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Corn and Biotechnology Special Analysis

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For information on "Corn and Biotechnology Special Analysis" call Mark Harris at 202-720-2127, office hours 8:00 a.m. to 4:30 p.m. ET.

The National Agricultural Statistics Service (NASS) started monitoring the U.S. corn crop for adoption of biotechnology in 2000. These data were collected as a part of the March and June Agricultural Surveys with results published in the *Prospective Plantings* and the *Acreage* reports, respectively.

Randomly selected farmers across the United States were asked if they intended to plant or had planted corn that, through biotechnology, was resistant to insects, herbicides, or both. If the biotech variety was resistant to both insects and herbicides, it was referred to as a stacked gene variety. Insect resistant varieties included only those containing the *bacillus thuringiensis* (Bt) gene. Conventionally bred herbicide resistant varieties were excluded. The estimates resulting from these surveys were subject to sampling variability because not all operations planting corn were included in the sample. The variability, as measured by the relative standard error at the U.S. level, was approximately 1.7 percent for insect resistant only varieties and 6.2 percent for stacked gene varieties.

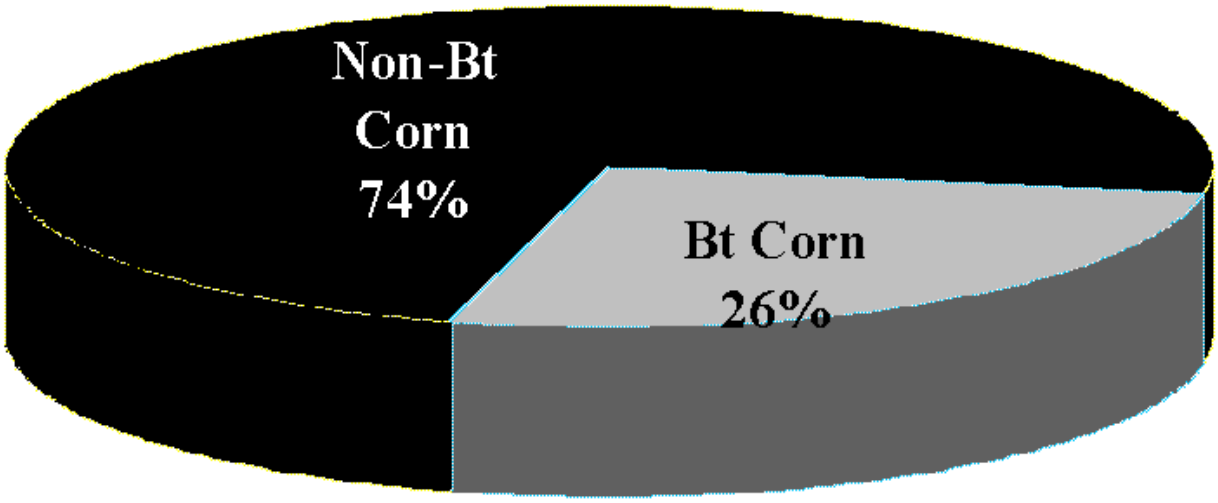
This special analysis provides additional information on corn farms and acres planted in 10 major States. The 10 States included in the analysis are Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Nebraska, Ohio, South Dakota, and Wisconsin. These States planted 61.3 million acres of corn in 2002 which represents 77 percent of the U.S. all corn planted area. The 10 States planted 45.1 million acres (74 percent) of corn to non-Bt varieties and 16.2 million acres (26 percent) to varieties containing the Bt gene (see Chart 1). Of the 16.2 million acres planted with a Bt variety, 11.9 million acres were planted on farms with 80 percent or less of their total acreage planted to Bt varieties (see Chart 2).

Growers who plant corn varieties containing Bt have a requirement to also plant an area, known as a refuge, to non-Bt corn varieties. The refuge requirements are specified in a contractual agreement between the grower and the seed technology company. Other details, such as proximity of the Bt corn to its refuge, are also specified in the contractual agreement. Refuge requirements vary depending on the mix of biotech crops planted. All 10 States highlighted in this report have a refuge requirement that 20 percent of the total corn area be planted to non-Bt corn varieties. No questions were asked during the March and June Agricultural Surveys about the refuge.

NASS's survey questions were designed to measure the adoption rate of biotechnology. Growers were asked to report total corn acres and acres planted or to be planted to biotech corn varieties. These results were used to categorize farms by the percent of corn area planted to varieties containing Bt. The tables in this special analysis provide information on the number of farms planting Bt corn and Bt acreage, by percent of corn area reported as planted with Bt varieties.

