

**EVALUATION OF Bt CORN HYBRIDS AND EQUIVALENT NON-Bt CORN HYBRIDS FOR YIELD,  
2001.**

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Three YieldGard<sup>®</sup> Corn Borer hybrids (Dekalb DKC56-71, Dekalb DKC58-52 and Dekalb DKC61-25) were compared with their equivalent non-Bt field corn hybrids (Dekalb DK567, Dekalb DK585 and Dekalb DKC61-24) for yield at the Western Branch (WB) of OARDC near South Charleston, OH and at the Northwestern Branch (NWB) of OARDC near Hoytville, Ohio. The hybrids were planted as paired trials on 30 April (Test 1) and 31 May (Test 2) at the WB and on 7 May at the NWB. Plots were 4 rows (30 inch spacing) by 140 ft long at the WB and 4 rows (30 inch spacing) by 90 ft at the NWB. There were four replicates per hybrid pair. Plant stands were measured on 12 June and 26 June on the early and late plantings at the WB by counting the plants in 50 ft of each of the middle 2 rows and on 29 June at the NWB by counting the plants in 25 ft of each of the middle 2 rows. Ten stalks from each of the non-Bt plots of the early and late planting at the WB were dissected on 22 Sept and 18 Oct respectively and the number of cavities, length of cavities (in inches) and number of live ECB larvae were recorded. Ten stalks from each of the non-Bt plots at the NWB were dissected on 21 Sept and the number of cavities, length of cavities (in inches) and number of live ECB larvae were recorded. Yields were obtained by machine harvesting the middle 2 rows of the early and late plots at the WB on 10 Oct and 22 Oct and on 31 Oct at the NWB.

OSU Extension Personnel in Allen, Crawford, Fairfield, Fayette, Highland, Licking and Van Wert Counties conducted on-farm trials using the same hybrids that were used at the WB and NWB. Trials in Van Wert County were replicated three times and trials in Fayette County were replicated twice. All of the other trials were side by side comparisons of the hybrids with only one replication. Information about planting date, stand, date stalks dissected and harvest date in each county is provided in Table 1. Yields in each county were determined by machine harvest.

Table 2 contains the results from the trials at the WB and NWB. Significant differences in yield were observed between non-Bt hybrid DK567 and YieldGard<sup>®</sup> Corn Borer hybrid DKC56-71 at the NWB. Significant differences in yield were observed between YieldGard<sup>®</sup> Corn Borer hybrid DKC58-52 and non-Bt hybrid DK585 at the WB (both plantings). Table 3 contains the average YieldGard<sup>®</sup> Corn Borer hybrid yield and non-Bt hybrid yield in each of the counties. The average yield difference between the YieldGard<sup>®</sup> Corn Borer hybrids and non-Bt hybrids was 4.0 bushels/acre in the on-farm trials and 2.35 bushels/acre when the branch sites are averaged in with the on-farm trials. Table 4 contains the yield comparison in each county for YieldGard<sup>®</sup> Corn Borer hybrid DKC56-71 and non-Bt hybrid DK567. Table 5 contains the yield comparison in each county for YieldGard<sup>®</sup> Corn Borer hybrid DKC58-52 and non-Bt hybrid DK585. Table 6 contains the yield comparison in each county for YieldGard<sup>®</sup> Corn Borer hybrid DKC61-25 and non-Bt hybrid DKC61-24. Each on-farm site was considered a replication and statistical results indicated there were no significant differences in yields between any of the hybrid pairs.

