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NEW YORK and VERMONT CORN SILAGE HYBRID EVALUATION PROGRAM

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NEW YORK and VERMONT CORN SILAGE HYBRID EVALUATION PROGRAM – 2020

Hybrid evaluation at multiple environments helps in decision making and expands the reach of this type of data to more farmers. Cornell, UVM, and seed companies collaborate to provide this robust evaluation. Hybrids were either entered into the 80-95 day relative maturity (**RM**) group (Early-Mid) and were tested at two locations in NY (n = 38; VanLieshout Farm in Albion and the Willsboro Research Farm in Willsboro) and one location in VT (n = 38; Borderview Farm in Alburgh) or were entered into the 96-110 day relative maturity group (Mid-Late) and were tested at two locations in NY (n = 52; Greenwood Farms in Madrid and the Musgrave Research Farm in Aurora) and one location in VT (n = 52; Borderview Farm in Alburgh). Weather data, growing degree days (**GDD**; 86-50°F system) and precipitation, both for the current year and long-term averages, can be found in Tables 1a and 1b for trial locations.

The NY and VT corn silage evaluation program is made possible with support from dairy producers, participating seed companies, Cornell University, the University of Vermont, the New York Corn Growers Corn Research and Education Program, and the Cornell University Agricultural Experiment Station. Seed companies were invited to submit hybrids into either maturity group (three locations per maturity group) for a fee.

MATERIALS AND METHODS

In 2020, the corn silage hybrid evaluation program received 90 entries from 16 seed brands. All hybrids were planted using a two-row planter at 34,000 plants/acre. Each plot consisted of four 20' rows spaced 30 inches apart with harvest of the inner two rows. The following information is shown in Table 2. The early-mid hybrids were planted in Albion, NY on May 20th, in Alburgh, VT on May 13th, and in Willsboro on May 21st. The mid-late hybrids were planted in Madrid, NY on May 5th, in Alburgh, VT on May 14th, and in Aurora, NY on May 13th. Hybrids were planted in a randomized complete block design with 3 replications. The Albion, NY site has a Hilton soil type and was previously sod. In addition to N credits from the sod, manure was applied in the fall of 2019 and contributed 46 units of N to the 2020 crop and 32 units N/acre was applied as starter at planting. The Willsboro, NY site has a Kingsbury soil type, was previously sod, and received 15 units N/acre at planting. The Alburgh, VT location has an Amenia soil type. The early season corn at Alburgh, VT was previously planted with corn, had 34 units of N credited from a spring 2020 manure application, received 57 units N/acre at planting and 92 units N/acre applied as sidedress. The late season corn at Alburgh, VT was previously planted with hemp grain, had 34 units of N credited from a spring 2020 manure application, received 57 units N/acre at planting and 92 units N/acre applied as sidedress. The Aurora, NY site has a Lima soil type, was fallow in 2019, received 25 units N/acre at planting and an additional 117 units N/acre were applied as sidedress. The Madrid, NY location has a Hogansburg loam soil type, was previously planted in corn, received 120 units of manure N/acre prior to planting and an additional 32 units N/acre at planting. The Madrid site did not receive sidedress N.

The early-mid hybrids were harvested on Sept. 1st in Willsboro, Sept. 4th in Albion, and Sept. 9th in Alburgh. The mid-late hybrids were harvested on Aug. 31st in Aurora, Sept. 15th in Madrid, and Sept. 21st in Alburgh. From planting to harvest, the early-mid hybrids had 2073 GDD in Willsboro, 2163 GDD in Albion, and 2099 GDD in Alburgh (86-50°F system). From planting to harvest, the mid-late hybrids had 2144 GDD in Aurora, 2231 GDD in Madrid, and 2198 GDD in Alburgh (86-50°F system).

The goal was to harvest all hybrids at about 65% ($\pm 3\%$) moisture. The maturity groups were monitored and harvest decisions were made by measuring whole plant dry matter (**DM**) tested on fill

plots prior to harvest. Plots were harvested with a two-row, Kemper rotary head and Wintersteiger Weighmaster system with sample mixing capabilities at a target cutting height of 8 to 10 inches at the Albion, Aurora, and Madrid locations. Plots were harvested with a John Deere 3975 pull-type forage harvester equipped with a custom built 20A Plot Harvester Sampler (RCI Engineering, Mayville, WI) and weighed on platform scales at the Willsboro location with plot weights determined from the RCI software computer interface on-board the tractor at a target cutting height of 8 to 10 inches. In Vermont, plots were harvested with a John Deere 2-row chopper into a wagon equipped with an Avery Weigh-Tronix weighing system at a target cutting height of 8 to 10 inches.

An approximate 500 g sample was taken per plot replicate, resulting in 9 samples per entry across the three sites. Samples were sealed in gallon-sized freezer bags and placed in a chest freezer with the addition of ice packs for transportation back to Cornell University or the University of Vermont, where they were transferred to a -20°C freezer and/or shipped for immediate analysis. Samples were submitted to Cumberland Valley Analytical Services (Waynesboro, PA) where Near Infrared Reflectance (NIR) procedures were used to determine crude protein (**CP**), starch, lignin, ash, total fatty acids (**TFA**), ash corrected neutral detergent fiber (**aNDFom**), and neutral detergent fiber digestibility (**NDFD**; 30, 120, 240 h). Several companies paid an additional fee for wet chemistry analysis on NDFD at 30 h, in vitro starch digestibility (4 hr incubation, 1 mm grind), or both.

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 near-infrared spectroscopy (NIR) 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. For practical purposes, since the samples had not undergone fermentation, a feed library value was assigned to soluble protein, ammonia, volatile fatty acids, and 7-hr starch digestibility values. A base diet which fed a corn silage that represented the average feed chemistry of all hybrids was formulated by Dr. Tom Overton, Dr. Mike Van Amburgh, and Andrew LaPierre. Initially, each individual hybrid replicate replaced the base corn silage in the diet at the same DM amount. Subsequently, DMI of the entire diet was adjusted based on the first limiting rumen fill factor (either the rumen aNDFom pool size or the rumen uNDFom pool size) and the predicted milk production was recorded. This novel approach to hybrid evaluation allows us to account for differences in DMI potential of the total diet based upon hybrid selection and is a more biologically robust representation compared to evaluating hybrids on a constant DMI basis. The predictions made by the CNCPS v.7.0 were used to evaluate differences in intake potential and subsequent predicted allowable milk yield based upon the nutrient and digestibility characteristics of each hybrid.

The GLM procedure was used for analyzing data using SAS software (v. 9.4, SAS Institute, Cary, NC). The least significant difference (**LSD**) values reported for separating hybrid means for each location were generated at the $P = 0.10$ level. For interpretation purposes, if the difference between two hybrids is greater than the reported LSD, there is a 90% probability that this is not due to random variation and there is a true varietal difference between the hybrids.

RESULTS AND DISCUSSION

The growing season across much of the Northeast started out with below average temperatures. Despite the cool start, relatively dry conditions coupled with warmer temperatures as the

month of May progressed provided generally good conditions for corn planting with all trial locations planted between May 5th and May 21st. As the season progressed, all locations experienced below average precipitation and above average heat accumulation (measured as GDDs; Tables 1a and 1b). Several locations were designated as abnormally dry to moderate drought throughout June and July; however, in most cases, the crop proved quite resilient and rainfall in mid-July was critical to successful pollination (Figure 1). It is worth noting that at several locations, seasonal rainfall totals were inflated by extreme rain events that generally pose notable risk (in terms of the potential for strong winds, runoff and other potential crop damage) but have limited benefit to the crop.

Plot to plot variation within a location was notable this year leading to higher than usual least significant difference (LSD) values. This indicates that while there were examples of notable numerical differences between hybrids for many metrics (Crop Yield, Predicted Milk Yield, etc.), often these differences were not statistically significant. When the reported values for two hybrids are within the LSD, this indicates that these differences cannot be attributed to hybrid alone and other factors may have contributed to the differences, such as environmental factors. The LSD values are reported in Tables 3 and 4 as well as Figures 5 and 6 to aid in proper data interpretation.

Growing Conditions

Albion

This was the only location where May through August rainfall totals were slightly above average (Table 1a), though it is worth noting that the approximately 6 week period from early June to mid-July was quite dry and a significant rain event at the end of July contributed significantly to seasonal totals (Figure 1e). The U.S. Drought Monitor designated this location as Abnormally Dry (D0) for six consecutive weeks from the week of July 7th to the week of August 11th.

Growing degree-day accumulation was slightly below average in May but above average for June, July, August and for the season overall (Table 1a).

Willsboro

Precipitation was well below average for the season, particularly in June and July (Table 1a). The actual moisture available to the crop was likely even less than seasonal totals suggest as a significant rain event in early August skews the total (Figure 1d). The U.S. Drought Monitor designated this location as Abnormally Dry (D0) from the week of June 9th through harvest.

Growing degree-day accumulation was above average throughout the season (Table 1a). As with all locations, GDD accumulation from tasseling along with measurements of whole plant DM were used to help determine harvest timing. On average, whole plant DM at harvest was the lowest of all locations at this site as the samples used to assess whole plant DM proved to not be representative of the entire plot. It is worth noting this in contrast to the early season trial at Alburgh, VT. The Alburgh location accumulated a mere 26 GDD more than this location, from planting to harvest, yet averaged 2 percentage units drier at harvest. This provides another example of the interaction between GDD and overall growing conditions in the plant maturation process as drought stress conditions likely delayed the ear fill and maturation process at this location.

Alburgh

The season started cool and dry. This allowed for early planting but delayed emergence, which had a negative impact on final stand counts for some plots.

Precipitation was below average for the season and in every month, except for August (Table 1a); however, in contrast to Willsboro the site received additional rain events in July that appeared meaningful in supporting the crop at critical growth stages (Figure 1a).

The U.S. Drought Monitor designated this location as Abnormally Dry (D0) from the week of June 2nd through harvest.

Growing degree-day accumulation was above average for each month from May to August and for the season (Table 1a).

As all hybrids in the 80-95 and 96-110 day relative maturity range were planted at this location, harvest was split to target 35% DM at harvest for each RM group, with the first harvest taking place on September 9th and the second harvest taking place on September 21st (Table 2).

Aurora

For the months of May through August, Aurora received 96% of average rainfall and spent the least number of weeks with a drought designation. The U.S. Drought Monitor designated this location as Abnormally Dry (D0) for three consecutive weeks from the week of June 23rd to the week of July 7th. June was the driest month; however, timely and meaningful rain events were recorded from mid-July to mid-August (Figure 1b).

Growing degree-day accumulation was above average in June, July, and August and for the season (Table 1b).

This location experienced poor crop emergence compromising plant populations in many plots. No one factor was determined to have caused the lower than expected emergence nor were any trends among hybrids observed.

Madrid

This location experienced the most significant rainfall deficits, recording only 61.5% of average rainfall for the months of May through August (Table 1b). The U.S. Drought Monitor designated this location as Abnormally Dry (D0) starting the week of May 19th, moved it to D1 (Moderate Drought) the week of June 23rd and to a D2 (Severe Drought) the week of July 7th. The location remained as a D2 designation through the week of August 4th after which it moved back to a D1 designation through harvest.

Growing degree-day accumulation was above average for the months of June, July and August and for the season (Table 1b). It is worth noting that of the three locations hosting 96-110 day RM entries Madrid accumulated the greatest number of GDDs from planting to harvest (2231) but had the lowest average DM (34.1%) at harvest. This most likely reflects the rainfall patterns the location experienced and aligns with previous observations where plants that experience drought stress prior to pollination and then receive meaningful rainfall after pollination have a delayed maturation process as they work to compensate for early season delays induced by dry conditions.

Despite the weather challenges, the corn crop performed well overall and plant health was generally good.

The location also experienced wildlife damage late in the season which led to the destruction of approximately 10 individual plots and three entire entries (Brevant B97F86AMXT, Albert Lea-Viking O.69-01, and Local Seed Company ZS9796 3220EZ).

Forage Quality and Yield

Individual hybrid results are presented in Tables 3 and 4 for each trial location. The tables provide yield and forage quality (CP, aNDFom, starch, lignin, 30 hr NDFD, 240 hr uNDFD, predicted milk yield, etc.) results. Results are sorted by DM and hybrids should only be compared with hybrids that have a DM within ± 3 DM points within a relative maturity group. Caution should be used when interpreting the wet chemistry results. Although an LSD was calculated for these parameters, there were a limited number of hybrids that were analyzed at each location.

Figures 5 and 6 show the crop yield plotted against the predicted milk yield (**PMY**). The axes are presented as a percent (%) of plot mean with 100% representing the plot mean. From these plots, you can derive the percentage above or below the mean that a given hybrid performed. Each scatterplot is split into four quadrants using the plot mean for the respective parameters to divide the quadrants. This graphical representation provides a quick reference of which quadrant each hybrid falls into at each location; 1) above average in crop yield and below average in PMY, 2) above average in both crop yield and PMY, 3) below average in both crop yield and PMY, 4) below average in crop yield and above average in PMY (Figure 4). It is important to view the data in this context, as the performance of a hybrid relative to its peers at the same location is more important than the absolute value for crop yield or PMY. The plot means for crop yield (tons/acre at 35% DM) and PMY (lbs/day) as well as the minimum and maximum values are reported to provide context to the percentages.

When evaluating trial data for corn silage hybrids, two approaches are often used. One method of evaluating hybrids is to study hybrid performance at a location that is most closely related to the growing conditions you experienced on your own farm in 2019. This is a less desirable method of evaluation since conditions at a given location can vary greatly from season to season.

A second, preferable method for picking desirable hybrids is to look for hybrids that perform consistently above average across trial locations, as this may reflect varying growing conditions more so than the first method. The actual yield or quality measurement (absolute value) is less important than how a hybrid performed relative to its peers at the same locations (% of plot mean). Hybrids that consistently performed above average across locations in both crop yield and PMY (Figures 5 and 6) is a strong indicator of performance.

It may not always be desirable to select a hybrid that falls into the second quadrant in Figures 5 and 6 (above average in crop yield and PMY). Instead, selecting a range of hybrids may be beneficial to accommodate feeding a range of cow groups. As an example, with respect to other forages available for the diet, it is often not favorable to feed a highly digestible corn silage to heifers or dry cows as this may cause over conditioning due to the cow consuming too much energy as a result of an increase in DMI. However, the difference in PMY results in different growing environments demonstrates the importance of growing digestible forages as an approach to reduce non-forage feed costs and non-forage feed inclusion rates. Environmental conditions strongly influence the forage quality; however, selecting hybrids that have performed well under varying conditions may improve your chances of having a more digestible forage compared to other hybrids grown under the same conditions. We suggest working with your agronomist and nutritionist to identify hybrids that would succeed for your farm and meet your nutritional needs.

CONCLUSIONS

Growers can use this performance data to better understand how a hybrid performs under a diverse set of environments. From this, you can compare to your own yearly performance to better understand if a hybrid may be a good fit for your farming conditions.

In general, the warm and dry conditions of the 2020 growing season led to slightly lower yields for most locations while higher average values for fiber digestibility and starch content suggest this crop should feed as well or better than any in recent memory (Figure 3).

The results of this study will be published by PRO-DAIRY (<https://prodairy.cals.cornell.edu/>), Cornell Field Crops (www.fieldcrops.org), and the University of Vermont Extension (www.uvm.edu/extension/cropsoil) and disseminated widely across the region using multiple electronic and print publications.

ACKNOWLEDGEMENTS

We thank the seed companies that participated in 2020 for their collaboration. We urge all seed companies to participate in our corn silage testing program in 2021 so we can provide the best information under New York and Vermont growing conditions to our dairy producers.

We thank Greenwood Dairy and Van Lieshout Farms for their ongoing collaboration and support of the program; Paul Stachowski and Jeff Stayton at the Cornell Musgrave Research Farm, Aurora; Mike Davis, Adam Sayward and Delvin Meseck at the Willsboro Research Farm, Allen Wilder at Miner Institute and Roger Rainville at Borderview Farm for their efforts during field operations.

Additional financial support was provided by New York Corn Growers Association and the Cornell University Agricultural Experiment Station.

Table 1: Comparisons of 2020 growing conditions at trial locations in New York and Vermont.

Table 1a: NY & VT Weather Data, 80-95 RM

	Rainfall, inches						Growing Degree Days (GDD), 86/50					
	Alburgh, VT		Albion, NY		Willsboro, NY		Alburgh, VT		Albion, NY		Willsboro, NY	
	2020	Avg.*	2020	Avg.*	2020	Avg.*	2020	Avg.*	2020	Avg.*	2020	Avg.*
May	2.32	3.91	3.01	2.77	2.20	3.52	310	308	289	308	320	309
June	2.00	4.62	1.40	3.26	1.27	4.47	467	468	519	490	504	480
July	4.19	4.37	6.21	4.01	1.41	3.59	694	627	739	652	744	653
August	6.77	4.51	3.39	3.45	6.86	3.62	549	568	610	603	600	598
September	3.08	3.96	2.34	3.12	2.39	2.99	350	382	390	416	373	405
May-August	15.28	17.41	14.01	13.50	11.74	15.19	2018	1971	2157	2052	2168	2039
May-September	18.36	21.37	16.35	16.61	14.13	18.18	2368	2353	2547	2468	2541	2445

*Avg. - Represents averages of years: 2005-2019

Table 1b: NY & VT Weather Data, 96-110 RM

	Rainfall, inches						Growing Degree Days (GDD), 86/50					
	Alburgh, VT		Aurora, NY		Madrid, NY		Alburgh, VT		Aurora, NY		Madrid, NY	
	2020	Avg.*	2020	Avg.*	2020	Avg.*	2020	Avg.*	2020	Avg.*	2020	Avg.*
May	2.32	3.91	4.52	3.19	1.60	3.28	310	308	305	328	290	297
June	2.00	4.62	1.92	3.85	1.12	4.24	467	468	519	493	512	470
July	4.19	4.37	5.53	3.85	1.69	4.36	694	627	727	651	715	618
August	6.77	4.51	2.00	3.63	5.40	4.08	549	568	629	599	568	565
September	3.08	3.96	1.85	3.41	1.89	3.66	350	382	394	412	332	378
May-August	15.28	17.41	13.97	14.51	9.81	15.95	2018	1971	2179	2071	2085	1950
May-September	18.36	21.37	15.82	17.92	11.70	19.61	2368	2353	2573	2483	2417	2328

*Avg. - Represents averages of years: 2005-2020

Table 2: NY & VT Corn Silage Hybrid Evaluation Program, 2020 Field Data.

	80 - 95 Day Relative Maturity			96 - 110 Day Relative Maturity		
	Alburgh, VT	Albion, NY	Willsboro, NY	Alburgh, VT	Aurora, NY	Madrid, NY
Planting Date	13-May	20-May	21-May	14-May	13-May	5-May
Harvest Date	9-Sep	4-Sep	1-Sep	21-Sep	31-Aug	15-Sep
Previous Crop	Corn	Hay Crop	Hay Crop	Hemp (grain)	Idle	Corn
Starter N	57	32	15	57	25	32
Manure N	34	46	0	34	0	120
Sidedress N	92	0	0	92	117	0
Total Fertilizer N	183	78	15	183	142	152
Soil Type	Amenia	Hilton	Kingsbury	Amenia	Lima	Hogansburg

Figure 1. Accumulation of growing degree days (GDD) from planting through harvest and individual rainfall events from May 1st through harvest at Alburgh, VT (1a), Aurora, NY (1b), Madrid, NY (1c), Willsboro, NY (1d), Albion, NY (1e).