Chart 1

10-State Corn Acreage: Non-Bt and Bt, 2002 1/

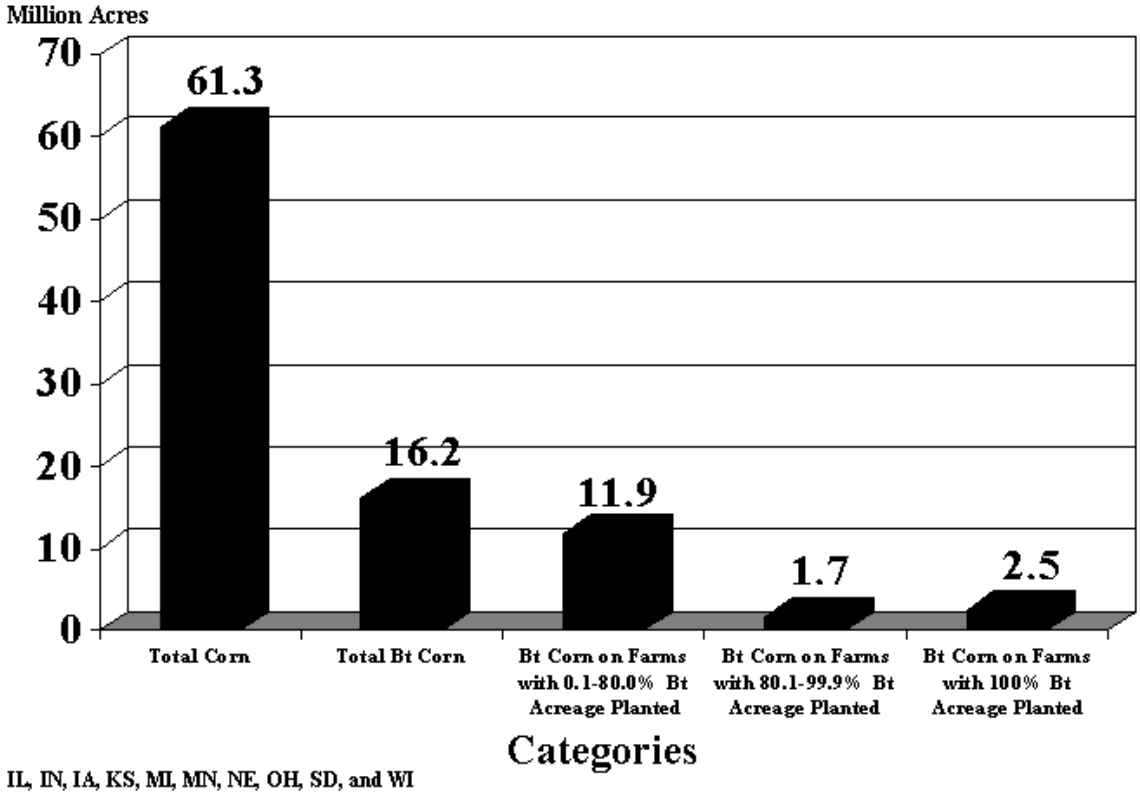


10 State Total Corn Planted Area = 61.3 Million Acres

1/ IL, IN, IA, KS, MI, MN, NE, OH, SD, and WI

Chart 2

Corn Planted Acreage by Category for 10 Selected States 1/



1/ IL, IN, IA, KS, MI, MN, NE, OH, SD, and WI

Farms With Corn, by Percent of Acres Planted to Bt Varieties, Selected States, 2002 [1] [2] [3]

State	All Farms	Farms with 0.0 Percent Bt Acreage Planted		Farms with 0.1 - 80.0 Percent Bt Acreage Planted		Farms with 80.1 - 99.9 Percent Bt Acreage Planted		Farms with 100 Percent Bt Acreage Planted		All Farms Reporting Bt Acreage Planted	
	Number	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
IL	48,640	32,330	66.5	14,010	28.8	820	1.7	1,480	3.0	16,310	33.5
IN	25,270	21,940	86.8	2,960	11.7	40	0.2	330	1.3	3,330	13.2
IA	55,620	30,590	55.0	20,470	36.8	1,400	2.5	3,160	5.7	25,030	45.0
KS	11,590	7,360	63.5	2,830	24.4	390	3.4	1,010	8.7	4,230	36.5
MI	15,030	12,380	82.4	1,440	9.6	190	1.3	1,020	6.8	2,650	17.6
MN	33,230	20,310	61.1	10,560	31.8	680	2.0	1,680	5.1	12,920	38.9
NE	26,290	13,430	51.1	9,970	37.9	1,080	4.1	1,810	6.9	12,860	48.9
OH	26,690	23,870	89.4	1,760	6.6	20	0.1	1,040	3.9	2,820	10.6
SD	13,470	5,940	44.1	5,010	37.2	950	7.1	1,570	11.7	7,530	55.9
WI	33,810	27,960	82.7	4,810	14.2	120	0.4	920	2.7	5,850	17.3
10 Sts	289,640	196,110	67.7	73,820	25.5	5,690	2.0	14,020	4.8	93,530	32.3

[1] Bt corn refers to all varieties which contain the Bt gene including stacked gene varieties.
[2] Number of farms rounded to the nearest 10. Percents may not add due to rounding.
[3] These 10 States have consistent refuge requirements.

