

# Evaluation of Corn Hybrids in Massachusetts

Stephen J. Herbert and Masoud Hashemi  
Department of Plant, Soil, and Insect Sciences

Corn hybrids submitted by contributing companies in 2006 were tested by the Department of Plant, Soil, and Insect Sciences, University of Massachusetts, Amherst. Hybrids were evaluated for yield of silage and ear, percentage ears, and moisture content. In 2006, in many regions of Massachusetts, the wet field conditions due to heavy rainfalls during the months of May and June forced farmers to plant their silage corn later than in previous years. Therefore, corn hybrids trials were planted at two dates at two locations in the Connecticut River Valley at the University of Massachusetts Crops Research and Education Center Farm in South Deerfield. Results of these trials are made available to farmers, extension agents, seed distributors, seed salesmen and others upon request. Tables should not be reproduced if any portion is omitted or if order of data is changed.

The trials were planted on April 26 and June 16, 2006. A cone type distributor mounted on a double disc opening corn planter was used in a conventionally prepared seed bed at both sites. Each plot was planted at the rate of 32,000 seeds per acre in 30 inch rows. Plots consisted of 3 rows with a length of 25 feet. Each hybrid was replicated 4 times. Weeds were controlled with a pre-emergence application of 2 quarts of Bicep II Magnum per acre. An amount of 600 lbs/ac of 15-8-12 fertilizer was applied pre-plant, and a further 90 lb/acre of ammonium nitrate side dressed on July 6 and July 31 for the first and second dates of planting, respectively.

## ***Planting Date April 26:***

During entire growing period, Growing Degree Days were close to the norm for this location. However, 2006 season was much cooler during early and late stages of growth compared to the previous season (Table 1). For example, during the months of May-June and August-September, corn plants had 227, and 314 fewer growing degree days compared to 2005, respectively. The total amount of precipitation was similar to the norm for this location. However, during the early stages of growth, noticeably in months of May and June, corn plants received significantly more rainfall (14.8 inch) than in 2005 (7.9 inch) and the norm for this location (7.6 inch). Overall, silage yield in 2006 was higher and ear yield was lower compared to the previous year (averaged over hybrids). This could be attributed mostly to the slower kernel growth rate during the months of August and September which were cooler in 2006 (Table 1).

## ***Planting Date June 16:***

Late planting reduced silage yield by about 21% and ear yield by 31% compared to the optimum planting date. The reduction in yield in the late planting trial compared to the earlier planting date was primarily due to 273 fewer Growing Degree Days and dryer conditions for entire growing period. The total amounts of precipitation for early and late planting dates were 19.2 and 11.8 inch of rain, respectively (Table 2).

## ***Final harvest:***

Corn plots were harvested by hand in September 11 and October 11 when all entries were at or beyond the full dent stage (Tables 3 and 4). Ten feet of central row from each plot was taken for yield estimation. Silage yields were adjusted to 70% moisture and ear corn yields to 25% moisture. Moisture content is reported as a percentage of corn harvested as silage.

Table 1: Climate data for 2006, 2005, and norm in South Deerfield, MA.

	<u>GDD<sup>1</sup></u>			<u>Rainfall (inches)</u>		
	2006	2005	Norm	2006	2005	Norm
	291	418	282	6.37	1.96	3.89
	585	685	533	8.42	5.94	3.75
	773	661	697	2.08	3.47	3.91
	550	682	638	1.42	2.76	4.10
	323	505	381	1.83	0.77	3.79
<b>Total</b>	<b>2522</b>	<b>2951</b>	<b>2531</b>	<b>20.12</b>	<b>14.90</b>	<b>19.44</b>

<sup>1</sup> Growing Degree Days was calculated as:  $GDD = E(T_{max} + T_{min})/2 - 50$

Table 2: Climate data for corn trials planted at April 26 and June 16, 2006.

	<u>GDD<sup>1</sup></u>		<u>Rainfall (inches)</u>	
	April 26	June16	April 26	June16
	10	-	-	-
	291	-	6.37	-
	585	353	8.42	5.71
	773	773	2.08	2.08
	550	550	1.42	1.42
	131	323	0.93	1.83
October	-	68	-	0.80
<b>Total</b>	<b>2340</b>	<b>2067</b>	<b>20.12</b>	<b>11.84</b>

<sup>1</sup> Growing Degree Days was calculated as:  $GDD = E(T_{max} + T_{min})/2 - 50$

Table 3: Yield, Moist%, and Ear Percentage for all hybrids planted on April 26, harvested on September 11, 2006 (optimum planting date).

