Northern New York
Agricultural Development Program

FACT SHEET

Evaluation of Corn Grain Hybrids for NNY for 2007

Principal Investigator: Dr. Margaret E. Smith, Professor, Department of Plant Breeding and Genetics, Cornell University

Introduction:

Why Run Field Trials for Corn Grain Hybrids?

Corn is the primary row crop grown in Northern New York (NNY). Annual field trials in the region provide valuable data to help farmers make crop seed selections (see sidebar panel to the left). Corn is an essential dairy feed. The demand for corn as feedstock for ethanol production facilities is expected to increase as more plants are built and come on line in New York State.

Methods:

In 2006, the results of early and medium-early maturity corn grain testing done in 2005 were published and a new set of hybrids in each of these maturity groups was field tested at three Northern New York farms.

Seventeen 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). Thirty-three 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

Why Evaluate Corn Grain Hybrids?

Corn is planted on about 125,000 acres in Northern New York. About 38,000 acres were harvested for grain in 2005.

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.

Find other NNYADP Fact Sheets on growing corn in NNY online at www.nnyagdev.org

Evaluation of Corn Silage Hybrids for NNY for 2007

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 Cornell Cooperative Extension in your county:

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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 2005 testing were published in the 2005 Hybrid Corn Grain Performance Trial Report (Plant Breeding Mimeo 2006-1) and were incorporated into the tables of recommended hybrids in the 2007 Cornell Guide for Integrated Field Crop Management (Cornell University, 2006). 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 2006 trials, which were harvested during October and November, will soon be available in the 2006 Hybrid Corn Grain Performance Trials Report (Plant Breeding Mimeo 2007-1) and will be incorporated into the tables of recommended hybrids in the 2008 Cornell Guide for Integrated Field Crop Management (to be published by Cornell University in fall 2007).

Results

The 2006 growing season had rainfall well distributed through much of the summer at our trial sites. Generally seasonal or slightly warmer than average temperatures and a long frost-free period in the fall helped the corn grain crop mature well.

The lack of drought stress during flowering combined with mild temperatures during grain filling made for some good corn yields in the region. In Madrid, above-average May through July rainfall combined with above-average temperatures in July and a dry October for grain dry-down resulted in excellent grain yields.

Conditions in Sackets Harbor were not as favorable – warm temperatures prevailed from May through August, but rainfall was alternately below average (May, July, August) and quite a bit above average (June, September, and especially October), resulting in some drought stress during flowering and very wet conditions as harvest approached.

Our trial at Chazy began the season with some minor plant stand problems (due to flooding in the field shortly after planting). Nonetheless, we were on the way to collecting good data from this trial until, just days before harvest, a herd of deer moved in and ate almost all the ears! Thus, we have no data to report this year from the early maturity trial at Chazy.

Results for the better hybrids from our other two hybrid evaluation trials are shown in Tables 1 and 2.

The quality of our testing data this year was excellent, as reflected in the low coefficients of variation (CVs) for yield in the trials (11% at Madrid and 13% 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. Results present information on a broad array of commercially available hybrids, allowing farmers and seedsmen to compare productivity and adaptation of hybrids from various seed companies

Conclusions/Outcomes/Impacts

Data in the hybrid production tables in this report shows a number of hybrids that had excellent performance in NNY in 2006. 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 1. 2006 Early Maturity Hybrid Data for Trials at Madrid, St. Lawrence County.

