Northern NY Agricultural Development Program
2018-2019 Project Report

Commercial Corn Hybrid Evaluation for Silage Yield and Quality and for Grain Yield in Northern New York

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Cooperating Producers:

- St. Lawrence County: Jon Greenwood, Greenwood Dairy, Madrid NY
- Clinton County: William H. Miner Agricultural Research Institute, Chazy NY

Background:

Corn is the primary row crop grown in northern New York (NNY), harvested from about 146,000 acres when averaged over the past seven years. It provides essential feed for the dairy industry. About 65% of NNY corn was harvested as silage and 35% as grain over this same period. The dairy industry and ethanol production facilities both contribute to strong demand for corn silage and grain in NNY. As the seed industry continues to introduce new corn hybrids to the market, evaluation of these hybrids in growing conditions representative of NNY is critical to assist growers in selecting hybrids best suited to their environment and needs.

The importance of corn silage as a high yielding, high quality dairy feed in NNY continues to increase as dairy farmers look to optimize feed value from available acreage. NNY accounted for 20% of NY's silage acres over the past seven years, highlighting the importance of corn silage performance information for NNY growers. A focus on silage-specific corns by the seed industry has increased both the offerings to producers and the need for independent evaluation to determine the merit of new hybrids in feeding programs.

Cornell's Commercial Corn Silage Hybrid Trial program, re-instated in 2016, introduced an improved forage quality evaluation. Submissions to the program have increased rapidly and now include about 75-80 hybrids annually. We anticipate as many or more hybrids will be entered into these evaluations in 2020, providing greater benefit to growers.

Corn grain is a valuable NNY commodity in its own right, but also a major contributor to any hybrid's silage yield and quality. Seed companies typically test hybrids first in grain evaluation trials to determine what is worth marketing in a region and what merits further evaluation for silage yield and quality. Thus, grain yield evaluations of commercial hybrids continue to provide information of importance in NNY. Collaboration on corn silage and grain testing has proved very effective and has facilitated sharing of staff, equipment, and travel.

Methods:

Commercial corn hybrids for silage were planted at Cornell's Willsboro Research Farm in Essex County (80- to 95-day hybrids) and at the Greenwood Farm in St. Lawrence County (96- to 110-day hybrids). Grain hybrid trials (79- to 90-day hybrids) were planted at both the Greenwood Farm in St. Lawrence County and at the W.H. Miner Institute in Clinton County. Hybrid entries were solicited from seed companies doing business in New York and the Northeast.

Hybrids were machine planted in three replications at each trial site using a randomized complete block design. Individual plots consisted of two (grain) or four (silage) rows, 17.5' long at 30" spacing. Plantings were done on 22 May 2019 in Madrid (silage and grain), 30 May 2019 in Chazy (grain only), and 4 June 2019 in Willsboro (silage only). Silage hybrids were planted at 34,000 plants/acre. Grain hybrids were over-planted and thinned to 30,000 plants/acre. Hybrids were evaluated in June for emergence. Electric fencing was erected as needed to minimize wildlife damage to the plots. Cross-planted corn was seeded in alleyways at Chazy for the same reason.

Silage Evaluation

For silage trials, we harvested the center two rows of each four-row silage plot, aiming for about 35% (±3%) dry matter at harvest. At Willsboro, plots were harvested on 30 September 2019 at a target cutting height of 6 to 8 inches using a John Deere 3975 pull-type forage harvester equipped with a custom built 20A Plot Harvester Sampler (RCI Engineering, Mayville, WI; see Photo 1). Harvested biomass was weighed on platform scales with plot weights determined from the RCI software computer interface onboard the tractor. Average dry matter at harvest for all hybrids in the Willsboro trial was 32.6%. Madrid silage plots were harvested on 27 September 2019 at a target cutting height of 8 to 10 inches with a two-row, Kemper rotary head and Wintersteiger Weighmaster system with sample mixing capabilities (Photo 2). The Madrid silage trial averaged 28.6% dry matter at harvest.

Forage samples (about 500g each) were taken from each plot, sealed in gallon-sized freezer bags, and kept on ice in a chest freezer for transportation back to Cornell. They were then stored in a -20˚C freezer until shipping to Cumberland Valley Analytical Laboratory for analysis. NIR procedures were used to determine crude protein (CP), starch, lignin, ash, total fatty acids (TFA), ash-corrected neutral detergent fiber (aNDFom), neutral detergent fiber (NDF) digestibility (NDFD; 12, 30, 120, 240 hr), and undigested NDF (uNDFom; 240 hr).

Corn silage hybrid performance was evaluated by the predicted milk production output of CNCPS v.7.0 (Cornell University, Ithaca, NY). Rumen fill dictates the amount of feed a cow can consume and is limited by either the amount of uNDFom or aNDFom in a ration. There is a direct correlation between dry matter intake (**DMI**) and milk production. Therefore, by limiting the amount of feed consumed, the cow's milk production potential is limited. Corn silage chemistry results were applied to a typical New York high corn silage-based diet (forage at ~60% of diet DM; corn silage ~70% of forage DM) in the CNCPS. The base diet was formulated by Cornell's Tom Overton, Mike Van Amburgh, and Michael Dineen. Since samples did not undergo fermentation, feed library values were assigned for soluble protein, ammonia, volatile fatty acids, and 7-hr starch digestibility values. CNCPS 7.0 predictions were conducted initially by replacing the base corn silage in the diet at the same DM amount. Subsequently, dry matter intake of the entire ration was adjusted based on the first limiting rumen fill factor (rumen aNDFom pool size or rumen uNDFom pool size) and predicted milk production was calculated. This approach accounts for differences in dry matter intake potential of the total ration based on individual hybrid traits and is a more biologically robust approach than comparing hybrids on a constant dry matter intake basis.

Starch digestibility is an important parameter in assessing the forage quality of corn silage. Current NIR laboratory techniques for analyzing starch digestibility of fresh (green) corn silage samples are inconsistent and thus a weakness in forage quality assessment. The Professional Dairy Managers of Pennsylvania (PDMP) and Penn State University have worked closely with our laboratory partner (Cumberland Valley Analytical Services) to evaluate wet chemistry (in vitro) testing options for starch digestibility (IVSD) of fresh corn silage samples. They are currently working with a procedure that uses a 1 mm grind and 4-hour analysis time. This procedure is still considered experimental and its added cost is prohibitive to companies entering hybrids into the NY silage hybrid evaluation program. At the Madrid and Willsboro sites, in vitro starch digestibility analysis was performed to pilot this technique and gain additional quality information about the silage hybrids being tested. The laboratory method used (1mm, 4 hr) is in accordance with work performed at Penn State in collaboration with the PDMP and is consistent with how IVSD is reported in the PDMP Corn Silage Testing Program. These values should not be compared with IVSD values utilizing the more common methodology of a 4 mm grind and 7-hr time period.

Grain Evaluation

For corn grain trials, no significant pest pressure was observed at either site in 2019 so leaf disease ratings were not possible.

Plots at Madrid were just ready to harvest on 12 November 2019 when they got buried under a foot of snow (Photo 3). Before the field was harvestable after this date, the corn suffered so

much lodging and animal damage that no useful data could be obtained from this site.

Harvest was done by hand at Chazy (15 November 2019). Ears from each plot were picked and weighed and a 10-ear sample was weighed and set aside. This 10-ear sample was oven dried and re-weighed to determine grain moistures, and the shelled grain from it was weighed to assess shelling percentage. Yields were calculated at 15.5% grain moisture and used to calculate yield:moisture (Y:M) ratio for each hybrid. Y:M ratio measures hybrid efficiency in producing high yield under short-season conditions. Hybrids that show high yields and earlier maturity (lower grain moistures) have higher Y:M ratios.

We used two statistics to evaluate the quality of grain yield data from these experiments. The coefficient of variation (CV) is a measure of the uncontrolled variability due to differences in the soil, microclimate, fertility, etc. Grain yield CVs below 12 are excellent and those between 12 and 15 are acceptable. Grain moisture CVs below 5 are excellent. The least significant difference (LSD) is computed at the 5% level of probability. If a difference between two hybrids is larger than the LSD listed for the trial, then the odds are at least 95 to 5 (or 19 to 1) that there is true varietal difference between the hybrids, or as the statisticians say, the difference between the two hybrids is significant.