**Table 1. Location, Prior Crop, Tillage, Planting Date, Stand, Date Injury Surveyed, Harvest Date and Cooperator of Seven On-farm Trials.**

County	Prior Crop	Tillage	Operations & Assessment Dates				Cooperating Extension Agents
			Planted	Stand	Injury	Harvest	
Allen	Soybean	No data	No data	27 Sept	27 Sept	No data	Dave Jones
Crawford	Wheat	Chisel	5 May	27 Sept	27 Sept	26 Oct	Steve Prochaska
Fairfield	Soybean	No-till	4 May	No data	2 Oct	31 Oct	Howard Siegrist
Fayette <sup>1</sup>	Soybean	No data	30 April	3 Oct	3 Oct	19 Oct	Jim O'Brien
Highland	Sod	No-till	19 June	15 Nov	1 Nov	15 Nov	John Grimes
Licking	Soybean	No data	3 May	No data	2 Oct	29 Oct	Howard Siegrist
Van Wert <sup>2</sup>	Soybean	No data	30 April	30 Oct	21 Sept	30 Oct	Andy Kleinschmidt & Gary Prill

**Table 2 - Stand counts, corn borer injury and yields of YieldGard<sup>®</sup> Corn Borer trials at Western and Northwestern Branch Stations, 2001.**

Field Corn Hybrid	Properties	Stand Plants/A	ECB per Plant*			Yield BuAcre
			Cavities	Cavity Length (in.)	Larvae	
<i>Western Branch Station (Test 1)</i>						
Dekalb DKC56-71	YieldGard <sup>®</sup> Corn Borer	24,625	**	**	**	174.7
Dekalb DK567	non-Bt	25,750	0.90	0.78	0.68	189.9
Dekalb DKC58-52	YieldGard <sup>®</sup> Corn Borer	26,500	**	**	**	195.7 <sup>1</sup>
Dekalb DK585	non-Bt	25,750	0.65	0.96	0.33	188.5 <sup>1</sup>
Dekalb DKC61-25	YieldGard <sup>®</sup> Corn Borer	25,500	**	**	**	186.3
Dekalb DKC61-24	Non-Bt	24,250	0.60	0.96	0.25	188.3
Average Bt		25,541.7	**	**	**	185.6
Average non-Bt		25,250.0	0.72	0.90	0.42	188.9
<i>Western Branch Station (Test 2)</i>						
Dekalb DKC56-71	YieldGard <sup>®</sup> Corn Borer	23,000	**	**	**	143.4
Dekalb DK567	Non-Bt	22,375	2.38	1.51	0.63	145.6
Dekalb DKC58-52	YieldGard <sup>®</sup> Corn Borer	24,625	**	**	**	152.1 <sup>1</sup>
Dekalb DK585	non-Bt	23,375	1.58	1.13	0.45	137.8 <sup>1</sup>
Dekalb DKC61-25	YieldGard <sup>®</sup> Corn Borer	23,500	**	**	**	148.0
Dekalb DKC61-24	non-Bt	23,500	1.58	1.52	0.23	133.2
Average Bt		23,708	**	**	**	146.8
Average non Bt		23,083	1.84	1.39	0.43	138.8
<i>Northwestern Branch Station</i>						
Dekalb DKC56-71	YieldGard <sup>®</sup> Corn Borer	26,500	**	**	**	122.6 <sup>2</sup>
Dekalb DK567	non-Bt	27,875	0.5	0.9	0.2	140.7 <sup>2</sup>
Dekalb DKC58-52	YieldGard <sup>®</sup> Corn Borer	26,125	**	**	**	133.9
Dekalb DK585	non-Bt	26,625	0.5	1.0	0.2	138.8
Dekalb DKC61-25	YieldGard <sup>®</sup> Corn Borer	26,500	**	**	**	138.6
Dekalb DKC61-24	non-Bt	26,625	0.8	1.0	0.4	143.4
Average Bt		26,375	**	**	**	131.6
Average non-Bt		27,042	0.6	1.0	0.3	141.0

<sup>1</sup> A significant difference in yield was observed between YieldGard<sup>®</sup> Corn Borer hybrid DKC58-52 and non-Bt hybrid DK585 at the Western Branch Station (both plantings).