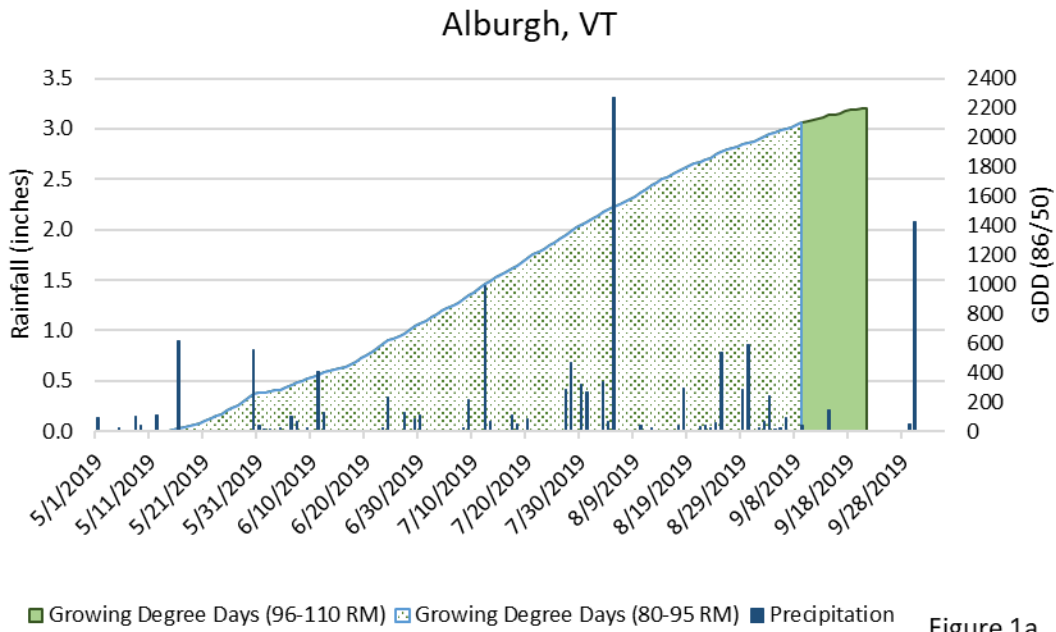


Figure 1a

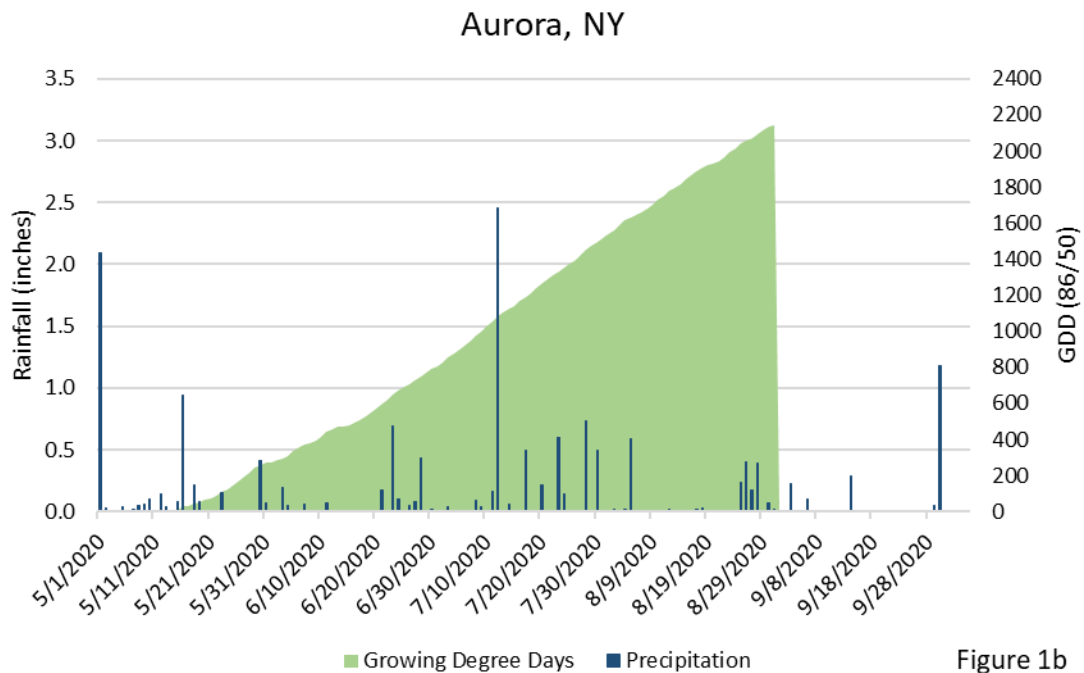


Figure 1b

Figure 1 (cont.)

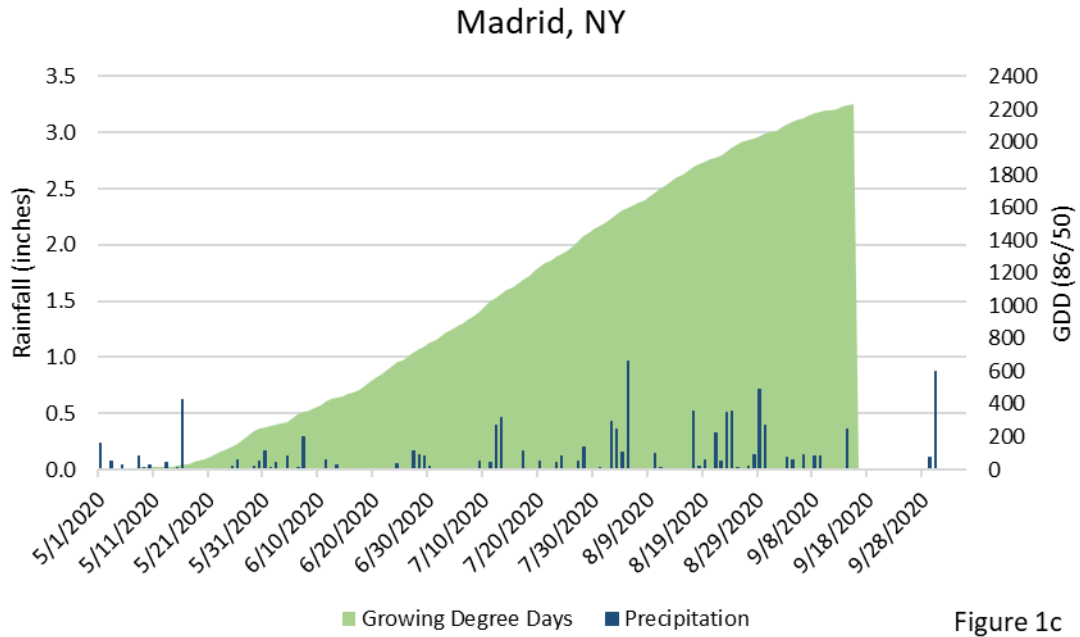


Figure 1c

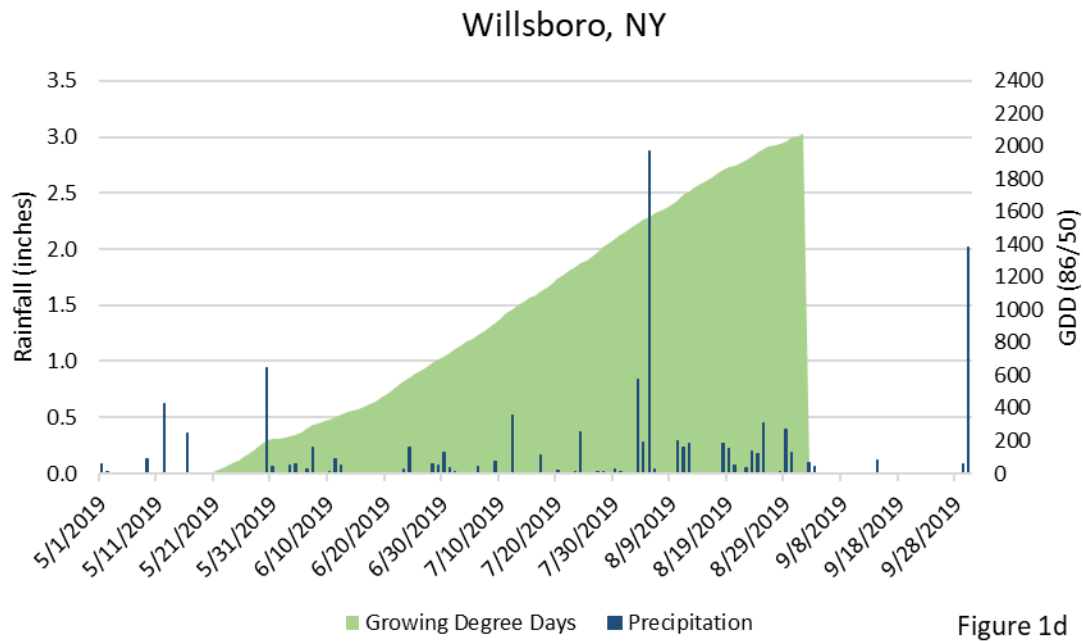


Figure 1d

Figure 1 (cont.)

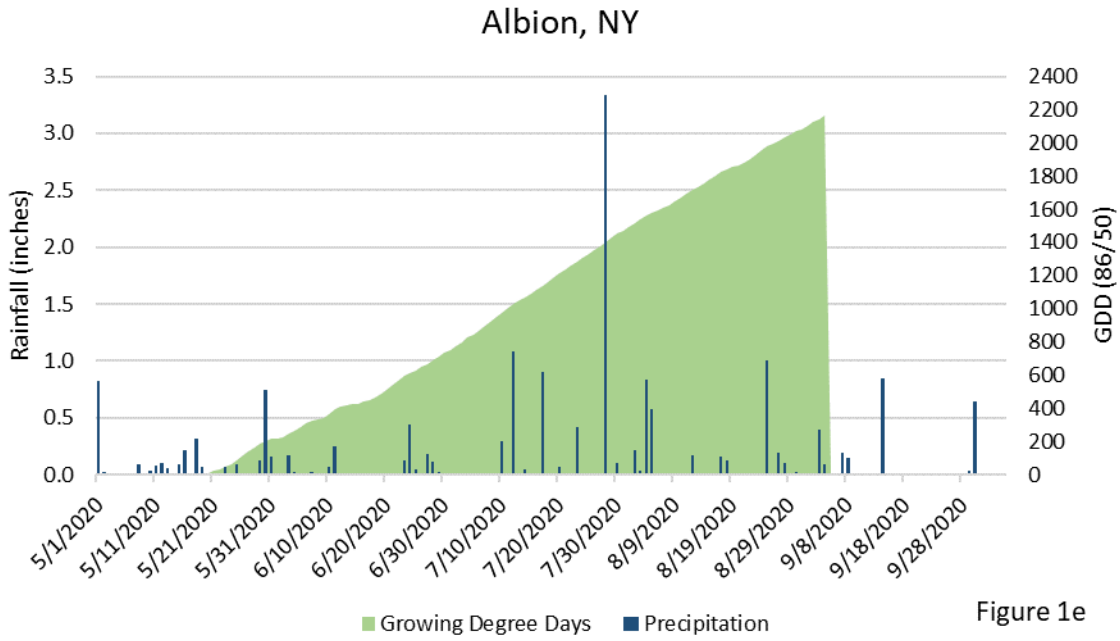


Figure 1e

Figure 2: Summary of precipitation and growing degree day (GDD) data (Figure 2a and 2b, respectively) for 2019 in comparison to 2017 and 2018 growing seasons.

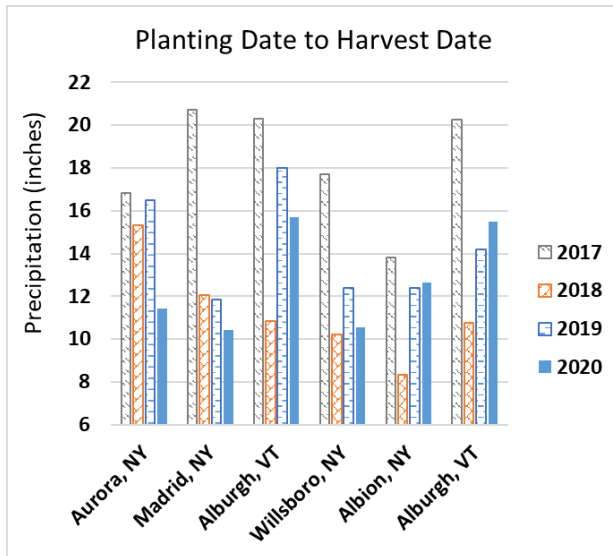


Figure 2a

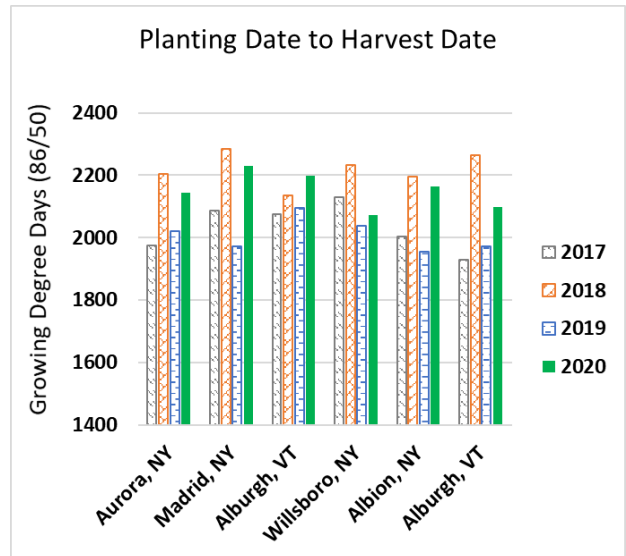


Figure 2b

Figure 3: Comparison of samples results for uNDF240 (Figure 3a) and Starch Content (Figure 3b) combined across locations for the last four growing seasons

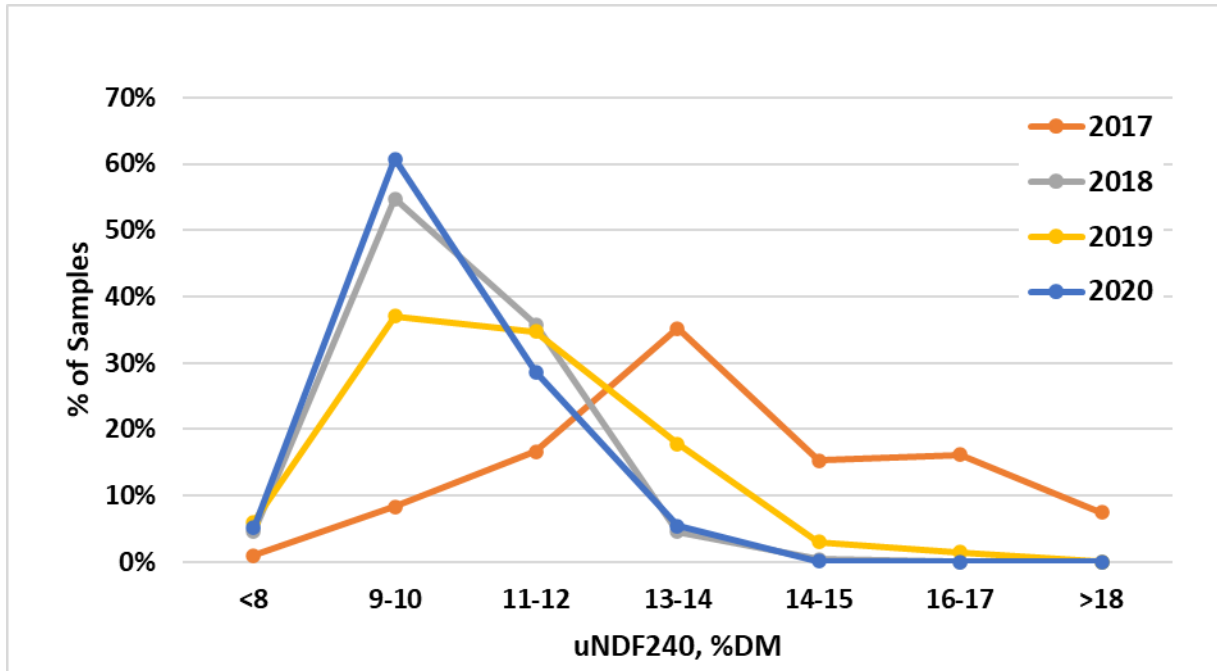


Figure 3a

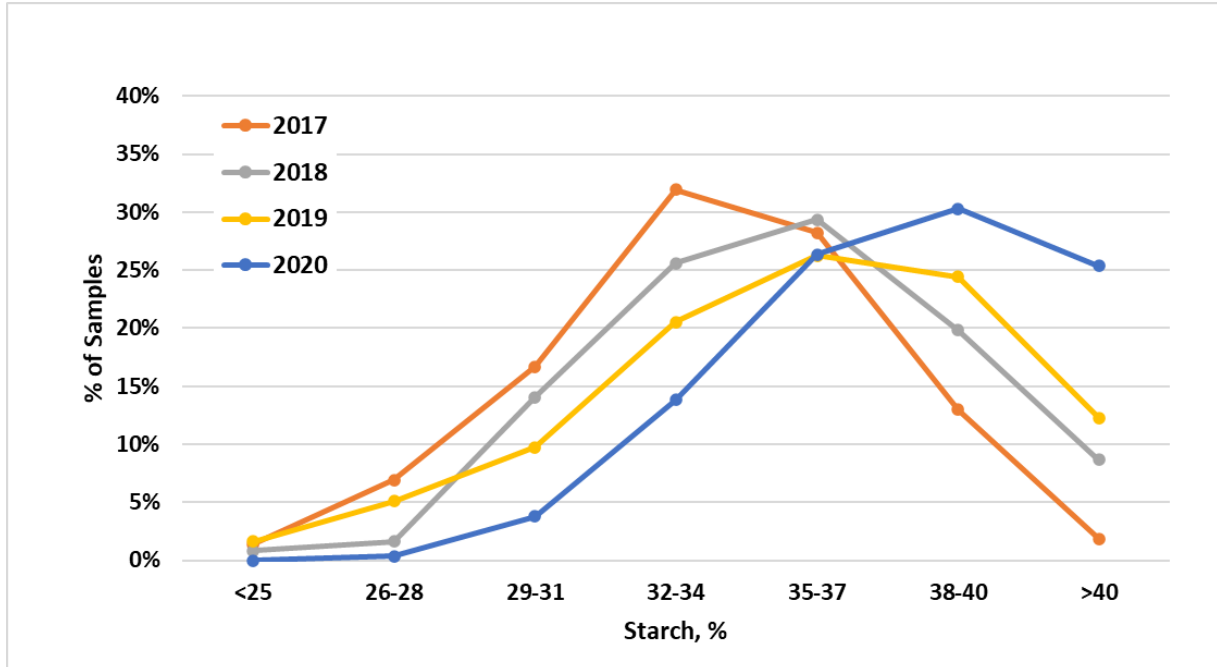


Figure 3b

Table 3:

Hybrid field and forage quality data for 80-95 day relative maturity (RM) hybrids planted at Albion, NY (3a), Willsboro, NY (3b) and Alburgh, VT (3c). Hybrids are sorted by dry matter content at harvest.

Table 4.

Hybrid field and forage quality data for 96-110 day relative maturity (RM) hybrids planted at Alburgh, VT (4a), Madrid, NY (4b), Aurora, NY (4c). Hybrids are sorted by dry matter content at harvest.

Tables 3 & 4: Least Significant Difference

Least significant difference (LSD) is used to indicate if the statistical difference between two values is meaningful at a certain confidence level. An LSD of 0.10 indicates a confidence level of 90%. The LSD value is presented at the base of the column for each hybrid parameter reported.

Footnotes for Tables 3 and 4.

* All nutrient parameters analyzed by NIR methods, except where indicated. Select companies opted to receive wet chemistry information for an additional fee.

** Tables are sorted by descending dry matter for comparison purposes

*** NDF = neutral detergent fiber, aNDFom = ash corrected neutral detergent fiber, NDFD = neutral detergent fiber digestibility, uNDF = undigested neutral detergent fiber

¹ IVSD = In vitro starch digestibility (1 mm grind, 4 hr incubation). Index useful for ranking silage samples. Feedstuffs 17, 19.

² RFC-Fill Ratio = Rumen Fermentable Carbohydrate - Fill Ratio, defined as $((\text{NDFd30} + \text{starch})/\text{uNDF30})$. Jones, L.R., and J. Siciliano-Jones. 2015. Index useful for ranking silage samples. Feedstuffs 17, 19.

³ OMDI = Organic Matter Digestibility Index (%) and is defined as $\{[(\text{crude protein} - \text{NDFCP}) \times 0.89] + (\text{total fatty acids} \times 0.75) + (\text{starch} \times \text{IVSD} \div 100) + [(\text{aNDFom} - \text{lignin}) \times \text{NDFD30} \div 100]\} \div [(\text{crude protein} - \text{NDFCP}) + \text{total fatty acids} + \text{starch} + (\text{aNDFom} - \text{lignin})] \times 100$. Hristov and Canale, 2020. Personal Communication.

⁴ NS = Not Significant

⁵ One plot replicate had a harvest population count < 25,000. For the Aurora location, one plot replicate had a harvest population count < 24,000

⁶ Yield and harvest population data removed due to 2 plot replicates having a harvest population count < 24,000

⁷ Missing data due to wildlife damage

† See Table 6: Trait Key

Table 3a: Hybrid traits and performance for 80 – 95 day RM groups at Albion, NY.