As a cautionary note, growers should choose hybrids based on multi-year and multi-location data whenever possible, since any hybrid can have a "banner year" or "banner environment" but not necessarily hold up over different locations and growing seasons.

Results:

Crop performance in 2019 turned out better than early-season expectations. May and early June were very wet and cooler than normal across most of New York, leading to delayed planting in many locations. However, rainfall was generally well distributed through the remainder of the growing season and temperatures were seasonal, so final crop performance was good.

For corn silage hybrids, specific traits present in each hybrid are noted in the results tables using a "trait code" as indicated in Table 1. Most of these are genetically engineered traits. Only hybrids listed with trait code 1 (conventional) and 48 (floury leafy) are not genetically engineered. To determine exactly which insect resistance genes (Bt genes) and herbicide tolerance genes have been built into the genetically engineered hybrids, refer to the "Handy Bt Trait Table," developed and maintained by Michigan State University, at: https://www.texasinsects.org/bt-corn-trait-table.html.

Agronomic quality, predicted milk yield, and dry matter intake results for 85- to 95-day silage hybrids at Willsboro are shown in Table 2, with the upper half of the table including the shorter season hybrids (85- to 91-day) and the lower half the longer season hybrids (92- to 95-day).

Graphical results comparing crop silage yield and predicted milk yield (both as a percentage of the plot mean) are shown in Figure 1 for this data. In interpreting this graph, note that the upper right quadrant includes those hybrids with above average crop yield and above average milk yield. The lower left quadrant would be hybrids that were below average for both parameters. The earlier-maturing group are plotted in green (85- to 91-day) while the later maturing group

(92- to 95-day) are in blue. Results for 96- to 110-day silage hybrids at Madrid are shown in Table 3a (96- to 103-day hybrids) and Table 3b (104- to 110-day hybrids).

Graphical results comparing percentage of the plot mean for crop silage yield vs. predicted milk yield are shown in Figure 2a (96- to 103-day hybrids) and Figure 2b (104- to 110-day hybrids.).

Results from the IVSD evaluation are shown in Table 4 (Willsboro) and Table 5 (Madrid,).

Corn hybrid grain trial results averaged from Chazy are in Table 6, with hybrids in order from lowest to highest grain moisture at harvest (i.e., earliest maturing to latest maturing). Data quality and grain yields were good at our Chazy location. As noted earlier, grain yield data from Madrid was lost due to problems resulting from an early heavy snowfall (Photo 1).

NOTE: Tables and Figures should not be reproduced if any portion is omitted or if data order is changed.

Conclusions/Outcomes/Impacts:

Silage Evaluation: Willsboro

At Willsboro, variation in dry matter percent among 85- to 95-day silage hybrids was significant (range 29.1% to 36.6%). The trial mean was 32.6% – a bit below our target for harvest timing. Only the hybrids rated as 85 to 88 days RM reached the target maturity in this wet growing season, however, with harvest on 30 September 2019 at this location, postponing until a later harvest date would have entailed undesirable risks.

Silage yields at Willsboro averaged 19.0 t/acre for the 85- to 95-day hybrids tested (Table 1). Yield differences were not significant, even though individual hybrids ranged from 17.7 to 21.9 tons/acre. Variation was significant for many quality parameters, but not for most of the NDF digestibility parameters or for dry matter intake or allowable milk yield.

Figure 1 shows which hybrids were above average for crop yield (top half) and predicted milk (right half), with three 85- to 91-day and three 92- to 95-day hybrids falling in the upper right quadrant where both crop yield and predicted milk were above average. Note that the points plotted in this figure are percentage of the overall trial mean, without any measure of error to indicate whether they differ significantly one from another. Least significance difference (LSD) values at the bottom left of the graph indicate that both crop yields and predicted milk yields were statistically the same for all hybrids in this trial.

Silage Evaluation: Madrid

Madrid silage data for 96- to 110-day hybrids (Tables 3a and 3b) showed significant variation for all traits measured. Overall mean dry matter was 28.6% – again, below our target for harvest timing. As noted for the Willsboro silage trial, waiting beyond 27 September 2019 to chop this trial would have entailed undesirable risks.

This trial had excellent yield (average of 27.4 tons/acre with individual hybrids as high as 30.4 tons/acre). Figures 2a and 2b show hybrids according to their mean silage yield and mean predicted milk yield, with those hybrids that were above the mean for both parameters in the

upper right quadrant of the figure. Differences were significant for both parameters in both the earlier (Figure 2a) and later (Figure 2b) groupings of hybrids, as indicated by the least significant difference (LSD) numbers in the bottom left of each figure. The length of the red line in this LSD chart represents graphically the magnitide of difference between any given pair of hybrids that is considered statistically significant. Among the earlier relative maturity group (96- to 103-day, Figure 2a), six hybrids were in this upper right quandrant. While LSD values reveal that none were significantly greater than the overall mean for crop yield, three were significantly greater for predicted milk. For the later relative maturity group (104- to 110-day, Figure 2b), only one hybrid fell in the upper right quadrant of the figure and it did not differ significantly from the overall trial mean for crop yield or predicted milk yield.

Fiber/Starch Digestibility

While several forage quality parameters are important, fiber digestibility continues to be a key focus of assessing corn silage. Undigested neutral detergent fiber at 240 hrs (uNDF240), as well as the rate of digestion assessed using the measurement of NDF digestibility at multiple time points, are key to understanding the value of corn silage in a total ration for lactating cows. The amount a cow can consume (her dry matter intake) is strongly correlated to milk producing potential and a lower uNDF240 value is an indicator that the cow will be able to consume more of the forage. In addition to analyzing fiber digestibility values, the trials allow the further study of apparent interactions between the growing environment and fiber digestibility of the corn plant. On-going evaluation of hybrids with the Cornell Net Carbohydrate and Protein Synthesis (CNCPS) model, where each hybrid in the testing program is entered into a standardized lactating cow feed ration, allows for the evaluation of the effect of fiber digestibility and other key forage quality parameters on expected animal performance with a diet containing that hybrid.

The in vitro starch digestibility (IVSD) analysis did not result in any statistical differences at the 90% confidence interval ($P \leq 0.10$) for either location (Tables 4 and 5). This is important to note as it indicates that numerical differences between hybrids should not be viewed as meaningful. With the starch digestibility testing method used in this study, hybrids do not differ for this trait.

Grain Evaluation

The early maturity grain hybrid trial at Chazy (Table 6) had a good coefficient of variation for yield and acceptable for grain moisture, indicating good data quality. Hybrids are arranged in this table from lowest to highest grain moisture at harvest (i.e., earliest maturity at the top of the table and latest at the bottom). Both yield and grain moisture varied highly significantly among hybrids ($P \leq 01$, or a 99% chance that differences are real).

Hybrid Selection

Before considering individual hybrid performance, please recall that **growers should choose hybrids based on multi-year and multi-location data whenever possible**, since any hybrid can have a "banner environment" but not necessarily hold up as strongly over a range of different locations and growing seasons. The yield:moisture ratio is a good guide to choosing hybrids with excellent yield potential and with reasonably early maturity. Based on this ratio, a few hybrids stood out at Chazy, including several very high yielding 84- to 87-day hybrids. Results from additional environments should be considered in determining whether these differences will

stand up across a range of growing seasons. Such data will be available in the over-years summary presented in the upcoming (2021) version of the Cornell Guide for Integrated Field Crop Management. However, only five of the hybrids evaluated in 2019 were also tested in one or more previous years – an inherent challenge to hybrid testing that is reliant on seed companies' voluntary submissions. Since an early-season grain hybrid evaluation will not be conducted in 2020 due to lack of funding, there will be a gap in this activity. If/when such testing resumes in the future, the hybrid lineup that most companies will be choosing from will surely have changed again.

