



Northern New York Agricultural Development Program FACT SHEET

Evaluation of Corn Grain Hybrids for NNY for 2006

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Why Evaluate Corn Grain Hybrids?

Corn is the primary row crop grown in Northern New York. Roughly 18,700 acres are harvested as grain, providing an essential feed for the dairy industry.

Grain yield is an indicator of hybrids that would be good for silage.

Introduction:

Why Run Field Trials for Corn Grain Hybrids?

Corn is the primary row crop grown in Northern New York (NNY). Corn is planted on about 120,000 acres in the region with roughly 18,700 acres harvested as grain, providing an essential feed for the dairy industry.

Field trials conducted in Northern New York provide regional farmers with valuable data for making crop selection decisions. Corn grain yield is an important contributor to silage yield, so grain yield evaluation provides an indication of which hybrids would be good candidates for silage use. Seed companies often enter their commercial hybrids into grain evaluation trials as a first step in determining which varieties are worth marketing in a region for either grain or silage.

Methods:

In 2005, evaluations of early maturity corn hybrids took place in Chazy and Madrid, and of medium early maturity hybrids in Sackets Harbor. Tests were planted in 1/500 acre plots with three replications per location. All sites were machine planted and combine harvested except at Chazy, where plots were harvested by hand.

Plot grain weights, grain moisture percentages, and test weights were measured electronically on the combine for most sites. Grain yields were adjusted to 15.5% moisture for computation and comparison.

Test weight (Test Wt) data was taken during harvest by measurement in a test weight chamber in the weighing assembly on the combine. The figures represent unadjusted test weight measurements of freshly harvested grain.

Other Northern New York Agricultural Development Program Fact Sheets on growing corn in NNY include:

Evaluation of Corn Silage Hybrids for NNY for 2006

Limiting Phosphorus Use for Corn Growing in NNY

The Impact of Starter P on Corn Silage Quality

To learn more about growing corn in NNY,

contact the Cornell Cooperative Extension office for your county:

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Experience tells us that test weight is influenced by moisture content of the grain (generally, the higher the moisture, the lower the test weight) and by the genetic potential of the hybrid. Farmers should discuss this information further with their seed dealers if test weight is important in their marketing plans. The values shown here may or may not reflect the comparative test weights of dry grain. Consider the comparative moisture ratings of the hybrids when looking at test weight values.

Also included is a **yield to moisture ratio (Y/M Ratio)**, the grain yield in bu/A divided by the percentage grain moisture. Some breeders use this number as an estimate of hybrid efficiency. Hybrids that show high yields and earlier maturity (lower moistures) have higher Y/M ratios.

Standability Ratings

Two methods for reporting standability were both assessed at the time of grain harvest. The first method is the "hand push" (Standability) rating system. The stalks are pushed, by hand, and resistance to pushing and breaking is rated on a scale from 1 to 9. A rating of 9 indicates that stalks have strong resistance against breakage when pushed. Lower ratings indicate less resistance to pushing and more down plants.

The second method is based on an actual count of stalks broken (or lodged) below the ear and is expressed as a proportion of the total number of plants in the plot (% Stalk Ldg).

CV, LSD, SD

Three statistics: CV, LSD, and SD are used to evaluate the quality of the trial data. The CV (coefficient of variation) is a measure of the amount of uncontrolled variability due to differences in the soil, weather, fertility, etc. Grain yield CVs below 12 are excellent and those 15 and under are good.

The LSD (least significant difference) is computed at the 5% level of probability. This indicates that if a difference between two hybrids is larger than the listed LSD, then the odds are at least 95 to 5 (or 19 to 1) that there is true varietal difference between the hybrids, or, as statisticians say, the difference between the two hybrids is "significant." Farmers who need businessmen's odds more than statistical precision may consider a 10 bu/A grain yield difference sufficient to guide a decision in choice of hybrid.

The SD (standard deviation) is used to determine whether the differences between two hybrids are large enough, given the precision of that experiment, to be significant and probably due to true differences between the hybrids.

Results: Tables 1-3

Table 1. 2005 Early Maturity Hybrid Data for Trials at Chazy, Clinton County.
Corn planted May 10, harvested November 2. Total rainfall: 26.8 inches.

