Northern New York
Agricultural Development Program

FACT SHEET

Evaluation of Corn Grain Hybrids for NNY for 2005

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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.

New grain marketing opportunities are on the horizon.

Grain yield is an indicator of hybrids that woud 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.

When the ethanol production facility currently being constructed in New York comes on line, the increased demand for corn grain as feedstock for that facility will provide new grain marketing opportunities for NNY farmers and will increase interest in corn production for grain in this region.

Furthermore, 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. It is important to evaluate silage quality on these hybrids, but seed companies often enter their hybrids into grain evaluation trials as a first step in determining which varieties are worth marketing in a region for either grain or silage. 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 subsequently on silage evaluations.

Methods:

During 2004, we summarized the results of early season corn grain testing done in 2003 and tested a new set of early maturing hybrids in NNY. Seed companies marketing corn in New York provided early maturing commercial hybrids for these evaluation tests.

The numbers:

23 early maturing hybrids and 30 medium-early maturing hybrids at two NNY locations.

The quality of testing data in 2004 was excellent

We evaluated 23 early maturing hybrids (1400-1900 growing degree days, 70-90 days relative maturity) at two locations in NNY: W.H. Miner Institute in Chazy, Clinton County, and Greenwood Dairy in Madrid, St. Lawrence County.

We also evaluated 30 medium-early maturing hybrids (1900-2400 growing degree days, 85-100 days relative maturity) 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 unusually high or low 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

Results from the hybrid evaluations are shown in Tables 1 through 3.

The 2004 growing season tended to be cool and wet during the height of the corn growing period (July and August). Chazy had excess rain only in August and fairly normal temperatures, but Madrid and Sackets Harbor were both a bit cool and quite wet during the summer growing period. Fortunately, a warm fall saved the corn crop in many parts of the state, including parts of NNY. The lack of drought stress during flowering combined with warmer than average temperatures during grain filling made for some excellent corn yields in the region.

The quality of our testing data in 2004 was excellent, as reflected in the low coefficients of variation (CVs) for yield in

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the trials (12% at both Madrid and Sackets Harbor and 6% at Chazy). These low CVs indicate that the values in these tables are quite reliable and not overly influenced by random variation in the testing fields.

Results present information on a broad array of commercially available hybrids, allowing farmers and seed companies to compare productivity and adaptation of hybrids from various seed companies.

Additionally, this year one seed company entered into our medium-early test a pair of hybrids that are identical except for the presence of the Bt gene for European corn borer resistance (Dekalb DKC46-28RR2 vs. Dekalb DKC47-10RR2YGCB). Data on these two hybrids provides farmers with a direct comparison of the yield and standability of the two hybrids under Northern New York conditions, and will help farmers determine whether the extra cost of a Bt hybrid is worthwhile. This type of data helps both seed companies and farmers make decisions about hybrids for NNY.

Data on two particular hybrids — identical except for the presence of the Bt gene for European corn borer resistance in one — provides farmers with a direct comparison of the yield and standability of the two hybrids under Northern New York conditions.

Conclusions:

Data in the hybrid production tables in this report shows a number of hybrids that had excellent performance in NNY in 2004. 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 above, when making hybrid choices.

From the single comparison presented here, it appears that the Bt gene for European corn borer resistance did not provide a benefit to the yield of Dekalb DKC46-28RR2 in NNY in 2004, but may have slightly improved its standability.

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

Evaluation of Corn Silage Hybrids for NNY for 2005

Limiting Phosphorus Use for Corn Growing in NNY

The Impact of Starter P on Corn Silage Quality

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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 1. 2004 Early Maturity Hybrids, Chazy, Clinton County

Brand	Hybrid	Yield bu/A	% Moisture	Yield: Moisture Ratio	% Stalk Lodging
Hyland	HL2222	171	28.2	6.1	1
Hyland	HLB264	176	28.4	6.2	0
Dekalb	DKC37-14RR2	199	30.8	6.5	2
Doebler's	241XRR	178	31.3	5.7	0
Hyland	HL2288	170	31.4	5.4	1
Chemgro	4240	158	31.4	5.0	1
TA Seeds	TA2210	163	31.5	5.2	0
Hyland	HLR228	147	32.0	4.6	0
Hyland	HLB258	196	32.6	6.0	0
TA Seeds	TA2650	195	33.2	5.9	0
Hytest	HT7213BTRR2	185	33.8	5.5	1
Doebler's	236X	198	34.0	5.8	0
NK	N22-T8	199	34.2	5.8	0
Golden Harvest	H6565RR	205	34.7	5.9	0
FS Seeds	3840	209	35.0	6.0	0
Hytest	HT7215BTRR2	202	35.6	5.7	0
FS Seeds	4145	199	35.8	5.6	0
Doebler's	296XP	215	36.4	5.9	1
Doebler's	353XYG	195	36.7	5.3	0
Golden Harvest	H6621Bt	199	36.8	5.4	0
Doebler's	318XRR	198	37.2	5.3	0
Hytest	HT7220BTRR2	230	38.2	6.0	0
Golden Harvest	H46905RR	193	39.5	4.9	1
	Mean	190	33.9	5.6	0.3
	CV	6	4.8		
	LSD	19	2.7		
	SD	12	1.6		