Outreach:

An in-season article providing advice on silage management for fall 2019 (Corn Silage 2019: Two Different Crops) was written by Joe Lawrence and Karl Czymmek and posted at:

https://prodairy.cals.cornell.edu/sites/prodairy.cals.cornell.edu/files/shared/documents/This%20corn%20silage%20harvest%20season%20will%20present%20two%20distinctively%20different%20corn%20crops.pdf

A summary article of the 2019 trials (2019 Corn Silage Overview) by Joe Lawrence, Allison Kerwin, and Tom Overton was shared in the November 2019 PRO-DAIRY E-Leader:

https://custom.cvent.com/1D82EF6865954ABF95C7904CDE2AE18A/files/c894a6e417d341fa81dcf5dedc3b20e7.pdf

Results from 2019 NNYADP silage evaluations, and results from other sites in New York and Vermont, are available via the New York and Vermont Corn Silage Hybrid Trials – 2019 report and on the web at:

https://cpb-us-e1.wpmucdn.com/blogs.cornell.edu/dist/5/8858/files/2019/12/NY_VT-Corn-Silage-Hybrid-Evaluation-Report_12.3.2019.pdf

Results of 2018 NNYADP testing of corn grain hybrids were incorporated into the multi-year tables of recommended hybrids in the 2020 Cornell Guide for Integrated Field Crop Management (Cornell University, 2019). NNYADP grain trial results from 2019 will be incorporated into the multi-year tables of recommended hybrids in the 2021 Cornell Guide for Integrated Field Crop Management (to be published by Cornell University in fall 2020). These results are available for farmer and seed company use in selecting hybrids best adapted to the challenging soils and climates of NNY. This publication is distributed through extension offices and at various extension and outreach meetings.

Silage results have been and will be shared at numerous crop meetings, both in NNY and beyond:

- North Country Crop Congress, Canton, January 21, 2020
- North Country Crop Congress, Chazy, January 22, 2020
- SCNY Winter Crop Meeting, Ithaca, January 24, 2020
- Lowville Farmers Coop Forage Forum, February 5, 2020
- Delaware County Crop School, March 27, 2020

Project leaders Joe Lawrence and Margaret Smith may be contacted to share results at additional meetings in NNY as requested.

Acknowledgments:

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Reports and/or articles in which results of this project have been published:

The 2019 New York and Vermont Corn Silage Hybrid Trial data tables are posted at:
https://blogs.cornell.edu/varietytrials/corn-silage/

Corn grain trial results from 2019 will be published in the upcoming edition of the following document. Grain results from 2018 and prior years are published in:

Smith, M.E. and J. Singer. 2019. Corn grain hybrid selection. pp. 53-59. In: Thomas-Murphy, J. (ed.) 2020 Cornell Guide for Integrated Field Crop Management. Pesticide Management Education Program, Cornell University, Ithaca NY. 169 pp.

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Table 1: Trait key for trait codes in Tables 2 through 6.

Trait Code	Trait
1	Conventional
2	Roundup Ready (RR), Roundup Ready 2 (RR2
3	AcreMax (AM)
4	AcreMax CRW (AMRW)
5	AcreMax1 (AM1)
6	AcreMax Leptra (AML)
7	AcreMax TRIsect (AMT)
8	AcreMax Xtra (AMX)
9	AcreMax Xtreme (AMXT)
10	Agrisure GT
11	Agrisure GT/RW
12	Agrisure 3010
13	Agrisure 3010A
14	Agrisure 3000GT
15	Agrisure 3011A
16	Agrisure Viptera 3110 and 3110A
17	Agrisure Viptera 3111
18	Agrisure3120 EZ Refuge
19	Agrisure3122 EZ Refuge
20	Agrisure Viptera 3220 EZ Refuge
21	Agrisure Duracade 5122 EZ Refuge
22	Agrisure Duracade 5222 EZ Refuge
23	Herculex I (HXI)
24	Herculex RW (HXRW)
25	Herculex XTRA (HXX)
26	Intrasect (YHR)
27	Intrasect TRIsect (CYHR)
28	Intrasect Xtra (YXR)
29	Intrasect Xtreme (CYXR)
30	Leptra (VYHR)
31	Powercore
32	Powercore Refuge Advanced
33	QROME (Q)
34	SmartStax
35	Smartstax Refuge Advanced
36	SmartStax RIB Complete
37	SmartStax Enlist
38	Trecepta
39	Trecepta RIB Complete
40	TRIsect (CHR)
41	VT Double PRO
42	VT Double PRO RIB Complete
43	VT Triple PRO
44	VT Triple PRO RIB Complete
45	Yieldgard Corn Borer (YGCB)
46	Yieldgard Rootworm (YGRW)
47	Yieldgard VT Triple
48	Floury Leafy
49	RW/HXX/YGCB/LL/RR2
50	HX1/YGCB/LL/RR2
51	HXX/YGCB/LL/RR2
52	AMXT,LL,RR2