Brand	Hybrid	Yield bu/A	% Moisture	Yield/ Moisture Ratio	% Stalk Ldg
TA Seeds	TA2210	180	18.3	9.8	6
Hyland	HLB264	178	18.6	9.6	3
Hyland	HL2288	185	18.6	9.9	5
Doebler's	217XRR	167	19.1	8.7	8
Hyland	HLR228	180	19.2	9.4	6
Hytest	HT7183BTRR2	189	19.6	9.6	5
Dekalb	DKC40-05	214	20.7	10.3	8
Doebler's	236X	156	20.8	7.5	2
Garst	8986YG1RR	185	20.9	8.9	3
Doebler's	277XB	226	21.2	10.7	1
Hytest	HTExp296TS	199	21.4	9.3	1
FS Seeds	3840	178	21.7	8.2	1
TA Seeds	TA3021	180	21.9	8.2	1
Golden Harvest	H6395	172	22.2	7.7	6
FS Seeds	4145	178	22.3	8.0	2
Hyland	HLB258	191	23.4	8.2	3
Golden Harvest	H6621BT	151	23.5	6.4	1
Golden Harvest	H6757CB	214	24.1	8.9	2
NK	N22-T8	182	24.6	7.4	2
Hytest	HT7220BTRR2	217	26.4	8.2	1
	Mean	186	21.4	8.8	3
	CV	8	5.0		
	LSD	25	1.8		
	SD	15	1.1		

	Growing Degree Days		Rainfall (inches)	
	2005	Ave	2005	Ave
May	213	310	1.8	2.9
June	564	472	6.3	3.2
July	672	606	4.8	3.6
Aug	697	549	4.1	3.9
Sept	453	329	2.2	3.4
Oct	128	133	7.4	2.9
Total	2727	2400	26.8	19.8
% Norm	114		135.1	
Departure	327		7.0	

Key: CV = coefficient of variation
 LSD = least significant difference at the 5% probability level
 SD = standard deviation

Standability and Test Weight not recorded.

Plot had very good stand establishment. Timely rains and nice heat during growing season resulted in good, uniform, high-yielding corn.

**Table 2. 2005 Early Maturity Hybrid Data for Trials at Madrid, St. Lawrence County.
Corn planted May 6, harvested October 22. Total rainfall: 26.0 inches.**

Brand	Hybrid	Yield bu/A	% Moisture	Yield/ Moisture Ratio	Standability	% Stalk Ldg	Test Wt
Golden Harvest	H6395	147	19.7	7.5	8.7	5	57
TA Seeds	TA3021	195	20.5	9.5	8.7	1	58
Doebler's	236X	141	20.5	6.9	8.0	1	58
Hytest	HTExp296TS	176	20.6	8.5	8.0	5	59
Hyland	HL2288	112	20.8	5.4	8.0	7	55
Doebler's	217XRR	144	20.8	6.9	7.7	11	57
Hyland	HLB264	103	21.3	4.8	7.7	9	58
FS Seeds	4145	197	21.3	9.2	8.0	4	57
NK	N22-T8	203	21.4	9.5	7.7	17	57
Garst	8986YG1RR	155	21.5	7.2	8.0	9	56
TA Seeds	TA2210	138	21.6	6.4	8.0	9	55
Hyland	HLR228	131	21.6	6.1	7.3	10	56
Golden Harvest	H6621BT	168	22.0	7.6	8.3	7	57
Dekalb	DKC40-05	163	22.2	7.3	7.7	14	56
Hytest	HT7220BTRR2	152	22.3	6.8	8.3	4	58
FS Seeds	3840	149	23.2	6.4	8.3	5	57
Golden Harvest	H6757CB	213	23.4	9.1	8.0	3	57
Doebler's	277XB	157	23.6	6.7	9.0	1	58
	Mean	158	21.6	7.3	8.1	7	57
	CV	15	7.6		7.1		3
	LSD	40	2.7		0.9		3
	SD	24	1.6		0.6		2

	Growing Degree Days		Rainfall (inches)	
	2005	Ave	2005	Ave
May	199	282	0.7	3.1
June	611	450	1.3	3.3
July	675	587	5.4	3.6
Aug	603	534	2.4	4.1
Sept	446	325	8.6	4.3
Oct	152	140	7.6	3.3
Total	2534	2318	26.0	21.6
% Norm	109		120.2	
Departure	216		4.4	

Key:

CV = coefficient of variation
LSD = least significant difference at the 5% probability level
SD = standard deviation

A second-year corn plot that benefitted from the more timely rains and extra heat that much of NNY received in 2005.

