

FIELD EXPERIMENT HISTORY

Title: Performance of Bt Corn **Year:** 1996
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Location: Arlington Research Station, Arlington, WI
Supported by: Ciba Seeds, Northrup King Co.

FIELD INFORMATION

Field: 372
 Soil Type: Plano Silt Loam
 Soil Test Results: Test Date: 7/95 pH: 6.3 P (ppm): 40 K (ppm): 255 OM (%): 3.1
 Fertilizer: 25-Apr 100 lbs/a 6-24-24 starter
 150 lbs/a 46-0-0 preplant
 Tillage Operations: Chisel Plow, Field Cultivate
 Previous Crop: Soybean
 Irrigation: None

EXPERIMENTAL PROCEDURE

Exp. Design: RCB Split Plot
 Replicates: 4
 Variables: A: Hybrid, B: ECB Treatment
 Area Planted: 10' x 25'
 Area Harvested: 5.0' x 22'
 Row Spacing: 30"

Hybrid/Variety:	Ciba 1401E	Ciba MAX21	Ciba MAX747	Golden H2441
	Ciba 1402E	Ciba MAX23	Ciba MAX88	NK 4734 CBR
	Ciba 4410E	Ciba MAX357	Dairyland 1407	NK X4334 CBR
	Ciba MAX101	Ciba MAX454	Dekalb DK493	Pioneer 3769

ECB Treatment: Inoculated

10-Jul @V9	2 egg masses
19-Jul @V10-V11	2 egg masses
1-Aug @early pollination	2 shots w/Bazooka @~50 larvae/shot
16-Aug @late pollination	2 shots w/Bazooka @~50 larvae/shot

Natural Infestation
 Insecticide

3-Jul @V5-V6 in whorl	
21-Aug directed at ear (3 nodes above and below)	
3-Sep directed at ear (3 nodes above and below)	

 cost of about \$15/A for each application

Planting Equip: Kinze Plot Planter
 Harvesting Date: 11-Nov
 Harvesting Equip: Gleaner Plot Combine

	<u>Date</u>	<u>Material</u>	<u>Rate</u>	<u>Method</u>
Insecticides:	3-Jul	Pounce 3.2ec	0.15 lbs ai/A	@V5-V6 in whorl
	21-Aug	Pounce 3.2ec	0.15 lbs ai/A	directed at ear (3 nodes above & below)
	3-Sep	Pounce 3.2ec	0.15 lbs ai/A	directed at ear (3 nodes above & below)
Herbicides:		Bladex	2 qts/A	premerge
		Lasso	2 qts/A	premerge

Results: Table E-45.

**Table E-45. Performance of Bt and Non-Bt Corn.
Arlington, WI 1996**

Hybrid	Relative Maturity	ECB Treatment	Guthrie Rating	ECB	ECB	Broken %	Moist %	Yield bu/a
				Cavities/Plant	Larve/Plant			
Ciba 1401E	93 day		1.0	0.2	0.1	0.1	19.6	179.8
Ciba 1402E	90 day		1.0	0.3	0.2	0.9	21.4	165.2
Ciba 4410E	112 day		1.0	0.1	0.0	0.9	33.5	156.2
Ciba MAX101	105 day		1.0	0.3	0.1	3.3	28.3	153.8
Ciba MAX21	106 day		1.0	0.2	0.0	2.1	29.1	171.8
Ciba MAX23	92 day		1.0	0.3	0.1	3.8	24.0	153.3
Ciba MAX357	92 day		1.0	0.4	0.1	2.8	22.3	160.8
Ciba MAX454	110 day		1.0	0.1	0.1	3.9	33.7	147.6
Ciba MAX747	95 day		1.0	0.3	0.1	11.8	18.2	170.0
Ciba MAX88	100 day		1.0	0.3	0.1	0.8	24.9	156.4
Dairyland 1407	105 day		2.0	1.5	0.2	6.1	28.3	159.9
Dekalb DK493	100 day		2.0	2.2	0.6	7.0	24.3	155.8
Golden H2441	105 day		1.8	1.5	0.3	9.9	26.3	165.9
NK 4734 CBR	105 day		1.0	0.0	0.0	0.4	26.9	154.3
NK X4334 CBR	100 day		1.0	0.0	0.0	0.5	24.9	169.1
Pioneer 3769	95 day		1.7	3.2	0.6	6.8	21.7	166.9
		Inoculated	1.4	1.2	0.3	5.4	25.2	158.4
		Natural Infestation	1.2	0.8	0.2	3.9	25.4	162.0
		Insecticide	1.0	0.1	0.0	2.1	25.7	164.8
Ciba 1401E	93 day	Inoculated	1.0	0.3	0.1	0.0	19.4	186.8
Ciba 1401E	93 day	Natural Infestation	1.0	0.2	0.2	0.0	19.0	181.9
Ciba 1401E	93 day	Insecticide	1.0	0.0	0.0	0.4	20.6	170.7
Ciba 1402E	90 day	Inoculated	1.0	0.8	0.3	1.9	21.8	161.2
Ciba 1402E	90 day	Natural Infestation	1.0	0.2	0.2	0.4	21.0	172.2
Ciba 1402E	90 day	Insecticide	1.0	0.0	0.0	0.4	21.5	162.1
Ciba 4410E	112 day	Inoculated	1.0	0.1	0.0	1.1	32.6	152.1
Ciba 4410E	112 day	Natural Infestation	1.0	0.1	0.1	1.5	34.1	153.6
Ciba 4410E	112 day	Insecticide	1.0	0.0	0.0	0.0	33.5	161.9
Ciba MAX101	105 day	Inoculated	1.0	0.4	0.1	1.9	29.9	146.4
Ciba MAX101	105 day	Natural Infestation	1.0	0.4	0.2	3.4	26.0	161.2
Ciba MAX101	105 day	Insecticide	1.0	0.1	0.0	4.5	28.9	153.8
Ciba MAX21	106 day	Inoculated	1.0	0.2	0.1	2.3	28.4	172.5
Ciba MAX21	106 day	Natural Infestation	1.0	0.1	0.0	2.6	28.9	165.0
Ciba MAX21	106 day	Insecticide	1.0	0.3	0.0	1.5	29.9	177.8
Ciba MAX23	92 day	Inoculated	1.0	0.7	0.1	4.5	24.1	150.9
Ciba MAX23	92 day	Natural Infestation	1.0	0.3	0.2	1.1	24.0	162.2
Ciba MAX23	92 day	Insecticide	1.0	0.0	0.0	5.6	23.9	146.7
Ciba MAX357	92 day	Inoculated	1.0	1.0	0.3	6.4	21.2	164.3
Ciba MAX357	92 day	Natural Infestation	1.0	0.1	0.1	1.9	22.3	154.2
Ciba MAX357	92 day	Insecticide	1.0	0.0	0.0	0.0	23.4	164.0
Ciba MAX454	110 day	Inoculated	1.0	0.3	0.2	5.3	33.5	142.7
Ciba MAX454	110 day	Natural Infestation	1.0	0.0	0.0	4.1	33.8	145.7
Ciba MAX454	110 day	Insecticide	1.0	0.0	0.0	2.3	33.8	154.5
Ciba MAX747	95 day	Inoculated	1.0	0.7	0.4	14.6	18.4	162.1
Ciba MAX747	95 day	Natural Infestation	1.0	0.0	0.0	15.0	18.1	174.4
Ciba MAX747	95 day	Insecticide	1.0	0.1	0.0	5.6	18.2	173.6
Ciba MAX88	100 day	Inoculated	1.0	0.5	0.1	1.1	25.3	151.0
Ciba MAX88	100 day	Natural Infestation	1.0	0.3	0.2	0.4	25.3	164.7
Ciba MAX88	100 day	Insecticide	1.0	0.1	0.0	0.8	24.1	153.5