Table 2. Results from evaluation of 85- to 95-d

Company/Brand	Hybrid	Trait Code †	Relative Maturity	Harvest Population	Dry Matter	Yield, 35% DM	Starch	Crude Protein	Lignin	Ash	Total Fatty Acids	aNDFom	NDF	12 hr NDFD	Wet Chem aNDFom	Wet Chem 30 hr NDFD	30 hr NDFD	120 hr NDFD	240 hr NDFD	240 hr uNDFom	RFC - Fill Ratio[1]	CNCPS v. 7.0 Predicted Allowable Milk Yield	CNCPS v. 7.0 Predicted Dry Matter Intake
				plants/ac	%	tons/ac	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% NDF	% DM	% NDFom	% NDFom	% NDFom	% NDFom	% DM		lbs/day	lbs/day
Schlessmanns	908[3]	22	91	28169	29.1	17.9	33.1	7.0	2.6	2.9	2.2	37.3	38.1	28.3	37.0	53.3	58.7	65.1	68.0	12.0	3.4	99.6	58.6
Syngenta NK	NK9175-3110	16	91	30782	31.3	20.2	38.0	6.8	2.6	2.8	2.5	34.7	35.4	27.6	34.3	55.1	57.4	64.7	67.9	11.2	3.8	101.3	58.8
Local Seed Company	LC8667SSXRIB[5]	36	86	—	31.6	—	36.1	7.1	2.4	2.8	2.3	35.6	36.3	30.3			61.1	69.6	72.6	9.8	4.0	114.1	64.4
Seedway	SW3110GENSS	36	90	31508	31.8	18.5	33.1	6.8	2.6	2.8	2.1	39.1	39.8	30.3			61.5	71.8	74.8	9.8	3.7	106.9	61.7
Albert Lea Viking	O.71-90GS	1	90	29185	32.4	20.4	35.2	6.4	2.6	3.1	2.1	38.0	38.8	29.5			60.1	69.0	72.1	10.6	3.7	107.2	61.9
Hubner	H6038RCSS	36	89	29621	33.4	17.9	40.7	7.1	2.3	3.0	2.4	33.8	34.3	30.0			60.9	67.4	70.4	10.1	4.5	114.8	64.4
Growmark FS	FS4095X RIB	36	90	29476	34.1	20.6	38.5	7.1	2.3	3.3	2.3	33.0	34.2	30.1	33.6	57.2	62.0	68.2	71.1	9.6	4.3	118.5	66.1
Masters Choice	MCT3891[5]	10	88	—	34.8	—	39.4	7.1	2.4	2.7	2.4	35.7	36.2	29.9			60.1	66.5	69.4	11.0	4.2	108.9	62.2
Local Seed Company	LC8597 VT2PRIB	41	85	31799	34.9	18.7	37.9	7.3	2.6	3.1	2.5	35.6	36.2	29.7			58.7	64.7	67.6	11.6	3.9	101.3	58.9
Albert Lea Viking	O.58-85P	1	85	29330	35.1	20.6	40.0	6.8	2.3	2.9	2.5	33.3	34.0	30.3			60.7	69.1	72.1	9.4	4.4	116.7	65.1
Hubner	HH6053RCSS	36	87	31508	36.0	18.3	40.8	7.0	2.3	3.0	2.6	33.6	34.1	30.0			60.2	67.0	69.7	10.2	4.4	113.9	64.1
Dekalb	DKC36-30RIB	42	86	29621	36.6	19.3	40.2	6.4	2.3	2.8	2.5	34.5	35.1	30.9			61.1	67.4	70.3	10.3	4.4	113.0	63.7
		85-91 day	**RM Mean**	**30100**	**33.4**	**19.2**	**37.7**	**6.9**	**2.4**	**2.9**	**2.4**	**35.3**	**36.1**	**29.7**	**34.9**	**55.2**	**60.2**	**67.5**	**70.5**	**10.5**	**4.0**	**109.7**	**62.5**
Masters Choice	MCT4572	14	95	28750	29.4	18.2	35.8	7.0	2.6	2.8	2.3	36.9	37.5	28.2			59.1	65.5	68.3	11.8	3.7	102.1	59.6
Channel	192-98STXRIB	36	92	31654	30.6	18.7	34.1	7.5	2.6	3.1	2.3	36.7	37.5	29.8			60.0	67.4	70.2	11.0	3.6	104.9	60.8
Local Seed Company	ZS9598 5222EZ	16	95	30056	30.9	17.7	35.7	7.2	2.6	2.9	2.4	35.9	36.5	27.2			58.9	65.5	68.4	11.4	3.7	104.7	60.6
Seed Consultants	SCS 958AGT	14	95	32089	31.0	20.1	31.6	6.5	2.6	3.0	2.1	38.9	39.8	30.7			62.5	68.5	71.5	11.1	3.7	105.7	61.1
Dekalb	DKC45-07RIB	42	95	30056	31.7	19.9	34.9	7.2	2.4	3.6	2.2	36.1	37.2	29.9			62.0	70.3	73.4	9.7	3.9	110.6	63.0
Dekalb	DKC44-80RIB	42	94	31654	31.8	18.8	37.6	6.5	2.4	3.0	2.3	36.0	36.6	30.7			60.3	67.7	70.6	10.7	4.0	110.4	63.0
Seedway	SW3600GENSS[4]	36	92	28750	31.9	—	36.1	6.9	2.5	3.1	2.2	35.8	36.7	29.3			61.3	70.3	73.2	9.6	4.0	112.4	63.7
Albert Lea Viking	O.82-95P	1	95	29911	31.9	19.5	35.9	7.1	2.3	3.1	2.4	36.7	37.3	31.7	36.9	62.9	62.5	69.1	72.0	10.3	4.2	111.9	63.4
Dekalb	DKC42-04RIB	42	92	31073	32.6	19.0	40.0	7.1	2.4	3.1	2.4	34.4	35.0	29.5			58.9	66.2	69.1	10.8	4.2	106.5	61.1
Local Seed Company	LC9278SSXRIB	36	92	31073	32.7	21.2	36.0	6.6	2.4	3.0	2.4	37.4	38.0	32.5			62.3	68.5	71.6	10.6	4.1	111.5	63.3
Seedway	SW3768GENSS	36	95	30202	32.9	19.1	36.8	7.3	2.3	3.0	2.2	35.5	36.0	32.4			62.3	68.8	71.7	10.1	4.3	113.0	63.7
Growmark FS	FS42R88VT2P	42	92	31799	32.9	13.1	37.0	6.6	2.3	3.1	2.5	34.4	36.1	31.1	34.8	54.3	61.5	67.8	70.7	10.2	3.9	113.5	63.9
Albert Lea Viking	42-92P	1	92	32380	33.3	21.9	35.8	6.5	2.5	3.1	2.3	37.0	37.9	31.1			60.7	66.6	69.8	11.2	3.8	106.0	61.2
Pioneer	P9330AM	3	93	30928	34.0	18.5	39.4	7.0	2.6	2.8	2.3	35.1	35.6	29.8			58.2	64.5	67.4	11.5	4.0	104.5	60.5
		92-95 day	**RM Mean**	**30741**	**32.0**	**18.9**	**36.2**	**6.9**	**2.5**	**3.0**	**2.3**	**36.2**	**37.0**	**30.3**	**35.8**	**58.6**	**60.7**	**67.6**	**70.6**	**10.7**	**3.9**	**108.4**	**62.1**
		LSD (0.10)		**NS[2]**	**2.6**	**NS[2]**	**4.1**	**0.5**	**NS[2]**	**NS[2]**	**NS[2]**	**3.1**	**3.1**	**2.2**	**2.3**	**3.5**	**NS[2]**	**NS[2]**	**NS[2]**	**NS[2]**	**0.5**	**NS[2]**	**NS[2]**
		OverallMean		**30474**	**32.6**	**19.0**	**36.9**	**6.9**	**2.5**	**3.0**	**2.3**	**35.8**	**36.6**	**30.0**	**35.3**	**56.5**	**60.5**	**67.6**	**70.5**	**10.6**	**4.0**	**109.0**	**62.3**

ay corn silage hybrids in Willsboro, NY; NNYADP trials, summer 2019.

† Trait codes indicate special traits of each hybrid and are listed in Table 1.

[1] RFC – Fill Ratio = rumen fermentable carbohydrate – fill ratio, defined as ((NDFd30 + starch)/uNDF30); useful for ranking silage samples.

[2] NS = not significant.

[3] One plot replicate had a harvest population count < 25,000.

[4] Yield data removed due to 2 plot replicates having missing yield data during harvest.

[5] Yield and harvest population data removed due to 2 plot replicates having a harvest population count < 25,000.

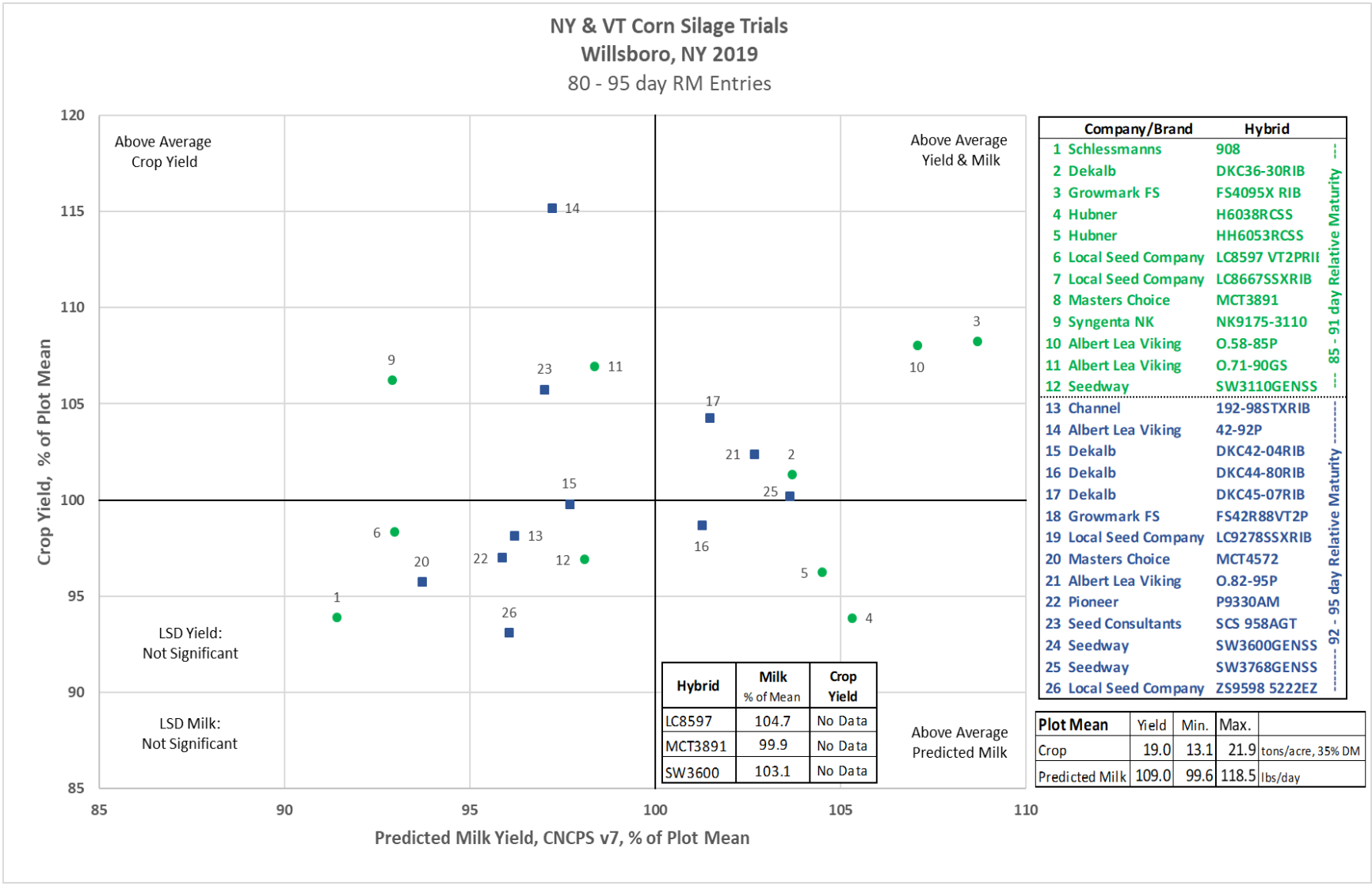


Figure 1. Percent of plot mean for crop yield vs. predicted milk yield, 85- to 95-day silage hybrids in Willsboro, NY; NNYADP trials, summer 2019.