Company/Brand	Hybrid	Trait Code †	Relative Maturity	Harvest Population	Dry Matter	Yield, 35% DM	Starch	IVSD ¹	Crude Protein	Lignin	Ash	Total Fatty Acids	aNDFom	Wet Chem aNDFom	Wet Chem 30 hr NDFD	30 hr NDFD	120 hr NDFD	240 hr NDFD	240 hr uNDFom	RFC - Fill Ratio ²	CNCPS v. 7.0 Predicted Allowable Milk Yield	CNCPS v. 7.0 Predicted Dry Matter Intake	OMD ³
				plants/ac	%	tons/ac	% DM	% Starch	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM	lbs/day
King's AgriSeeds-KingFisher	KF 34C30	1	84	28822	34.8	16.3	40.8		8.5	2.5	3.4	2.8	30.9			58.9	66.2	69.2	9.6	4.6	102.4	58.5	
Blue River Organic Seed	22K32	1	86	31336	34.9	18.7	42.3		7.9	2.4	2.9	2.8	31.8			59.1	67.6	70.5	9.5	4.6	107.1	60.6	
Schlessman	SX088	2	88	30833	35.3	18.8	40.2	64.7	7.8	2.5	3.4	2.7	34.8	33.1	59.7	61.9	70.4	73.3	9.3	4.5	106.3	61.3	56.8
Seedway	SW 3110	36	90	30833	35.8	19.9	40.5		7.9	2.5	3.1	2.8	33.4			60.2	68.2	71.3	9.7	4.4	104.0	59.5	
Albert Lea - Viking	O.31-91	1	91	30833	36.1	19.7	41.7		7.5	2.2	3.0	2.6	33.3			62.1	71.3	74.4	8.6	4.8	111.2	62.4	
Seed Consultants	SCS 301Q	52	90	31838	36.3	17.0	39.0		8.5	2.6	3.4	2.4	33.7	33.6	56.4	60.4	68.9	71.8	9.5	4.3	103.7	60.2	
Growmark FS	FS 4095X RIB	36	90	32844	36.8	21.4	41.6		7.6	2.4	3.1	2.6	32.5			60.4	70.4	73.5	8.7	4.6	107.8	61.5	
Blue River Organic Seed	26B78	1	88	31503	36.9	19.7	41.0		7.7	2.5	3.3	2.7	31.7			59.9	67.9	70.8	9.3	4.4	109.5	62.2	
Local Seed Company	LC9108 VT2PRIB	41	91	30498	37.1	20.8	43.4		7.7	2.4	2.9	2.5	31.6			58.7	66.8	69.6	9.7	4.6	106.3	60.1	
Brevant Seed	B90R92Q (Qrome)	33	90	32509	37.1	19.2	44.0		7.8	2.3	2.9	2.5	30.6	30.0	58.2	61.0	69.8	73.0	8.3	5.0	114.1	63.3	
Dekalb	DKC36-30RIB	42	86	32676	37.6	17.2	40.9		8.3	2.6	3.2	2.8	32.9			58.0	67.6	70.5	9.8	4.2	101.9	59.2	
Local Seed Company	LC8607 5222EZ	22	86	33347	37.6	17.7	40.6		8.9	2.4	2.8	3.0	32.6			61.2	69.3	72.2	9.1	4.7	110.0	61.4	
Hubner Seed	H6053RCSS	34	87	33011	37.6	16.7	41.9		8.4	2.5	3.0	2.8	32.2			59.4	68.0	71.0	9.5	4.6	105.8	60.5	
Masters Choice	MCT3890	1	88	29828	38.4	17.6	39.4	61.5	8.6	2.5	3.1	2.6	33.8	32.4	60.6	61.4	69.2	72.0	9.5	4.5	108.3	61.6	55.8
Seed Consultants	SCS 851AM	52	85	32844	38.7	18.1	34.5		8.9	2.8	3.3	2.2	36.1	35.8	54.3	59.5	66.1	69.0	11.2	3.7	86.4	52.8	
Hubner Seed	H4062RC2P	41	86	31168	38.9	18.1	43.8		8.5	2.5	3.3	2.9	30.3			59.0	67.3	70.1	9.1	4.8	106.3	60.9	
Channel	189-39VT2PRIB	42	89	32341	39.1	20.9	43.3		7.7	2.5	2.9	2.5	32.9			59.3	68.5	71.4	9.4	4.6	106.2	60.2	
Syngenta NK	NK8618-3120	18	86	31671	39.6	19.1	43.6		8.1	2.2	2.7	2.8	32.3			62.8	73.0	76.1	7.8	5.2	115.4	63.7	
Masters Choice	MCT3393	14	83	32341	39.7	18.1	42.3	63.7	8.2	2.3	3.0	2.8	32.1	32.7	62.4	61.8	69.8	72.8	8.8	4.9	112.9	63.3	58.4
		80-91 day RM Mean		31636	37.3	18.7	41.3	63.3	8.1	2.4	3.1	2.7	32.6	32.9	58.6	60.3	68.7	71.7	9.3	4.6	106.6	60.7	57.0
Local Seed Company	ZS9598 5222EZ	22	95	32341	33.6	21.6	40.7		8.5	2.4	3.0	2.8	32.0			60.1	69.9	72.8	8.8	4.6	108.2	61.1	
Channel	195-85DGV2PRIB	42	95	34352	34.1	21.6	41.2		7.2	2.5	3.2	2.5	33.6			59.9	68.5	71.5	9.6	4.5	101.0	58.3	
Albert Lea - Viking	42-92	1	92	29157	34.3	19.5	38.8		7.8	2.5	3.1	2.6	34.9			60.8	68.6	71.5	10.0	4.1	103.0	59.4	
Dekalb	DKC44-80RIB	42	94	29828	34.7	19.9	41.2		7.4	2.4	3.1	2.4	34.2			61.4	71.6	74.6	8.7	4.6	107.9	61.5	
King's AgriSeeds-KingFisher	KF 45C30	1	95	28822	35.0	17.0	42.3		7.7	2.2	3.0	2.6	31.9			60.9	71.1	74.3	8.3	4.8	110.1	62.3	
Seed Consultants	SCS 951Q	33	95	31336	35.0	13.1	41.6		7.7	2.3	2.9	2.5	32.5	32.3	59.1	62.6	70.9	73.9	8.6	4.9	113.2	63.2	
Brevant Seed	B95V86AM	5	95	33682	35.1	20.6	41.5		7.3	2.6	3.3	2.5	33.5	33.5	55.5	58.9	67.6	70.5	9.9	4.3	99.1	58.0	
Seedway	SW 3768	36	95	32006	35.7	19.5	41.1		8.0	2.4	3.1	2.6	32.4			60.3	68.0	70.9	9.5	4.6	110.6	62.2	
Dekalb	DKC42-04RIB	36	92	32844	35.9	22.2	42.7		7.6	2.5	3.2	2.5	33.0			60.2	68.7	71.6	9.4	4.6	107.6	60.8	
Masters Choice	MC4570	1	95	32006	35.9	18.6	41.7	62.8	8.5	2.4	3.1	2.8	31.2	30.6	59.7	59.7	67.1	69.9	9.4	4.7	107.3	60.8	56.0
Syngenta	NK9535-3220	20	95	33179	35.9	20.7	43.0		7.8	2.4	3.1	2.8	31.1			59.1	68.5	71.5	8.9	4.7	106.0	60.2	
Dekalb	DKC45-07RIB	36	95	33347	36.0	19.7	43.0		8.1	2.3	3.1	2.7	32.0			60.1	69.9	72.9	8.8	4.8	109.9	61.6	
Growmark FS	FS 4303X RIB	36	92	33347	36.1	20.8	43.1		8.2	2.4	3.0	2.9	31.8			60.9	70.4	73.4	8.5	4.9	110.5	62.3	
Channel	192-10STXRIB	36	92	32676	36.2	21.3	40.8		7.9	2.7	3.2	2.7	34.2			58.4	67.0	69.8	10.4	4.2	97.8	57.3	
Seedway	SW 3770	16	95	33179	36.3	20.8	42.8		7.7	2.5	2.9	2.8	31.4			57.5	65.8	68.5	9.9	4.4	101.1	58.2	
Blue River Organic Seed	33A16	1	92	31503	36.5	21.0	44.0		7.6	2.3	3.2	2.8	31.5			60.3	70.1	73.2	8.5	4.9	109.3	61.9	
Dekalb	DKC43-75RIB	42	93	34184	37.2	23.9	44.6		7.7	2.3	2.8	2.9	30.8			59.8	70.4	73.3	8.3	5.0	110.2	62.1	
Seed Consultants	SCS 931AM	52	93	30498	38.2	18.5	43.9		8.0	2.4	3.2	2.6	31.3	31.4	57.3	60.0	68.7	71.7	8.9	4.9	108.2	61.6	
Pioneer	P9233Q	33	92	30665	39.4	16.7	42.1		8.1	2.3	3.0	2.6	31.8			60.5	70.4	73.4	8.5	4.8	110.0	62.0	
		92-95 day RM Mean		32050	35.9	19.8	42.1	62.8	7.8	2.4	3.1	2.7	32.4	32.0	57.9	60.1	69.1	72.1	9.1	4.6	106.9	60.8	56.0
		LSD (0.10)		2737	1.7	NS⁴	2.8	NS	0.4	0.2	0.3	0.2	2.3	2.7	2.2	2.0	2.8	2.9	1.2	0.5	8.7	3.4	NS
		Overall Mean		31843	36.6	19.3	41.7	63.2	8.0	2.4	3.1	2.7	32.5	32.5	58.3	60.2	68.9	71.9	9.2	4.6	106.7	60.7	56.8

Table 3b: Hybrid traits and performance for 80 – 95 day RM groups at Willsboro, NY.

Company/Brand	Hybrid	Trait Code †	Relative Maturity	Harvest Population	Dry Matter	Yield, 35% DM	Starch	IVSD ¹	Crude Protein	Lignin	Ash	Total Fatty Acids	aNDFom	Wet Chem aNDFom	Wet Chem 30 hr NDFD	30 hr NDFD	120 hr NDFD	240 hr NDFD	240 hr uNDFom	RFC - Fill Ratio ²	CNCPS v. 7.0 Predicted Allowable Milk Yield	CNCPS v. 7.0 Predicted Dry Matter Intake	OMD ³
				plants/ac	%	tons/ac	% DM	% Starch	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% NDFom	% NDFom	% NDFom	% DM	lbs/day	lbs/day	%	
Blue River Organic Seed	22K32	1	86	29330	27.9	15.2	33.6		8.0	2.7	4.3	2.3	35.7			62.2	74.8	78.1	7.8	3.9	106.1	62.2	
Seedway	SW 3110	36	90	31944	29.5	14.6	29.9		7.0	3.1	4.3	2.1	41.6			61.1	72.3	75.5	10.3	3.3	92.0	57.0	
Blue River Organic Seed	26B78	1	88	32380	30.1	15.9	35.0		6.7	2.9	4.1	2.3	37.8			59.4	71.1	74.0	9.8	3.7	96.7	58.2	
Growmark FS	FS 4095X RIB	36	90	32380	30.3	15.6	33.4		7.3	3.0	4.1	2.1	38.5			60.0	71.0	74.0	10.1	3.6	96.7	58.2	
King's AgriSeeds-KingFisher	KF 34C30	1	84	27443	30.4	15.2	36.9		7.1	2.9	4.1	2.4	35.7			59.0	71.0	74.1	9.3	3.8	99.3	59.1	
Channel	189-39VT2PRIB	42	89	32380	30.5	15.9	33.2		7.3	2.9	4.3	2.0	38.9			61.5	73.3	76.5	9.2	3.7	99.3	59.5	
Brevant Seed	B90R92Q (Qrome)	33	90	32380	30.6	15.1	36.5		8.1	2.8	3.9	2.2	35.1	35.3	60.9	59.3	72.1	75.1	8.8	3.9	102.0	59.9	
Schlesman	SX088	2	88	33251	30.9	17.9	35.1	65.1	7.1	2.8	4.1	2.2	37.6	37.6	63.2	61.5	73.5	76.6	8.8	3.9	102.0	60.3	58.0
Seed Consultants	SCS 901Q	52	90	34267	31.0	17.3	35.7		7.4	2.9	3.9	2.2	37.3	36.2	56.8	59.9	71.3	74.4	9.6	3.8	98.6	58.7	
Albert Lea - Viking	O.31-91 ⁵	1	91	28604	31.1	16.6	33.8		6.8	2.8	3.8	2.1	39.7			62.7	74.2	77.3	9.0	3.8	101.0	59.9	
Syngenta NK	NK8618-3120	18	86	33541	31.3	16.8	35.8		7.5	2.8	4.0	2.4	37.7			60.8	72.1	75.1	9.4	3.9	100.5	59.5	
Local Seed Company	LC9108 VT2PRIB	41	91	32089	31.4	16.3	35.8		7.4	2.9	4.0	2.1	37.7			59.9	70.2	73.2	10.2	3.7	94.2	56.9	
Local Seed Company	LC8607 5222EZ	22	86	31363	31.9	17.6	33.9		7.8	2.9	3.5	2.3	37.9			60.7	70.8	73.9	9.9	3.7	99.2	59.0	
Dekalb	DKC36-30RIB	42	86	30637	32.4	16.1	35.1		7.6	2.9	3.9	2.3	37.7			59.6	69.8	72.8	10.3	3.7	96.2	57.7	
Hubner Seed	H4062RC2P	41	86	33686	32.5	16.6	36.3		7.1	3.0	4.0	2.3	38.4			59.3	71.2	74.3	9.9	3.7	96.5	58.0	
Hubner Seed	H6053RCSS	34	87	32815	33.0	16.6	36.9		7.7	2.9	3.7	2.4	37.2			60.1	69.8	72.7	10.2	3.9	98.7	58.8	
Masters Choice	MCT3890	1	88	31944	33.1	15.9	39.2	61.4	7.3	2.6	3.5	2.4	36.3	35.7	59.5	60.6	71.0	73.9	9.5	4.2	102.3	59.9	55.8
Seed Consultants	SCS 851AM	52	85	32380	33.2	15.7	37.4		7.6	2.8	4.2	2.5	35.7	34.9	57.7	58.3	69.9	72.8	9.7	3.8	97.5	58.3	
Masters Choice	MCT3393	14	83	33686	33.2	16.6	38.8	63.4	7.3	2.6	3.4	2.5	36.5	36.8	62.0	61.5	71.8	74.9	9.2	4.2	104.0	60.5	57.9
			80-91 day RM Mean	31921	31.3	16.2	35.4	63.3	7.4	2.9	4.0	2.3	37.5	36.1	60.0	60.4	71.6	74.7	9.5	3.8	99.1	59.0	57.2
Local Seed Company	ZS9598 5222EZ	22	95	28604	27.9	16.9	30.4		7.8	3.0	3.6	2.2	39.7			60.5	70.1	73.2	10.7	3.4	93.3	57.4	
Channel	195-85DGV2PRIB	42	95	33686	27.9	18.5	32.7		7.2	3.0	4.2	2.1	39.9			59.9	71.8	74.8	10.1	3.5	93.8	57.3	
Seed Consultants	SCS 951Q	33	95	30637	28.8	17.5	35.6		7.5	2.7	4.2	2.2	36.6	36.3	61.3	62.4	75.6	78.8	7.8	4.0	106.6	62.0	
Dekalb	DKC44-80RIB	42	94	32089	29.0	18.3	33.4		7.2	2.9	4.4	2.1	37.8			61.0	73.6	76.6	8.9	3.7	100.2	60.0	
Masters Choice	MC4570	1	95	31799	29.0	16.3	34.2	65.7	7.6	3.0	4.0	2.3	37.7	37.0	58.9	58.3	69.2	72.1	10.6	3.5	87.2	54.2	56.1
Syngenta	NK9535-3220	20	95	31944	29.7	16.0	31.8		7.2	2.9	4.0	2.1	38.5			60.5	71.6	74.7	9.8	3.5	95.3	58.6	
Dekalb	DKC43-75RIB	42	93	33396	29.8	15.1	34.5		7.2	2.8	4.3	2.1	37.6			60.3	73.3	76.4	8.9	3.7	99.6	59.5	
Blue River Organic Seed	33A16	1	92	32089	29.9	17.5	32.1		7.0	3.0	4.0	2.1	40.7			60.1	72.3	75.4	10.1	3.4	93.6	57.1	
Albert Lea - Viking	42-92	1	92	31073	29.9	16.2	34.0		7.2	2.8	3.8	2.2	39.0			61.8	73.5	76.6	9.1	3.8	99.9	59.6	
Dekalb	DKC45-07RIB	36	95	33106	29.9	16.9	33.1		7.1	2.7	4.3	2.0	38.4			61.8	73.1	76.2	9.2	3.8	99.8	60.0	
Channel	192-10STXRIB	36	92	31799	30.2	17.9	31.3		7.2	3.1	4.1	2.0	41.4			60.1	71.3	74.3	10.7	3.3	90.8	56.1	
King's AgriSeeds-RedTail	KF 45C30	1	95	29911	30.2	17.1	35.5		7.0	2.5	3.6	2.1	36.1			63.4	75.4	78.6	7.7	4.2	107.9	62.7	
Growmark FS	FS 4303X RIB	36	92	32670	30.5	16.6	33.9		7.5	2.8	4.1	2.3	38.2			61.4	73.2	76.3	9.1	3.8	100.8	59.9	
Seedway	SW 3770	16	95	32525	30.5	17.0	34.0		7.6	2.9	4.1	2.3	35.9			58.8	70.5	73.5	9.5	3.5	95.6	58.2	
Brevant Seed	B95V86AM	5	95	30928	30.6	16.3	36.1		6.9	3.0	3.6	2.2	37.3	37.7	57.2	57.9	70.8	73.8	9.8	3.6	95.4	57.6	
Dekalb	DKC42-04RIB	36	92	32380	30.9	16.4	36.3		7.1	2.9	4.1	2.1	36.5			59.3	70.6	73.6	9.7	3.8	98.0	58.7	
Seedway	SW 3768	36	95	31073	31.0	16.6	34.1		7.9	2.9	3.8	2.1	37.2			61.0	71.3	74.3	9.6	3.8	100.0	59.5	
Pioneer	P9233Q	33	92	30637	31.2	15.9	34.9		7.9	2.8	4.1	2.4	36.8			61.2	73.0	76.2	8.8	3.9	102.0	60.4	
Seed Consultants	SCS 931AM	52	93	32960	31.7	17.1	37.6		7.2	2.8	3.6	2.3	36.0	35.8	59.2	59.6	71.1	74.2	9.3	4.0	100.7	59.4	
			92-95 day RM Mean	31753	29.9	16.8	34.0	65.7	7.3	2.9	4.0	2.2	38.0	36.7	59.2	60.5	72.2	75.2	9.4	3.7	97.9	58.9	56.1
			LSD (0.10)	1868	1.1	NS⁴	2.5	NS	0.5	0.2	0.4	0.2	2.2	NS	3.6	1.9	2.4	2.5	1.2	0.3	7.7	3.1	NS
			Overall Mean	31837	30.6	16.5	34.7	63.9	7.4	2.9	4.0	2.2	37.7	36.3	59.7	60.4	71.9	75.0	9.5	3.7	98.5	58.9	56.9

Table 3c: Hybrid traits and performance for 80 – 95 day RM groups at Alburgh, VT.