**Table E-45. Performance of Bt and Non-Bt Corn.
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Hybrid	Relative Maturity	ECB Treatment	Guthrie Rating	ECB	ECB	Broken %	Moist %	Yield bu/a
				Cavities/Plant	Larve/Plant			
Dairyland 1407	105 day	Inoculated	2.7	2.0	0.3	7.1	27.1	155.2
Dairyland 1407	105 day	Natural Infestation	2.0	2.2	0.3	6.4	30.1	156.8
Dairyland 1407	105 day	Insecticide	1.1	0.3	0.0	4.9	27.5	170.2
Dekalb DK493	100 day	Inoculated	2.9	3.4	1.3	9.8	23.7	142.9
Dekalb DK493	100 day	Natural Infestation	1.8	3.0	0.5	8.6	23.4	157.5
Dekalb DK493	100 day	Insecticide	1.2	0.3	0.0	2.6	25.8	167.0
Golden H2441	105 day	Inoculated	2.4	2.1	0.5	14.6	26.7	164.6
Golden H2441	105 day	Natural Infestation	1.7	2.3	0.4	10.9	26.3	162.3
Golden H2441	105 day	Insecticide	1.1	0.1	0.0	4.1	25.9	170.6
NK 4734 CBR	105 day	Inoculated	1.0	0.0	0.0	0.4	26.8	155.6
NK 4734 CBR	105 day	Natural Infestation	1.0	0.0	0.0	0.4	27.1	146.0
NK 4734 CBR	105 day	Insecticide	1.0	0.0	0.0	0.4	26.7	161.4
NK X4334 CBR	100 day	Inoculated	1.0	0.0	0.1	0.4	24.6	171.4
NK X4334 CBR	100 day	Natural Infestation	1.0	0.0	0.0	1.1	24.8	170.3
NK X4334 CBR	100 day	Insecticide	1.0	0.1	0.1	0.0	25.4	165.7
Pioneer 3769	95 day	Inoculated	2.3	5.9	1.0	14.3	20.8	152.8
Pioneer 3769	95 day	Natural Infestation	1.6	3.3	0.8	5.3	21.8	163.6
Pioneer 3769	95 day	Insecticide	1.1	0.3	0.0	0.8	22.5	184.3
Mean			1.2	0.7	0.2	3.8	25.4	161.7
Probability %								
Hybrid (H)			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	5.5
ECB (E)			< 0.1	< 0.1	< 0.1	< 0.1	39.3	6.6
H x E			< 0.1	< 0.1	1.2	< 0.1	> 50	> 50
Contrast %								
Hybrids w/Bt gene(12) vs Hybrids w/o Bt gene(4)			< 0.1	< 0.1	< 0.1	< 0.1	16.1	> 50
Hybrids x ECB Treatment Interaction			< 0.1	< 0.1	< 0.1	< 0.1	> 50	0.7
Hybrids (with vs.w/o Bt gene) vs. ECB Treatment(Inoculated and Natural vs. Insecticide)								
LSD (0.10)								
Hybrid (H)			0.1	0.5	0.2	3.0	2.4	14.8
ECB (E)			0.1	0.2	0.1	1.0	NS	4.7
CV %								
			16.3	77.7	182.2	85.8	7.2	9.8