NEW YORK and VERMONT CORN SILAGE HYBRID EVALUATION PROGRAM

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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. In 2023, the hybrid relative maturity (**RM**) grouping was revised in response to entry trends and stakeholder feedback. The Early-Mid RM group was revised (from 80-95 day RM) to be 85-98 day RM while the Mid-Late RM group was refined (from 96-110 day RM) to be 99-110 day RM. Hybrids were either entered into the 85-98 day RM group (Early-Mid; n = 39) and were tested at two locations in NY (Lamb Farms in Oakfield and the Willsboro Research Farm in Willsboro) and one location in VT (Borderview Farm in Alburgh) or were entered into the 99-110 day RM group (Mid-Late; n = 36) and were tested at two locations in NY (Greenwood Farms in Madrid and the Musgrave Research Farm in Aurora) and one location in VT (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 2023, the corn silage hybrid evaluation program received 75 entries from 17 seed brands. All hybrids were planted using a two-row planter at 34,000 plants/acre. Each plot consisted of four 17’5” rows spaced 30 inches apart with harvest of the inner two rows. Hybrids were planted in a randomized complete block design with 3 replications.

The early-mid hybrids were planted between May 10th and May 15th and the mid-late hybrids were planted between May 9th and 16th (Tables 2&3). The early-mid hybrids were harvested on September 15th at two locations. The Willsboro location was not harvested due to extreme weather affecting crop growth. The mid-late hybrids were harvested between September 21st and September 27th (Tables 2&3). From planting to harvest, the early-mid hybrids had 2,097 GDD in Oakfield and 2,130 GDD in Alburgh (86-50°F system). From planting to harvest, the mid-late hybrids had 2,087 GDD in Aurora, 2,236 GDD in Madrid, and 2,203 GDD in Alburgh (Figure 1 and Table 2).

Information on soil type, planting and harvest dates, and fertility management can be found in Table 3 for each field location.

The goal was to harvest all hybrids at about 65% (±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. 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 spectroscopy (**NIR**) procedures were used to determine crude protein (**CP**), starch, lignin, linoleic acid (C 18:2), ash corrected neutral detergent fiber (**aNDFom**), and neutral detergent fiber digestibility (**NDFD**; 12, 30, 120, 240 h). Three companies paid an additional fee for wet chemistry analysis on NDFD at 30 h of in vitro fermentation, while one company paid an additional fee for In Vitro Starch Digestibility (4 hr, 1mm).

Corn silage hybrid performance was evaluated by the predicted milk production output (ME and MP allowable milk) of CNCPS v7 (Cornell University, Ithaca, NY). Rumen aNDFom and uNDFom pool sizes have been shown to correlate with dry matter intake (DMI), with more degradable aNDFom, lower uNDFom diets encouraging intake, holding all other dietary nutrients equal. Increased intake of a common diet is meant to improve milk production whereas lower intake will limit production. Corn silage NIR results were applied to a typical New York high corn silage-based diet (forage at ~55% of diet DM; corn silage ~80% 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. Andrew LaPierre. The diet was formulated for 100 lb milk yield, assuming 4.15%, 3.25%, and 4.85% milk fat, true protein, and lactose concentrations, respectively. Cattle were described as 48 months old, 130 days in milk, weighing approximately 1550 lb, and expending the average maintenance energy assuming thermoneutral conditions in a typical Northeast freestall barn. Initially, each individual hybrid replicate replaced the average corn silage in the base diet (assuming 59.5 lb DMI) at the same DM inclusion rate. 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), holding dietary inclusion levels of all ingredients equal. 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 varied greatly across the Northeast in 2023. These extremes were captured in the field locations in the NY VT Corn Silage Hybrid Evaluation Program. This level of variation offers the opportunity to contrast crop performance across diverse environments.

Precipitation trends were largely defined by a west to east pattern (Tables 1 & 2). The western most location (Oakfield, NY) experienced dry to light drought conditions throughout the growing season while the eastern most location (Alburgh, VT) experienced excessive rainfall (Figure 1).

Growing Degree Day (GDD) accumulation trended below average (Tables 1, 2, & 4) at all locations except Willsboro, which was notably above average; a reminder in the unique micro-climates influencing crop production (Figure 1). As a result, and despite planting dates very similar to 2022, the duration of time needed to harvest at target plant maturity was extended in 2023. Harvest dates were one to two weeks later in 2023 for locations with very similar planting dates to 2022.