Company/Brand	Hybrid	Trait Code †	Relative Maturity	Harvest Population	Dry Matter	Yield, 35% DM	Starch	IVSD ¹	Crude Protein	Lignin	Ash	Total Fatty Acids	aNDFom	Wet Chem aNDFom	Wet Chem 30 hr NDFD	30 hr NDFD	120 hr NDFD	240 hr NDFD	240 hr uNDFom	RFC - Fill Ratio ²	CNCPS v. 7.0 Predicted Allowable Milk Yield	CNCPS v. 7.0 Predicted Dry Matter Intake	OMD ³
				plants/ac	%	tons/ac	% DM	% Starch	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM	lbs/day
Blue River Organic Seed	22K32	1	86	29258	31.0	17.0	39.1		8.2	2.8	3.7	2.8	33.6			55.9	64.3	67.0	11.2	3.8	83.4	51.9	
Albert Lea - Viking	O.31-91	1	91	29113	31.2	17.3	35.3		8.0	3.0	4.7	2.4	38.2			57.4	67.8	70.7	11.3	3.4	83.2	52.6	
Seedway	SW 3110	36	90	29839	31.7	19.9	36.3		8.4	3.1	4.2	2.6	37.1			55.4	64.6	67.3	12.2	3.4	73.2	48.0	
Blue River Organic Seed	26878	1	88	29548	31.9	20.3	38.9		8.2	3.0	4.7	2.5	35.5			55.1	65.9	68.8	11.1	3.6	84.9	52.3	
Schlessman	SX088	2	88	30637	32.0	18.4	37.8	64.8	7.6	2.9	4.2	2.5	37.9	38.1	55.7	58.2	68.3	71.1	11.0	3.7	90.7	55.7	56.1
Syngenta NK	NK8618-3120	18	86	31363	32.4	19.4	34.8		8.5	3.1	4.2	2.4	39.0			57.5	65.6	68.4	12.4	3.4	73.0	48.0	
Local Seed Company	LC9108 VT2PRIB	41	91	29766	32.5	19.6	38.5		8.3	3.0	4.4	2.6	35.3			55.3	64.7	67.4	11.6	3.6	80.1	50.5	
Brevant Seed	B90R92Q (Qrome)	33	90	30492	32.7	20.5	40.0		8.1	2.8	4.1	2.6	34.1	34.0	55.0	55.3	65.2	68.1	11.0	3.8	87.5	53.8	
Growmark FS	FS 4095X RIB	36	90	29476	33.2	20.2	38.1		8.1	3.0	4.6	2.5	37.2			56.9	66.0	68.9	11.7	3.6	79.8	51.0	
Hubner Seed	H4062RC2P	41	86	28604	33.3	18.3	38.1		8.3	2.9	4.2	2.7	36.1			57.0	66.1	69.0	11.2	3.7	84.6	52.9	
Seed Consultants	SCS 901Q	52	90	29766	33.5	21.3	40.3		8.2	2.7	4.0	2.5	33.2	32.9	57.4	57.1	66.8	69.6	10.2	4.1	95.0	57.0	
Channel	189-39VT2PRIB	42	89	30274	33.6	18.6	38.4		7.9	3.0	4.4	2.5	36.2			56.0	66.2	69.1	11.3	3.6	85.0	53.2	
Seed Consultants	SCS 851AM	52	85	29693	33.8	18.6	37.3		8.8	2.9	4.7	2.5	35.7	35.4	55.7	55.7	65.6	68.6	11.3	3.5	82.3	52.1	
King's AgriSeeds-KingFisher	KF 34C30	1	84	29911	33.9	19.7	42.0		8.5	2.8	4.5	2.8	32.5			55.3	64.8	67.5	10.6	4.0	91.7	55.4	
Hubner Seed	H6053RCSS	34	87	31073	34.1	19.1	37.2		8.4	3.1	4.5	2.5	35.6			56.0	65.3	68.3	11.4	3.6	81.2	51.5	
Dekalb	DKC36-30RIB	42	86	29040	34.4	18.3	38.9		8.2	2.9	4.3	2.7	34.9			56.1	65.0	67.8	11.3	3.7	82.5	51.8	
Masters Choice	MCT3393	14	83	30855	34.5	20.6	35.1	67.1	8.1	3.1	4.1	2.5	39.6	39.3	53.2	56.5	65.6	68.4	12.6	3.3	71.7	47.5	55.6
Local Seed Company	LC8607 5222EZ	22	86	29330	34.9	19.2	34.4		9.3	3.2	4.3	2.5	37.4			56.0	64.2	67.0	12.4	3.3	69.9	46.6	
Masters Choice	MCT3890	1	88	28822	34.9	19.0	38.4	63.5	8.6	2.9	3.9	2.8	35.5	35.5	54.5	57.1	64.7	67.6	11.6	3.8	79.7	50.5	55.1
			80-91 day RM Mean	29835	33.1	19.2	37.9	65.2	8.3	3.0	4.3	2.6	36.0	35.9	55.3	56.3	65.6	68.5	11.4	3.6	82.1	51.7	55.6
Local Seed Company	ZS9598 5222EZ	22	95	29113	30.1	22.7	35.8		8.6	3.1	3.9	2.5	35.8			54.8	63.1	65.7	12.3	3.4	70.1	46.2	
Seed Consultants	SCS 951Q	33	95	29330	30.3	22.7	38.2		8.3	2.8	4.1	2.4	34.7	34.9	55.9	57.5	67.5	70.4	10.3	3.8	92.4	56.1	
Masters Choice	MC4570	1	95	29911	30.7	17.2	35.5	67.2	8.8	3.2	4.2	2.4	36.5	36.9	52.5	53.8	62.8	65.4	12.7	3.2	65.8	44.7	54.8
Growmark FS	FS 4303X RIB	36	92	30710	31.0	17.0	35.8		8.2	3.0	4.2	2.5	37.5			56.6	66.8	69.7	11.4	3.4	83.5	52.6	
Channel	195-85DGV2PRIB	42	95	33251	31.0	21.5	38.4		7.6	3.1	4.6	2.5	35.4			54.5	64.5	67.4	11.6	3.5	78.3	50.2	
Dekalb	DKC44-80RIB	42	94	30419	31.1	22.3	38.8		8.0	2.8	4.2	2.4	34.5			57.3	68.4	71.2	10.0	3.9	95.6	57.6	
King's AgriSeeds-KingFisher	KF 45C30	1	95	28532	31.2	21.3	40.5		8.1	2.6	4.5	2.7	33.7			57.6	69.0	72.1	9.5	4.1	99.0	58.8	
Dekalb	DKC45-07RIB	36	95	29693	31.5	20.2	36.7		8.3	3.1	4.6	2.4	37.0			55.4	64.6	67.2	12.2	3.4	72.5	47.8	
Albert Lea - Viking	42-92	1	92	30056	31.7	22.9	36.0		7.7	3.1	4.6	2.5	37.9			55.3	65.7	68.5	12.0	3.3	75.5	49.2	
Seedway	SW 3770	16	95	30637	31.7	20.6	36.6		8.3	3.1	4.7	2.7	36.1			53.8	63.4	66.1	12.3	3.3	70.3	46.9	
Blue River Organic Seed	33A16	1	92	29984	31.9	20.5	37.9		8.0	3.0	4.1	2.5	36.2			56.1	66.9	69.7	11.0	3.6	88.1	54.2	
Dekalb	DKC42-04RIB	36	92	30928	32.0	20.8	39.6		8.1	3.0	4.5	2.5	35.2			54.4	64.8	67.6	11.5	3.6	80.7	51.2	
Brevant Seed	B95V86AM	5	95	29693	32.0	19.6	39.7		7.9	3.0	4.0	2.4	35.0	35.0	54.8	54.7	64.9	67.7	11.4	3.6	81.7	51.5	
Dekalb	DKC43-75RIB	42	93	30274	32.1	19.9	37.2		8.0	2.9	4.1	2.5	36.3			56.2	65.7	68.6	11.5	3.5	81.8	51.6	
Channel	192-105TXRIB	36	92	31799	32.4	19.6	36.6		8.1	3.2	4.6	2.4	38.4			55.8	66.5	69.1	11.9	3.4	78.0	50.0	
Seedway	SW 3768	36	95	29621	32.5	20.1	37.0		8.9	2.9	4.6	2.6	35.7			56.6	65.4	68.3	11.4	3.6	81.5	51.7	
Syngenta	NK9535-3220	20	95	29984	32.7	18.5	37.6		8.2	2.9	4.4	2.5	35.2			56.2	65.4	68.3	11.1	3.6	84.1	52.6	
Pioneer	P9233Q	33	92	28532	33.5	19.8	38.3		8.2	2.9	4.2	2.4	35.2			55.5	66.1	68.8	11.0	3.6	87.8	54.3	
Seed Consultants	SCS 931AM	52	93	30347	33.7	22.0	39.3		8.6	2.9	4.3	2.6	34.5	34.4	56.9	55.2	64.9	67.8	11.2	3.7	83.0	52.2	
			92-95 day RM Mean	30148	31.7	20.5	37.7	67.2	8.2	3.0	4.3	2.5	35.8	35.3	55.0	55.6	65.6	68.4	11.4	3.5	81.6	51.5	54.8
			LSD (0.10)	1578	1.9	2.8	3.2	NS⁴	0.4	0.3	NS	NS	2.7	2.3	2.4	NS	2.4	2.5	1.3	NS	NS	NS	NS
			Overall Mean	29991	32.4	19.8	37.8	65.7	8.3	3.0	4.3	2.5	35.9	35.6	55.2	56.0	65.6	68.4	11.4	3.6	81.8	51.6	55.4

Table 4a: Hybrid traits and performance for 96-110 day RM groups at Alburgh, VT.

Company/Brand	Hybrid	Trait Code †	Relative Maturity	Harvest Population	Dry Matter	Yield, 35% DM	Starch	IVSD ¹	Crude Protein	Lignin	Ash	Total Fatty Acids	aNDFom	Wet Chem aNDFom	Wet Chem 30 hr NDFD	30 hr NDFD	120 hr NDFD	240 hr NDFD	240 hr uNDFom	RFC - Fill Ratio ²	CNCPS v. 7.0 Predicted Allowable Milk Yield	CNCPS v. 7.0 Predicted Dry Matter Intake	OMDI ³	
				plants/ac	%	tons/ac	% DM	% Starch	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% NDFom	% NDFom	% NDFom	% NDFom	% DM		lbs/day	lbs/day	%
Seed Consultants	SCS 1018YHR	26	101	30782	35.0	27.2	39.3		7.2	3.1	4.5	2.7	37.0	35.6	58.5	56.3	67.4	70.3	11.1	3.6	86.0	53.7		
Brevant Seed	B02V87AMXT	8	102	30492	35.0	26.4	39.4		7.1	3.1	4.3	2.7	36.7	35.5	59.7	56.9	66.8	69.6	11.2	3.7	85.6	53.4		
Growmark FS	FS 5090X RIB	36	100	32380	35.1	24.9	36.7		7.7	3.2	4.8	2.7	37.4			55.3	66.5	69.4	11.6	3.4	77.6	50.2		
Nutrien Ag Solutions/Dyna-Gro	D40VC41	41	100	31799	35.7	25.1	38.4	65.1	7.1	3.0	4.6	2.6	36.2	34.7	59.2	56.6	67.6	70.4	10.7	3.7	90.8	55.7	56.1	
King's AgriSeeds-KingFisher	KF 52C20	1	102	30347	35.8	24.0	38.4		7.2	3.1	4.6	2.5	37.7			54.0	65.8	68.8	11.8	3.3	77.3	50.1		
Blue River Organic Seed	42C87	1	98	32234	36.0	26.0	37.5		8.2	3.0	4.9	2.8	35.5			55.9	65.6	68.5	11.3	3.6	83.9	52.7		
Blue River Organic Seed	48G35	1	102	31508	36.1	23.1	39.5		7.9	2.9	4.7	2.8	35.2			57.1	68.7	71.6	10.1	3.9	90.3	55.3		
Seedway	SW 4000	36	99	32525	36.1	26.1	37.7		8.1	3.1	4.8	2.7	35.6			55.0	64.6	67.4	11.7	3.5	77.9	50.1		
Growmark FS	FS 5101X RIB	36	101	30928	36.2	26.0	39.8		7.6	3.0	4.5	2.8	35.6			56.1	67.2	70.2	10.7	3.8	85.4	53.2		
Hubner Seed	H6225RCSS	34	102	30637	36.3	23.3	39.6		7.1	2.9	4.4	2.6	36.2			56.1	68.3	71.3	10.4	3.7	90.9	55.7		
Hubner Seed	H6134RCSS	34	96	32089	36.4	23.6	34.4		7.6	3.3	5.1	2.5	39.3			55.5	64.9	67.8	12.7	3.2	68.5	46.3		
Albert Lea - Viking	O.69-01	1	101	29911	36.6	21.4	38.7		8.3	3.1	5.1	2.9	35.1			55.5	64.2	67.0	11.6	3.6	77.0	49.8		
Brevant Seed	B97F86AMXT	8	97	30347	37.0	23.4	38.6		8.0	3.1	4.6	2.6	35.8	34.4	57.1	56.3	64.8	67.7	11.6	3.7	78.7	50.3		
Dekalb	DKC49-45RIB	42	99	30202	37.1	24.6	36.1		7.4	3.0	4.8	2.5	38.1			56.7	68.7	71.6	10.9	3.5	84.5	53.1		
Channel	199-605TXRIB	36	99	31508	37.2	27.9	36.5		7.8	3.0	4.8	2.5	37.6			57.0	66.3	69.2	11.6	3.5	81.6	51.8		
Pioneer	P0031 Q	33	100	31508	37.2	24.9	38.5		7.3	3.4	4.5	2.6	36.1			51.4	61.9	64.5	12.9	3.2	65.5	44.7		
Hubner Seed	H6172RCSS	34	98	31799	37.9	25.6	37.3		7.4	3.2	4.4	2.4	39.2			57.0	66.8	69.6	11.9	3.5	77.8	50.2		
Local Seed Company	ZS9796 3220EZ	20	97	31944	38.1	24.5	39.6		7.9	3.2	4.6	2.8	33.5			51.9	61.1	63.8	12.2	3.4	68.4	45.7		
Nutrien Ag Solutions/Dyna-Gro	D39VC40	41	99	29330	38.4	26.5	37.5		7.8	3.0	4.7	2.6	36.9			56.8	67.7	70.7	10.8	3.6	90.9	55.9		
Albert Lea - Viking	46-96	1	96	29476	38.7	23.4	40.3		7.3	2.8	4.5	2.7	34.8			57.2	67.7	70.7	10.3	3.9	94.9	57.4		
Schlessman	SX343 GT3220-EZ	20	96	30928	39.5	24.0	41.7	59.3	7.9	3.1	4.6	2.8	32.6	30.6	52.1	52.4	62.4	65.2	11.4	3.7	77.4	49.6	51.1	
Brevant Seed	B97T04SXE	37	97	30056	39.5	22.8	38.0		7.0	3.2	4.0	2.7	38.1			55.7	65.7	68.6	12.1	3.4	76.1	49.3		
Seed Consultants	SCS 981SX	34	98	31654	39.6	25.3	37.7		6.7	3.2	4.0	2.8	39.1	37.6	55.7	55.8	65.1	67.9	12.6	3.4	69.3	46.4		
Dekalb	DKC47-55RIB	42	97	30347	39.7	24.8	38.5		7.6	2.9	4.4	2.9	36.7			57.6	68.8	71.7	10.4	3.7	93.3	56.7		
Local Seed Company	LC9888 VT2PRIB	41	98	30928	40.1	27.9	39.5		7.6	3.3	4.9	2.7	36.1			52.5	61.3	64.5	12.9	3.3	62.7	43.5		
			96-102 day RM Mean	31026	37.2	24.9	38.4		7.5	3.1	4.6	2.7	36.5	34.7	57.0	55.6	65.8	68.7	11.5	3.6	80.5	51.2	53.6	
			LSD (0.10)		NS⁴	2.1	NS	4.0	NS	0.6	0.3	0.5	0.3	3.0	3.6	3.1	2.2	2.8	2.9	1.6	0.5	16.6	7.0	NS
			Overall Mean		30914	36.4	25.1	37.9	63.1	7.6	3.1	4.5	2.7	36.5	35.6	56.9	55.4	65.6	68.5	11.6	3.5	79.3	50.7	54.4

Table 4a: Hybrid traits and performance for 96-110 day RM groups at Alburgh, VT (cont).

Company/Brand	Hybrid	Trait Code †	Relative Maturity	Harvest	Dry	Yield,	Starch	IVSD ¹	Crude	Lignin	Ash	Total	aNDFom	Wet	Wet	30 hr	120 hr	240 hr	240 hr	RFC - Fill	CNCPS v. 7.0	CNCPS v. 7.0	OMDI ³	
				Population	Matter	35% DM	% DM	% Starch	Protein	% DM	% DM	% DM	% DM	% DM	% DM	% DM	aNDFom	Chem 30	hr NDFD	hr NDFD	hr NDFD	uNDFom	Ratio ²	Predicted
				plants/ac	%	tons/ac	% DM	% Starch	% DM	% DM	% DM	% DM	% DM	% DM	% NDFom	% NDFom	% NDFom	% NDFom	% NDFom	% DM		lbs/day	lbs/day	
Masters Choice	MC6070	1	110	28459	31.8	24.9	33.8	62.4	7.6	3.3	5.0	2.4	40.1	40.2	57.1	54.8	64.7	67.4	13.2	3.0	63.6	44.2	55.2	
Seed Consultants	SCS 1071AM	52	107	29476	32.5	25.8	39.3		7.9	3.0	4.4	2.7	35.0	33.6	56.5	56.0	66.4	69.2	10.9	3.7	87.2	54.0		
King's AgriSeeds-RedTail	RT 58T81	10	108	29766	33.5	27.1	33.7		7.7	3.4	4.7	2.3	38.9			53.5	63.5	66.2	13.2	3.0	61.9	43.3		
Seed Consultants	SCS 1030AM	52	103	30637	33.6	27.8	37.5		7.5	3.3	4.5	2.7	37.1			54.5	64.5	67.5	12.1	3.4	73.2	48.1		
Blue River Organic Seed	51T59	1	103	30056	34.2	23.7	37.7		7.2	2.9	4.5	2.5	35.6			56.1	68.3	71.3	10.3	3.6	90.7	55.9		
Dekalb	DKC55-37RIB	36	105	30782	34.6	22.7	34.2		7.6	3.3	4.9	2.4	39.0			53.8	65.8	68.7	12.3	3.0	74.1	49.0		
Masters Choice	MC5790	1	107	30492	34.9	24.2	35.3	66.3	7.6	3.1	4.6	2.5	38.2	37.0	56.2	56.4	65.3	68.1	12.2	3.3	72.8	47.9	55.4	
Albert Lea - Viking	O.51-04	1	104	30347	34.9	23.1	37.4		7.8	3.0	4.5	2.8	35.7			56.0	64.9	67.6	11.6	3.6	78.9	50.5		
Seedway	SW 6540	41	108	31508	34.9	25.0	38.2		7.6	3.1	4.5	2.9	35.5			55.2	65.7	68.9	11.1	3.6	85.0	53.0		
Albert Lea - Viking	58-11	1	111	31654	35.1	24.1	37.7		7.5	3.0	4.2	2.6	37.0			56.5	66.2	69.1	11.5	3.6	79.3	50.5		
Syngenta NK	NK0440-3122	19	104	31944	35.2	25.7	39.7		7.3	3.0	4.2	2.8	35.5			55.2	65.4	68.2	11.4	3.6	83.8	52.4		
Pioneer	P0242 AMXT	52	104	31654	35.2	23.2	38.2		7.6	3.0	4.6	2.6	36.1			55.1	66.6	69.4	11.1	3.5	83.4	52.5		
Albert Lea - Viking	O.74-10	1	110	30347	35.4	25.8	35.5		8.2	3.1	4.7	2.6	37.2			55.6	64.0	66.9	12.4	3.3	70.5	46.9		
Seedway	SW 5569	14	106	30928	35.6	27.4	36.3		8.0	3.0	4.7	2.8	36.1			55.9	64.6	67.5	11.7	3.5	76.8	49.7		
Local Seed Company	LC0708 VT2PRIB	41	107	31654	35.8	29.8	34.9		7.8	3.4	4.8	2.6	38.7			51.9	63.2	65.9	13.2	2.9	60.6	43.0		
Brevant Seed	B05T80SX	35	105	31944	35.8	25.6	35.3		7.7	3.3	4.2	2.6	37.1	37.3	57.7	54.5	63.8	66.5	12.6	3.3	70.2	46.7		
Blue River Organic Seed	54C27	1	105	29911	35.9	23.7	36.6		7.7	2.9	4.1	2.6	37.2			56.9	66.6	69.4	11.4	3.5	82.6	51.9		
Local Seed Company	LC0607 TCRIB	38	106	31654	36.2	23.8	37.4		7.7	3.1	4.5	2.6	37.0			56.0	66.8	69.6	11.3	3.5	83.6	52.6		
Dekalb	DKC59-07RIB	36	109	31218	36.7	26.7	36.9		7.8	2.9	4.3	2.5	35.9			58.0	67.7	70.7	10.6	3.7	91.2	55.7		
Channel	203-60TRERIB	39	103	31654	36.7	26.0	38.2		7.7	3.0	4.2	2.8	36.1			54.8	66.5	69.4	11.2	3.5	84.1	52.7		
Albert Lea - Viking	O.48-08	1	108	30782	36.9	26.6	41.7		7.5	2.8	4.1	2.8	33.3			54.3	66.3	69.1	10.4	3.9	89.5	54.6		
Blue River Organic Seed	62G22	1	110	29911	37.0	25.5	36.3		8.0	3.3	4.6	2.9	36.2			52.8	60.6	63.0	13.4	3.2	57.0	40.8		
Channel	203-01STXRIB	36	103	31073	37.2	24.3	42.9		7.1	2.5	4.2	3.1	31.9			57.9	70.1	73.1	8.6	4.4	103.0	60.2		
Dekalb	DKC54-65RIB	42	104	31508	37.2	23.6	39.5		8.0	3.0	4.6	2.7	35.6			56.0	65.7	68.7	11.2	3.7	83.2	52.4		
Masters Choice	MCT5851	10	108	30492	37.5	25.8	37.9	62.6	7.6	3.1	4.4	2.6	37.0	35.0	56.6	55.4	64.0	66.9	12.3	3.5	71.6	47.2	54.3	
Local Seed Company	LC0488 VT2PRIB	41	104	30347	37.5	26.6	41.1		7.5	2.9	4.4	2.6	33.8			55.4	65.8	68.6	10.7	3.9	90.7	55.3		
Local Seed Company	LC0398 5222EZ	22	103	31654	40.8	24.1	39.4		7.6	3.3	3.9	3.0	36.7			52.6	61.6	64.3	13.2	3.3	61.9	42.9		
			103-111 day RM Mean	30809	35.6	25.3	37.5	63.8	7.6	3.1	4.4	2.7	36.4	36.6	56.8	55.2	65.4	68.2	11.7	3.5	78.2	50.2	55.0	
			LSD (0.10)	NS⁴	2.1	NS	4.0	NS	0.6	0.3	0.5	0.3	3.0	3.6	3.1	2.2	2.8	2.9	1.6	0.5	16.6	7.0	NS	
			Overall Mean	30914	36.4	25.1	37.9	63.1	7.6	3.1	4.5	2.7	36.5	35.6	56.9	55.4	65.6	68.5	11.6	3.5	79.3	50.7	54.4	

Table 4b: Hybrid traits and performance for 96-110 day RM groups at Madrid, NY.