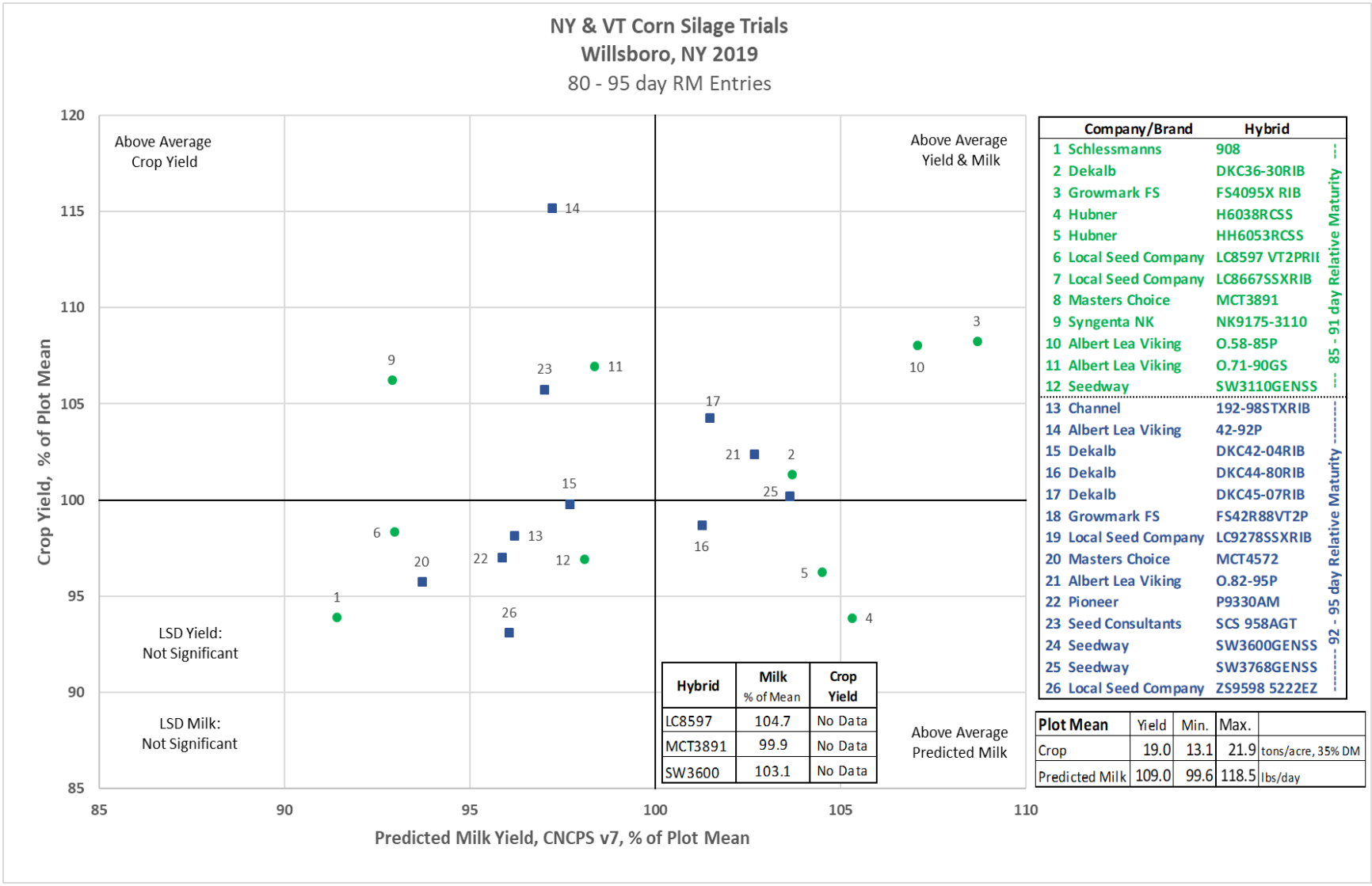


Figure 1. Percent of plot mean for crop yield vs. predicted milk yield, 85- to 95-day silage hybrids in Willsboro, NY; NNYADP trials, summer 2019.

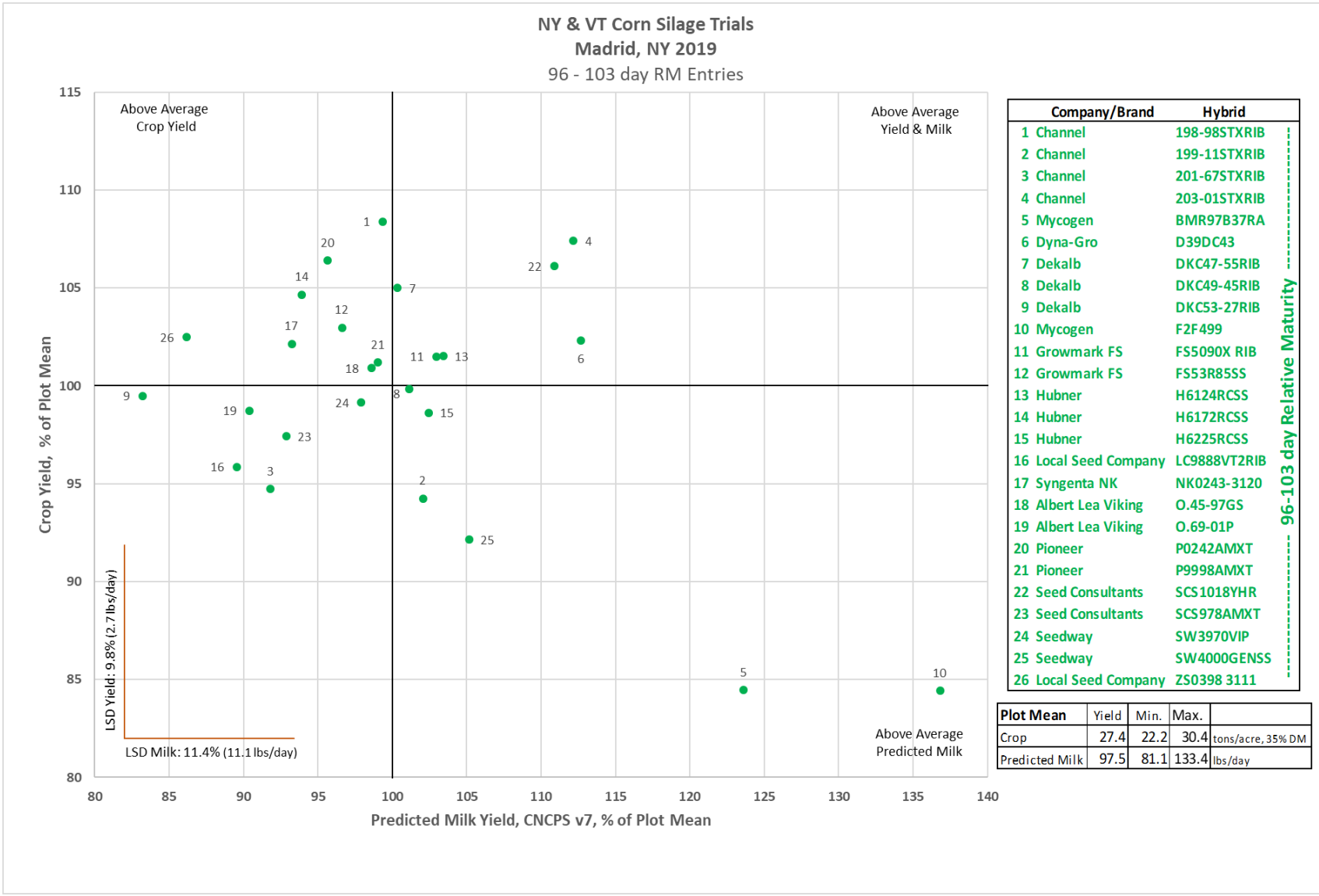
Table 3b. Results from evaluation of 104- to 110-day corn silage hybrids in Madrid, NY; NNYADP trials, summer 2019.

