



Northern New York Agricultural Development Program FACT SHEET

Evaluation of Corn Grain Hybrids for NNY for 2008

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Why Evaluate Corn Grain Hybrids?

Corn is planted on about 121,000 acres in Northern New York. About 34,000 acres were harvested for grain in 2006.

Field trials conducted in NNY 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.

Introduction:

Which Corn Grain Hybrids are Right for Your Farm?

Corn is the primary row crop grown in Northern New York (NNY), harvested from about 121,000 acres and providing essential feed for the dairy industry.

Roughly 34,000 acres of this total were harvested as grain in 2006 – this is more than one quarter of NNY's total corn acreage. When ethanol production facilities in New York are completed, the increased demand for corn grain as ethanol feedstock will provide new grain marketing opportunities for NNY farmers and increase interest in corn production for grain in this region.

The grain produced by corn hybrids is a major contributor to silage yield, so grain yield evaluation provides an indication of which hybrids would be good candidates for silage use. It is important to evaluate silage quality on these hybrids as well, but seed companies will often enter their hybrids into grain evaluation trials as a first step in determining what is worth marketing at all in the region. Thus grain yield evaluations of commercial hybrids provide essential comparative information to farmers interested in grain production in NNY and to seed companies who make marketing decisions based initially on performance in grain yield trials, and may or may not do subsequent silage evaluations. The results of annual field trials in the NNY region provide valuable data to help farmers make crop seed selections.

Methods:

In 2007, the results of early and medium-early maturity corn grain testing done in 2006 were published and a new set of hybrids in each of these maturity groups was field tested on Northern New York farms.

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Fourteen early maturing hybrids (1400-1900 growing degree days, 70-90 days relative maturity) were grown at the W.H. Miner Agricultural Research Institute in Chazy (Clinton County) and at Greenwood Dairy Farm in Madrid (St. Lawrence County).

Twenty-six medium-early maturing hybrids (1900-2400 growing degrees days, 85-100 days relative maturity) were evaluated at Robbins Farms in Sackets Harbor (Jefferson County). These evaluations were designed to identify hybrids that can meet the grain and silage needs of farmers in the NNY region.

Each hybrid was planted in three replications per location, with each replication consisting of a two-row plot, 17.5' long and thinned to a density of 28,000 to 30,000 plants/acre. Data was collected at thinning time (late June to early July) on plant counts and on unusually good or poor plant vigor.

In September, plots were evaluated for reaction to any disease or insect pests that occur at each site, for unusually tall or short plants (indicative of potential value as a silage hybrid), and for early-season stalk lodging, root lodging, and animal damage.

At harvest time (November), data was collected on final stalk and root lodging, animal damage, grain weight, grain moisture, and test weight. These data were used to calculate grain yield per acre and yield:moisture ratio (a measure of hybrid efficiency in producing high yield under short-season conditions).

Results of 2006 testing were published in the 2006 Hybrid Corn Grain Performance Trial Report (Plant Breeding Mimeo 2007-1) and were incorporated into the tables of recommended hybrids in the 2008 Cornell Guide for Integrated Field Crop Management (Cornell University, 2007). These results are available for farmer and seed company use in selecting hybrids best adapted to the challenging soils and climates of NNY.

Results from 2007 trials, which were harvested during October and November, will soon be available in the 2007 Hybrid Corn Grain Performance Trials Report (Plant Breeding Mimeo 2008-1) and will be incorporated into the tables of recommended hybrids in the 2009 Cornell Guide for Integrated Field Crop Management (to be published by Cornell University in fall 2008).

Results

In 2007, generally dry weather in May helped get the corn crop in the ground in NNY in a timely manner. June was fairly warm, due to a hot spell at the end of the month. There was adequate rainfall at Chazy and Madrid, but not at

Sackets Harbor, where a droughty spell began in June and lasted for much of the growing season. Cooler wetter weather prevailed in July, just before and during flowering. Dry conditions returned throughout most of the state in August, with exceptionally dry conditions at Sackets Harbor during August and into September. October tended to be warmer than normal, helping the crop to mature.

Although the 2007 growing season in the state as a whole was warmer and drier than long-term averages, the cooler, wetter July weather resulted in a high state average yield of 127 bu/acre – just 2 bu/A below last year’s record. At our NNY locations, average yields for our hybrid tests were very good and ranged from 169 bu/acre to 190 bu/acre.

