Pesticide Use and Pest Management Practices for Major Crops in North Dakota - 2000

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PESTICIDE USE FOR POTATO

Potato acreage in North Dakota averaged 126,000 acres during the past five years (Table 33). As a major crop, potato had been included in previous statewide surveys. Due to NASS Agricultural Resource Management Surveys (ARMS) implemented on this crop in 1999, potato growers were not adequately represented by this survey to make pesticide use estimates. Pesticide use information from the published ARMS report [6] was summarized here to provide some continuity in reporting. This information from the ARMS report was based on interviews with 49 producers from North Dakota.

Nine herbicide actives were used on North Dakota potatoes. Metribuzin was applied to 42% of the acres and was the most frequently used herbicide (Table 34). Rimsulfuron at 25%, metolachlor at 21%, pendimethalin at 11%, and sethoxydim at 6% were the remaining herbicides used at sufficient levels to estimate acreage. Usage of the top three actives increased significantly compared to earlier records (Figure 15).

Potato acres were treated with 12 different insecticides. Total acres treated were 219% due to multiple applications to the same acres. Imidacloprid was applied to 68% of the acres and was the most frequently applied product. Increased usage was largely due to control failures of Colorado potato beetle with carbofuran, the most frequently used insecticide in 1996 (Figure 15). Dimethoate, azinphos-methyl, esfenvalerate, endosulfan, cyfluthrin, and phorate were applied to 24%, 19%, 19%, 15%, 8%, and 8% of the potato acres, respectively. A new active, spinosad, was used on 20% of the acres in 1999, the first year it was registered.

Foliar fungicide use was common on potato, and included multiple applications of compounds (Table 34). However, total use was lower than recorded in 1996 (Figure 15). Chlorothalonil was the most commonly used foliar fungicide accounting for 82% of the treated acres. It was applied an average of 6.2 times per acre when used. Other fungicides used at significant levels were mancozeb at 57%, azoxystrobin at 49%, cymoxanil at 34%, triphenyltin hydroxide at 24%, and mefenoxam at 20% of the acres.

TABLE 33. Production summary for POTATO, North Dakota, 1996-2000 (NDASS, 2001)

	Acres		Yield		Marketing Year Avg.		Value per harvested	U.S.	
Year	Planted	Harvested	Per Acre	Production	Price	Value of Production	Acre	Production	
	(000 Acres)		*(Cwt.)*	*(000 Cwt.)*	*($/Cwt.)*	*(000 Dols.)*	*(Dols.)*	*(%)*	*(Rank)*
1996	134	131	220	28,820	4.70	135,454	1,034.00	6	6
1997	125	110	200	22,000	5.65	124,300	1,130.00	5	6
1998	126	122	235	28,670	5.30	151,951	1,245.50	6	4
1999	121	110	240	26,400	5.60	147,840	1,344.00	6	6
2000	124	110	245	26,950	5.45	146,878	1,335.25	4	6

TABLE 34. POTATO: Herbicide, Insecticide, Fungicide, and Desiccant usage and application method. North Dakota, 1999
(Source: USDA, NASS. 2000)

	Acres Treated [2]	Acres Treated	Average Number of Applications per acre	Applicator		Method of Application	
				Farm Operator	Custom	Aerial	Ground
	(1000)	(%)	(#)	(%)	(%)	(%)	(%)
Herbicide [1]							
2,4-D	NS	NS	NS	---	---	---	---
EPTC	NS	NS	NS	---	---	---	---
Glyphosate	NS	NS	NS	---	---	---	---
Metolachlor	25	21	1.0	---	---	---	---
Metribuzin	51	42	1.0	---	---	---	---
Pendimethalin	13	11	1.0	---	---	---	---
Rimsulfuron	30	25	1.0	---	---	---	---
Sethoxydim	7	6	1.0	---	---	---	---
Trifluralin	NS	NS	NS	---	---	---	---
All Herbicides	126	104	---	---	---	---	---
Insecticide							
Azinphos-methyl	23	19	1.0	---	---	---	—
Carbaryl	NS	NS	NS	---	---	---	---
Carbofuran	NS	NS	NS	---	---	---	---
Cyfluthrin	10	8	1.2	---	---	---	---
Dimethoate	29	24	2.2	---	---	---	---
Endosulfan	18	15	1.6	---	---	---	---
Esfenvalerate	23	19	1.0	---	---	---	---
Imidacloprid	82	68	1.1	---	---	---	---
Methamidophos	NS	NS	NS	---	---	---	---
Phorate	10	8	1.0	---	---	---	---
Phosmet	NS	NS	NS	---	---	---	---
Spinosad	24	20	1.0	---	---	---	---
All Insecticides	219	181	---	---	---	---	---
Fungicide							
Azoxystrobin	59	49	3.1	---	---	---	---
Chlorothalonil	99	82	6.2	---	--	---	---
Cymoxanil	41	34	2.0				
Mancozeb	69	57	3.1				
Maneb	NS	NS	NS	---	---	---	---
Mefenoxam	24	20	1.1	---	---	---	---
Metalaxyl	NS	NS	NS	---	---	---	---
Metiram	NS	NS	NS	---	---	---	---
Propramocarb	NS	NS	NS	---	---	---	---
Triphenyltin hydroxide	29	24	2.8	---	---	---	---
All Fungicides	322	266	---	---	---	---	---
Desiccants							
Diquat	50	41	1.1	---	---	---	---
Sulfuric acid	NS	NS	NS	---	---	---	---
All Desiccants	50	41	1.1	---	---	---	---