Company/Brand	Hybrid	Trait Code †	Relative Maturity	Harvest Population	Dry Matter	Yield, 35% DM	Starch	Crude Protein	Lignin	Ash	Total Fatty Acids	aNDFom	NDF	12 hr NDFD	Wet Chem aNDFom	Wet Chem 30 hr NDFD	30 hr NDFD	120 hr NDFD	240 hr NDFD	240 hr uNDFom	RFC - Fill Ratio[1]	CNCPS v. 7.0 Predicted Allowable Milk Yield	CNCPS v. 7.0 Predicted Dry Matter Intake
				plants/ac	%	tons/ac	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% NDF	% DM	% NDFom	% NDFom	% NDFom	% NDFom	% DM		lbs/day	lbs/day
Mycogen	BMR10B27RA	34	110	31167	25.0	22.6	21.1	7.7	2.1	3.8	1.9	38.6	39.8	33.4	37.9	64.3	70.7	84.6	88.3	4.5	3.9	131.5	71.9
Mycogen	BMR06B58	37	106	31667	26.4	22.2	21.8	8.1	2.0	3.4	2.0	42.5	43.2	38.3	41.4	67.2	71.6	80.0	83.5	7.1	4.2	126.4	70.0
Seed Consultants	SCS1087YHR	26	108	33667	26.4	27.2	25.8	7.4	3.2	3.5	1.9	41.9	42.5	27.8			55.1	63.3	65.9	14.4	2.5	85.0	53.6
Seed Consultants	SCS1069YHR	26	106	34833	26.8	28.8	29.3	7.6	3.0	3.4	2.3	38.9	39.5	27.6			55.4	62.3	65.0	13.7	2.9	88.2	54.5
Seed Consultants	SCS 1105AM	3	110	33500	26.9	27.9	24.7	7.3	3.0	3.2	1.7	41.7	42.3	28.8			58.5	65.2	68.1	13.4	2.8	91.9	56.4
Masters Choice	MC5790	1	107	32000	27.3	27.1	27.7	7.7	2.8	3.1	2.2	39.4	40.0	29.8			58.4	67.1	69.9	11.9	3.0	99.2	59.2
Seed Consultants	SCS 10HR43	50	104	28667	27.4	27.1	30.1	7.6	2.8	3.3	2.0	37.4	38.0	28.8			56.2	63.1	65.9	12.8	3.0	94.5	57.1
Pioneer	P0789AMXT	9	107	34000	27.6	27.4	24.5	7.4	3.3	3.6	1.9	42.1	42.7	25.4			53.8	62.0	64.6	15.0	2.4	81.1	52.3
Dyna-Gro	D49SS70	34	109	32833	28.1	28.7	30.5	7.5	2.9	3.0	2.3	38.8	39.4	28.9	37.3	54.5	56.9	64.8	67.7	12.6	3.1	93.9	56.7
Local Seed Company	LC0488SSXRIB	36	104	31833	28.1	29.0	31.7	7.1	2.8	2.9	2.3	38.4	39.0	30.0			57.0	63.0	65.7	13.2	3.2	92.2	55.9
Dekalb	DKC55-37RIB	36	105	34000	28.3	28.2	31.1	7.5	2.9	3.1	2.2	37.9	38.5	28.3			57.2	64.7	67.5	12.4	3.2	95.5	57.3
Dekalb	DKC59-07RIB	36	109	33667	28.3	30.4	29.1	7.3	2.8	3.1	2.2	38.3	38.9	28.6			58.1	63.2	65.9	13.1	3.1	90.8	55.2
Dekalb	DKC55-53RIB	36	105	34167	28.4	28.4	31.1	7.6	2.7	3.1	2.3	37.2	37.7	30.4			58.8	65.0	67.8	12.0	3.4	97.2	57.6
Growmark FS	FS5699X RIB	36	106	30667	28.4	29.2	30.5	7.9	2.9	3.4	2.4	36.7	37.4	27.5	36.0	52.4	55.4	61.1	63.7	13.3	3.0	87.0	53.6
Hubner	H6257RCSS	36	104	32667	28.5	26.6	30.8	7.3	2.6	2.8	2.3	38.0	38.5	31.4			61.0	66.3	69.1	11.8	3.5	101.5	59.3
Channel	207-27STXRIB	36	107	32667	28.6	26.2	33.4	7.3	2.4	3.0	2.5	36.3	36.8	31.6			60.9	67.0	69.9	10.9	3.8	105.9	60.8
Local Seed Company	LC0657SSXRIB	36	106	34167	28.7	29.7	30.2	7.4	3.0	3.2	2.1	39.2	39.8	28.1			55.4	62.1	64.8	13.8	2.9	85.7	53.3
Albert Lea Viking	O.48-08GS	1	108	33167	28.7	26.9	31.8	7.4	2.7	2.9	2.2	36.9	37.5	30.2			57.9	63.5	66.2	12.5	3.3	95.2	56.8
Local Seed Company	LC0877VT2PRIB	42	108	28833	28.8	26.8	27.7	7.6	2.9	3.1	2.0	41.5	42.1	30.0			58.5	64.9	67.6	13.5	2.9	91.3	55.9
Channel	205-63STXRIB	36	105	34167	28.9	28.3	32.7	7.8	2.8	3.0	2.2	37.3	37.9	28.6			56.0	63.1	65.8	12.8	3.2	93.1	56.1
Seedway	SW6540VT2P	42	108	32167	29.1	28.4	30.6	7.1	2.7	2.7	2.3	37.9	38.5	30.3			60.3	70.8	73.8	9.9	3.5	107.4	61.9
Albert Lea Viking	O.51-04GS	1	104	32333	30.0	27.3	31.7	7.6	2.5	3.3	2.4	36.1	36.6	31.8	35.8	57.0	58.5	65.4	68.2	11.5	3.4	101.4	59.4
Syngenta NK	NK0472-3110	16	104	33833	32.1	28.3	32.2	7.4	3.1	2.8	2.6	39.2	39.8	28.1	38.9	51.8	53.7	60.3	62.9	14.6	2.9	84.8	53.1
	104-110 day RM Mean			**32638**	**28.1**	**27.5**	**29.1**	**7.5**	**2.8**	**3.2**	**2.2**	**38.8**	**39.4**	**29.7**	**37.9**	**57.9**	**58.5**	**65.8**	**68.6**	**12.2**	**3.2**	**96.6**	**57.7**
	LSD (0.10)			**2389**	**1.3**	**2.7**	**3.5**	**0.4**	**0.3**	**0.3**	**0.2**	**2.3**	**2.4**	**2.2**	**2.4**	**3.5**	**2.8**	**4.1**	**4.3**	**1.9**	**0.5**	**11.1**	**4.3**
	OverallMean			**32718**	**28.6**	**27.4**	**30.7**	**7.5**	**2.7**	**3.1**	**2.3**	**38.0**	**38.6**	**29.9**	**36.8**	**57.8**	**58.4**	**65.5**	**68.3**	**12.1**	**3.3**	**97.5**	**57.9**

† Trait codes indicate special traits of each hybrid and are listed in Table 1.

[1] RFC – Fill Ratio = rumen fermentable carbohydrate – fill ratio, defined as ((NDFd30 + starch)/uNDF30); useful for ranking silage samples.

[3] One plot replicate had a harvest population count < 25,000.



	Company/Brand	Hybrid
1	Channel	198-98STXRIB
2	Channel	199-11STXRIB
3	Channel	201-67STXRIB
4	Channel	203-01STXRIB
5	Mycogen	BMR97B37RA
6	Dyna-Gro	D39DC43
7	Dekalb	DKC47-55RIB
8	Dekalb	DKC49-45RIB
9	Dekalb	DKC53-27RIB
10	Mycogen	F2F499
11	Growmark FS	FS5090X RIB
12	Growmark FS	FS53R85SS
13	Hubner	H6124RCSS
14	Hubner	H6172RCSS
15	Hubner	H6225RCSS
16	Local Seed Company	LC9888VT2RIB
17	Syngenta NK	NK0243-3120
18	Albert Lea Viking	O.45-97GS
19	Albert Lea Viking	O.69-01P
20	Pioneer	P0242AMXT
21	Pioneer	P9998AMXT
22	Seed Consultants	SCS1018YHR
23	Seed Consultants	SCS978AMXT
24	Seedway	SW3970VIP
25	Seedway	SW4000GENSS
26	Local Seed Company	ZS0398 3111

96-103 day Relative Maturity

Plot Mean	Yield	Min.	Max.	
Crop	27.4	22.2	30.4	tons/acre, 35% DM
Predicted Milk	97.5	81.1	133.4	lbs/day

Figure 2a. Percent of plot mean for crop yield vs. predicted milk yield, 96- to 103-day silage hybrids in Madrid, NY; NNYADP trials, summer 2019.