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

Table 2. 2004 Early Maturity Hybrids, Madrid, St. Lawrence County

Brand	Hybrid	Yield bu/A	% Moisture	Yield: Moisture Ratio	Standability	% Stalk Lodging	Test Weight
Hyland	HL2222	135	21.0	6.4	7.3	11	60
TA Seeds	TA2210	168	21.3	7.9	7.7	4	59
Hyland	HLR228	155	21.9	7.1	7.7	7	58
Dekalb	DKC37-14RR2	181	22.5	8.0	8.3	2	58
Doebler's	236X	178	22.5	7.9	8.0	3	59
Hyland	HL2288	165	22.8	7.2	7.7	6	57
TA Seeds	TA2650	176	23.4	7.5	8.0	3	59
Doebler's	241XRR	161	23.6	6.8	7.7	6	59
Hyland	HLB264	182	23.7	7.7	9.0	0	60
FS Seeds	3840	191	23.8	8.0	8.3	1	60
Hytest	HT7213BTRR2	176	24.2	7.3	8.0	5	58
Hyland	HLB258	204	24.4	8.4	8.3	1	62
Chemgro	4240	154	24.5	6.3	8.3	4	57
NK	N22-T8	218	24.8	8.8	9.0	0	59
FS Seeds	4145	220	25.0	8.8	9.0	0	59
Golden Harvest	H6565RR	197	25.1	7.8	8.7	0	57
Doebler's	296XP	213	25.1	8.5	8.0	3	59
Hytest	HT7215BTRR2	193	25.2	7.7	8.7	1	56
Golden Harvest	H46905RR	193	25.6	7.5	7.7	9	57
Golden Harvest	H6621Bt	206	26.3	7.8	8.7	1	56
Doebler's	353XYG	239	26.4	9.1	9.0	0	57
Doebler's	318XRR	159	26.9	5.9	8.7	3	57
Hytest	HT7220BTRR2	226	27.3	8.3	9.0	0	57
	Mean	187	24.2	7.7	8.3	3	58
	CV	12	3.6	5.9	3		
	LSD	36	1.4	0.8	3		
	SD	22	0.9	0.5	2		

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

Table 3. 2004 Medium-early Maturity Hybrids, Sackets Harbor, Jefferson County

Brand	Hybrid	Yield bu/A	% Moisture	Yield: Moisture Ratio	Stand-ability	% Stalk Lodging	Test Weight	Rust
Dekalb	DKC40-05	155	22.1	7.0	8.3	2	56	3.7
Garst	8959YG1	116	22.1	5.2	7.7	7	55	4.5
NK	N29-A2	185	22.8	8.1	8.0	2	54	3.2
Dekalb	DKC42-95RR2YGCB	159	23.4	6.8	8.7	1	55	2.3
TA Seeds	TA3021	165	23.8	6.9	8.3	1	55	2.5
Hyland	HL2368	173	23.9	7.2	8.3	2	54	3.2
Hyland	HLR234	159	24.0	6.6	8.7	1	56	3.2
Hyland	HLB282	157	24.3	6.5	8.3	2	54	3.0
Doebler's	318XRR	129	24.4	5.3	8.3	1	53	3.7
Doebler's	353XYG	143	24.5	5.8	8.0	1	53	3.7
Dekalb	DKC46-28RR2	156	24.6	6.3	8.3	2	55	3.5
Dekalb	DKC47-10RR2YGCB	147	24.6	6.0	8.0	1	56	3.7
Golden Harvest	H7007Bt	166	24.7	6.7	8.0	2	54	3.5
Hytest	HT7385BT	165	24.8	6.7	8.7	1	55	2.8
Golden Harvest	H6907RR	136	24.9	5.5	8.3	2	53	3.3
Golden Harvest	EX46908RW	156	24.9	6.3	8.3	0	53	3.3
TA Seeds	TA4963	163	25.2	6.5	8.0	1	54	2.8
Hyland	HLB292	203	25.4	8.0	9.0	1	55	3.2
Garst	8880YG1	174	25.4	6.9	8.0	0	53	3.2
Doebler's	469RYG2	182	25.4	7.2	8.7	0	54	2.3
Hyland	HL2507	190	25.6	7.4	8.0	2	53	3.2
NK	N3030BT	141	26.0	5.4	7.0	2	53	3.8
FS Seeds	4312	166	26.2	6.3	8.3	1	53	1.5
Garst	8922YG1	132	26.3	5.0	8.0	3	51	2.7
Golden Harvest	H7298RR	175	26.4	6.6	8.7	1	52	2.0
NK	N45-A6	201	26.9	7.5	8.3	1	50	3.2
FS Seeds	4717	177	27.1	6.5	8.7	0	53	2.3
Garst	8787YG1	158	27.4	5.8	8.3	0	53	3.3
Chemgro	5760BT	172	27.8	6.2	8.3	0	52	1.3
NK	N45-T5	157	28.4	5.5	8.0	1	50	2.5
	Mean	162	25.1	6.5	8.3	1	54	3.0
	CV	12	4.7		5.6		3	
	LSD	31	1.9		0.8		3	
	SD	19	1.2		0.5		2	

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

Corn Grain Hybrid Evaluation Project Sponsors

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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

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