Figure 2 provides a comparison of GDD accumulation from planting to harvest as well as average whole plant DM and starch content, highlighting the influence of growing environment and resulting variability in GDD's needed to achieve desirable average whole plant DM.

Harvest timing for both maturity groups at Alburgh, VT resulted in an average whole plot DM lower than desired. This indicates additional time (GDD accumulation) prior to harvest was warranted; however, when comparing GDD accumulation by location, Table 2 and Figure 2 show GDD accumulation equal to or greater than other locations, highlighting the environmental factors beyond GDD accumulation influencing the crops progress.

A reminder that while tools such as tracking GDD accumulation can help inform harvest decisions, ultimately close-up evaluation of fields and plant development (both kernel development and whole plant DM) are needed to optimize harvest timing.

Nitrogen Balances

A Nitrogen (N) balance can be calculated by subtracting the total N in the harvested crop from the total N supplied to the crop. The total N supplied includes current year fertilizer and manure N additions, as well as N credits from previous manure applications, previous crops (sod or soybeans) and soil N supply (based on soil type). Contributions by previous crops and soil are both derived from book values. The total N taken up by the crop is calculated using the crop yield multiplied by the N concentration within the crop, which is derived from the CP content (CP / 6.25). Manure N from past applications assumed 12% and 5% of the organic N from applications from one and two prior growing seasons respectively. The total N balance includes all N in manure applied to the current crop year. The available N balance assumes 35% from organic N and 0-65% (based on soil incorporation) from inorganic N in the manure to be available to the crop in the current year. Thus, total N balances will be higher than available N balances when manure is applied in the current crop year.

Based on this calculation a positive N balance indicates more N was applied than was taken up by the crop, suggesting that excess N was left in the soil at the end of the growing season or losses throughout the season were larger. This can represent the addition of N inputs beyond what the crop was able to utilize, which is most often the case when other conditions are not limiting plant growth. In the instance of first year corn after sod, a positive balance may remain even when additional N inputs are minimal. However, this may also occur where the plant is not able to utilize available N and crop yield is limited by other factors, often due to extreme drought or prolonged periods of saturated soils.

A negative balance can also represent different scenarios. First, it can represent an inadequate supply of N and this would be reflected by depressed yields, visual signs of N deficiency (firing of leaves up to the ear leaf), or low test values from the end-of-season Corn Stalk Nitrate Test (CSNT). When yields are not compromised and no other indications of N deficiency are noted, a negative balance

suggests that 1) the soil N supply may exceed the book value, 2) the crop is more efficient at utilizing available N than current N rate calculations give it credit for, or 3) both.

The results presented in Table 3, reflect the available N balance for each location in 2023. Available N Balance = Available N supply (soil N + sod/soybean N + fertilizer N + available manure N) - Total N uptake (yield x N concentration).

Least Significant Difference

Least Significant Difference values are presented in Tables 5 and 6 as well as Figures 5 and 6. The LSD indicates the level of difference between two values that is 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. When evaluating differences in hybrids, it is important to confirm if numerical differences are significant or not based on the LSD value.

Growing Conditions and Location Notes

Oakfield

Rainfall and GDD accumulation were below average, though this location historically has lower accumulation compared to other trial locations (Tables 1&4). With this pattern of lower rainfall, the timing of the rains is impactful. Timely rainfall in 2023 (Figure 1e) resulted in high overall performance (Table 5a and Figure 5a).

Figure 2 provides an interesting comparison of GDD accumulation from planting to harvest and resulting average whole plant DM at the early-mid maturity locations. A higher average whole plant DM with fewer GDD's suggest the crop at this location was better able to utilize available heat.

The available N balance (Table 3) is of note at this location and represents a scenario that has become more common in dairy systems where there were no signs of N deficiencies and yields were quite strong despite a negative available N balance. This reflects the ability of healthy soils, particularly those with a manure history, to supply N beyond current estimates and the ability of high yielding corn crops to utilize available N more efficiently (pounds of N per unit of yield).

Willsboro

This location experienced dry conditions around planting which resulted in uneven germination and emergence (Table 1 & Figure 1d). Following this period of dry conditions, precipitation was excessive further exacerbating the variability in hybrid growth stage. These compounding effects led to extreme variability in plant maturity, both within plots and between plots, which made harvesting at a uniform stage of maturity unworkable and the location was abandoned.

