

# Insect Screening Results

## Evaluation of Insect Resistance among 47 Commercial Corn Hybrids, 2007

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During the growing season of 2007, the dry environmental conditions in Tifton, Georgia were favorable for the rapid buildup of all insect populations in the irrigated experimental plots, providing the potential for considerable damage to the corn crop. Seven ear-feeding insects recorded in the order of infestation severity were: the corn earworm and the fall armyworm, the pink scavenger caterpillar and the sap beetles, the southern green and brown stink bugs, and the maize weevil.

Total insect damage rating was based on corn earworm and fall armyworm damage rating and added kernel damage by the maize weevil, the stink bugs, the pink scavenger caterpillar, and the sap beetles. Overall insect resistance rating used five categories; they were very good (VG), good (G), fair (F), poor (P), and very poor (VP) as shown in the table. While VG represents the lowest amount of insect damage, VP represents the greatest amount of insect damage. Losses to maize weevil, pink scavenger caterpillar and sap beetles were based on damage by multiple generations of these insects as the crop matures in the field. Corn earworm and fall armyworm damage was combined because the damage was hard to be separated, so was pink scavenger and sap beetle damage being evaluated. Corn earworm and fall armyworm feeding penetration in corn ears on the 47 hybrids was between 0.7 and 3.7 cm, which was lower than what we observed in 2006 (2.6 - 6.7 cm). Stink bug damage in 2007 (0.02-2% of discolored kernels) was similar to the data recorded in 2006 (0-1.5%). Other insect damage was similar between 2006 and 2007. Pink scavenger and sap beetle damage was 0.1-2.6% of the total number of kernels in 2007, and 0.1-3.2% in 2006, and maize weevil damage was 0.1-0.8% in 2007, and 0-0.6% in 2006. The most important insects were the corn earworm and the fall armyworm, which caused the greatest kernel loss among all ear-feeding insects examined. Some of the transgenic *Bt* hybrids showed poor insect resistance ratings (with deep ear penetration), which could be caused by the fact that transgenic events in these hybrids might confer resistance to one species or the other but not to both species. Timely harvest can substantially reduce losses caused by these two insects. Rankings of the 47 hybrids for their resistance to the major ear-feeding insects (i.e., corn earworm and fall armyworm, pink scavenger caterpillar and sap beetles, maize weevil, and stink bugs) are given in the following table. The lettered ratings in the table refer only to relative resistance to insects and are not indicative of yield. Please refer to the yield data in other tests for specific information.

During the damage evaluation in 2007, two physical features (i.e., husk tightness and husk extension) of corn ears were examined. Husk tightness was assigned using a scale of 1 to 5, in which 1 = very loose and 5 = very tight. Because average rating for husk tightness is between 3.8 and 4.7, only loose (L), medium (M), and tight (T) ratings are given in the table. Husk extension was between 2.7 and 8.2 cm. The insect damage was not correlated to husk features according to the data collected in 2007.

Hybrids resistant to insects are highly recommended for planting and are presently the most economical means, especially in late plantings, for the reduction of ear-feeding insect damage. Consult your local county agent and/or extension entomologists for additional control recommendations for a specific insect pest in your region.

All entries were planted on April 11, 2007 and harvested on September 10, 2007. Plots were thinned to 20,000 plants per acre. Data for this section were collected by J. C. Mullis (USDA-ARS, Tifton, GA), Wesley Pope, Nathan Hill, and Kristoffer Wright (University of Georgia, Tifton, Georgia).