<sup>2</sup> A significant difference in yield was observed between non-Bt hybrid DK567 and YieldGard<sup>®</sup> Corn Borer hybrid DKC56-71 at the Northwestern Branch Station

**Table 3 - Average stand counts, corn borer injury and yields<sup>1</sup> per Bt-corn hybrid and non-Bt corn isolines of seven on-farm trials.**

County Location	Hybrid Properties	Harvest Pop. Plants/Acre	ECB per Plant*			Yield Bushels/A
			Cavities	Cavity Length (in)	Larvae	
Allen	YieldGard <sup>®</sup> non-Bt Corn Borer	27,333	**	**	**	159.5
		25,000	1.67	1.29	0.50	154.6
Crawford	YieldGard <sup>®</sup> non-Bt Corn Borer	27,333	**		**	181.5
		26,833	1.97	1.13	0.67	173.7
Fairfield	YieldGard <sup>®</sup> Non-Bt Corn Borer	24,500	**	**	**	185.3
		24,167	0.37	1.14	0.1	189.3
Fayette <sup>1</sup>	YieldGard <sup>®</sup> non-Bt Corn Borer	27,095	**	**	**	156.1
		27,704	1.18	1.32	0.38	155.3
Highland <sup>2</sup>	YieldGard <sup>®</sup> non-Bt Corn Borer	20,555	**	**	**	143.0
		20,111	0.70	1.18	0.23	121.1
Licking	YieldGard <sup>®</sup> non-Bt Corn Borer	26,891	**	**	**	172.5
		28,691	1.83	0.91	0.63	175.3
Van Wert <sup>3</sup>	YieldGard <sup>®</sup> non-Bt Corn Borer	27,380.7	0.00	0.00	0.00	160.7
		27,318.3	2.12	1.05	0.52	161.1
7 Site Average	YieldGard <sup>®</sup> non-Bt Corn Borer	25,869.7	**	**	**	165.5
		25,689.2	1.41	1.15	0.43	161.5
Difference						4.0
Percent Gain YG vs non-Bt						2.4%

<sup>1</sup> No significant differences in yield were observed between YieldGard<sup>®</sup> Corn Borer hybrids and equivalent non-Bt isolate.

**Table 4 - Average stand counts, corn borer injury and yields<sup>1</sup> per YieldGard<sup>®</sup> Corn Borer hybrid Dekalb DKC56-71 and non-Bt corn isolate Dekalb DK567 of seven on-farm trials.**

County Location	Hybrid Properties	Harvest Pop. Plants/Acre	ECB per Plant*			Yield Bushels/A
			Cavities	Cavity Length (in)	Larvae	
Allen	Dekalb DKC56-71	27,333	**	**	**	163.9
		25,000	1.80	1.44	0.40	161.4
Crawford	Dekalb DKC56-71	26,500	**	**	**	168.2
		26,500	3.10	1.13	1.20	161.0
Fairfield	Dekalb DKC56-71	24,500	**	**	**	176.0
		25,500	0.70	1.14	0.20	192.0
Fayette <sup>1</sup>	Dekalb DKC56-71	26,224	**	**	**	151.9
		28,314	1.50	1.55	0.45	140.2
Highland	Dekalb DKC56-71	20,333	**	**	**	114.0
		19,333	0.70	1.18	0.23	87.1
Licking	Dekalb DKC56-71	27,356	**	**	**	174.6
		26,310	2.80	0.79	1.10	175.5
Van Wert <sup>2</sup>	Dekalb DKC56-71	27,270	0.00	0.00	0.00	158.0
		27,159	2.53	1.03	0.47	165.3
Average	Dekalb DKC56-71	25,645.1	**	**	**	158.1
Average	Dekalb DK567	25,445.1	1.88	1.18	0.58	154.6

<sup>1</sup> No significant differences in yield were observed between YieldGard<sup>®</sup> Corn Borer hybrid Dekalb DKC56-71 and equivalent non-Bt hybrid Dekalb DK567.

