	7.6	6.3	93.7
Bromoxynil	160.5	0.4	98.6	1.4	.	.	89.1	10.9	4.1	95.9
Bromoxynil + MCPA	465.2	1.2	98.1	1.9	.	.	90.1	9.9	7.1	92.9
Butylate + safener	4.9	0.0	100.0	.	.	.	100.0	.	.	100.0
Butylate + safener + atrazine	4.9	0.0	100.0	.	.	.	100.0	.	.	100.0
Chloramben	30.0	0.1	100.0	.	.	.	66.1	33.9	.	100.0
Chlorsulfuron	426.8	1.1	100.0	.	.	.	83.1	16.9	8.6	91.4
Clopyralid	12.7	0.0	100.0	.	.	.	98.2	1.8	3.5	96.5
Clopyralid + 2,4-D	115.6	0.3	99.8	0.2	.	.	85.8	14.2	6.9	93.1
Cyanazine	188.8	0.5	100.0	.	.	.	77.9	22.1	0.7	99.3
Cyanazine + atrazine	15.5	0.0	100.0	.	.	.	61.5	38.5	38.5	61.5
Cycloate	32.3	0.1	100.0	.	.	.	88.6	11.4	28.5	71.5
Desmedipham	97.9	0.2	44.3	30.5	9.8	15.4	100.0	.	17.2	82.8
Desmedipham + phenmedipham	199.6	0.5	22.9	56.9	4.9	15.3	99.6	0.4	.	100.0
Diallate	9.0	0.0	100.0	.	.	.	84.4	15.6	.	100.0
Dicamba	3061.6	7.8	98.9	0.6	0.5	.	88.7	11.3	6.3	93.7
Dicamba + 2,4-D	7.1	0.0	60.8	39.2	.	.	60.8	39.2	.	100.0
Dicamba + atrazine	16.2	0.0	100.0	.	.	.	64.2	35.8	4.8	95.2
Diclofop	813.1	2.1	99.4	0.6	.	.	76.0	24.0	21.4	78.6
Diclofop + bromoxynil + MCPA	20.1	0.1	100.0	.	.	.	62.2	37.8	36.0	64.0
Diethatyl	23.1	0.1	100.0	.	.	.	89.3	10.7	.	100.0
Difenzoquat	103.1	0.3	100.0	.	.	.	90.5	9.5	6.3	93.7
Diquat	2.2	0.0	100.0	.	.	.	100.0	.	.	100.0
DPX-M6316	1354.5	3.4	99.2	0.8	.	.	88.4	11.6	14.2	85.8
Endothall	19.0	0.0	59.2	40.8	.	.	100.0	.	.	100.0
EPTC	55.5	0.1	100.0	.	.	.	89.1	10.9	.	100.0
EPTC + safener	290.2	0.7	99.4	0.6	.	.	83.7	16.3	2.0	98.0
EPTC + safener + extender	4.1	0.0	100.0	.	.	.	56.0	44.0	.	100.0
Ethalfuralin	725.0	1.8	99.7	0.3	.	.	87.4	12.6	3.9	96.1
Ethofumesate	3.3	0.0	100.0	.	.	.	100.0	.	.	100.0
Fenoxaprop	1.6	0.0	100.0	.	.	.	100.0	.	.	100.0
Fenoxaprop + MCPA + 2,4-D	147.7	0.4	98.5	1.5	.	.	78.4	21.6	4.2	95.8
Fluazifop-P	6.0	0.0	100.0	.	.	.	100.0	.	.	100.0
Glyphosate	139.4	0.4	81.9	17.0	1.1	.	86.2	13.8	7.1	92.9
Glyphosate + 2,4-D	168.1	0.4	81.9	12.2	5.9	.	97.3	2.7	0.3	99.7
Glyphosate + dicamba	98.4	0.3	78.8	16.0	5.2	.	87.5	12.5	3.1	96.9
Imazamethabenz	91.5	0.2	100.0	.	.	.	85.7	14.3	13.5	86.5
Imazethapyr	0.2	0.0	100.0	.	.	.	100.0	.	.	100.0
Lactofen	1.3	0.0	100.0	.	.	.	100.0	.	.	100.0