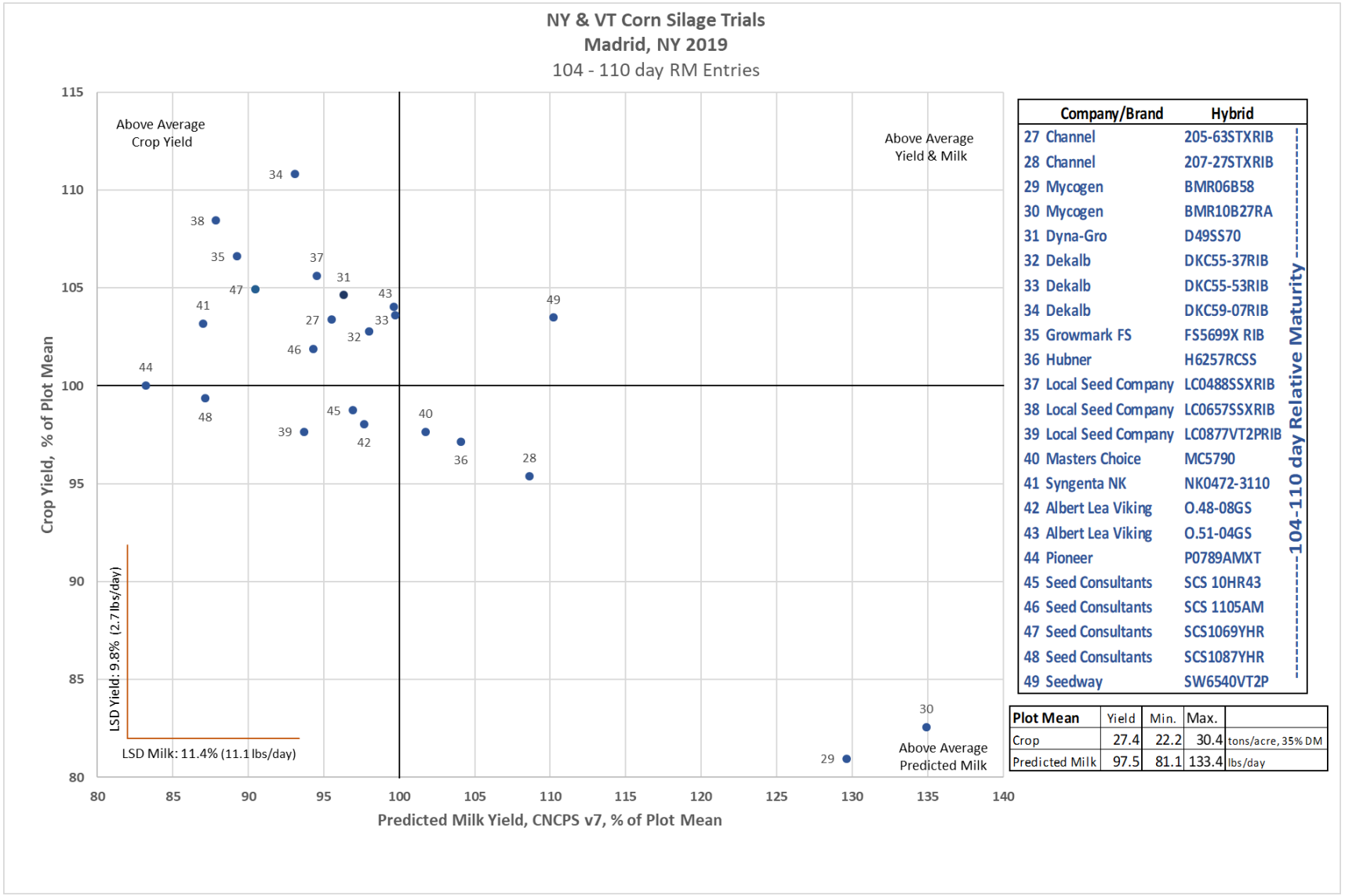


Figure 2b. Percent of plot mean for crop yield vs. predicted milk yield, 104- to 110-day silage hybrids in Madrid, NY; NNYADP trials, summer 2019.

Table 4. In vitro starch digestibility (1 mm, 4 hr) at Willsboro, NY for 80-95 day RM hybrids, NNYADP trials, summer 2019.

Company/Brand	Hybrid	Trait Code †	Relative Maturity	Dry Matter	Yield, 35% DM	Starch	In Vitro Starch Digestibility[6]
				%	tons/ac	% DM	%
Schlessmanns	908 [3]	22	91	29.1	17.9	33.1	70.0
Syngenta NK	NK9175-3110	16	91	31.3	20.2	38.0	66.0
Local Seed Company	LC8667SSXRIB [5]	36	86	31.6	—	36.1	66.5
Seedway	SW3110GENSS	36	90	31.8	18.5	33.1	70.8
Albert Lea Viking	O.71-90GS	1	90	32.4	20.4	35.2	67.4
Hubner	H6038RCSS	36	89	33.4	17.9	40.7	65.4
Growmark FS	FS4095X RIB	36	90	34.1	20.6	38.5	61.5
Masters Choice	MCT3891 [5]	10	88	34.8	—	39.4	68.5
Local Seed Company	LC8595VT2PRIB	41	85	34.9	18.7	37.9	64.4
Albert Lea Viking	O.58-85P	1	85	35.1	20.6	40.0	66.2
Hubner	HH6053RCSS	36	87	36.0	18.3	40.8	67.1
Dekalb	DKC36-30RIB	42	86	36.6	19.3	40.2	67.5
		85-91 day	**RM Mean**	**33.4**	**19.2**	**37.7**	**66.8**
Masters Choice	MCT4572	14	95	29.4	18.2	35.8	66.4
Channel	192-98STXRIB	36	92	30.6	18.7	34.1	69.9
Local Seed Company	LC9598 5222EZ	16	95	30.9	17.7	35.7	70.4
Seed Consultants	SCS 958AGT	14	95	31.0	20.1	31.6	68.4
Dekalb	DKC45-07RIB	42	95	31.7	19.9	34.9	66.7
Dekalb	DKC44-80RIB	42	94	31.8	18.8	37.6	74.5
Seedway	SW3600GENSS [4]	36	92	31.9	—	36.1	65.7
Albert Lea Viking	O.82-95P	1	95	31.9	19.5	35.9	62.3
Dekalb	DKC42-04RIB	42	92	32.6	19.0	40.0	68.5
Local Seed Company	LC9278SSXRIB	36	92	32.7	21.2	36.0	67.1
Seedway	SW3768GENSS	36	95	32.9	19.1	36.8	65.4
Growmark FS	FS42R88VT2P	42	92	32.9	13.1	37.0	66.1
Albert Lea Viking	42-92P	1	92	33.3	21.9	35.8	67.7
Pioneer	P9330AM	3	93	34.0	18.5	39.4	71.4
		92-95 day	**RM Mean**	**32.0**	**18.9**	**36.2**	**67.9**
		LSD (0.10)		**2.6**	**NS [2]**	**4.1**	**NS[2]**
		OverallMean		**32.6**	**19.0**	**36.9**	**67.4**

† Trait codes indicate special traits of each hybrid and are listed in Table 1.
[2] NS = not significant.
[3] One plot replicate had a harvest population count < 25,000.
[4] Yield data removed due to 2 plot replicates having missing yield data during harvest.
[5] Yield and harvest population data removed due to 2 plot replicates having a harvest population count < 25,000.
[6] In vitro starch digestibility, 4 hr incubation, 1 mm grind as a % of starch.

Table 5. In vitro starch digestibility (1 mm, 4 hr) at Madrid, NY for 96-110 day RM hybrids, summer 2019.