Brand	Hybrid	Yield bu/A	% Moisture	Yield/ Moisture Ratio	Stand-ability 1-9 scale	% Stalk Lodging	% Root Lodging	Test Weight lb/bu
NK	N20-R7	246	20.3	12.1	9	1	1	51
Hyland	HLB264	219	20.6	10.6	8	2	0	48
Hyland	HL228	180	20.6	8.7	8	10	0	48
Dekalb	DKC41-64RR2YGCB	248	20.7	12.0	8	3	1	49
Mycogen	2P172	213	20.7	10.3	9	1	0	51
Doebler's	277XB	241	20.8	11.6	8	1	0	49
Hytest	HT7226TS	237	20.9	11.3	8	6	0	49
TA Seeds	TA290-11	240	21.0	11.4	8	7	0	47
TA Seeds	TA221-13	196	21.0	9.3	9	3	0	49
FS Seeds	FS 3967XRR	205	21.1	9.7	9	0	0	48
Doebler's	377BWR	235	21.3	11.0	8	3	0	48
FS Seeds	FS 4146	199	21.4	9.3	8	4	0	47
Dekalb	DKC44-92RR2	221	22.4	9.9	8	2	0	47
Hytest	HT7220BTRR2	232	22.7	10.2	9	1	0	49
	Mean	212	21.0	10.5	8	5	0	49
	CV	11	2		7			5
	LSD	39	0.7		1			4
	SD	24	0.4		1			2

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

Table 2. 2006 Medium-Early Maturity Hybrid Data for Trials at Sackets Harbor, Jefferson County.

Brand	Hybrid	Yield bu/A	% Moisture	Yield/ Moisture Ratio	Standability 1-9 scale	% Stalk Lodging
Golden Harvest	L7H07BT	173	20.3	8.5	7.3	3
NK	N29-A2	162	20.3	8.0	6.0	0
Dyna-Gro	53P30	142	20.3	7.0	6.7	1
FS Seeds	FS 4453XRR	163	20.5	8.0	7.7	5
TA Seeds	TA450-11	149	20.5	7.3	7.3	1
Chemgro	5570BT	147	20.5	7.2	6.0	0
Mycogen	2R426	161	20.6	7.8	6.7	0
Hyland	HLB282	158	20.6	7.7	7.0	0
FS Seeds	FS 4464	151	20.6	7.3	7.0	3
Golden Harvest	H6466CB/GT	143	20.6	6.9	7.0	1
NK	N45-A6	159	20.7	7.7	6.3	0
Dekalb	DKC45-82RR2	155	20.7	7.5	7.7	1
NK	N34-Y9	145	20.7	7.0	6.7	3
Hyland	HLB264	134	20.7	6.5	7.7	4
Hyland	HL2515	177	20.8	8.5	7.0	6
Mycogen	2A498	160	20.8	7.7	7.3	3
Hyland	HLB33R	151	20.8	7.3	7.0	0
Hytest	HT7428BTRR2	189	21.0	9.0	7.3	1
Hyland	HLB43R	182	21.0	8.7	7.0	0
Dekalb	DKC54-46RR2YGPL	174	21.2	8.2	6.7	4
NK	N39-Q1	174	21.2	8.2	6.0	8
FS Seeds	FS 4819	188	21.3	8.8	7.0	0
Doebler's	468RB	184	21.3	8.6	7.0	2
Dyna-Gro	53F09	137	21.3	6.4	7.3	4
Hytest	HT7435BTRR2	183	21.5	8.5	6.7	0
Doebler's	494RYG	157	21.5	7.3	6.3	0
FS Seeds	FS 4458XRR	135	21.5	6.3	7.0	0
FS Seeds	FS 4860	172	21.7	7.9	7.7	0
FS Seeds	FS 4955XRR	164	21.9	7.5	7.0	1
Dekalb	DKC48-53RR2YGCB	144	21.9	6.6	5.7	4
TA Seeds	TA500-00	177	23.0	7.7	7.0	6
Hytest	EXP4421RR	171	23.0	7.4	6.7	4
Doebler's	525BW	191	23.1	8.3	6.7	0
	Mean	163	21.2	7.7	6.9	2
	CV	13	3.6		12.7	
	LSD	35	1.2		1.4	
	SD	22	0.8		0.9	

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

Corn Grain Hybrid Evaluation for NNY

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 1-2.

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Participating Farmers

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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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