2011 Massachusetts Corn Hybrid Evaluation

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Corn silage hybrids were evaluated for silage yield performance at the University of Massachusetts Crops Research and Education Center Farm, in South Deerfield, Massachusetts in 2011. Hybrids were grouped in three groups based on relative maturity (RM) provided by the seed companies; Group I, early maturity group (88-94 days), group II mid maturity group (95-100 days), and group III, full season group (101-114 days). In Massachusetts we are encouraging farmers to use shorter season corn hybrids along with earlier planting so when combined can provide the opportunity for early planting of cover crops which maximizes N recovery after corn and fall manure application. Our multi-year research studies have shown that well-established cover crops, planted by September 1 (achieving 1100 GDDs) can accumulate more than 100 lb N per acre.

All hybrids were planted on May 10th. A cone type distributor mounted on a double disc opening corn planter was used in a conventionally prepared seed bed. Plots were planted at the rate of 33,000 seeds per acre in 30 inch rows.

Plots consisted of 3 rows with a length of 25 feet and replicated 4 times. The site received 660 lb/acre of 15-8-12 prior to planting. Pre-sidedress nitrate test (PSNT) taken on June 15th indicated a sufficient level of nitrogen existed in research site; therefore no sidedress N was applied. Weeds were controlled by pre-emergence application of 2 quarts of Bicep II Magnum per acre.

Ten feet of the central rows was harvested by hand at 50% milk line for evaluation of silage yield. Groups I and II hybrids were harvested on September 1st. Group III was harvested on September 9th. Harvested hybrids were evaluated for silage and ear yield, percentage ears, and moisture content. Silage yield was adjusted to 70% moisture and earcorn yield to 25% moisture.

Climate data for the evaluation site is presented in Table 1. Overall, the 2011 the corn crop experienced an extremely wet growing season. High rainfall and cloudy conditions during grain growth stages in August reduced yield in all maturity groups especially in short-season and mid maturity corn hybrids. In average corn silage yield were about 30% lower than 2010.

Summary of mean comparison of silage and grain yield, ear %, and grain moisture content for three maturity group hybrids is shown in Table 2. Silage and grain yields, as well as ear percentage for all hybrids tested in 2011 are presented in Table 3.

Table 1: Climate data for 2011 in South Deerfield, MA.

	GDD[1]			Rainfall (inches)		
	2011	Norm	Deviation	2011	Norm	Deviation
May (10-31)	258	185	73	4.06	3.79	0.27
Jun	448	483	- 35	6.58	3.75	2.83
Jul	695	645	50	1.66	3.91	- 2.25
Aug	599	595	4	8.21	4.10	4.11
Total	**2000**	**1908**	**92**	**20.51**	**15.55**	**4.96**

[1] Growing Degree Days was calculated as: GDD = $\Sigma(T_{max} + T_{min})/2 - 50$

Table 2: Mean comparisons of silage and earcorn yield, and percent ear, for three maturity group hybrids planted on May 10th, 2011 and harvested at 50% milk line.

Maturity	Silage[1] T/ac	Earcorn[2] T/ac	Pctear %
Group I	24.4 b[†]	5.6 b	57.9 a
Group II	23.4 b	5.2 b	53.1 c
Group III	28.7 a	6.2 a	54.5 b

[1]Silage @70% moisture [2]Earcorn @ 25% moisture

[†] Means with the same letter within each column are not significantly different at $P \leq 0.05$.

Table 3: Mean silage and earcorn yields, with earcorn weight as a percent of total weight at harvest, for each hybrid of the three maturity groups planted on May 10th, 2011.

Brand	Hybrid	Maturity group	Silage[1] T/ac	Earcorn[2] T/ac	Pct ears %
DEKALB	DKC38-89	I	25.4	5.7	57.7
DEKALB	DKC40-22	I	22.8	5.4	58.0
TA Seeds	TA370-11	I	25.3	5.7	56.5
DEKALB	DKC42-72	I	24.5	5.8	59.1
Mean			**24.4**	**5.6**	**57.9**
DEKALB	DKC46-61	II	24.6	5.2	52.9
Pioneer	P98907HR	II	24.1	5.0	52.9
DEKALB	DKC49-94	II	25.0	5.3	53.6
Mean			**24.6**	**5.2**	**53. 1**
DEKALB	DKC52-59	III	27.1	6.6	60.3 a †
DEKALB	DKC53-45	III	26.9	6.3	58.3 ab
Pioneer	P0115AM1	III	26.8	6.2	57.8 abc
Pioneer	P0216HR	III	29.9	6.8	56.7 bcd
DEKALB	DKC62-54	III	26.6	6.4	55.7 bcd
Pioneer	P0210HR	III	27.9	6.1	54.8 bcde
TA Seeds	TA545-20	III	28.5	6.2	54.7 bcde
TA Seeds	TA657-13VP	III	31.8	7.0	54.3 cdef
Pioneer	P0448XR	III	30.0	6.5	54.3 def
DEKALB	DKC63-84	III	27.3	5.9	54.0 def
Pioneer	P0125HR	III	27.8	5.7	51.8 efg
Pioneer	P1498HR	III	29.9	6.2	51.2 fg
Pioneer	P1018AM1	III	27.1	5.4	50.0 g
Pioneer	P0891AM1	III	30.6	6.0	49.2 g
Mean			**28.7**	**6.2**	**54.5**
Overall Mean			**27.3**	**5.9**	**54.9**

[1]Silage @70% moisture [2]Earcorn @ 25% moisture

† Means with the same letter within each column are not significantly different at $P \leq 0.05$.

For Silage, Ear corn, and Percent ears parameters, values without letters indicate that there is no significant difference.