[1] Herbicides applied as a tank mixture were considered separately unless a commercial premix was used.
[2] Multiple applications to the same acre were reported as separate values. Acres treated can exceed 100% of the planted acres.
NS - not sufficient to estimate state projections.

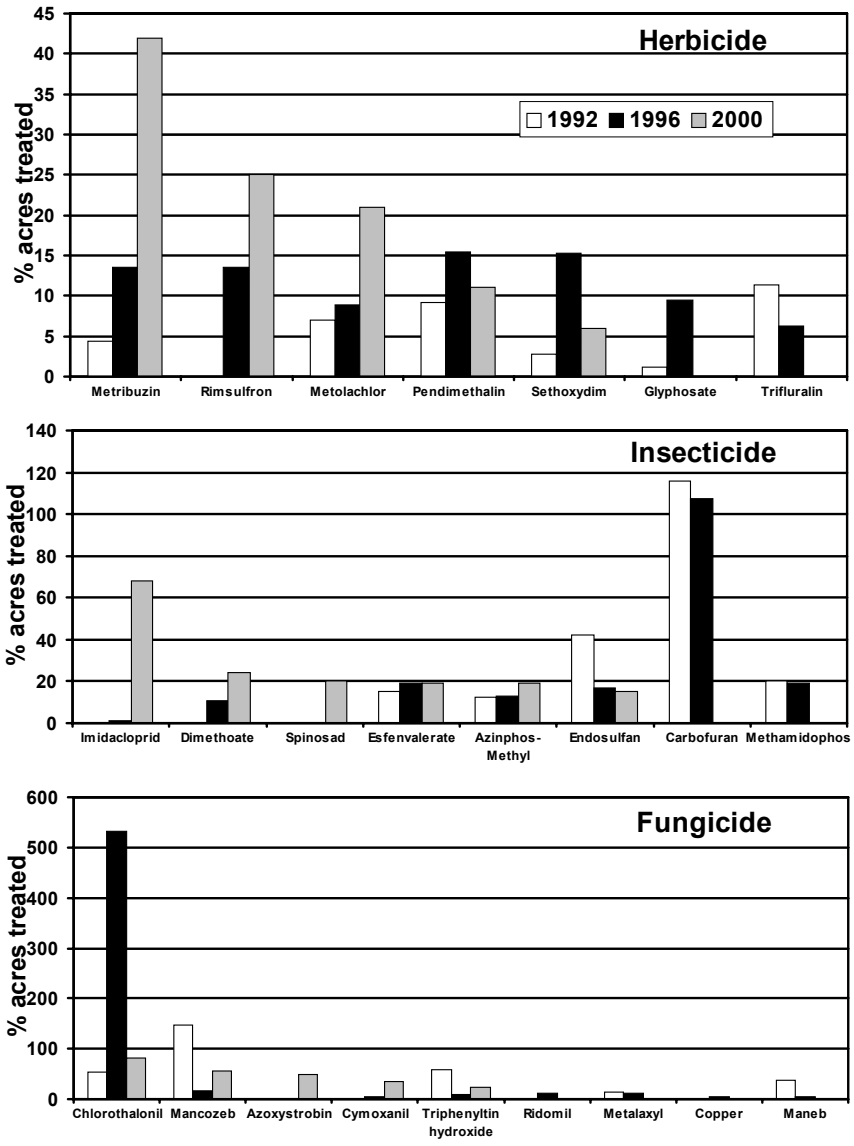

Figure 15. Percent of North Dakota potato acres treated with the top five active ingredients from the herbicide, insecticide, and fungicide pesticide groups reported in the 1992, 1996, and 2000 statewide pesticide use surveys.