Farms With 200 or More Acres of Corn, by Percent of Acres Planted to Bt Varieties, Selected States, 2002 [1] [2] [3]

State	All Farms	Farms with 0.0 Percent Bt Acreage Planted		Farms with 0.1 - 80.0 Percent Bt Acreage Planted		Farms with 80.1 - 99.9 Percent Bt Acreage Planted		Farms with 100 Percent Bt Acreage Planted		All Farms Reporting Bt Acreage Planted	
	Number	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
IL	21,990	10,430	47.4	10,800	49.1	550	2.5	210	1.0	11,560	52.6
IN	9,170	7,020	76.6	2,100	22.9	0	0.0	50	0.5	2,150	23.4
IA	23,020	8,220	35.7	13,140	57.1	570	2.5	1,090	4.7	14,800	64.3
KS	4,900	2,480	50.6	1,960	40.0	200	4.1	260	5.3	2,420	49.4
MI	2,880	1,910	66.3	750	26.0	120	4.2	100	3.5	970	33.7
MN	10,490	3,040	29.0	6,440	61.4	450	4.3	560	5.3	7,450	71.0
NE	14,400	4,860	33.8	7,980	55.4	870	6.0	690	4.8	9,540	66.3
OH	5,690	4,440	78.0	1,110	19.5	10	0.2	130	2.3	1,250	22.0
SD	6,330	1,990	31.4	3,260	51.5	560	8.8	520	8.2	4,340	68.6
WI	3,670	2,000	54.5	1,520	41.4	40	1.1	110	3.0	1,670	45.5
10 Sts	102,540	46,390	45.2	49,060	47.8	3,370	3.3	3,720	3.6	56,150	54.8

[1] Bt corn refers to all varieties which contain the Bt gene including stacked gene varieties.
[2] Number of farms rounded to the nearest 10. Percents may not add due to rounding.
[3] These 10 States have consistent refuge requirements.

Farms With Less than 200 Acres of Corn, by Percent of Acres Planted to Bt Varieties, Selected States, 2002 [1] [2] [3]

State	All Farms	Farms with 0.0 Percent Bt Acreage Planted		Farms with 0.1 - 80.0 Percent Bt Acreage Planted		Farms with 80.1 - 99.9 Percent Bt Acreage Planted		Farms with 100 Percent Bt Acreage Planted		All Farms Reporting Bt Acreage Planted	
	Number	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
IL	26,650	21,900	82.2	3,210	12.0	270	1.0	1,270	4.8	4,750	17.8
IN	16,100	14,920	92.7	860	5.3	40	0.2	280	1.7	1,180	7.3
IA	32,600	22,370	68.6	7,330	22.5	830	2.5	2,070	6.3	10,230	31.4
KS	6,690	4,880	72.9	870	13.0	190	2.8	750	11.2	1,810	27.1
MI	12,150	10,470	86.2	690	5.7	70	0.6	920	7.6	1,680	13.8
MN	22,740	17,270	75.9	4,120	18.1	230	1.0	1,120	4.9	5,470	24.1
NE	11,890	8,570	72.1	1,990	16.7	210	1.8	1,120	9.4	3,320	27.9
OH	21,000	19,430	92.5	650	3.1	10	0.0	910	4.3	1,570	7.5
SD	7,140	3,950	55.3	1,750	24.5	390	5.5	1,050	14.7	3,190	44.7
WI	30,140	25,960	86.1	3,290	10.9	80	0.3	810	2.7	4,180	13.9
10 Sts	187,100	149,720	80.0	24,760	13.2	2,320	1.2	10,300	5.5	37,380	20.0

[1] Bt corn refers to all varieties which contain the Bt gene including stacked gene varieties.
[2] Number of farms rounded to the nearest 10. Percents may not add due to rounding.
[3] These 10 States have consistent refuge requirements.