Company/Brand	Hybrid	Trait Code †	Relative Maturity	Harvest Population	Dry Matter	Yield, 35% DM	Starch	IVSD ¹	Crude Protein	Lignin	Ash	Total Fatty Acids	aNDFom	Wet Chem aNDFom	Wet Chem 30 hr NDFD	30 hr NDFD	120 hr NDFD	240 hr NDFD	240 hr uNDFom	RFC - Fill Ratio ²	CNCPS v. 7.0 Predicted Allowable Milk Yield	CNCPS v. 7.0 Predicted Dry Matter Intake	OMDi ³
				plants/ac	%	tons/ac	% DM	% Starch	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM		lbs/day
King's AgriSeeds-KingFisher	KF 52C20	1	102	31168	31.0	26.4	38.3		7.6	2.6	3.5	2.3	35.0			58.8	66.2	69.1	11.0	4.0	91.0	54.1	
Growmark FS	FS 5090X RIB	36	100	32509	32.8	23.1	38.4		8.5	2.4	3.4	2.6	32.6			60.9	68.5	71.4	9.3	4.4	108.5	61.5	
Blue River Organic Seed	42C87	1	98	31336	33.2	25.3	37.4		8.2	2.5	3.2	2.7	35.2			60.6	68.9	71.8	10.0	4.1	97.5	57.0	
Growmark FS	FS 5101X RIB	36	101	31001	33.3	21.5	37.2		7.8	2.5	3.1	2.6	34.7			59.4	67.1	69.9	10.5	4.0	95.9	56.8	
Channel	199-60STXRIB	36	99	29660	33.5	22.1	38.5		8.6	2.3	3.7	2.5	33.3			61.7	68.2	71.1	9.7	4.5	106.9	60.4	
Seedway	SW 4000	36	99	28822	33.6	21.0	38.3		8.6	2.3	3.2	2.6	33.3			61.7	67.9	70.8	9.8	4.5	106.1	59.8	
Brevant Seed	B02V87AMXT	8	102	34520	33.6	25.1	40.8		7.7	2.3	3.6	2.6	32.9	32.5	60.9	62.2	71.5	74.6	8.4	4.8	110.4	62.7	
Blue River Organic Seed	48G35	1	102	31168	34.0	24.4	40.9		8.7	2.3	3.6	2.9	32.3			61.3	68.1	71.1	9.4	4.7	109.7	61.1	
Seed Consultants	SCS 1018YHR	26	101	33682	34.1	26.6	41.3		7.7	2.3	3.6	2.5	33.3	33.4	60.3	61.7	71.2	74.2	8.7	4.8	109.5	62.0	
Seed Consultants	SCS 981SX	34	98	32341	34.6	25.8	38.9		7.9	2.6	3.4	2.7	35.4	34.8	56.5	58.6	66.4	69.5	10.9	4.0	92.2	54.7	
Albert Lea - Viking	46-96	1	96	31838	34.7	23.4	41.2		8.0	2.3	3.3	2.6	32.4			61.4	70.0	72.8	8.9	4.8	112.7	63.0	
Nutrien Ag Solutions/Dyna-Gro	D40VC41	41	100	33682	34.8	27.0	44.0	59.7	7.5	2.4	3.1	2.8	32.0	31.4	58.6	60.1	68.3	71.2	9.3	4.8	104.0	60.1	54.8
Hubner Seed	H6225RCSS	34	102	31671	34.9	23.6	38.8		7.8	2.7	3.3	2.4	35.0			59.1	65.7	68.5	11.1	4.1	89.4	53.0	
Brevant Seed	B97T04SXE	37	97	31503	35.0	25.9	39.9		8.1	2.5	3.5	2.8	34.0	33.0	60.3	58.7	67.0	69.8	10.3	4.1	98.5	57.7	
Local Seed Company	LC9888 VT2PRIB	41	98	31001	35.3	22.5	39.8		8.8	2.5	3.7	2.8	32.9			60.3	68.3	71.1	9.6	4.5	100.9	57.7	
Hubner Seed	H6172RCSS	34	98	35190	35.6	22.7	41.0		8.7	2.4	3.3	2.6	31.6			60.1	66.4	69.4	9.8	4.7	104.9	59.1	
Nutrien Ag Solutions/Dyna-Gro	D39VC40	41	99	31001	35.9	22.3	40.2		8.0	2.4	3.2	2.8	33.4			60.2	67.0	70.0	10.1	4.4	101.6	58.1	
Pioneer	P0031 Q	33	100	32928	36.0	20.5	40.6		8.1	2.4	3.1	2.6	30.7			57.6	65.2	67.9	9.9	4.3	98.2	57.4	
Hubner Seed	H6134RCSS	34	96	35190	36.0	23.3	41.7		8.2	2.3	3.4	2.7	31.4			61.4	69.0	71.8	8.9	4.9	113.6	63.0	
Dekalb	DKC49-45RIB	42	99	31671	36.9	23.7	43.3		8.2	2.3	3.3	2.8	30.6			60.4	67.7	70.6	9.1	5.1	107.9	60.5	
Schlessman	SX343 GT3220-EZ	20	96	31671	37.0	20.8	46.3	56.9	8.8	2.5	3.3	3.2	29.5	28.9	53.2	57.4	63.0	66.3	10.0	4.9	98.1	57.0	52.4
Dekalb	DKC47-55RIB	42	97	31838	37.1	24.9	41.5		8.2	2.4	3.0	3.1	31.9			61.4	69.5	72.4	8.9	4.8	110.1	61.4	
Brevant Seed	B97F86AMXT ⁷	8	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Seed Company	ZS9796 3220EZ ⁷	20	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Albert Lea - Viking	O.69-01 ⁷	1	101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		96-102 day RM Mean		32063	34.7	23.7	40.4		8.2	2.4	3.4	2.7	32.9	32.3	58.3	60.2	67.8	70.7	9.7	4.5	103.1	59.0	53.6
		LSD (0.10)		2137	2.3	NS ⁴	3.5	NS	0.5	0.3	0.4	0.2	2.7	2.7	2.9	2.3	3.6	3.8	NS	0.6	NS	NS	2.8
		Overall Mean		31750	34.1	23.7	40.1	59.9	8.2	2.4	3.3	2.7	32.9	32.6	59.0	60.4	67.8	70.7	9.7	4.5	103.2	59.0	55.9

Table 4b: Hybrid traits and performance for 96-110 day RM groups at Madrid, NY (cont.).

Company/Brand	Hybrid	Trait Code †	Relative Maturity	Harvest Population	Dry Matter	Yield, 35% DM	Starch	IVSD ¹	Crude Protein	Lignin	Ash	Total Fatty Acids	aNDFom	Wet Chem aNDFom	Wet Chem 30 hr NDFD	30 hr NDFD	120 hr NDFD	240 hr NDFD	240 hr uNDFom	RFC - Fill Ratio ²	CNCPS v. 7.0 Predicted Allowable Milk Yield	CNCPS v. 7.0 Predicted Dry Matter Intake	OMDi ³	
				plants/ac	%	tons/ac	% DM	% Starch	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% NDFom	% NDFom	% NDFom	% NDFom	% DM	lbs/day	lbs/day	%	
Masters Choice	MC6070	1	110	32006	28.2	20.8	39.1	61.9	8.6	2.5	3.5	2.6	36.0	36.0	61.5	61.3	68.7	71.7	10.3	4.3	97.8	57.3	57.9	
Blue River Organic Seed	62G22	1	110	31168	30.4	24.9	36.0		8.8	2.4	3.4	2.8	35.0			61.2	71.5	74.5	9.0	4.1	103.9	59.9		
Seed Consultants	SCS 1071AM	52	107	31671	31.2	23.5	40.2		8.6	2.4	3.8	2.7	31.7	31.0	58.6	59.5	68.4	71.2	9.3	4.6	101.2	58.7		
King's AgriSeeds-Redtail	RT 58T81	10	108	31168	31.4	24.2	38.7		8.1	2.3	3.3	2.5	33.6			62.3	68.9	71.7	9.6	4.6	108.2	60.9		
Syngenta NK	NK0440-3122	19	104	30163	32.0	23.9	40.2		8.3	2.2	3.0	2.5	32.3			61.3	69.1	72.1	9.1	4.5	109.7	61.7		
Local Seed Company	LC0708 VT2PRIB	41	107	30163	32.2	25.3	37.5		8.1	2.8	3.5	2.6	35.7			56.8	63.5	66.2	12.1	3.7	75.9	47.5		
Seedway	SW 6540	41	108	33682	32.4	25.0	39.2		8.1	2.5	3.4	2.7	33.6			60.1	65.4	68.1	10.8	4.3	92.8	54.3		
Masters Choice	MCT5851	10	108	31001	32.9	23.2	38.8	60.1	9.2	2.6	3.4	2.7	35.3	36.0	62.2	60.9	66.9	69.9	10.7	4.3	96.1	56.1	57.5	
Masters Choice	MC5790	1	107	31336	32.9	21.3	43.0	60.8	8.9	2.3	3.3	3.0	32.3	32.7	58.8	61.1	67.9	70.8	9.5	4.9	107.9	61.0	56.5	
Seedway	SW 5569	14	106	32341	33.0	21.1	35.7		8.0	2.5	3.1	2.8	36.0			61.8	67.7	70.5	10.7	4.1	98.3	57.0		
Channel	203-015TXRIB	36	103	31503	33.1	23.6	41.8		8.0	2.1	3.2	2.9	31.9			63.0	69.7	72.4	8.9	5.1	116.0	63.9		
Blue River Organic Seed	51T59	1	103	31838	33.2	24.0	42.3		7.9	2.2	3.0	2.7	31.1			60.5	68.2	71.1	9.1	4.8	108.5	60.7		
Blue River Organic Seed	54C27	1	105	28990	33.5	22.5	37.4		8.3	2.5	3.2	2.6	35.5			60.9	68.6	71.6	10.1	4.1	101.9	58.5		
Albert Lea - Viking	O.74-10	1	110	32844	33.5	23.7	39.7		8.2	2.4	3.1	2.7	33.4			60.4	68.5	71.3	9.7	4.4	101.6	58.2		
Albert Lea - Viking	58-11	1	111	30665	33.6	24.4	39.3		8.0	2.4	3.3	2.6	33.6			60.6	66.7	69.5	10.3	4.4	101.1	57.9		
Dekalb	DKC59-07RIB	36	109	29995	33.7	24.4	38.8		8.0	2.3	3.2	2.7	33.3			61.5	67.9	70.7	9.9	4.5	105.0	59.5		
Albert Lea - Viking	O.51-04	1	104	29660	33.8	23.5	39.5		8.2	2.2	3.2	3.1	32.6			61.9	70.2	73.2	8.8	4.7	111.9	62.5		
Local Seed Company	LC0488 VT2PRIB	41	104	29995	34.8	25.3	40.6		7.9	2.4	3.2	2.8	32.6			60.1	66.6	69.3	10.1	4.6	105.6	59.6		
Pioneer	P0242 AMXT	52	104	31838	34.8	23.2	43.3		7.9	2.4	3.3	2.6	30.6			58.0	66.4	69.2	9.5	4.7	100.6	58.0		
Seed Consultants	SCS 1030AM	52	103	31420	34.8	23.1	43.2		8.3	2.2	3.8	2.6	29.0	27.5	58.1	60.0	69.8	72.7	7.9	5.0	111.7	63.1		
Brevant Seed	B05T80SX	35	105	32844	34.8	27.0	38.7		7.8	2.4	3.4	2.6	33.6	33.9	58.9	59.5	67.5	70.3	10.1	4.2	102.8	59.5		
Albert Lea - Viking	O.48-08	1	108	33682	35.2	24.0	41.5		8.2	2.3	3.2	2.7	30.4			59.4	65.7	68.5	9.6	4.6	107.5	60.7		
Dekalb	DKC55-37RIB	36	105	31336	35.8	26.0	42.0		8.0	2.4	3.3	2.7	31.3			60.0	66.7	69.5	9.6	4.7	107.4	60.2		
Dekalb	DKC54-65RIB	42	104	32844	35.9	23.8	42.0		8.4	2.3	3.2	2.7	31.3			60.5	68.5	71.5	9.0	4.8	109.4	61.3		
Channel	203-60TRERIB	39	103	31503	36.0	24.9	39.1		8.3	2.4	3.2	2.6	33.5			61.0	68.0	70.7	9.8	4.4	103.8	58.7		
Local Seed Company	LC0607 TCRIB	38	106	32006	37.0	21.5	40.4		8.6	2.3	3.2	2.7	31.7			62.0	67.2	70.2	9.5	4.8	115.3	63.1		
Local Seed Company	LC0398 5222EZ	22	103	32676	37.2	24.0	40.3		8.4	2.7	3.2	3.0	33.6			58.0	66.1	68.8	10.6	4.2	87.2	52.2		
				103-111 day RM Mean	31494	33.6	23.8	39.9	60.9	8.3	2.4	3.3	2.7	33.0	32.9	59.7	60.5	67.8	70.6	9.8	4.5	103.3	59.0	57.3
				LSD (0.10)	2137	2.3	NS⁴	3.5	NS	0.5	0.3	0.4	0.2	2.7	2.7	2.9	2.3	3.6	3.8	NS	0.6	NS	NS	2.8
				Overall Mean	31750	34.1	23.7	40.1	59.9	8.2	2.4	3.3	2.7	32.9	32.6	59.0	60.4	67.8	70.7	9.7	4.5	103.2	59.0	55.9

Table 4c: Hybrid traits and performance for 96-110 day RM groups at Aurora, NY.

Company/Brand	Hybrid	Trait Code †	Relative Maturity	Harvest Population	Dry Matter	Yield, 35% DM	Starch	IVSD ¹	Crude Protein	Lignin	Ash	Total Fatty Acids	aNDFom	Wet Chem aNDFom	Wet Chem 30 hr NDFD	30 hr NDFD	120 hr NDFD	240 hr NDFD	240 hr uNDFom	RFC - Fill Ratio ²	CNCPS v. 7.0 Predicted Allowable Milk Yield	CNCPS v. 7.0 Predicted Dry Matter Intake	OMD ³		
				plants/ac	%	tons/ac	% DM	% Starch	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% NDFom	% NDFom	% NDFom	% DM			lbs/day	lbs/day	%
Brevant Seed	B02V87AMXT	8	102	29157	33.6	17.7	37.4		7.7	2.3	3.2	2.4	35.8	35.8	63.1	64.7	72.7	76.0	8.6	4.6	113.2	63.6			
Seed Consultants	SCS 1018YHR	26	101	28822	34.3	17.2	36.6		7.5	2.3	3.0	2.3	36.4	35.9	62.5	66.2	74.5	77.7	8.1	4.7	115.9	64.8			
King's AgriSeeds-KingFisher	KF 52C20	1	102	27146	34.8	15.7	39.9		7.1	2.5	2.8	2.4	34.4			60.3	69.7	72.6	9.3	4.4	105.6	60.6			
Seedway	SW 4000	36	99	27649	34.8	18.2	40.5		7.9	2.3	2.9	2.5	33.2			61.6	67.6	70.4	9.9	4.7	105.5	59.3			
Growmark FS	FS 5090X RIB	36	100	30163	35.1	19.1	40.0		7.7	2.6	3.2	2.6	33.5			59.1	65.1	68.0	10.8	4.3	92.5	53.4			
Blue River Organic Seed	48G35	1	102	27817	35.1	13.8	37.8		8.0	2.5	3.0	2.6	35.7			60.8	66.9	69.8	10.8	4.2	95.2	55.5			
Albert Lea - Viking	O.69-01 ⁶	1	101	-	36.2	-	38.1		7.6	2.6	2.8	2.6	36.6			60.8	67.6	70.4	10.9	4.1	96.3	55.9			
Growmark FS	FS 5101X RIB	36	101	32174	36.5	21.6	40.2		6.9	2.6	2.8	2.4	35.3			59.7	66.3	69.1	10.9	4.2	91.4	53.3			
Nutrien Ag Solutions/Dyna-Gro	D40VC41	41	100	27649	36.6	16.6	36.0	69.9	7.1	2.8	3.1	2.2	39.0	37.7	58.4	60.7	68.8	71.8	11.1	3.8	91.2	55.2	58.1		
Dekalb	DKC47-55RIB	42	97	27817	36.9	17.1	37.7		7.4	2.6	2.8	2.4	36.7			60.9	66.5	69.4	11.3	4.1	90.1	53.3			
Hubner Seed	H6225RCSS	34	102	27817	37.1	18.7	39.0		7.2	2.7	3.1	2.4	36.7			59.7	66.8	69.8	11.1	4.0	88.8	52.3			
Schlessman	SX343 GT3220-EZ ⁵	20	96	24633	37.1	15.7	38.4	68.3	7.7	2.9	3.0	2.5	35.4	35.2	55.7	55.7	63.6	66.3	12.0	3.6	75.5	47.9	56.5		
Seed Consultants	SCS 981SX	34	98	27649	37.3	18.4	38.3		7.3	2.5	2.8	2.4	37.8	37.0	59.5	62.3	70.5	73.5	10.1	4.2	103.3	59.6			
Blue River Organic Seed	42C87	1	98	27146	37.4	12.7	39.8		7.5	2.4	2.9	2.5	35.2			61.3	68.1	70.9	10.2	4.4	104.0	59.3			
Brevant Seed	B97F86AMXT ⁵	8	97	25638	37.4	15.1	42.9		7.7	2.2	2.8	2.6	32.2	32.2	61.4	62.9	71.1	74.2	8.4	5.1	115.0	63.6			
Brevant Seed	B97T04SXE	37	97	29492	37.7	20.1	38.4		7.1	2.6	2.7	2.4	37.7	37.7	60.7	60.6	68.4	71.2	10.9	4.0	92.8	55.3			
Hubner Seed	H6172RCSS	34	98	29157	38.2	16.3	35.3		7.5	2.8	2.7	2.2	39.5			62.3	68.2	71.2	11.5	3.9	92.1	54.4			
Albert Lea - Viking	46-96	1	96	24298	38.3	15.7	41.4		7.1	2.5	2.8	2.4	34.9			60.4	67.3	70.2	10.4	4.4	99.8	57.6			
Pioneer	P0031 Q	33	100	26644	38.4	17.1	42.5		7.3	2.4	2.8	2.5	32.2			60.2	67.6	70.5	9.6	4.6	111.4	62.4			
Dekalb	DKC49-45RIB	42	99	31671	38.7	19.6	41.5		7.4	2.6	2.8	2.5	35.1			59.4	66.1	68.9	11.0	4.3	88.4	51.9			
Local Seed Company	LC9888 VT2PRIB	41	98	26979	39.2	16.4	42.1		7.9	2.6	2.8	2.6	34.6			59.0	64.5	67.3	11.4	4.3	85.1	51.2			
Nutrien Ag Solutions/Dyna-Gro	D39VC40	41	99	29660	39.3	18.7	38.1		7.2	2.7	3.0	2.4	38.7			60.9	68.1	71.0	11.2	4.0	91.4	54.5			
Channel	199-60STXRIB	36	99	29325	39.5	19.0	41.5		7.6	2.6	2.9	2.4	34.9			59.9	66.0	68.7	11.0	4.3	92.0	54.2			
Hubner Seed	H6134RCSS	34	96	32676	39.8	20.1	41.3		7.4	2.6	3.1	2.4	34.6			60.1	67.6	70.5	10.2	4.4	99.3	57.0			
Local Seed Company	ZS9796 3220EZ	20	97	28990	40.0	17.3	43.4		7.6	2.6	2.9	2.7	32.2			57.4	64.8	67.7	10.5	4.5	94.1	54.9			
96-102 day RM Mean				28340	37.2	17.4	39.5		7.5	2.5	2.9	2.5	35.5	35.9	60.2	60.7	67.8	70.7	10.4	4.3	97.2	56.4	57.3		
LSD (0.10)				3056	3.1	NS⁴	4.7		0.4	NS	0.3	0.3	3.7	2.5	NS	2.4	3.4	3.6	1.7	NS	17.9	7.4	NS		
Overall Mean				27760	36.0	17.1	38.2	72.3	7.5	2.5	2.9	2.4	36.0	36.4	60.6	61.1	68.3	71.3	10.4	4.2	97.4	56.7	59.4		

Table 4c: Hybrid traits and performance for 96-110 day RM groups at Aurora, NY (cont.).