Alburgh

This was the wettest location in 2023 based on monthly totals (Table 1) and seasonal totals (Figure 1, Tables 2 & 4). Monthly GDD accumulation was near normal (Table 1); however, days to harvest (Table 3) and average whole plant DM (Figure 2) provide evidence that the crop was not able to efficiently utilize these GDD's, likely due to other growing season stressors.

Consistent with previous trends, above average rainfall had a negative effect on fiber digestibility, which will have implications for how this crop can be utilized in dairy diets (Tables 5b & 6a, Figures 5b & 6a).

Available N balances were positive (Table 3) and yields were average to above for this location. This suggests that N was not limiting, despite excess rainfall and the risk of N leaching. It should be noted that a significant portion of the N was applied as sidedress which reduces the potential for early season losses to the environment and likely led to better N utilization by the crop.

Aurora

This location ended the season with above average rainfall and below average GDD accumulation (Tables 1&4). Though not reflected in monthly totals, relatively dry conditions persisted during a portion of July which likely impacted pollination, as poor kernel tip fill was observed across all hybrids. Despite this trend, starch content was in line with other 2023 locations and overall yields were competitive relative to past trends at this location.

"This location reported the highest fiber digestibility which, coupled with starch content and accompanying forage quality metrics, produced the highest average predicted milk yield of the mid-late season locations".

A significantly positive N balance (Table 3) indicates N rates exceeded crop uptake and that limited N was not a contributor to overall performance of the crop. A field history consisting of a row crop rotation with very few inputs to enhance soil health has been noted at this location previously and are likely drivers of the stressed appearance of the crop, despite adequate nutrient inputs and mid to late season relief of dry conditions.

Madrid

Rainfall and GDD accumulation were near normal for this location (Table 1) and overall crop performance was high (Table 6b, Figure 6b).

The available N balance (Table 3) is of note at this location and represents a scenario that has become more common, both at this location and generally in dairy systems with a focus on soil health, where there were no signs of N deficiencies and yields were quite strong despite a negative available N balance. This reflects the ability of healthy soils, particularly those with a manure history, to supply N beyond current estimates and the ability of high yielding corn crops to utilize available N more efficiently (pounds of N per unit of yield).

Forage Quality and Yield

Individual hybrid results are presented in Tables 5 and 6 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. Due to few hybrids being analyzed for wet chemistry parameters, an LSD was not calculated for the early-mid hybrids.

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 5). 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 for this growing season. 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). Consistent performance above average across locations in both crop yield and PMY (Figures 5 and 6) is a strong indicator of hybrid 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 increased DMI and excessive energy consumption. 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.

Overall Trends in Performance

As previously stated, evaluating the impacts of growing season on hybrid performance with the information presented here is crucial when evaluating characteristics that may work best for your farm; however, summarizing across locations can provide insight into the consistency of performance over a range of conditions. This information should not be used on its own but adds value when used in conjunction with location specific data. Table 7 provides comparative performance data, which considers a hybrid's performance within a location, then averages across locations and years (when a hybrid has been entered into the program for more than one season).

CONCLUSIONS

Growers can use this performance data to better understand how a hybrid performs under a diverse set of environments. We encourage the use of this data in conjunction with replicated data from other independent and company sources to best understand a hybrid's overall performance in the context of different growing environments. Using this approach, in contrast to focusing on an individual data source, will lead to much better hybrid selection decisions.

Overall, 2023 was defined by geographic variability in growing conditions (Tables 1, 2, 4) Figure 1). This heightens the importance of reviewing the weather patterns at each location to understand the overall impact on crop performance (Tables 5 & 6 and Figures 5 & 6).

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/nwcrops) and disseminated widely across the region using multiple electronic and print publications.

ACKNOWLEDGEMENTS

We thank the seed companies that participated in 2023 for their collaboration. We urge all seed companies to participate in our corn silage testing program in 2024 so we can provide the best information under New York and Vermont growing conditions to our producers.

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

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Table 1: Current season and historic growing conditions at trial locations in New York and Vermont.