Total Corn Acres and Bt Corn Acres, by Percent of Acres Planted to Bt Varieties, Selected States, 2002 [1 2 3]

State	Total Corn Acres Planted	Bt Acres on Farms with 0.1 - 80.0 Percent Bt Acreage Planted		Bt Acres on Farms with 80.1 - 99.9 Percent Bt Acreage Planted		Bt Acres on Farms with 100 Percent Bt Acreage Planted		Total Bt Acreage Planted	
	1,000 Acres	*1,000 Acres*	*Percent*	*1,000 Acres*	*Percent*	*1,000 Acres*	*Percent*	*1,000 Acres*	*Percent*
IL	11,200	1,809	16.2	166	1.5	153	1.4	2,128	19.0
IN	5,400	330	6.1	4	0.1	44	0.8	378	7.0
IA	12,300	3,196	26.0	391	3.2	595	4.8	4,182	34.0
KS	3,250	580	17.8	122	3.8	175	5.4	877	27.0
MI	2,250	167	7.4	45	2.0	103	4.6	315	14.0
MN	7,200	1,778	24.7	247	3.4	351	4.9	2,376	33.0
NE	8,400	2,324	27.7	419	5.0	449	5.3	3,192	38.0
OH	3,200	85	2.7	3	0.1	104	3.3	192	6.0
SD	4,400	1,224	27.8	303	6.9	365	8.3	1,892	43.0
WI	3,650	448	12.3	42	1.2	130	3.6	620	17.0
10 Sts	61,250	11,941	19.5	1,742	2.8	2,469	4.0	16,152	26.4

[1] Bt corn refers to all varieties which contain the Bt gene including stacked gene varieties.
[2] Percents may not add due to rounding.
[3] These 10 States have consistent refuge requirements.

Total Corn Acres and Bt Corn Acres on Farms with 200 or More Acres of Corn, by Percent of Acres Planted to Bt Varieties, Selected States, 2002 [1 2 3]

State	Total Corn Acres Planted	Bt Acres on Farms with 0.1 - 80.0 Percent Bt Acreage Planted		Bt Acres on Farms with 80.1 - 99.9 Percent Bt Acreage Planted		Bt Acres on Farms with 100 Percent Bt Acreage Planted		Total Bt Acreage Planted	
	1,000 Acres	*1,000 Acres*	*Percent*	*1,000 Acres*	*Percent*	*1,000 Acres*	*Percent*	*1,000 Acres*	*Percent*
IL	9,509	1,733	18.2	155	1.6	105	1.1	1,993	21.0
IN	4,457	303	6.8	2	0.0	33	0.7	338	7.6
IA	9,625	2,813	29.2	315	3.3	446	4.6	3,574	37.1
KS	2,758	540	19.6	104	3.8	126	4.6	770	27.9
MI	1,661	146	8.8	44	2.6	72	4.3	262	15.8
MN	5,308	1,536	28.9	219	4.1	245	4.6	2,000	37.7
NE	7,388	2,209	29.9	401	5.4	355	4.8	2,965	40.1
OH	2,250	75	3.3	2	0.1	73	3.2	150	6.7
SD	3,624	1,103	30.4	268	7.4	284	7.8	1,655	45.7
WI	1,904	329	17.3	37	1.9	74	3.9	440	23.1
10 Sts	48,484	10,787	22.2	1,547	3.2	1,813	3.7	14,147	29.2

[1] Bt corn refers to all varieties which contain the Bt gene including stacked gene varieties.
[2] Percents may not add due to rounding.
[3] These 10 States have consistent refuge requirements.

Total Corn Acres and Bt Corn Acres on Farms with Less Than 200 Acres of Corn, by Percent of Acres Planted to Bt Varieties, Selected States, 2002 [1 2 3]

State	Total Corn Acres Planted	Bt Acres on Farms with 0.1 - 80.0 Percent Bt Acreage Planted		Bt Acres on Farms with 80.1 - 99.9 Percent Bt Acreage Planted		Bt Acres on Farms with 100 Percent Bt Acreage Planted		Total Bt Acreage Planted	
	1,000 Acres	*1,000 Acres*	*Percent*	*1,000 Acres*	*Percent*	*1,000 Acres*	*Percent*	*1,000 Acres*	*Percent*
IL	1,691	76	4.5	11	0.7	48	2.8	135	8.0
IN	943	27	2.9	2	0.2	11	1.2	40	4.2
IA	2,675	383	14.3	76	2.8	149	5.6	608	22.7
KS	492	40	8.1	18	3.7	49	10.0	107	21.7
MI	589	21	3.6	1	0.2	31	5.3	53	9.0
MN	1,892	242	12.8	28	1.5	106	5.6	376	19.9
NE	1,012	115	11.4	18	1.8	94	9.3	227	22.4
OH	950	10	1.1	1	0.1	31	3.3	42	4.4
SD	776	121	15.6	35	4.5	81	10.4	237	30.5
WI	1,746	119	6.8	5	0.3	56	3.2	180	10.3
10 Sts	12,766	1,154	9.0	195	1.5	656	5.1	2,005	15.7

[1] Bt corn refers to all varieties which contain the Bt gene including stacked gene varieties.
[2] Percents may not add due to rounding.
[3] These 10 States have consistent refuge requirements.

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