

## 2012 Massachusetts Corn Hybrid Evaluation

*Masoud Hashemi, Sarah Weis, and Mallory Ottariano*

Twenty seven corn hybrids were evaluated for silage and grain yield at the University of Massachusetts Crops Research and Education Center, in South Deerfield, Massachusetts in 2012. Each hybrid was assigned to one of three groups based on the 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). All hybrids were planted on May 7, 2012. 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 37,000 seeds per acre in 30 inch rows. A complete randomized block design with four replications was used. Weeds were controlled using glyphosate.

The experimental site received 600 lb/acre of 15-8-12 and 2000 lb/acre of lime prior to planting. Pre-sidedress soil nitrate test (PSNT) taken in early July indicated insufficient nitrogen available, thus 600 lb/acre calcium ammonium nitrate (27% N) was applied as sidedress.

Ten feet of the central rows was harvested by hand for evaluation of silage yield. Harvested hybrids were evaluated for silage and ear yield, percentage ears. Silage yield was adjusted to 70% moisture and earcorn yield to 25% moisture.

Ten feet of the central rows was also harvested by hand for evaluation of grain yield and moisture content at harvest. Harvested ears were hand shelled and weighed to measure grain yield. Grain yield were adjusted to 15%. Kernel samples were taken to measure grain moisture at harvest, using a Dickey-John Mini GAC moisture tester.

Climate data for the evaluation site is presented in Table 1. Overall, the 2012 the corn crop experienced an extremely hot and dry growing season.

**Table 1:** Climate data for 2012 in South Deerfield, MA.

	GDD <sup>1</sup>			Rainfall (inches)		
	2012	Norm	Deviation	2012	Norm	Deviation
May 7-31	367	179	188	3.17	3.42	-0.25
Jun	484	463	20	3.44	4.17	-0.73
Jul	746	606	140	0.57	4.18	-3.61
Aug	693	566	127	1.66	4.03	-2.37
<b>Total</b>	<b>2289</b>	<b>1814</b>	<b>475</b>	<b>8.84</b>	<b>15.80</b>	<b>-6.96</b>

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

**Table 2:** Mean comparisons of silage, earcorn yield, and percent ear, for three maturity group hybrids in 2012 trial.

Maturity	Silage T/ac @ 70% moist	Earcorn T/ac @ 25% moist	Pctear <sup>1</sup>	Grain Yld. bu/acre @ 15% moisture	Grain % moisture @ harvest
Group I	31.0 c <sup>†</sup>	8.5 c	68.7 a	241 c	18.0 c
Group II	34.5 b	9.2 b	66.9 b	264 b	18.9 b
Group III	37.5 a	9.8 a	65.5 b	281 a	20.5 a

<sup>1</sup> Percent of silage dry weight coming from ears.

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

In 2012 the corn crop experienced hotter and drier condition especially in July and August which coincides with fertilization and grain filling stage. However, no visual symptoms of drought stress were observed in the corn canopy. The silage and grain yield of shorter season corn hybrids were lower than mid maturity and full season maturity groups. In Massachusetts we are encouraging farmers to use shorter season corn hybrids along with earlier planting that together 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. The results of 2012 hybrid evaluation however indicated at least in some years earlier maturity corn hybrids may produce lower yield than later maturity hybrids.



**Table 3:** Mean comparisons of silage, earcorn yield, and percent ear, within maturity group of hybrids planted on May 7, 2012 and harvested in November.

Brand	Hybrid	Maturity group	Silage <sup>1</sup> T/ac	Earcorn <sup>2</sup> T/ac	Pct ears	Grain <sup>3</sup> bu/acre	Pct moisture at harvest
Pioneer	P9917AMX	I	31.7	9.0	59.1	256	19.1
Pioneer	P9690HR	I	31.1	8.7	60.4	245	18.0
Pioneer	P9675AMX	I	30.9	8.3	52.1	238	17.6
Pioneer	P9519AM	I	27.5	7.7	60.0	219	18.6
Doebler's	329GRQ	I	32.4	8.7	48.9	250	17.9
Doebler's	357AM1	I	31.2	8.3	55.5	236	17.2
Doebler's	437AM1	I	31.9	8.8	56.5	246	18.0
<b>Mean</b>			<b>31.0</b>	<b>8.5</b>	<b>56.1</b>	<b>241</b>	<b>18.0</b>
Pioneer	P9807HR	II	36.4	10.0	57.0 ab	292	19.1 ab
Pioneer	P9630AM1	II	31.2	9.2	57.0 a	264	18.0 b
Doebler's	459GRQ	II	35.8	9.7	40.0 ab	277	19.8 a
Doebler's	468AMX-R	II	33.3	8.9	48.7 ab	254	19.5 a
Doebler's	472XRR	II	33.6	8.9	38.4 b	253	18.7 ab
Doebler's	487AM-R	II	36.8	9.0	50.7 b	252	18.8 ab
Croplan	1097NDSAS300GT	II	33.2	8.8	36.4 c	256	18.8 ab
<b>Mean</b>			<b>34.5</b>	<b>9.2</b>	<b>48.6</b>	<b>264</b>	<b>18.9</b>
Pioneer	P1498AM	III	40.5 abc	10.5 b	40.0	299 b	22.2 ab
Pioneer	P1376XR	III	36.7 bcde	9.6 bc	44.8	274 bc	22.4 a
Pioneer	P0448AMX	III	39.6 abcd	10.1 bc	47.3	285 bc	20.6 cde
Pioneer	P0216AM	III	36.3 bcde	10.1 bc	42.0	289 bc	19.4 ef
Pioneer	P0210AM	III	35.4 cde	9.5 bc	35.8	274 bc	19.5 def
Pioneer	P0115AM1	III	35.2 cde	8.6 c	48.5	247 c	18.8 f
Doebler's	547AM1	III	34.1 de	9.1 bc	57.7	262 bc	20.2 cde
Doebler's	588AMX	III	33.9 de	9.2 bc	44.5	262bc	20.9 bcd
Doebler's	594GRQ	III	36.4 bcde	9.3 bc	54.3	267 bc	20.6 cde
Doebler's	609AM1	III	41.6 ab	9.8 bc	44.2	284 bc	19.6 def
Doebler's	633HXR	III	41.0 abc	10.6 ab	55.0	304 b	21.1 abc
Doebler's	643HXR	III	43.2 a	12.1 a	59.6	353 a	21.1 abc
Croplan	1105NDSAS300GT	III	32.9 e	8.9 c	52.9	247 c	20.4 cde
<b>Mean</b>			<b>37.5</b>	<b>9.8</b>	<b>48.2</b>	<b>281</b>	<b>20.5</b>
<b>Overall Mean</b>			<b>35.0</b>	<b>9.3</b>	<b>66.7</b>	<b>266</b>	<b>19.5</b>

<sup>1</sup>Silage @70%moisture <sup>2</sup>Earcorn including cob @ 25% moisture <sup>3</sup>Grain @ 15%moisture

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

*For Silage, Ear corn, and Percent, values in a column without letters indicate that there is no significant difference among hybrids.*