Results from all three hybrid evaluation trials are shown in Tables 1, 2, and 3. The quality of our testing data this year was excellent, as reflected in the low coefficients of variation (CVs) for yield in the trials (9% at Chazy, 13% at Madrid, and 11% at Sackets Harbor). These low CVs indicate that the values in these tables are quite reliable and not overly influenced by random variation in the testing fields. These results include information on a broad array of commercially available hybrids, allowing farmers and seedsmen to compare productivity and adaptation of hybrids from various seed companies.

Table 1. 2007 Early Maturity Hybrid Data for Trial at Chazy, Clinton County.

Brand	Hybrid	Yield bu/A	% Moisture	Yield/ Moisture Ratio	Stalk Lodging
Hytest	HT17-07	165	21.8	7.6	0
Hyland	HLR228	171	23.1	7.4	2
Growmark FS	3967XRR	172	23.3	7.4	10
Hyland	HLB264	144	23.8	6.1	10
NK	N20-R7	184	24.0	7.7	5
Hyland	HLB256	153	24.5	6.2	0
Growmark FS	3676XRR	161	24.6	6.5	1
TA Seeds	TA290-11	193	25.7	7.5	17
Dekalb	DKC41-57(VT3)	175	25.8	6.8	6
TA Seeds	TA303-13	139	25.8	5.4	13
Hyland	HLB33R	166	26.1	6.4	9
Doebler’s	286XRR	172	26.9	6.4	1
Hyland	HLB266	181	27.0	6.7	6
Hytest	HT7220	185	28.9	6.4	6
	Mean	169	25.1	6.7	6
	CV	9	2.8		
	LSD	24	1.2		
	SD	15	0.7		

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

Table 2. 2007 Early Maturity Hybrid Data for Trial at Madrid, St. Lawrence County.

Brand	Hybrid	Yield bu/A	% Moisture	Yield/ Moisture Ratio	Standability 1-9 scale*	% Stalk Lodging	Test Weight lb/bu	Stay Green	Early Vigor	Rust
Hyland	HLR228	183	20.8	8.8	8.3	0	55	3.7	2.7	3.8
Hytest	HT17-07	165	20.9	7.9	8.3	0	57	3.7	2.3	3.5
Hyland	HLB264	196	21.0	9.3	8.7	1	54	3.5	3.0	2.5
TA Seeds	TA290-11	211	21.0	10.0	8.3	0	54	3.7	4.0	1.5
Hyland	HLB256	146	21.2	6.9	7.7	2	57	4.7	3.5	1.7
NK	N20-R7	205	21.3	9.6	8.3	0	56	3.3	2.2	2.5
Hyland	HLB266	209	21.4	9.8	8.0	0	53	3.5	3.7	0.7
Dekalb	DKC41-57(VT3)	214	21.4	10.0	8.3	1	54	3.8	3.3	2.3
Growmark FS	3676XRR	196	21.4	9.2	8.3	1	57	3.5	3.7	1.7
Growmark FS	3967XRR	173	21.8	7.9	8.7	0	56	3.5	3.7	2.7
Hyland	HLB33R	189	21.9	8.6	8.3	0	54	3.2	3.3	0.8
TA Seeds	TA303-13	155	22.6	6.9	8.3	0	55	3.0	3.3	1.7
Hytest	HT7220	238	22.8	10.4	8.7	0	55	3.3	2.3	3.5
Doebler's	286XRR	177	23.0	7.7	8.7	0	54	2.8	2.5	2.7
	Mean	190	21.6	8.8	8.4	0.4	55	3.5	3.1	2.3
	CV	13	2.2		7.0		3			
	LSD	42	0.8		1.0		3			
	SD	25	0.5		0.6		2			

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

* Standability is rated on a 1-9 scale with 9=strong resistance to breakage when pushed and 1=very weak and easily broken stalks; 1-5 rating scales for stay-green and rust have 1=completely green plants or no rust on leaves and 5=completely dead plants or many rust lesions on many leaves; for early vigor, a rating of 5=big vigorous plants and 1=small weak plants.

Conclusions/Outcomes/Impacts

Data in the hybrid production tables in this report shows a number of hybrids that had excellent performance in NNY in 2007. However, hybrid choices should always be made based on the most comprehensive data available, usually multi-year and/or multi-location data.