Company/Brand	Hybrid	Trait Code †	Relative Maturity	Dry Matter	Yield, 35% DM	Starch	In Vitro Starch Digestibility[6]
				%	tons/ac	% DM	%
Mycogen	F2F499 [3]	34	99	25.3	23.1	27.9	61.4
Mycogen	BMR97B37RA	34	97	25.8	23.2	26.6	58.7
Dekalb	DKC53-27RIB	36	103	26.7	27.3	27.6	63.7
Seedway	SW4000GENSS	36	99	27.0	25.3	28.6	61.9
Growmark FS	FS5090X RIB	36	100	27.6	27.8	29.2	58.7
Seed Consultants	SCS1018YHR	26	101	28.2	29.1	32.4	56.2
Hubner	H6225RCSS	36	102	28.2	27.0	31.3	64.7
Syngenta NK	NK0243-3120	18	102	28.5	28.0	33.5	66.9
Albert Lea Viking	O.69-01P	1	101	28.6	27.1	28.0	66.3
Hubner	H6172RCSS	36	98	28.6	28.7	28.4	60.1
Pioneer	P0242AMXT	9	103	28.8	29.2	33.0	62.5
Dekalb	DKC49-45RIB	42	99	28.9	27.4	31.3	56.2
Channel	201-67STXRIB	36	101	29.0	26.0	32.2	63.5
Local Seed Company	LC9888VT2RIB	42	98	29.2	26.3	33.8	59.4
Channel	199-11STXRIB	36	99	29.3	25.8	31.0	64.8
Pioneer	P9998AMXT	9	100	29.6	27.7	36.3	60.3
Channel	203-01STXRIB	36	103	29.6	29.4	35.3	60.3
Albert Lea Viking	O.45-97GS	1	97	29.8	27.7	32.8	58.7
Growmark FS	FS53R85SS	36	103	29.8	28.2	33.2	61.7
Seedway	SW3970VIP	17	98	30.2	27.2	35.4	63.4
Channel	198-98STXRIB	36	98	30.5	29.7	35.1	52.9
Dyna-Gro	D39DC43	41	99	30.9	28.1	37.5	60.8
Hubner	H6124RCSS	36	96	30.9	27.8	34.2	59.3
Seed Consultants	SCS978AMXT	9	97	31.1	26.7	32.8	63.9
Dekalb	DKC47-55RIB	42	97	31.2	28.8	34.9	64.9
Local Seed Company	ZS0398 3111	16	103	32.5	28.1	33.1	61.7
		96-103 day	**RM Mean**	**29.1**	**27.3**	**32.1**	**61.3**
Mycogen	BMR10B27RA	34	110	25.0	22.6	21.1	61.3
Mycogen	BMR06B58	37	106	26.4	22.2	21.8	64.9
Seed Consultants	SCS1087YHR	26	108	26.4	27.2	25.8	63.3
Seed Consultants	SCS1069YHR	26	106	26.8	28.8	29.3	60.9
Seed Consultants	SCS 1105AM	3	110	26.9	27.9	24.7	59.3
Masters Choice	MC5790	1	107	27.3	27.1	27.7	63.2
Seed Consultants	SCS 10HR43	50	104	27.4	27.1	30.1	63.6
Pioneer	P0789AMXT	9	107	27.6	27.4	24.5	61.8
Dyna-Gro	D49SS70	34	109	28.1	28.7	30.5	62.7
Local Seed Company	LC0488SSXRIB	36	104	28.1	29.0	31.7	64.1
Dekalb	DKC55-37RIB	36	105	28.3	28.2	31.1	62.4
Dekalb	DKC59-07RIB	36	109	28.3	30.4	29.1	60.0
Dekalb	DKC55-53RIB	36	105	28.4	28.4	31.1	62.6
Growmark FS	FS5699X RIB	36	106	28.4	29.2	30.5	63.7
Hubner	H6257RCSS	36	104	28.5	26.6	30.8	64.3
Channel	207-27STXRIB	36	107	28.6	26.2	33.4	59.3
Local Seed Company	LC0657SSXRIB	36	106	28.7	29.7	30.2	63.3
Albert Lea Viking	O.48-08GS	1	108	28.7	26.9	31.8	65.5
Local Seed Company	LC0877VT2PRIB	42	108	28.8	26.8	27.7	62.2
Channel	205-63STXRIB	36	105	28.9	28.3	32.7	65.8
Seedway	SW6540VT2P	42	108	29.1	28.4	30.6	61.4
Albert Lea Viking	O.51-04GS	1	104	30.0	27.3	31.7	61.8
Syngenta NK	NK0472-3110	16	104	32.1	28.3	32.2	63.0
		104-110 day	**RM Mean**	**28.1**	**27.5**	**29.1**	**62.6**
		LSD (0.10)		**1.3**	**2.7**	**3.5**	**NS[2]**
		OverallMean		**28.6**	**27.4**	**30.7**	**61.9**

† Trait codes indicate special traits of each hybrid and are listed in Table 1.

[2] NS = not significant. [3] One plot replicate had a harvest population count < 25,000.

[6] In vitro starch digestibility, 4 hr incubation, 1 mm grind as a % of starch.

Table 6. Results from evaluation of 79-90-day corn grain hybrids in Chazy, NY; summer 2019.

Company/ Brand§	Hybrid*	Trait Code†	Relative Maturity -- Days	Grain yield bu/A	Grain moisture, %	Yield moisture ratio	Plant per plot, No.
Axis	37K28	41	87	198	24.0	8.6	60
Channel	181-11VT2PRIB	41	81	186	24.9	7.5	64
Wolf River Valley	2080	16	80	198	25.3	7.9	58
Pioneer	P8234AM	3	82	138	25.3	5.5	57
Wolf River Valley	Ex-82	41	82	172	25.5	6.8	57
Channel	179-12VT2PRIB	41	79	172	25.7	6.7	59
Viking	0.58-85N	1	85	241	26.3	9.2	47
Pioneer	P82352AMXT	9	83	186	26.4	7.1	57
Channel	182-09VT2PRIB	41	82	195	26.7	7.3	58
Nutrien Ag Solution	D27VC87	41	87	217	26.8	8.1	56
Viking	81-82N	1	82	204	26.8	7.7	46
Seedway	SW 2840GENVT2P (RIB)	42	87	178	27.1	6.6	60
Axis	30B10	2	80	186	27.3	6.9	59
King AgriSeeds	KF 34C30	1	84	260	27.3	9.5	52
Wolf River Valley	2882	2	82	188	28.1	6.7	55
Channel	185-30VT2PRIB	41	85	215	28.4	7.6	60
Partners Brand Seed	PB 5630	16	86	183	28.7	6.4	51
Nutrien Ag Solution	D28SS36	34	88	149	29.4	5.1	56
Axis	41A02	1	90	172	30.2	5.7	63
Viking	68-86Art	Artesian[1]	86	211	30.7	6.9	59
Seedway	SW 2369 3000GT	2	84	170	30.8	5.5	58
Partners Brand Seed	PB 5458	2	84	203	31.0	6.6	56
Channel	186-02STXPRIB	41	86	152	31.5	4.9	57
Viking	0.71-90	1	90	209	31.7	6.7	53
Chemgro Seeds	5295RDP	41	84	195	32.2	6.0	62
Nutrien Ag Solution	D25VC45	41	85	169	32.4	5.2	61
Seedway	SW 1994GT	2	80	153	34.2	4.6	55
Chemgro Seeds	4341GT	2	81	163	34.9	4.7	53
Axis	36H55	36	86	158	35.8	4.5	64
Seedway	SW 3110GENVT2P (RIB)	42	89	151	36.5	4.1	64
Chemgro Seeds	5385V4Z	21	85	179	36.6	4.9	60
Axis	42M03	1	90	146	37.4	3.9	63
Chemgro Seeds	4775RDP	41	83	174	38.4	4.5	63
MEAN				184	29.8	6.4	58
S.D.				26	2.0	1.7	7
C.V.				14.1	6.7		
LSD(.05)				42	3.3		

§ Hybrids are listed in order of grain moisture at harvest, from earliest (driest grain) to latest (wettest grain).

* Three hybrids had low plant count in all replications and valid data could not be collected for these hybrids.

† Trait codes indicate special traits of each hybrid and are listed in Table 1.

[1] Artesian is a non-genetically engineered drought tolerance trait.