Company/Brand	Hybrid	Trait Code †	Relative Maturity	Harvest Population	Dry Matter	Yield, 35% DM	Starch	IVSD ¹	Crude Protein	Lignin	Ash	Total Fatty Acids	aNDFom	Wet Chem aNDFom	Wet Chem 30 hr NDFD	30 hr NDFD	120 hr NDFD	240 hr NDFD	240 hr uNDFom	RFC - Fill Ratio ²	CNCPS v. 7.0 Predicted Allowable Milk Yield	CNCPS v. 7.0 Predicted Dry Matter Intake	OMDI ³
				plants/ac	%	tons/ac	% DM	% Starch	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% DM	% NDFom	% NDFom	% NDFom	% DM			lbs/day
Seed Consultants	SCS 1071AM	52	107	28152	30.8	16.8	33.9		7.8	2.5	3.2	2.1	36.8	36.5	61.4	63.3	70.0	73.0	10.0	3.9	104.7	60.6	
Masters Choice	MC6070	1	110	30498	31.0	19.2	33.1	76.1	8.0	2.5	3.2	2.1	37.9	38.8	62.0	62.7	70.0	73.0	10.2	3.8	100.9	59.2	61.6
Blue River Organic Seed	62G22	1	110	28487	31.0	17.1	33.8		7.6	2.6	2.9	2.4	37.2			60.6	70.6	73.6	9.8	3.7	93.9	56.5	
Syngenta NK	NK0440-3122 ⁵	19	104	25136	31.8	15.4	33.0		7.6	2.4	3.0	2.0	37.8			64.0	71.7	74.7	9.6	4.0	106.9	61.8	
Brevant Seed	B05T80SX ⁵	35	105	27482	32.4	17.3	33.0		7.4	2.5	2.8	2.1	38.8	38.8	61.0	65.0	73.3	76.4	9.2	4.0	110.2	63.0	
Seedway	SW 6540	41	108	29492	33.4	17.4	34.7		8.1	2.7	2.8	2.3	36.9			61.2	71.1	74.2	9.5	3.8	99.7	58.8	
Masters Choice	MC5790 ⁵	1	107	25806	33.4	16.6	35.6	73.8	8.2	2.3	2.9	2.3	35.2	35.9	60.4	63.6	71.1	74.2	9.2	4.3	108.1	61.5	60.2
Pioneer	P0242 AMXT ⁵	52	104	25136	33.5	17.2	36.3		7.7	2.4	3.2	2.1	35.3			64.0	71.9	75.0	8.8	4.2	111.0	63.1	
King's AgriSeeds-Redtail	RT 58T81	10	108	30330	33.5	18.9	35.5		7.3	2.6	2.9	2.2	38.6			62.3	68.9	71.9	10.9	4.0	94.0	55.7	
Albert Lea - Viking	O.74-10 ⁵	1	110	25471	34.0	16.6	38.0		7.9	2.4	2.9	2.4	34.9			61.5	68.2	71.0	10.2	4.3	100.8	57.8	
Masters Choice	MCT5851	10	108	25303	34.2	15.1	34.9	73.2	7.6	2.6	2.8	2.0	37.7	38.2	61.4	61.6	68.7	71.6	10.8	3.8	92.7	55.3	60.6
Seed Consultants	SCS 1030AM	52	103	26979	34.4	16.3	39.9		7.4	2.4	3.0	2.3	33.9	33.0	59.6	62.3	71.3	74.5	8.7	4.5	109.3	62.1	
Blue River Organic Seed	51T59	1	103	27649	34.6	16.3	37.1		7.6	2.5	2.9	2.3	35.3			60.8	68.2	71.1	10.2	4.1	100.3	58.3	
Local Seed Company	LC0708 VT2PRIB	41	107	26979	34.7	17.6	37.1		7.4	2.5	2.9	2.2	36.9			59.9	67.0	69.8	11.2	3.9	91.4	51.9	
Dekalb	DKC55-37RIB	36	105	28152	34.8	15.9	36.8		7.7	2.6	2.9	2.2	36.6			60.0	65.8	68.6	11.5	3.9	84.9	51.3	
Albert Lea - Viking	O.48-08 ⁵	1	108	25638	34.8	16.4	39.8		7.4	2.4	2.9	2.3	34.1			59.9	66.4	69.5	10.4	4.2	97.1	56.3	
Channel	203-01STXRIB	36	103	28152	35.8	15.8	38.7		7.5	2.4	3.1	2.4	34.8			62.3	69.3	72.2	9.8	4.5	101.1	58.2	
Local Seed Company	LC0607 TCRIB	38	106	26979	36.4	15.2	38.8		7.6	2.5	2.9	2.3	36.1			60.9	67.0	70.0	10.9	4.2	94.9	55.6	
Albert Lea - Viking	58-11	1	111	26979	36.5	16.7	35.7		7.6	2.5	2.8	2.3	38.4			64.3	72.5	75.7	9.4	4.2	104.5	59.9	
Channel	203-60TRERIB	39	103	25973	36.7	16.7	37.8		7.4	2.6	2.8	2.3	36.5			59.5	66.3	69.0	11.4	3.9	86.7	52.2	
Local Seed Company	LC0488 VT2PRIB	41	104	29157	36.8	19.1	40.2		7.2	2.6	2.9	2.4	35.7			60.0	67.0	69.7	10.9	4.2	92.4	54.6	
Seedway	SW 5569	14	106	25973	37.1	16.6	38.0		7.3	2.8	2.6	2.7	37.1			59.0	66.7	69.5	11.4	3.9	82.3	50.6	
Albert Lea - Viking	O.51-04	1	104	25806	37.4	16.9	39.3		7.2	2.4	2.6	2.5	35.8			61.4	68.5	71.4	10.3	4.4	101.7	58.4	
Blue River Organic Seed	54C27 ⁵	1	105	25303	39.1	15.6	38.4		7.4	2.5	2.6	2.3	37.5			62.6	68.9	71.8	10.7	4.3	99.1	57.0	
Local Seed Company	LC0398 5222EZ	22	103	28152	39.6	16.5	41.2		7.1	2.7	2.6	2.5	35.0			57.6	64.0	67.2	11.5	4.0	83.8	50.8	
Dekalb	DKC54-65RIB	42	104	28655	40.8	15.7	42.5		7.7	2.5	2.8	2.6	33.6			60.5	68.6	71.6	9.7	4.7	99.9	57.6	
Dekalb	DKC59-07RIB ⁶	36	109	-	35.0	-	34.7		7.3	2.7	2.5	2.2	39.1			61.2	66.6	69.5	12.0	3.8	81.1	49.8	
			103-111 day RM Mean	27224	34.9	16.7	37.0	74.4	7.6	2.5	2.9	2.3	36.4	36.9	61.0	61.6	68.9	71.8	10.3	4.1	97.5	57.0	60.8
			LSD (0.10)	3056	3.1	NS⁴	4.7		0.4	NS	0.3	0.3	3.7	2.5	NS	2.4	3.4	3.6	1.7	NS	17.9	7.4	NS
			Overall Mean	27760	36.0	17.1	38.2	72.3	7.5	2.5	2.9	2.4	36.0	36.4	60.6	61.1	68.3	71.3	10.4	4.2	97.4	56.7	59.4

Figure 3. Interpretation of quartile plots used in Figures 5 and 6.

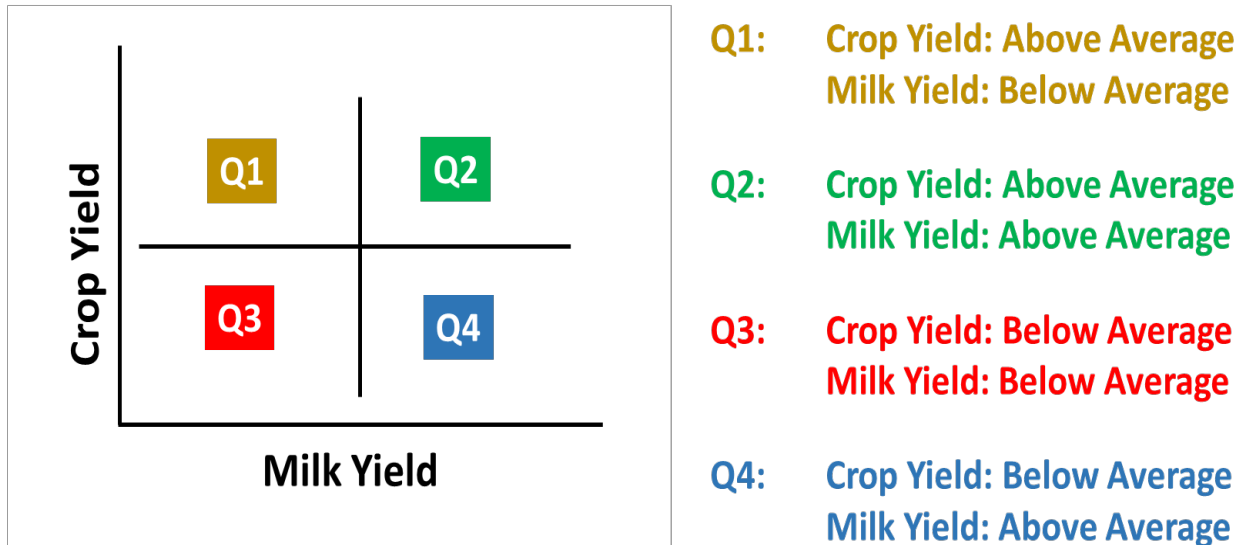


Figure 5.

Relationship between crop yield and predicted milk yield (PMY) for 80-95 day relative maturity (RM) hybrids planted at Albion, NY (5a), Willsboro, NY (5b) and Alburgh, VT (5c). Hybrids located in the top right quadrant were above the overall mean for both crop yield and PMY and are considered good performers. Hybrids located in the bottom left quadrant were below the mean for yield and milk production potential. Hybrids in the top left quadrant were below the mean for yield and above the mean for milk production potential and hybrids in the bottom right quadrant were above the mean for yield and below the mean for milk production potential.

Figure 6.

Relationship between crop yield and predicted milk yield (PMY) for 96-110 day relative maturity (RM) hybrids planted at Alburgh, VT (6a), Madrid, NY (6b), Aurora, NY (6c). Hybrids located in the top right quadrant were above the overall mean for both crop yield and PMY and are considered good performers. Hybrids located in the bottom left quadrant were below the mean for yield and milk production potential. Hybrids in the top left quadrant were below the mean for yield and above the mean for milk production potential and hybrids in the bottom right quadrant were above the mean for yield and below the mean for milk production potential.

Figures 5 & 6: Least Significant Difference

Least significant difference (LSD) is used to indicate if the statistical difference between two values is meaningful at a certain confidence level. An LSD of 0.10 indicates a confidence level of 90%. In the figures 5 & 6 the LSD (0.10) is represented graphically as a way to visualize if the differences between hybrids is statistically significant.

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Figure 5a: Albion, NY 80-95 day RM hybrids, 80-91 day RM entries.

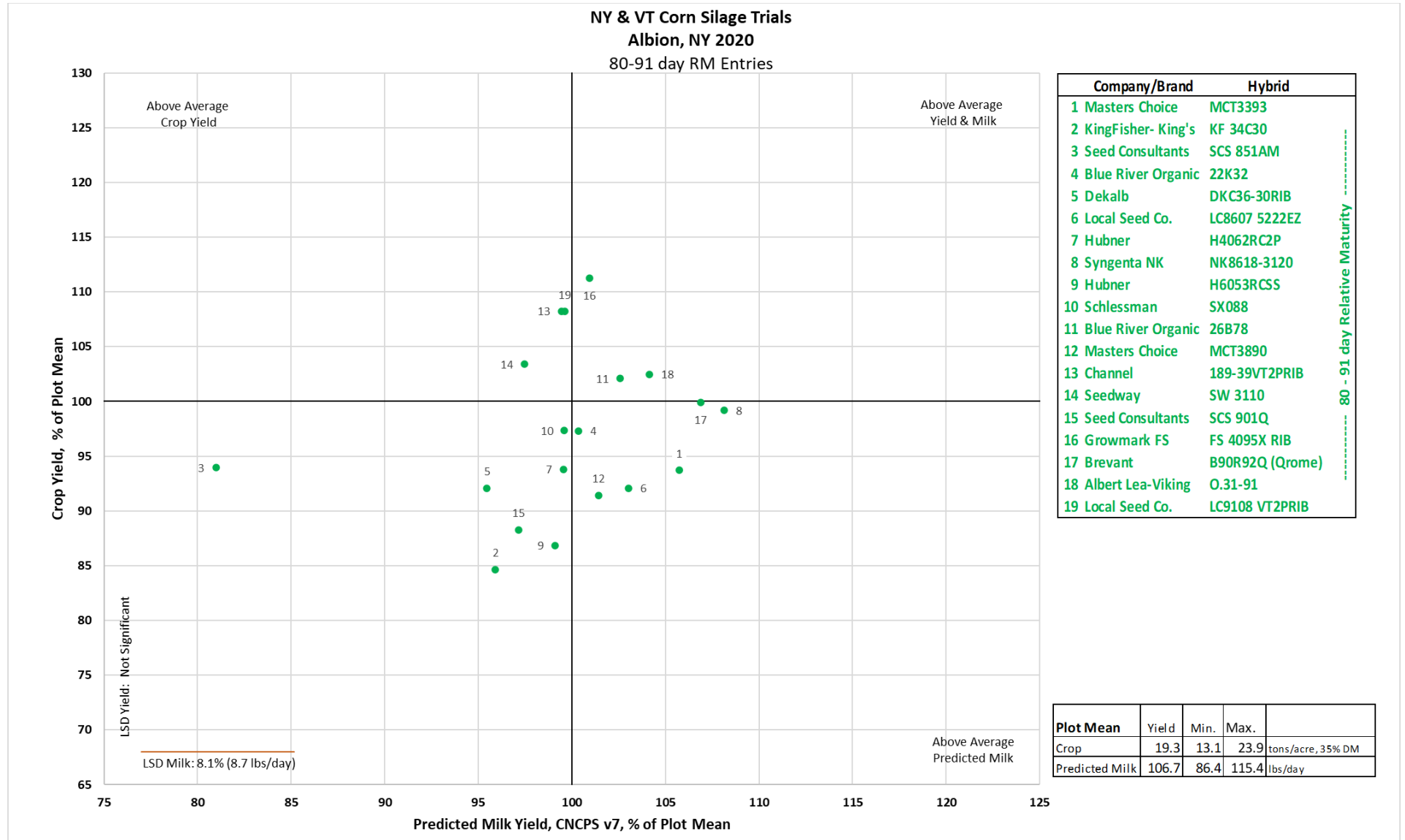


Figure 5a: Albion, NY 80-95 day RM hybrids, 92-95 day RM entries (cont.).

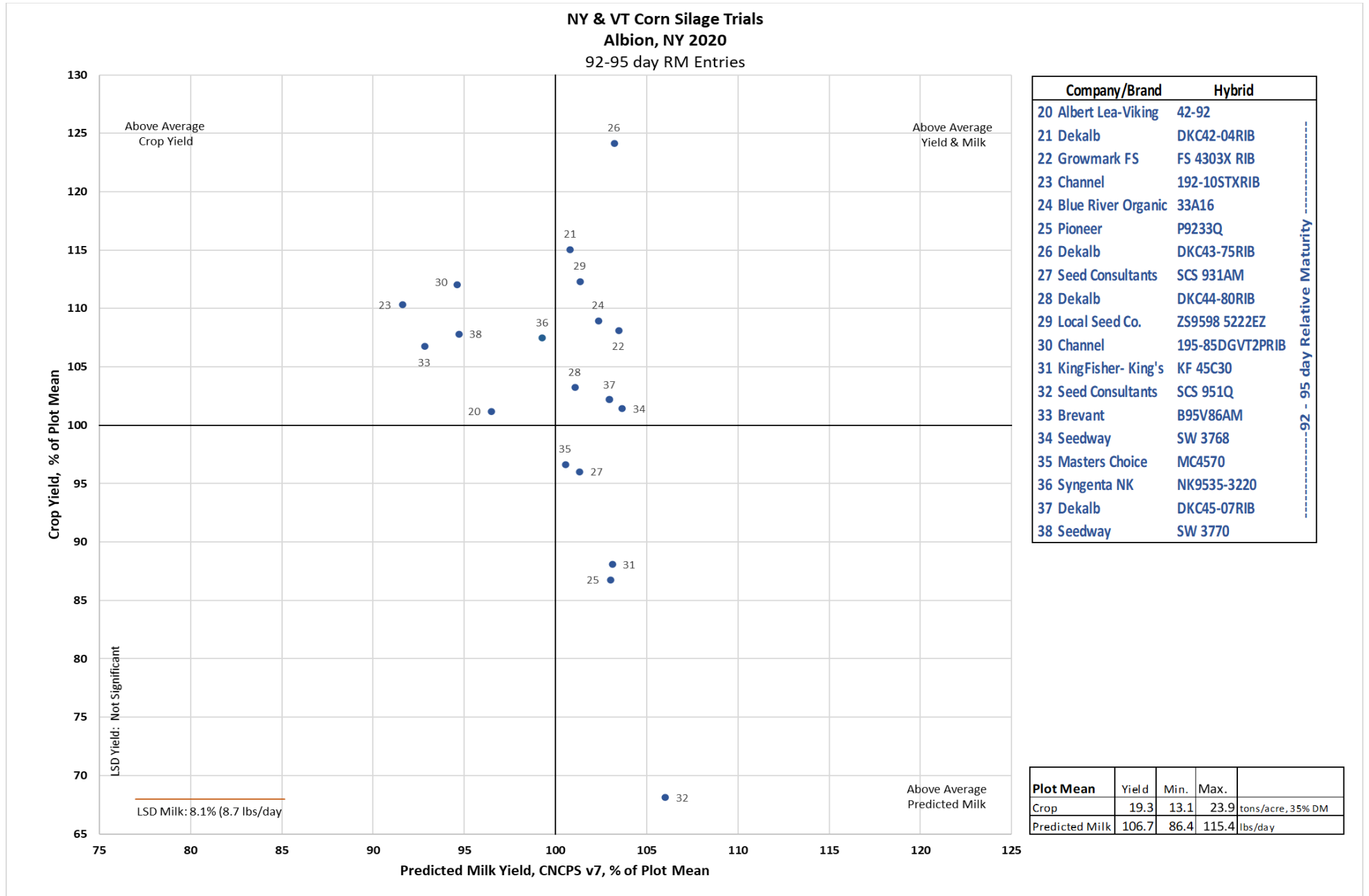


Figure 5b: Willsboro, NY 80-95 day RM hybrids, 80-91 day RM entries.

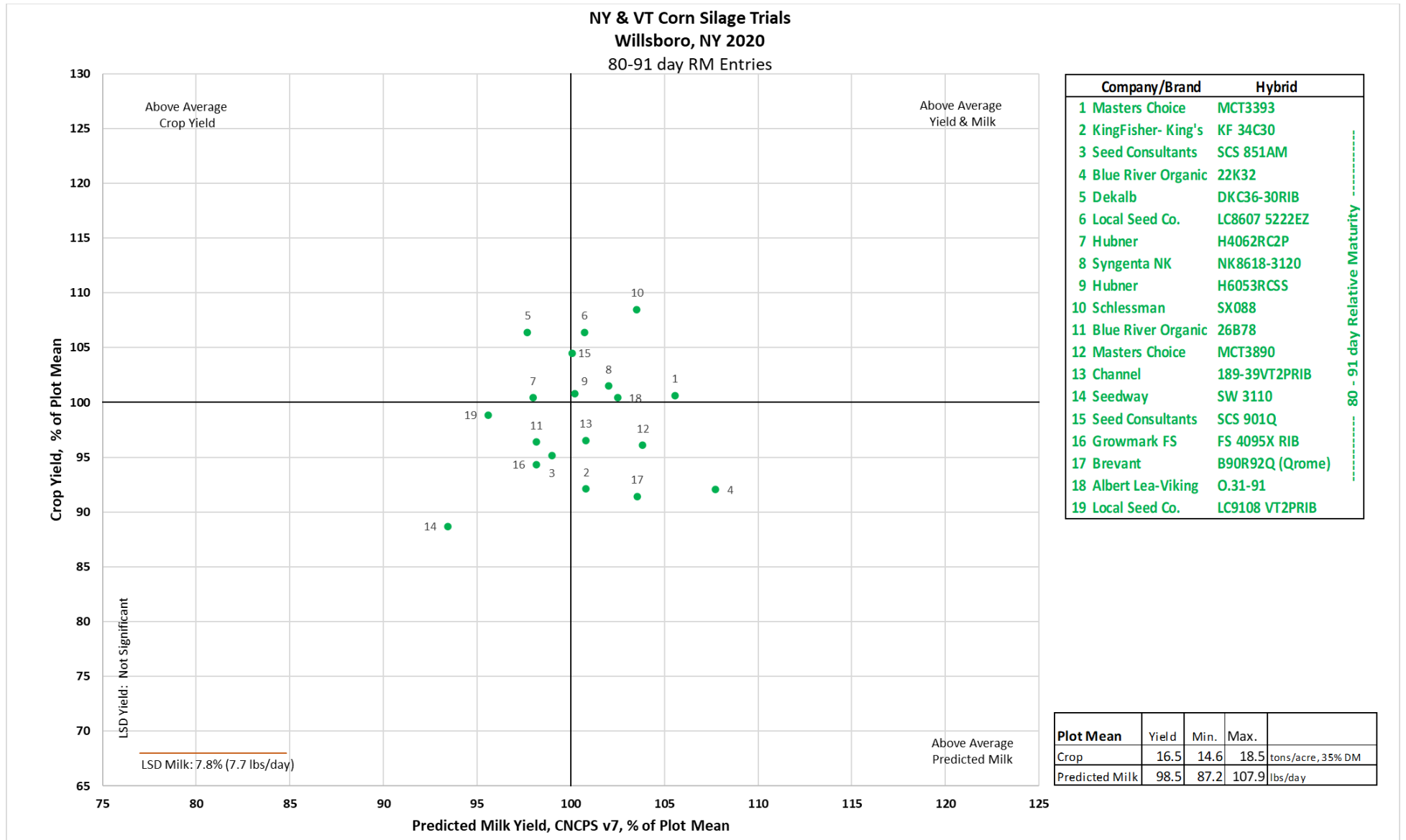


Figure 5b: Willsboro, NY 80-95 day RM hybrids, 92-96 day RM entries (cont.).