Multi-year data is available in the Cornell Guide for Integrated Field Crop Management and this publication should be consulted, in combination with the individual test data presented here, when making hybrid choices.

Table 3. 2007 Medium-early Maturity Hybrid Data for Trial at Sackets Harbor, Jefferson County.

Brand	Hybrid	Yield bu/A	% Moisture	Yield/ Moisture Ratio	Standability 1-9 scale*	% Stalk Lodging	Test Weight lb/bu	-- 1-5 scale* --		
								Stay Green	Early Vigor	Rust
TA Seeds	TA461-13	173	17.4	9.9	8.7	4	56	3.5	2.8	2.8
Dyna-Gro	54P55	169	17.5	9.7	8.3	4	57	3.8	2.3	2.7
Hyland	HLCBR54	159	17.6	9.0	8.0	13	56	3.7	3.2	3.0
Hyland	HLB286	164	17.6	9.3	7.3	10	57	3.7	3.0	3.5
NK	N29-A2	174	17.7	9.8	8.0	9	57	4.3	2.7	1.7
Hyttest	HT7398	168	17.8	9.4	8.3	10	56	3.8	2.7	3.3
TA Seeds	TA451-11	193	17.8	10.8	8.3	8	57	4.2	2.7	2.8
Growmark FS	4861XRR	185	17.9	10.3	8.3	1	57	4.0	2.7	1.8
Hyland	HLB282	148	18.0	8.2	7.3	16	58	3.8	3.0	2.3
Doebler's	377BWR	136	18.1	7.5	8.0	8	58	3.3	3.0	2.0
Growmark FS	4464XRR	140	18.2	7.7	8.7	6	60	3.3	3.0	2.3
Hyttest	HTEXP3824	165	18.1	9.1	8.3	6	58	4.0	3.7	3.0
Dyna-Gro	54T42	158	18.2	8.7	7.7	27	57	3.8	2.7	3.7
Hyland	HLB38R	205	18.2	11.3	9.0	4	57	3.5	2.5	2.7
Doebler's	468RB	174	18.2	9.6	8.3	3	58	3.2	2.5	3.8
TA Seeds	TA500-00	171	18.2	9.4	8.3	5	56	3.2	3.7	3.8
Dekalb	DKC45-82(RR2)	177	18.3	9.7	8.0	5	57	3.7	3.2	2.0
Growmark FS	4819XRR	199	18.3	10.9	9.0	4	57	3.5	2.3	3.3
Hyttest	HT7428	179	18.3	9.8	8.0	2	57	3.7	2.3	2.7
Dekalb	DKC49-35(RR2)	207	18.4	11.3	8.7	1	57	4.0	2.2	3.3
Golden Harvest	H6455CB	179	18.4	9.7	8.0	9	57	4.0	3.5	1.8
Golden Harvest	H7436CB	150	18.5	8.1	7.7	7	57	3.8	3.3	2.5
Dyna-Gro	55V18	160	18.6	8.6	8.3	6	58	3.3	3.0	2.7
NK	N39-Q1	178	18.7	9.5	8.3	13	59	3.7	3.0	3.8
Golden Harvest	H7540	200	18.7	10.7	7.3	11	56	3.5	2.8	2.8
Dekalb	DKC46-60(VT3)	170	19.2	8.9	8.3	3	57	3.0	2.3	2.5
	Mean	172	18.2	9.5	8.2	8	57	3.7	2.9	2.8
	CV	11	2.7		7.3		2.7			
	LSD	31	0.8		1.0		2.5			
	SD	19	0.5		0.6		1.5			

Key: CV = coefficient of variation
LSD = least significant difference at the 5% probability level
SD = standard deviation
* Standability is rated on a 1-9 scale with 9=strong resistance to breakage when pushed and 1=very weak and easily broken stalks; 1-5 rating scales for stay-green and rust have 1=completely green plants and 5=completely dead plants; for early vigor, a rating of 5=big vigorous plants and 1=small weak or short plants.

Corn Grain Hybrid Evaluation for NNY Project Sponsors

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For more information on the Hybrid Corn Grain

Testing project, contact: Margaret E. Smith or Judy Singer, Department of Plant Breeding and Genetics, Cornell University, G42 Emerson Hall, Ithaca, NY 14853, 607-255-1654, mes25@cornell.edu (Smith); 607-255-5461, jls10@cornell.edu (Singer); fax: 607-255-6683.

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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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