**Table 5 - Average stand counts, corn borer injury and yields<sup>1</sup> per YieldGard<sup>®</sup> Corn Borer hybrid Dekalb DKC58-52 and non-Bt corn isoline Dekalb DK585 of seven on-farm trials.**

County Location	Hybrid Properties	Harvest Pop. Plants/Acre	ECB per Plant*			Yield Bushels/A
			Cavities	Cavity Length (in)	Larvae	
Allen	Dekalb DKC58-52	26,500	**		**	155.6
	Dekalb DK585	23,000	0.90	0.89	0.00	152.5
Crawford	Dekalb DKC58-52	27,000	**		**	181.6
	Dekalb DK585	28,500	1.40	1.07	0.30	174.5
Fairfield	Dekalb DKC58-52	23,000	**	**	**	191.0
	Dekalb DK585	22,000	0.00	0.00	0.00	191.0
Fayette <sup>1</sup>	Dekalb DKC58-52	26,137	**	**	**	153.7
	Dekalb DK585	28,053	1.00	1.35	0.40	153.2
Highland	Dekalb DKC58-52	21,333	**	**	**	156.4
	Dekalb DK585	21,000	0.70	1.18	0.23	127.5
Licking	Dekalb DKC58-52	25,962	**	**	**	179.2
	Dekalb DK585	30,840	0.9	0.89	0.00	186.9
Van Wert <sup>2</sup>	Dekalb DKC58-52	27,159	0.00	0.00	0.00	162.1
	Dekalb DK585	27,802	2.00	1.10	0.40	161.7
Average	Dekalb DKC58-52	25,298.7	**	**	**	168.5
Average	Dekalb DK585	25,885.0	0.99	0.93	0.19	163.9

<sup>1</sup> No significant differences in yield were observed between YieldGard<sup>®</sup> Corn Borer hybrid Dekalb DKC58-52 and equivalent non-Bt hybrid Dekalb DK585.

**Table 6 - Average stand counts, corn borer injury and yields<sup>1</sup> per YieldGard<sup>®</sup> Corn Borer hybrid Dekalb DKC61-25 and non-Bt corn isoline Dekalb DK61-24 of seven on-farm trials.**

County Location	Hybrid Properties	Harvest Pop. Plants/Acre	ECB per Plant*			Yield Bushels/A
			Cavities	Cavity Length (in)	Larvae	
Allen	Dekalb DKC61-25	27,000	**	**	**	159.0
	Dekalb DKC61-24	26,000	2.30	1.52	1.10	149.8
Crawford	Dekalb DKC61-25	28,500	**	**	**	194.8
	Dekalb DKC61-24	25,500	1.40	1.18	0.50	185.6
Fairfield	Dekalb DKC61-25	26,000	**	**	**	189.0
	Dekalb DKC61-24	25,000	0.40	1.63	0.10	185.0
Fayette <sup>1</sup>	Dekalb DKC61-25	28,924	**	**	**	162.8
	Dekalb DKC61-24	26,746	1.05	1.07	0.30	172.6
Highland	Dekalb DKC61-25	20,000	**	**	**	158.6
	Dekalb DKC61-24	20,000	0.70	1.18	0.23	148.7
Licking	Dekalb DKC61-25	27,356	**	**	**	163.6
	Dekalb DKC61-24	28,924	1.80	1.06	0.40	163.4
Van Wert <sup>2</sup>	Dekalb DKC61-25	27,712	0.00	0.00	0.00	161.9
	Dekalb DKC61-24	26,994	1.83	1.05	0.70	156.3
Average	Dekalb DKC61-25	26,468.9				170.0
Average	Dekalb DKC61-24	25,594.9	1.35	1.24	0.52	165.9

<sup>1</sup> No significant differences in yield were observed between YieldGard<sup>®</sup> Corn Borer hybrid Dekalb DKC61-25 and equivalent non-Bt hybrid Dekalb DKC61-24.