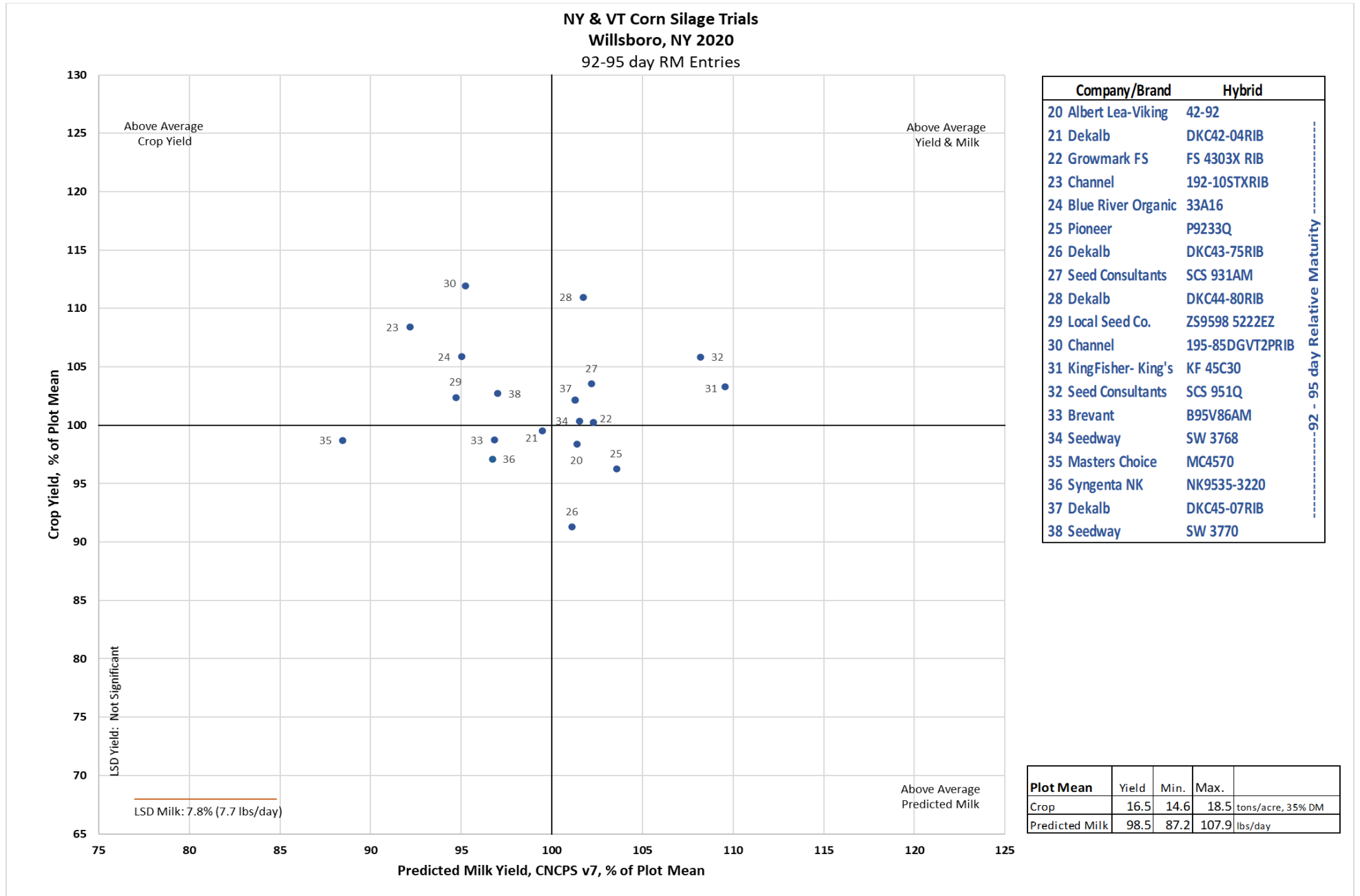


Figure 5c: Alburgh, VT 80-95 day RM hybrids, 80-91 day RM entries.

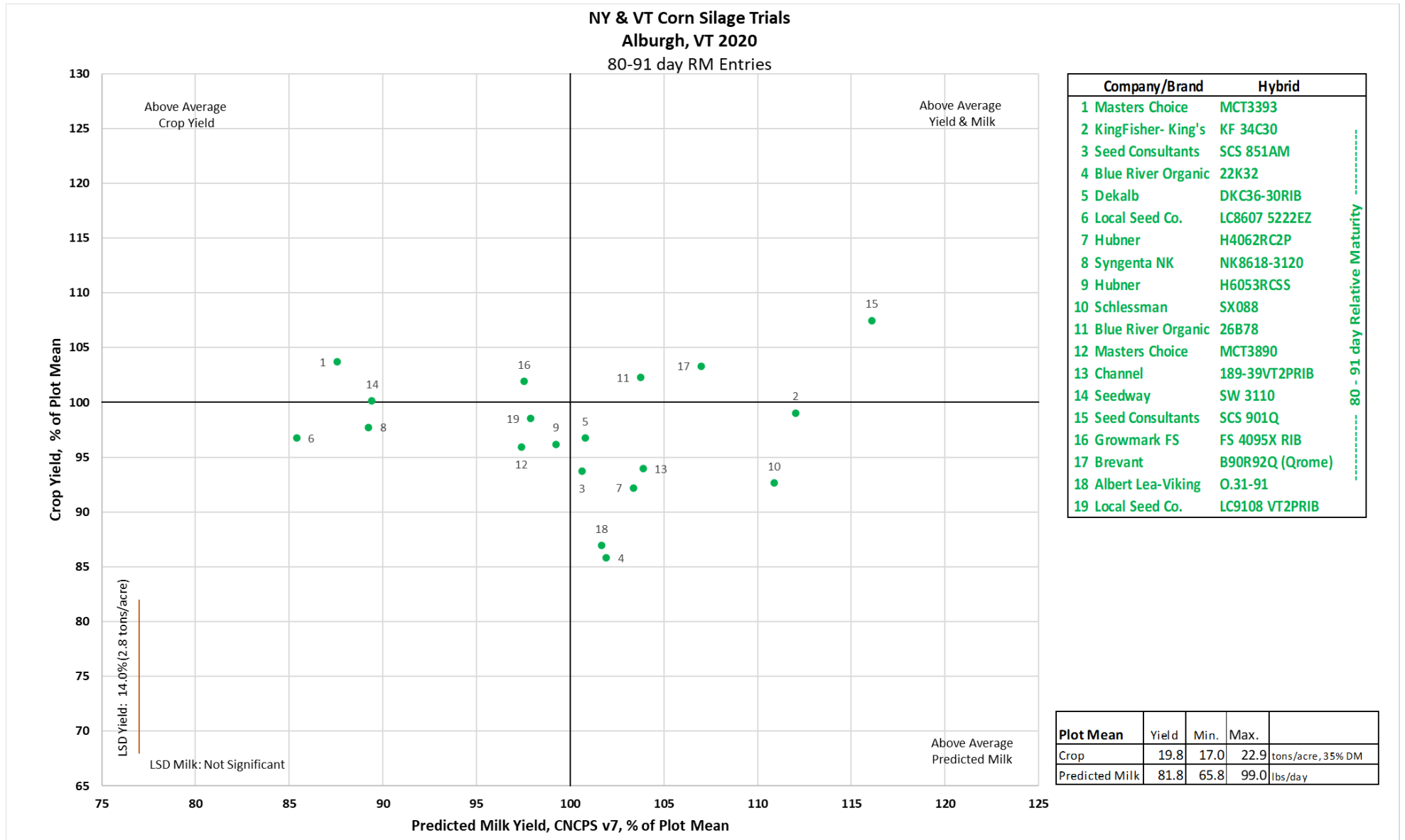


Figure 5c: Alburgh, VT 80-95 day RM hybrids, 92-95 day RM entries (cont.).

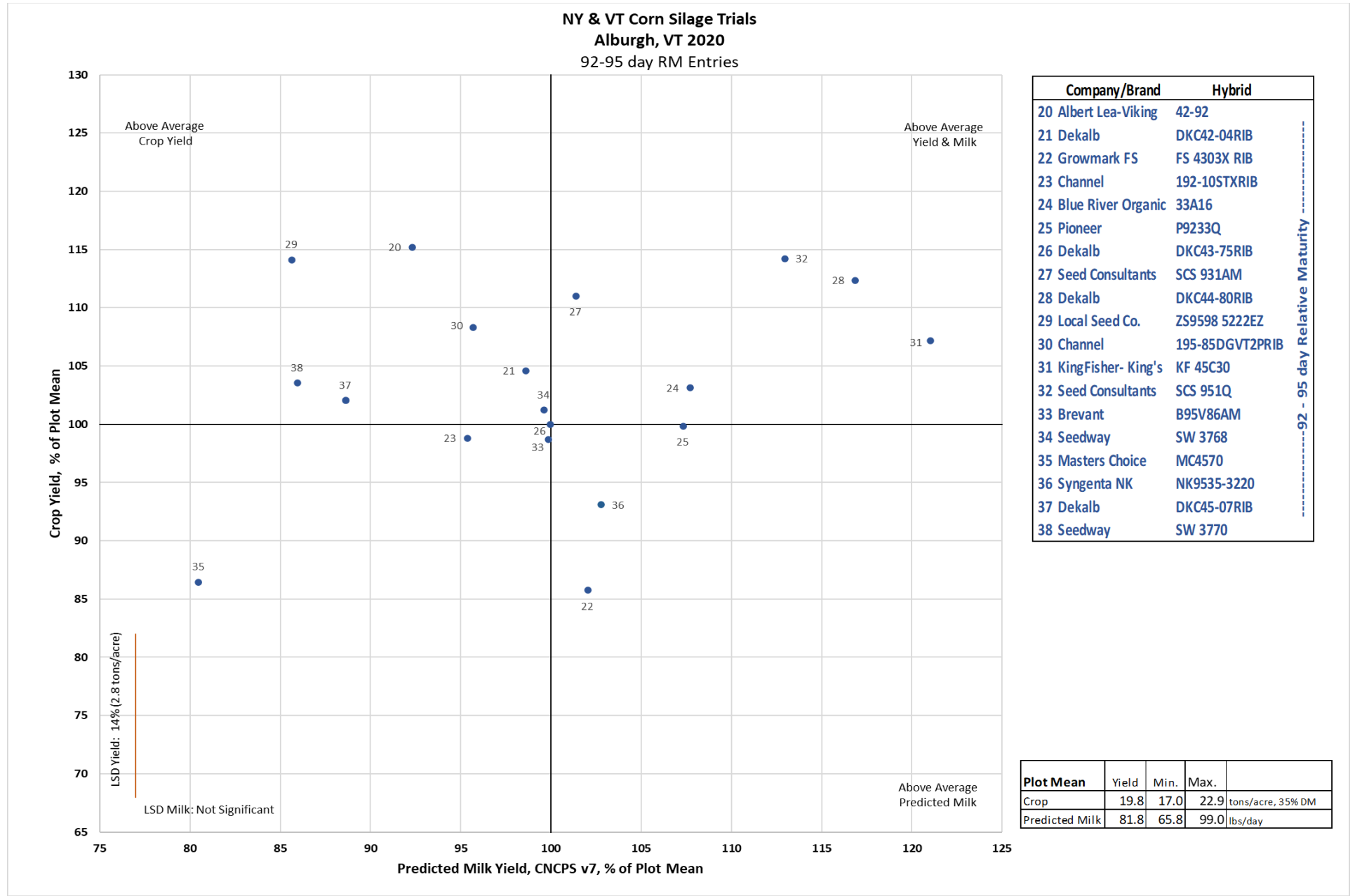


Figure 6a: Alburgh, VT 96-110 day RM hybrids, 96-102 day RM entries.

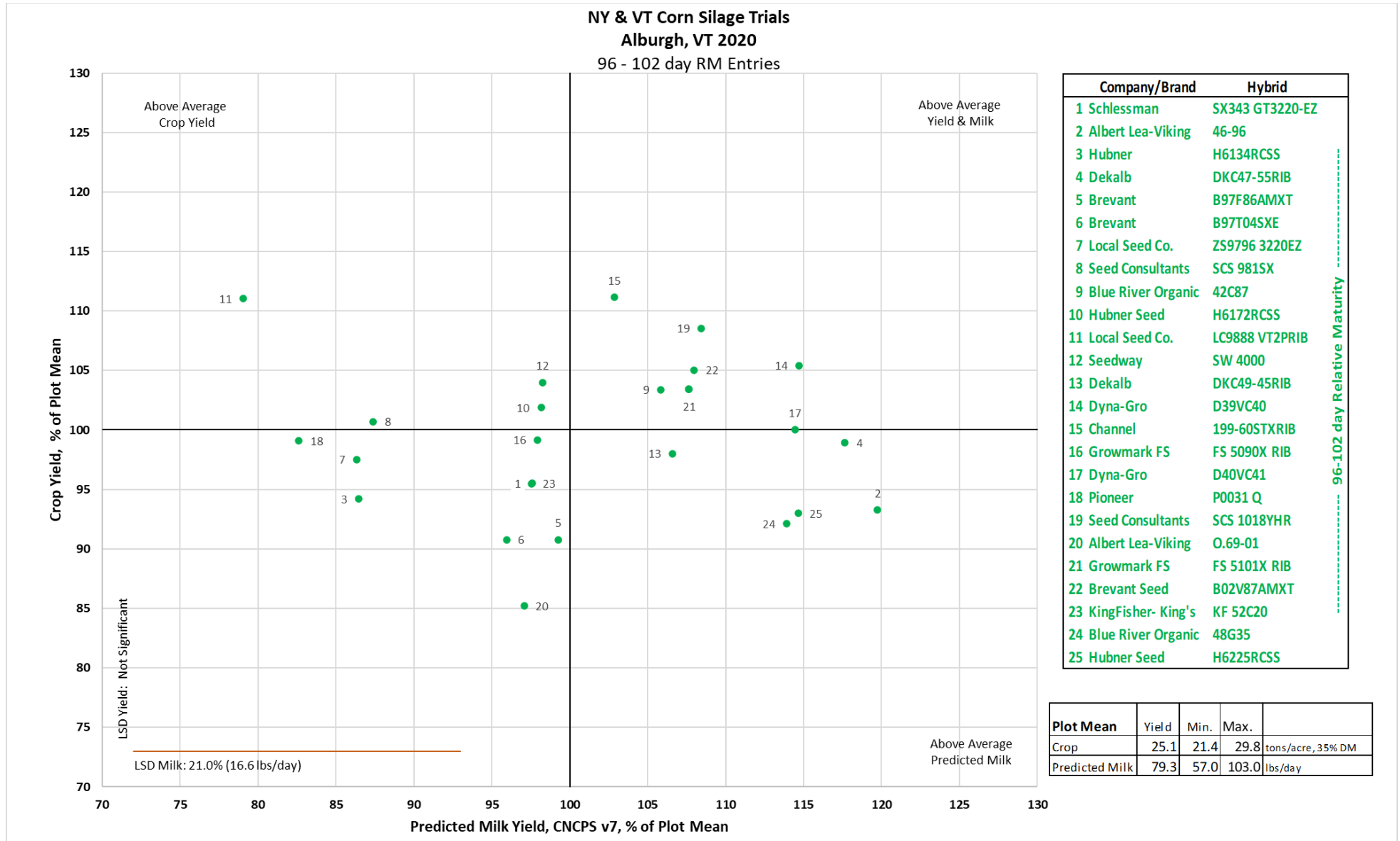


Figure 6a: Alburgh, VT 96-110 day RM hybrids, 103-110 day RM entries (cont.).

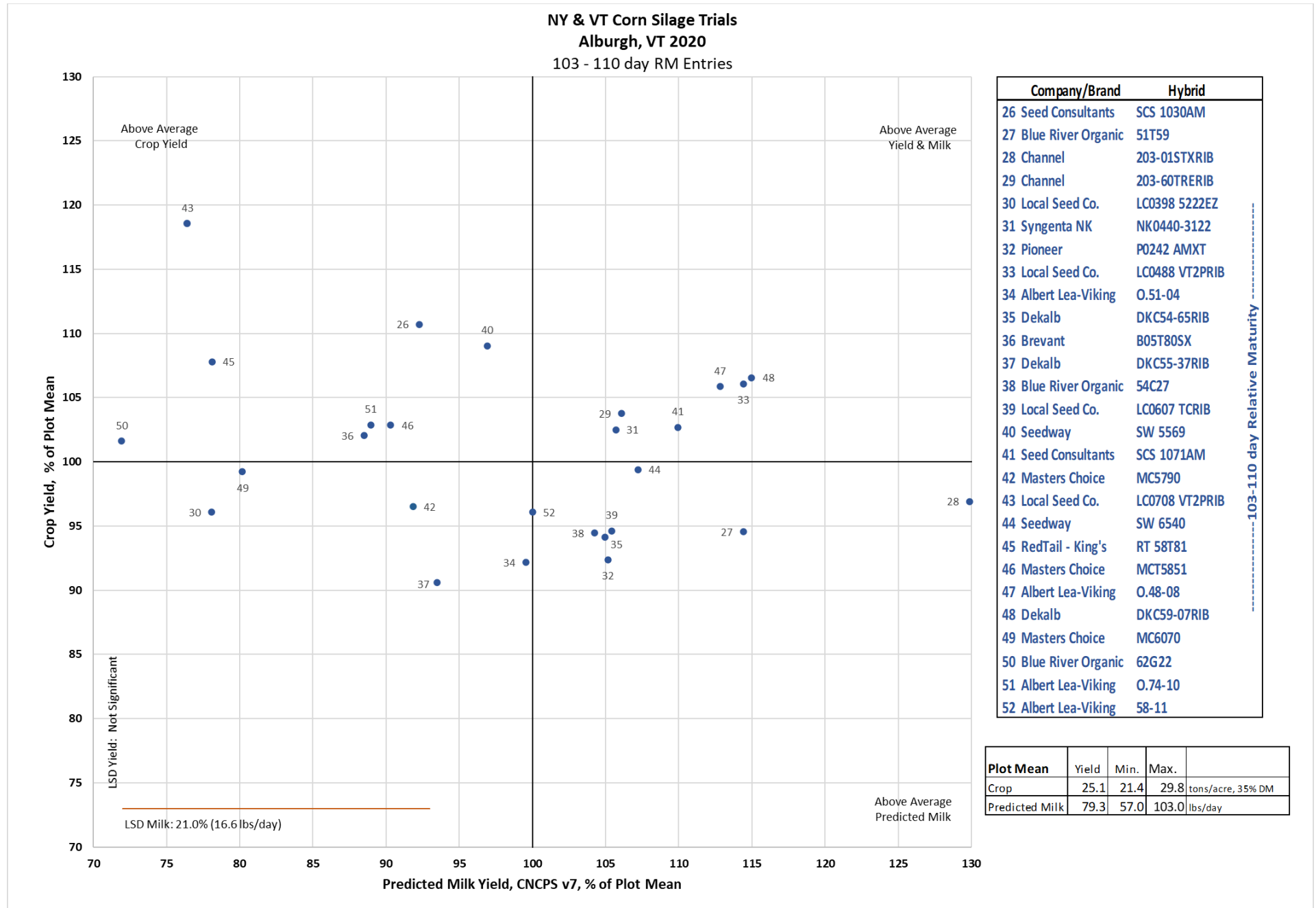


Figure 6b: Madrid, NY 96-110 day RM hybrids, 96-102 day RM entries.