**Table 3. 2005 Medium Maturity Hybrid Data for Trials at Sackets Harbor, Jefferson County.
Corn planted May 18, harvested November 8. Total rainfall: 24.3 inches.**

Brand	Hybrid	Yield bu/A	Yield/ %		Stand- ability	Stalk Ldg	Test Wt
			Moisture	Ratio			
Hytest	HT7349BT	144	17.0	8.5	8.0	2	62
Garst	8880YG1	194	17.3	11.2	8.3	2	61
Hyland	HLB282	216	17.3	12.5	8.7	0	61
TA Seeds	TA3883	158	17.4	9.1	8.7	1	63
NK	N29-A2	175	17.4	10.1	8.3	0	62
Hyland	HL2368	199	17.5	11.4	8.3	3	62
Golden Harvest	H7007BT	167	17.5	9.5	8.3	6	59
Cornell	EX5201	170	17.5	9.7	7.7	9	61
Garst	8920RR	186	17.6	10.6	8.3	0	62
Hyland	HLR234	195	17.6	11.1	8.3	3	60
NK	N22-T8	147	17.6	8.4	8.0	3	61
NK	N29-G7	183	17.6	10.4	7.3	7	62
FS Seeds	4818BT	205	17.6	11.6	8.3	1	60
UAP	DG53P30	163	17.6	9.3	8.7	1	60
TA Seeds	TA4963	201	17.7	11.4	9.0	1	61
NK	N45-46	203	17.7	11.5	8.0	1	60
UAP	DG53F09	189	17.7	10.7	8.3	1	62
Doebler's	375XRR	148	17.7	8.4	8.3	6	61
FS Seeds	4453XRR	189	17.8	10.6	8.0	4	61
Hytest	HT7435BT	202	17.8	11.3	8.7	2	61
Hyland	HL2507	171	17.9	9.6	8.0	2	61
Golden Harvest	EX38071BTRR	210	17.9	11.7	8.7	2	61
Hyland	HLB292	197	18.0	10.9	8.7	1	59
NK	N25-J7	158	18.1	8.7	8.7	0	61
Hytest	HT7428BTRR2	186	18.1	10.3	8.0	1	62
FS Seeds	4717	210	18.2	11.5	8.3	2	60
UAP	DG55P98	219	18.3	12.0	8.0	3	60
Doebler's	469XP	210	18.4	11.4	7.7	3	61
Doebler's	494RYG	210	18.9	11.1	8.3	1	58
	Mean	186	17.7	10.5	8.3	2	61
	CV	13	1.9		6.8		3
	LSD	40	0.6		0.9		3
	SD	24	0.3		0.6		2

Growing Degree Days		
	2005	Ave
May	208	274
June	574	439
July	664	589
Aug	620	546
Sept	421	346
Oct	153	152
Total	2640	2346
% Norm	113	
Departure	294	
Rainfall (inches)		
	2005	Ave
May	0.9	2.9
June	1.8	2.8
July	4.2	2.5
Aug	6.4	3.1
Sept	6.1	3.9
Oct	4.9	3.1
Total	24.3	18.3
% Norm	132.7	
Departure	6.0	

Key: CV = coefficient of variation, LSD = least significant difference at the 5% probability level,
SD = standard deviation
A well-manured field that received good rainfall from July through harvest.

Corn Grain Hybrid Evaluation for NNY for 2006 Project Sponsors

This corn grain hybrid evaluation research was funded by the Northern New York Agricultural Development Program and by the participating seed companies listed in Tables 1-3.

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The Northern New York Agricultural Development Program selects and prioritizes research the results of which can be practically applied to farms in the six-county region of Northern NY: Jefferson, Lewis, St. Lawrence, Franklin, Clinton and Essex Counties.

To learn more about the Northern New York Agricultural Development Program, contact Co-Chairs Jon Greenwood, 315-386-3231, or Joe Giroux, 518-563-7523; or R. David Smith, Cornell University, 607-255-7286; or visit www.nnyagdev.org. ♦



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