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

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PESTICIDE USE FOR SUGARBEET

Sugarbeet in North Dakota averaged 243,000 acres during the past five years (Table 35). As a major crop, sugarbeet had been included in previous statewide surveys. Due to NASS Agricultural Resource Management Surveys (ARMS) implemented on this crop in 2000, sugarbeet growers were not adequately represented by this survey to make pesticide use estimates. Pesticide use information from the published ARMS report [7] was summarized here to provide some continuity in reporting. This information from the ARMS report was based on interviews with 152 producers from North Dakota.

Herbicides were applied to 481% of the sugarbeet acres as herbicide mixtures and/or multiple applications of the same active (Table 36). An average of 2.6 herbicide applications were made per acre. Twelve herbicide actives were identified by survey respondents. The most frequently applied herbicide was desmedipham, applied to 98% of the sugarbeet acres. Triflusulfuron at 87%, clopyralid at 85%, clethodim at 83%, and phenmedipham at 75% were used almost as frequently. Desmedipham use declined and the top five actives were used more evenly when compared to previous use estimates (Figure 16).

Insecticides were applied on 89% of the sugarbeet acres (Table 36). Terbufos at 69% was the most frequently used insecticide. It is applied as a granular formulation for control of soil insects. Chlorpyrifos was applied on 13% of the acres as either a granular or liquid formulation. A preference shift to terbufos has occurred during the past 10 years (Figure 16).

Fungicides were applied an average of 1.2 times per acre. Foliar fungicides were applied to 183% of the sugarbeet acreage as a result of multiple application and multiple actives. Tetraconazole at 85% and triphenyltin hydroxide at 83% were the most frequently used fungicides (Table 36). Tetraconazole was first made available in 1999 as a Section 18 Emergency Exemption to manage Cercospora leafspot and was quickly incorporated into production programs (Figure 16). It is recommended that sugarbeet growers rotate tetraconazole with fungicides having different modes of action, such as triphenyltin hydroxide, to aid in managing fungicide resistance.

TABLE 35. Production summary for SUGARBEET, 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)		*(tons)*	*(000 tons)*	*($/ton)*	*(000 Dols.)*	*(Dols.)*	*(%)*	*(Rank)*
1996	226.6	225.3	18.7	4,213	46.10	194,219	862.05	16	3
1997	231.4	227.5	18.5	4,205	37.90	159,370	700.53	14	3
1998	250.0	242.6	22.2	5,386	35.40	190,664	785.92	16	3
1999	251.6	247.0	20.8	5,138	38.00	195,244	790.46	15	2
2000	258.0	232.0	22.1	5,127	37.80	193,801	835.35	16	3

TABLE 36. SUGARBEET: Herbicide, Insecticide, Fungicide, and Desiccant usage and application method. North Dakota, 2000 *(Source: USDA, NASS. 2001)*

	Acres Treated [2]	Acres Treated	Average Number of Applications per acre	Applicator		Method of Application	
				Farm Operator	Custom	Aerial	Ground
	(1000)	(%)	(#)	(%)	(%)	(%)	(%)
Herbicide [1]							
Clethodim	214	83	2.9	---	---	---	---
Clopyralid	219	85	3.1	---	---	---	---
Cycloate	NS	NS	NS	---	---	---	---
Desmedipham	253	98	3.3	---	---	---	---
Ethofumesate	83	32	2.5	---	---	---	---
Glyphosate	23	9	1.0	---	---	---	---
Paraquat	NS	NS	NS	---	---	---	---
Phenmedipham	194	75	3.0	---	---	---	---
Quizalofop-P	21	8	1.4	---	---	---	---
Sethoxydim	10	4	3.4	---	---	---	---
Trifluralin	NS	NS	NS	---	---	---	---
Triflusulfuron	224	87	3.2	---	---	---	---
All Herbicides	1241	481	---	---	---	---	---
Insecticide							
Bacillus thuringiensis	NS	NS	NS	---	---	---	---
Chlorpyrifos	34	13	1.3	---	---	---	---
Esfenvalerate	8	3	1.7	---	---	---	---
Phorate	10	4	1.0	---	---	---	---
Terbufos	178	69	1.0	---	---	---	---
All Insecticides	230	89	---	---	---	---	---
Fungicide							
Benomyl	NS	NS	NS	---	---	---	---
Mancozeb	13	5	1.0	---	---	---	---
Maneb	NS	NS	NS	---	---	---	---
Tetraconazole	219	85	1.4	---	--	---	---
Thiophanate-methyl	26	10	1.0	---	---	---	---
Triphenyltin hydroxide	214	83	1.3	---	---	---	---
All Fungicides	472	183	---	---	---	---	---

[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.

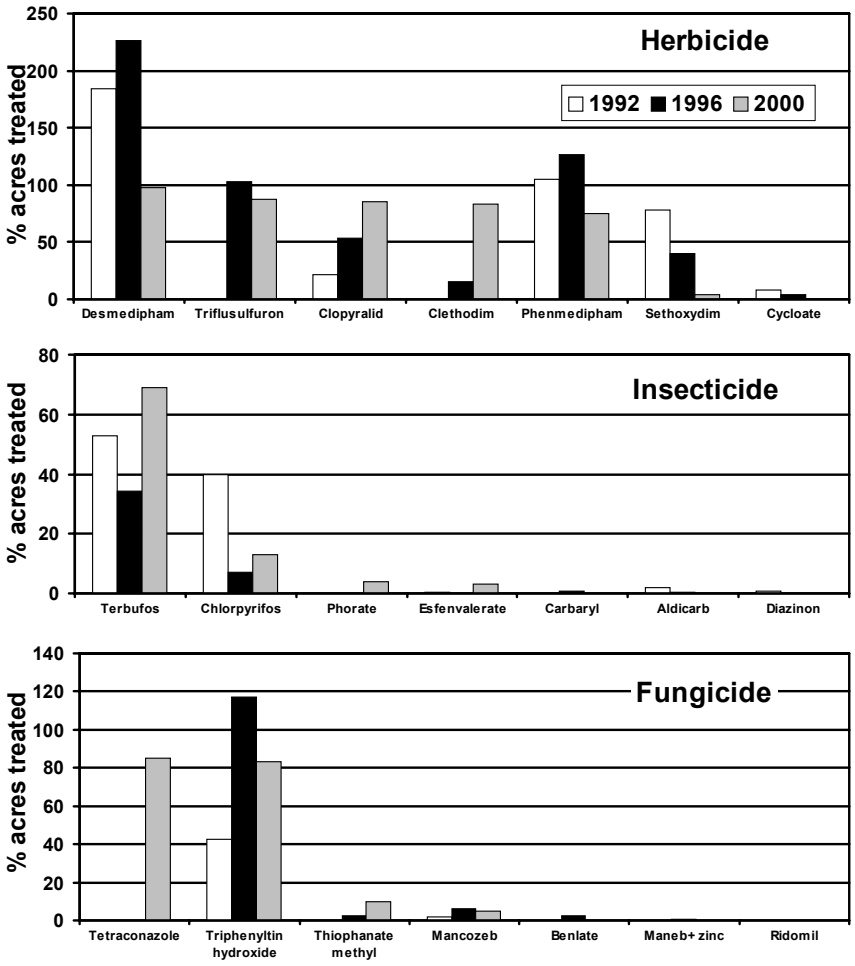

Figure 16. Percent of North Dakota sugarbeet acres treated with the top five active ingredients from the herbicide, insecticide, and fungicide pesticide groups reported in the 1992, 1996, and 2000 statewide pesticide use surveys.