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

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GENETICALLY MODIFIED CROPS - CORN

Corn hybrids are available in the region that have the *Bt*insect resistant trait for managing European corn borer. Corn has three herbicide resistant traits available, one for resistance to glyphosate (Roundup Ready©), one for glufosinate (Liberty©), and one for imazethapyr + imazapyr (Clearfield©).

Bt-corn was estimated to have been used on 11.7% of the North Dakota corn acres (Table 41). The southeast district had the greatest percentage of total acres and the greatest number of acres planted to *Bt*-corn. Second, was the east central with 18,900 acres (8.8%). These areas are considered to have the greatest risk of losses to corn borer due to the presence of both two- and one-generation corn borers. Their presence complicates insecticide management decisions. The two ecological types of corn borer infest corn at different times. Multiple applications of insecticides may be required if populations of both types exceed economic levels.

The glyphosate (Roundup Ready©) corn was planted on 5.8% of the corn acres in North Dakota (Table 41). The southeast district had 22,000 acres, the greatest total acres by district, but it represented only 4.3% of the total acres grown in the district. The southwest district was second with 19,700 acres, but this district had the greatest percentage of acres where used at 49.9%.

The glufosinate (Liberty©) corn was reported from four of the nine districts. Statewide, the Liberty© trait was used on 3.1% of the total corn acres (Table 41). The southeast district had 20,690 acres, the greatest total acres by district, which represented 4.1% of the total acres grown in the district. The east central district had the second highest total at 7,810 acres, or 3.6% of the district's acres.

The imazethapyr + imazapyr (Clearfield©) trait was used on 0.7% of the state's corn acres (Table 41). All acres were in the southeast and south central districts. The Clearfield© trait, though included in the section on genetically modified crops, is not the result of genetic modification. The tolerance of Clearfield© corn to imazethapyr is made possible by the insertion of a naturally occurring dominant gene for resistance into a hybrid through one of the two parents (imidazolinone tolerant corn or IT corn). The tolerance of Clearfield© corn is made possible using traditional plant breeding methods, not through the introduction of foreign genetic material. Therefore, Clearfield© corn is a non-GMO.

Some usage of the stacked gene corn hybrids was reported. The stacked gene hybrids include both insect and a herbicide resistant traits. Stacked gene hybrids were grown on 0.7% of the corn acres (Table 41).

District	Corn	Bt-insect Resistant Acres Used		Glyphosate Resistant Acres Used		Liberty Resistant Acres Used		Clearfield Resistant Acres Used		Stacked Gene (Bt + Herbicide) Acres Used	
		Northwest	5.5			0.4	7.0				
North Central	33.5	0.7	2.0	0.5	1.6						
Northeast	93.0	0.5	0.6	0.5	0.5						
West Central	31.0	3.2	10.2	7.5	24.2	0.3	1.0				
Central	65.5	5.8	8.9	1.1	1.7	4.4	6.8				
East Central	216.0	18.9	8.8			7.8	3.6			3.4	1.6
Southwest	39.5			19.7	49.9						
South Central	86.0	2.9	3.4	11.4	13.3			1.3	1.5	2.4	2.8
Southeast	510.0	94.6	18.6	22.2	4.3	20.7	4.1	6.5	1.3	2.1	0.4
State Totals	1080.0	126.6	11.7	63.3	5.9	33.3	3.1	7.8	0.7	7.9	0.7

TABLE 41. Types and Acres of Genetically Modified Corn grown in North Dakota by district, 2000