BRAND	HYBRID	silage <sup>1</sup> T/ac	moist %	earcorn <sup>2</sup> T/ac	emoist %	pctear %
DEKALB	DKC 47-10	34.9	62	7.3	46	54
DEKALB	DKC 48-46	27.3	65	6.3	46	59
DEKALB	DKC 50-48	31.2	66	7.4	49	60
DEKALB	DKC 52-63	30.3	66	7.1	49	60
DEKALB	DKC 54-46	31.7	67	6.9	47	55
DEKALB	DKC 54-53	29.1	66	6.3	47	56
DEKALB	DKC 55-82	31.5	70	6.6	50	54
DEKALB	DKC 57-79	32.8	67	7.2	48	57
DEKALB	DKC 61-22	30.7	68	6.6	49	55
DEKALB	DKC 61-68	33.2	70	7.2	50	55
DEKALB	DKC 61-72	31.0	67	6.5	50	54
DEKALB	DKC 63-39	32.3	69	6.8	52	54
Asgrow	RX655RR2	34.3	67	7.3	48	55
Asgrow	RX668RR2/YGCB	33.2	66	7.2	49	55
Asgrow	RX702RR2/YGCB	35.3	69	7.5	49	55
T.A. Seeds	TA 685-02	28.8	69	5.8	50	51
T.A. Seeds	TA 686-03	30.2	69	6.4	52	54
T.A. Seeds	TA 7280 F	33.3	68	5.5	52	43
Agway	RR5120	24.1	61	5.6	43	60
Agway	RR6001	31.4	71	5.2	55	43
<b>Mean</b>		<b>31.3</b>	<b>67.2</b>	<b>6.6</b>	<b>49</b>	<b>54.4</b>
LSD <sub>0.05</sub>		4.1	2.8	1.0	3.9	4.2
CV (%)		9.3	2.1	10.3	1.8	5.5

<sup>1</sup>Silage @ 70% moisture

<sup>2</sup>Earcorn @ 25% moisture

Table 4: Yield, Moist%, and Ear Percentage for all hybrids planted on June 16, harvested on October 11, 2006 (late planting date).

BRAND	HYBRID	silage <sup>1</sup> T/ac	moist %	earcorn <sup>2</sup> T/ac	emoist %	pctear %
DEKALB	DKC 47-10	23.1	69	4.3	53	47
DEKALB	DKC 50-48	28.2	69	6.1	50	55
DEKALB	DKC 52-63	25.7	69	5.6	50	55
DEKALB	DKC 54-46	24.1	70	4.4	50	48
DEKALB	DKC 54-53	22.9	70	4.3	52	49
DEKALB	DKC 55-82	26.0	73	4.7	52	46
DEKALB	DKC 57-79	26.3	70	5.1	51	49
DEKALB	DKC 61-22	22.3	71	3.9	51	44
DEKALB	DKC 61-68	28.1	72	5.3	52	48
DEKALB	DKC 61-72	25.1	71	4.6	53	47
DEKALB	DKC 63-39	25.0	72	4.2	54	43
Asgrow	RX655RR2	27.0	70	5.4	50	51
Asgrow	RX668RR2/YGCB	26.3	71	5.1	54	50
Asgrow	RX702RR2/YGCB	26.3	73	4.8	55	47
T.A. Seeds	TA 685-02	25.0	71	4.7	52	48
T.A. Seeds	TA 686-03	25.8	73	4.4	56	44
T.A. Seeds	TA 7280 F	20.7	73	2.9	60	36
Agway	RR5120	20.5	67	4.3	47	53
Agway	RR6001	24.2	74	3.4	60	35
<b>Mean</b>		<b>24.9</b>	<b>70.9</b>	<b>4.6</b>	<b>52.7</b>	<b>47.2</b>
LSD <sub>0.05</sub>		4.2	1.7	0.8	4.0	4.4
CV (%)		12.1	12.7	10.3	1.8	6.6

<sup>1</sup>Silage @ 70% moisture

<sup>2</sup>Earcorn @ 25% moisture