**Tifton, Georgia:**  
**Evaluations of Corn Hybrids for Resistance to Insects**  
**and Related Traits, 2007**

Company or Brand Name	Hybrid Name <sup>1</sup>	Days to Antheses	Husk Extension cm	Husk Tightness <sup>2</sup>	Overall Resistance to Insect Injury <sup>3</sup>	
					2007	2 or more years
Croplan	<b>751RR2</b>	61	5.7	M	VG	G
DynaGro	58P60	60	4.6	M	VG	
Greenwood	TL3450RR	61	5.3	L	VG	
Greenwood	TL3550YGCBRR	62	6.2	M	VG	
Croplan	6831TS	58	5.3	M	VG	
Agratech	7754	59	6.5	M	VG	
Agratech	<b>695RR</b>	60	4.3	M	G	G
Agratech	<b>845RR</b>	62	5.1	M	G	G
DeKalb	DK69-43-RR2	58	5.0	M	G	
Pioneer	33M57(Hx1/LL/RR2)	62	3.4	M	G	
Pioneer	33V16(YGCB/RR2)	61	5.8	L	G	
Croplan	6818TS	60	6.6	M	G	
NK	N77-P5	59	7.0	T	G	
Agratech	7907RR	58	3.7	T	G	
Agratech	897RR	61	4.0	M	G	
Golden Acres	2842RRBUS	62	4.1	M	G	
Golden Acres	2989RRB	64	3.3	T	G	
Garst	<b>8295YG1/RR</b>	59	5.7	M	F	G
Pioneer	<b>31P41</b>	61	6.5	M	F	G
Garst	<b>8247YG1</b>	60	2.7	M	F	F
DeKalb	<b>DKC67-23(RR2/YGCB)</b>	59	6.1	T	F	F
Croplan	<b>799RR2</b>	61	6.4	M	F	F
DeKalb	DK65-47RR2	58	5.2	T	F	
DeKalb	DK6787 RR2/YGCB	61	6.5	M	F	
Croplan	<b>851RR2/Bt</b>	62	4.2	M	F	P
DeKalb	DK66-23 RR2/YGCB	59	6.3	L	F	
Pioneer	31N28(YGCB)	60	4.5	M	F	
Greenwood	TL3525YGCBRR	63	5.6	M	F	
Croplan	8702RH	62	5.0	M	F	
Agratech	<b>797RR</b>	64	6.4	M	P	P
DeKalb	DK61-73 RR2/YGCB	58	4.7	L	P	
DeKalb	DK63-46 RR2/YGCB	59	4.3	M	P	
DeKalb	DK64-27RR2	58	4.7	L	P	
Croplan	8950RR2/Bt	60	7.0	T	F	
Croplan	7505RR2	58	5.7	M	F	
Agratech	7901	59	8.2	M	F	
Agratech	7177	60	3.9	M	F	
DynaGro	CX0657	64	3.3	M	F	
Agratech	7694	60	6.1	L	F	
Pioneer	31G65(RR2)	62	7.0	M	P	

**Tifton, Georgia:**  
**Evaluations of Corn Hybrids for Resistance to Insects  
and Related Traits, 2007 (Continued)**

Company or Brand Name	Hybrid Name <sup>1</sup>	Days to Antheses	Husk Extension cm	Husk Tightness <sup>2</sup>	Overall Resistance to Insect Injury <sup>3</sup>	
					2007	2 or more years
SS	731CL	60	6.2	T	P	
Agratech	7711RR	61	6.8	T	P	
Greenwood	GW775	60	3.4	M	P	
DeKalb	<b>DKC69-71(RR2/YGCB)</b>	62	6.2	T	VP	G
Pioneer	<b>31D58</b>	62	6.4	M	VP	F
SS	<b>SS783RR2YGCB</b>	61	6.2	M	VP	P
Agratech	7801	59	5.4	L	VP	

All data in this table were collected from four replications.

1. The bolded entries have been examined for two or more years at Tifton, GA.
2. L = loose husks, M = medium-tight husks, and T = tight husks.
3. Overall insect resistance to ear-feeding insects (i.e., the corn earworm, the fall armyworm, the pink scavenger caterpillar, the maize weevil, and the stink bugs). Insect resistance measured by the of kernels infested with the ear-feeding insects from five ears, where VG = very good, G = good, F= fair, P = poor, and VP = very poor.