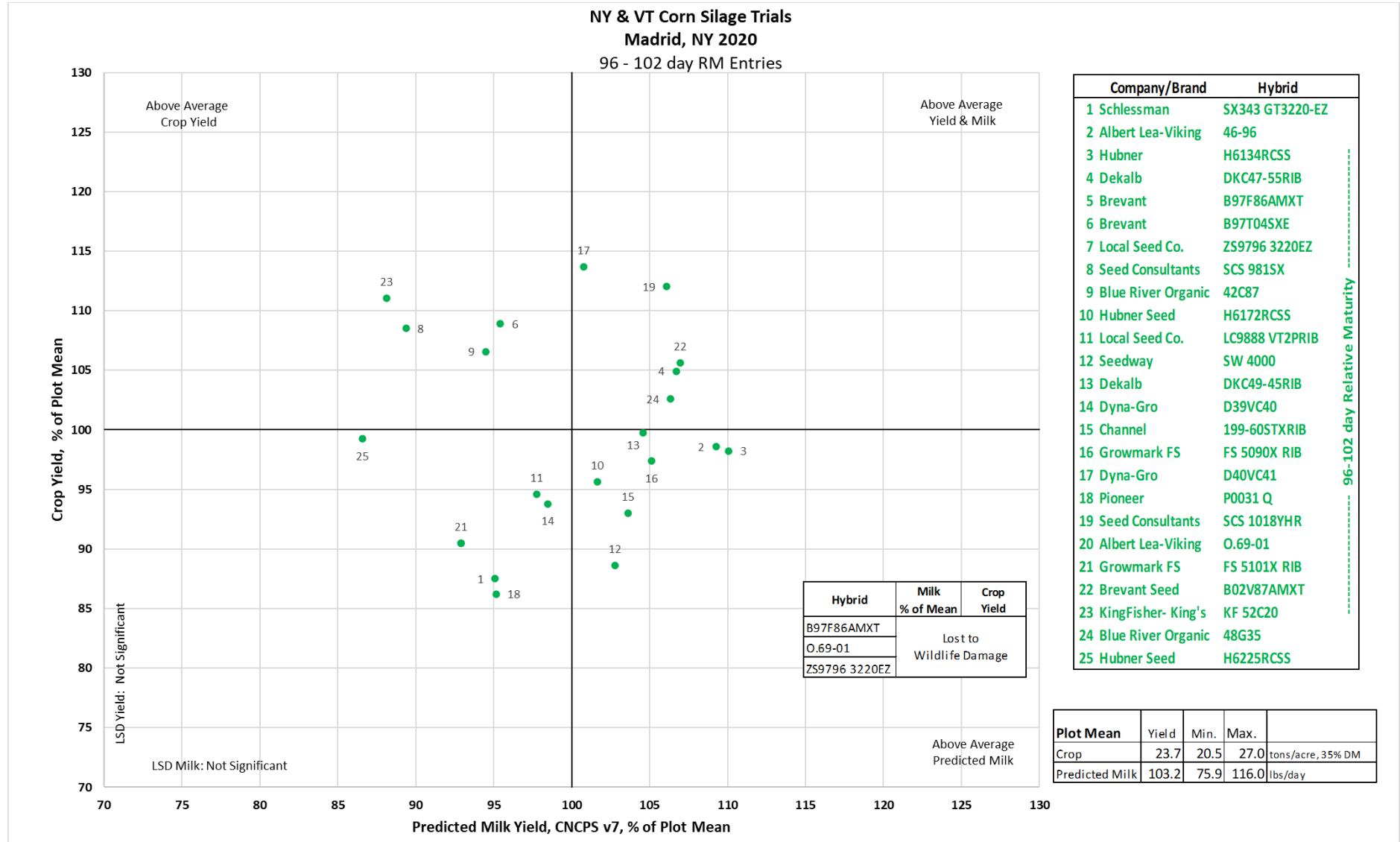


Figure 6b: Madrid, NY 96-110 day RM hybrids, 103-110 day RM entries (cont.).

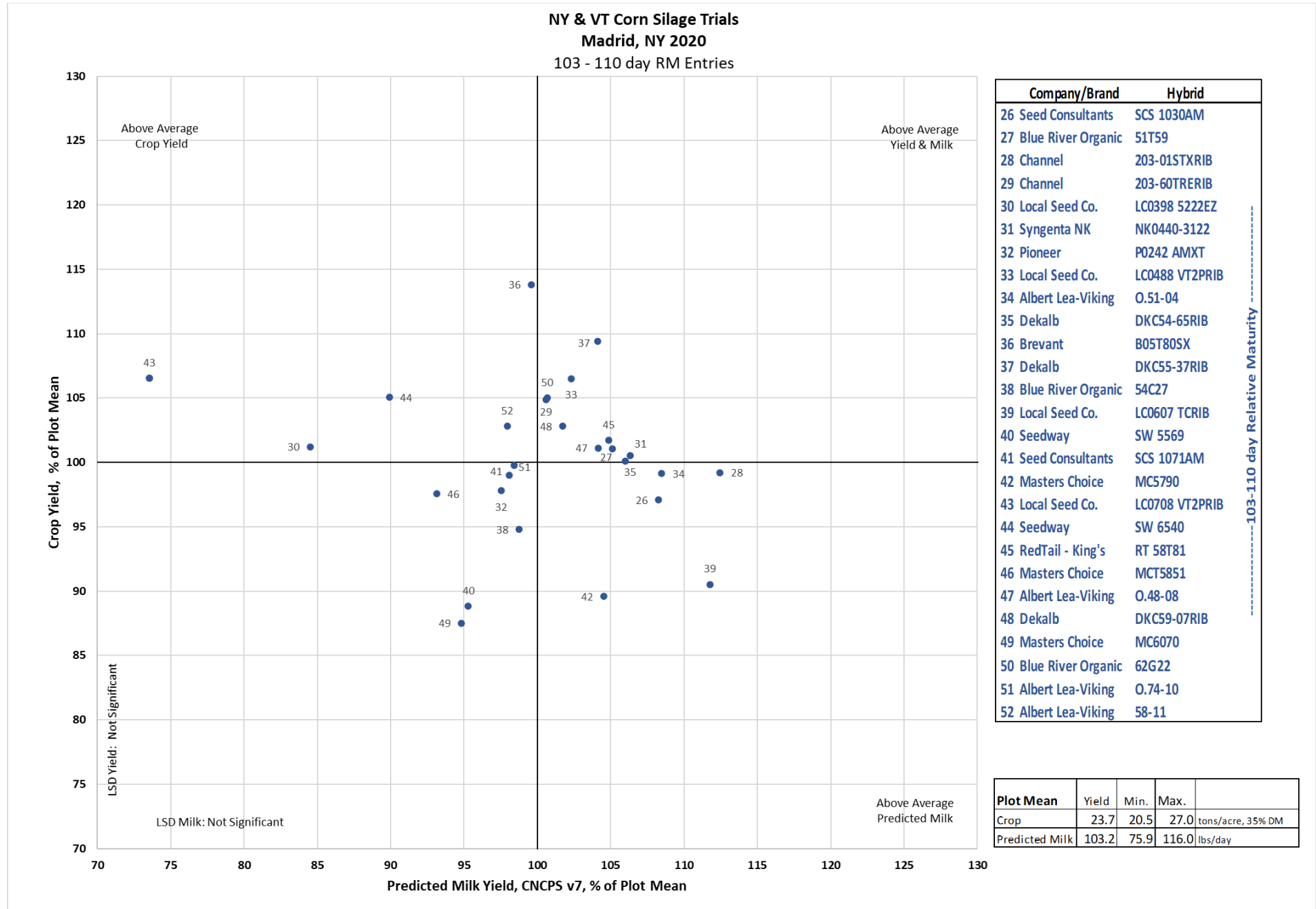


Figure 6c: Aurora, NY 96-110 day RM hybrids, 96-102 day RM entries.

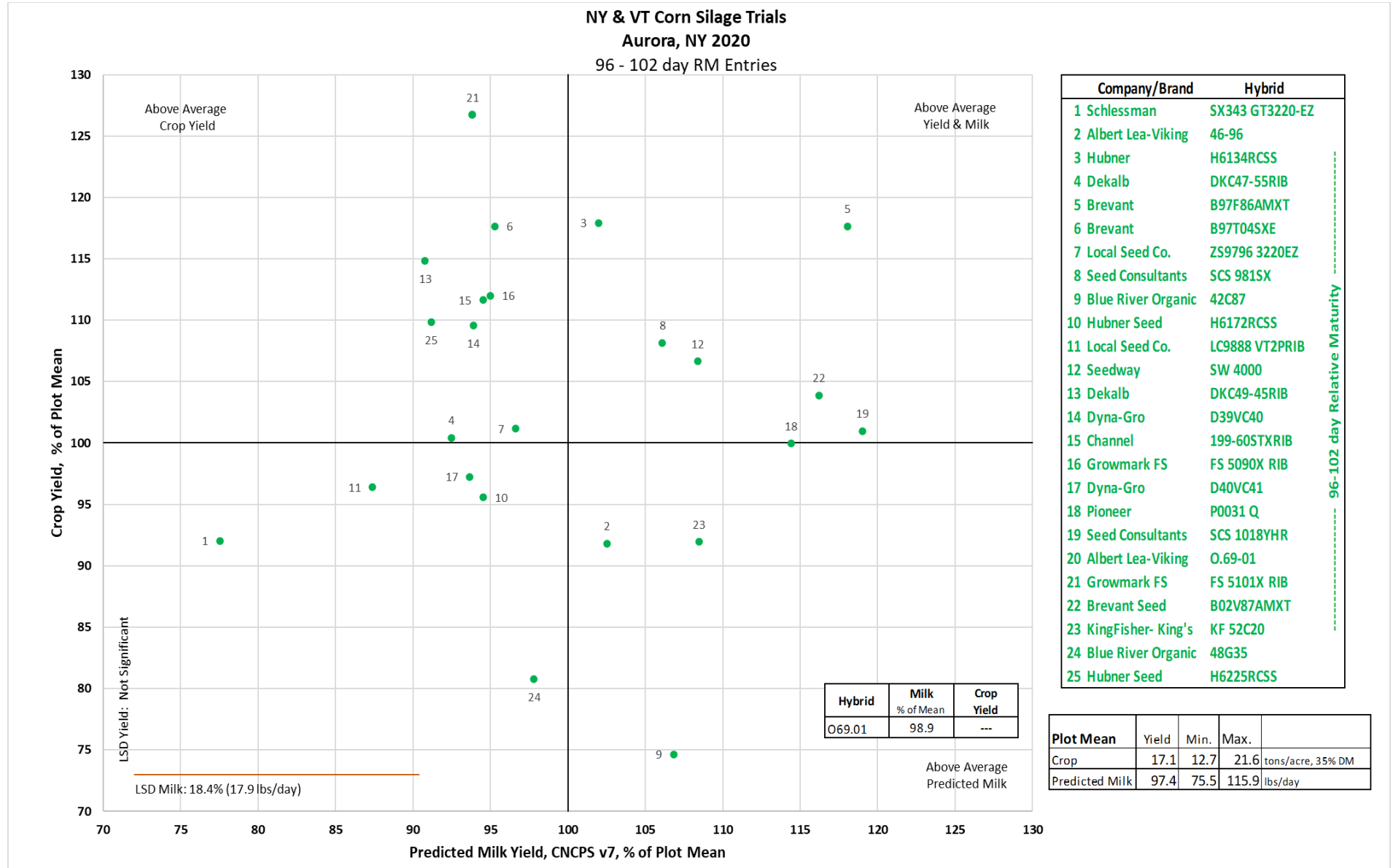


Figure 6c: Aurora, NY 96-110 day RM hybrids, 103-110 day RM entries (cont.).

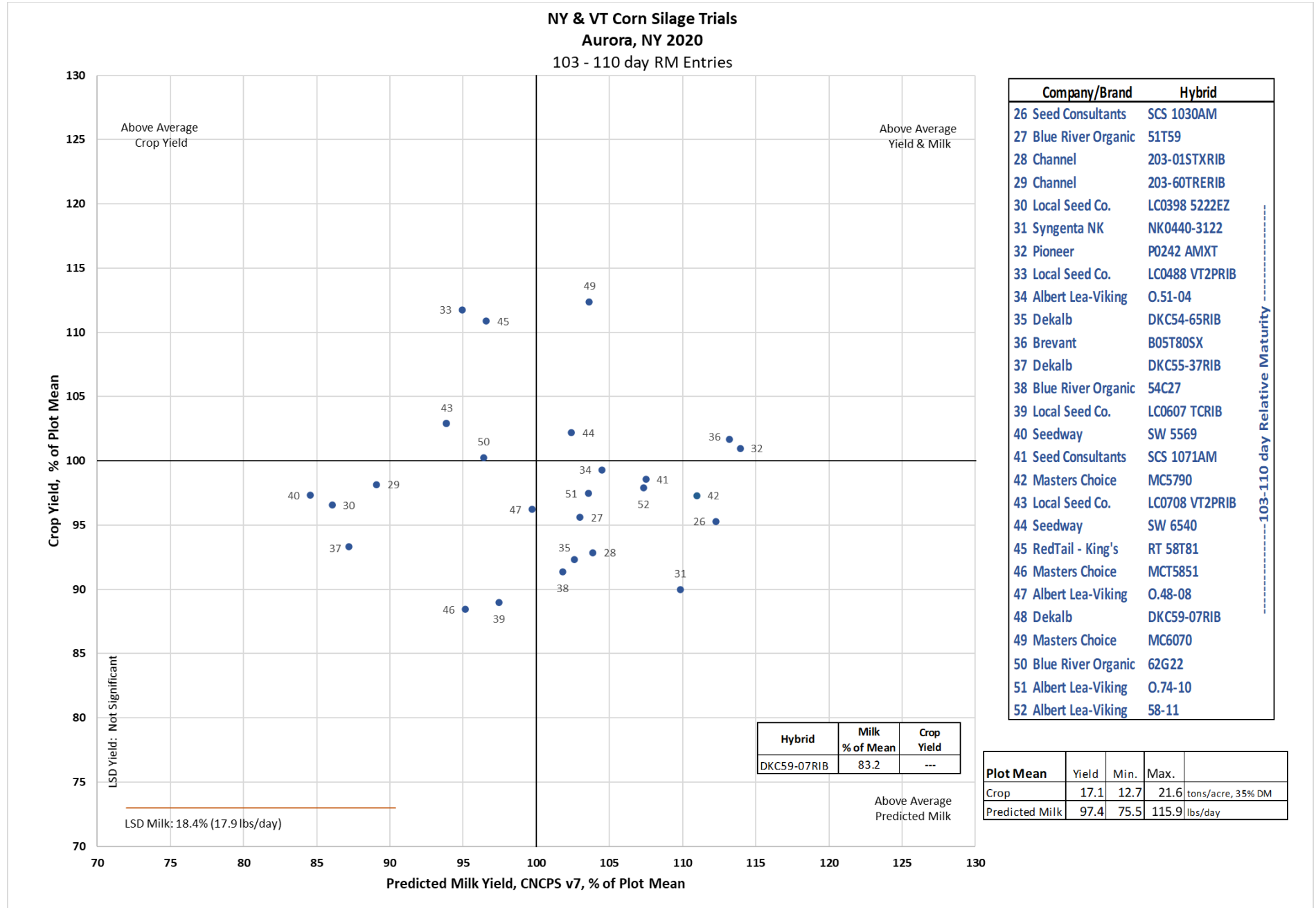


Table 5: Trait key for trait codes in Tables 3 and 4.

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 TRIssect (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 TRIssect (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	TRIssect (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 7: Trait descriptions

The Handy Bt Trait Table for U.S. Corn Production, updated February 2020

Trait packages in alphabetical order (acronym that may be used)	Bt protein(s) in the trait package	Marketed for control of:											Resistance confirmed to the combination of Bts in package (check local situation)	Herbicide trait			Non-Bt Refuge % (cornbelt)				
		B C W	C E W	E C W	F A W	A S B	S C B	S W B	T A W	W B C	W B C	R		G R	L L	E					
AcreMax (AM)	Cry1Ab Cry1F	x	x	x	x	x	x	x	x	x							CEW FAW WBC	x	x		5% in bag
AcreMax CRW (AMRW)	Cry34/35Ab1														x		NCR WCR	x	x		10% in bag
AcreMax1 (AM1)	Cry1F Cry34/35Ab1	x		x	x	x	x	x	x					x		ECB FAW SWB WBC NCR WCR	x	x		10% in bag 20% ECB	
AcreMax Leptra (AML)	Cry1Ab Cry1F Vip3A	x	x	x	x	x	x	x	x	x							CEW FAW WBC WCR	x	x		5% in bag
AcreMax TRIssect (AMT)	Cry1Ab Cry1F mCry3A	x	x	x	x	x	x	x	x					x		CEW FAW WBC WCR	x	x		10% in bag	
AcreMax Xtra (AMX)	Cry1Ab Cry1F Cry34/35Ab1	x	x	x	x	x	x	x						x		CEW FAW WBC NCR WCR	x	x		10% in bag	
AcreMax Xtreme (AMXT)	Cry1Ab Cry1F mCry3A Cry34/35Ab1	x	x	x	x	x	x	x						x		CEW FAW WBC WCR	x	x		5% in bag	
Agrisure 3010 (BR)	Cry1Ab		x	x				x	x							CEW	x	x		20%	
Agrisure 3000GT & 3011A	Cry1Ab mCry3A		x	x				x	x					x		CEW WCR	x	x		20%	
Agrisure Viptera 3110 (VR)	Cry1Ab Vip3A	x	x	x	x	x	x	x	x	x								x	x		20%
Agrisure Viptera 3111 (A4)	Cry1Ab Vip3A mCry3A	x	x	x	x	x	x	x	x	x	x					WCR	x	x		20%	
Agrisure 3120 E-Z Refuge (BZ)	Cry1Ab Cry1F	x	x	x	x	x	x	x								CEW FAW WBC	x			5% in bag	
Agrisure 3122 E-Z Refuge	Cry1Ab Cry1F mCry3A Cry34/35Ab1	x	x	x	x	x	x	x						x		CEW FAW WBC WCR	x			5% in bag	
Agrisure Viptera 3220 E-Z (VZ)	Cry1Ab Cry1F Vip3A	x	x	x	x	x	x	x	x	x							x			5% in bag	
Agrisure Viptera 3330 E-Z	Cry1Ab Vip3A Cry1A.105/Cry2Ab2	x	x	x	x	x	x	x	x	x							x			5% in bag	
Agrisure Duracade 5122 E-Z (D1)	Cry1Ab Cry1F mCry3A eCry3.1Ab	x	x	x	x	x	x	x						x		CEW FAW WBC WCR	x			5% in bag	
Agrisure Duracade 5222 E-Z (D2)	Cry1Ab Cry1F Vip3A mCry3A eCry3.1Ab	x	x	x	x	x	x	x	x	x	x					WCR	x			5% in bag	
Herculex I (HXI)	Cry1F	x		x	x	x	x	x								ECB FAW SWB WBC	x	x		20%	
Herculex RW (HXRW)	Cry34/35Ab1													x		NCR WCR	x	x		20%	
Herculex XTRA (HXX)	Cry1F Cry34/35Ab1	x		x	x	x	x	x						x		ECB FAW SWB WBC NCR WCR	x	x		20%	
Intrasect (YHR)	Cry1Ab Cry1F	x	x	x	x	x	x	x								CEW FAW WBC	x	x		5%	
Intrasect TRIssect (CYHR)	Cry1Ab Cry1F mCry3A	x	x	x	x	x	x	x						x		CEW FAW WBC WCR	x	x		20%	
Intrasect Xtra (YXR)	Cry1Ab Cry1F Cry34/35Ab1	x	x	x	x	x	x	x						x		CEW FAW WBC NCR WCR	x	x		20%	
Intrasect Xtreme (CYXR)	Cry1Ab Cry1F mCry3A Cry34/35Ab1	x	x	x	x	x	x	x						x		CEW FAW WBC WCR	x	x		5%	
Leptra (VYHR)	Cry1Ab Cry1F Vip3A	x	x	x	x	x	x	x	x	x							x	x		5%	
Powercore ^a (PW)	Cry1A.105/Cry2Ab2	x	x	x	x	x	x	x								CEW WBC	x	x		^a 5%	
PW Refuge Advanced ^b (PWRA)	Cry1F																			^b 5% in bag	
Powercore Enlist (PWE)	Same as Powercore	x	x	x	x	x	x	x								Same as Powercore	x	x	x	5% in bag	
QROME (Q)	Cry1Ab Cry1F mCry3A Cry34/35Ab1	x	x	x	x	x	x	x						x		CEW FAW WBC WCR	x	x		5% in bag	
SmartStax ^a (SX,STX or SS)	Cry1A.105/Cry2Ab2	x	x	x	x	x	x	x						x		CEW WBC	x	x		^a 5%	
STX Refuge Advanced ^b (SXRA)	Cry1F Cry3Bb1															NCR WCR				^b 5% in bag	
STX RIB Complete ^b (STXRIB)	Cry34/35Ab1																			^b 5% in bag	
SmartStax Enlist (SXE)	Same as SmartStax	x	x	x	x	x	x	x						x		Same as SmartStax	x	x	x	5% in bag	
Trecepta ^a (TRE)	Cry1A.105/Cry2Ab2	x	x	x	x	x	x	x	x	x							x			^a 5%	
Trecepta RIB Complete ^b (TRERIB)	Vip3A																			^b 5% in bag	
TRIssect (CHR)	Cry1F mCry3A	x		x	x	x	x	x						x		ECB FAW SWB WBC WCR	x	x		20%	
VT DoublePRO ^a (VT2P)	Cry1A.105/Cry2Ab2		x	x	x	x	x	x								CEW	x			^a 5%	
VT2P RIB Complete ^b (VT2PRIB)																				^b 5% in bag	
VT TriplePRO ^c (VT3P)	Cry1A.105/Cry2Ab2		x	x	x	x	x	x						x		CEW	x			^c 20%	
VT3P RIB Complete ^d (VT3PRIB)	Cry3Bb1															NCR WCR				^d 10% in bag	
Yieldgard Corn Borer (YGCB)	Cry1Ab		x	x				x	x							CEW	x			20%	
Yieldgard Rootworm (YGRW)	Cry3Bb1													x		NCR WCR	x			20%	
Yieldgard VT Triple (VT3)	Cry1Ab Cry3Bb1		x	x				x	x					x		CEW NCR WCR	x			20%	

The latest version of the table is always posted at <https://www.texasinsects.org/bt-corn-trait-table.html>

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