Table 1a: NY & VT Corn Silage Trails, 85-98 RM, Weather Data

	Rainfall, inches						Growing Degree Days (GDD), 86/50					
	Alburgh, VT		Oakfield, NY		Willsboro, NY		Alburgh, VT		Oakfield, NY		Willsboro, NY	
	2023	Avg.*	**2023**	Avg.*	**2023**	Avg.*	**2023**	Avg.*	**2023**	Avg.*	**2023**	Avg.*
May	**2.24**	3.71	**1.86**	2.65	**2.33**	3.30	**290**	312	**259**	317	**302**	314
June	**5.46**	4.83	**1.49**	3.50	**4.72**	4.34	**458**	470	**445**	499	**465**	483
July	**11.62**	4.67	**6.09**	4.34	**6.31**	3.93	**662**	625	**672**	648	**711**	652
August	**6.19**	4.59	**3.25**	3.51	**4.85**	3.73	**524**	572	**528**	603	**554**	604
September	**2.92**	3.95	**2.08**	3.25	**4.05**	3.21	**418**	382	**403**	415	**431**	406
May-August	**25.51**	17.80	**12.69**	13.99	**18.21**	15.30	**1933**	1979	**1904**	2067	**2031**	2052
May-September	**28.43**	21.74	**14.77**	17.24	**22.26**	18.51	**2351**	2361	**2307**	2481	**2462**	2458

*Avg. - Represents averages of years: 2005-2023

Table 1b: NY & VT Corn Silage Trails, 99-110 RM, Weather Data

	Rainfall, inches						Growing Degree Days (GDD), 86/50					
	Alburgh, VT		Aurora, NY		Madrid, NY		Alburgh, VT		Aurora, NY		Madrid, NY	
	2023	Avg.*	**2023**	Avg.*	**2023**	Avg.*	**2023**	Avg.*	**2023**	Avg.*	**2023**	Avg.*
May	**2.24**	3.71	**2.27**	3.15	**3.76**	3.31	**290**	312	**262**	325	**285**	300
June	**5.46**	4.83	**7.34**	4.00	**3.37**	4.13	**458**	470	**440**	492	**455**	471
July	**11.62**	4.67	**3.93**	3.88	**5.75**	4.62	**662**	625	**660**	647	**643**	613
August	**6.19**	4.59	**4.17**	3.95	**4.73**	4.05	**524**	572	**511**	601	**514**	569
September	**2.92**	3.95	**2.32**	3.49	**2.18**	3.56	**418**	382	**397**	409	**417**	378
May-August	**25.51**	17.80	**17.71**	14.97	**17.61**	16.10	**1933**	1979	**1873**	2064	**1896**	1953
May-September	**28.43**	21.74	**20.03**	18.46	**19.79**	19.67	**2351**	2361	**2269**	2473	**2313**	2331

*Avg. - Represents averages of years: 2005-2023

Table 2: Precipitation and growing degree day (GDD) accumulation from planting date to harvest date.

Location	Seasonal Precipitation	Seasonal GDD (86/50)	Planting Date	Harvest Date	Calendar Days
Madrid, NY	16.8	2236	9-May	27-Sep	141
Aurora, NY	17.8	2087	16-May	21-Sep	128
Alburgh, VT	27.2	2203	10-May	22-Sep	135
Willsboro, NY	-	-	15-May	-	-
Oakfield, NY	13.2	2097	12-May	15-Sep	126
Alburgh, VT	26.8	2130	10-May	15-Sep	128

Table 3: NY & VT Corn Silage Hybrid Evaluation Program, 2023 Field Data.

	85 - 98 Day Relative Maturity			99 - 110 Day Relative Maturity		
	Alburgh, VT	Oakfield, NY	Willsboro, NY	Alburgh, VT	Aurora, NY	Madrid, NY
Planting Date	10-May	12-May	15-May	10-May	16-May	9-May
Harvest Date	15-Sep	15-Sep	-	22-Sep	21-Sep	27-Sep
Previous Crop	Corn, Cover Crop	Corn	Sod	Corn, Cover Crop	Soybeans	Sod
Starter N / Pre-plant	5	32	-	5	32	44
Manure N Credits	0	150	-	0	0	15
Sidedress N	115	0	-	115	95	0
Total N Inputs	120	182	-	120	127	59
Available N Balance[1]	7	-39	-	43	51	-70
Soil Type	Clay Loam	Dunkirk	Kingsbury	Clay Loam	Lima	Grenville

[1] Available N Balance = N Uptake by Crop - Available N Supply

A positive balance indicates there was excess N not utilized by the crop.

When N does not limit yield, a negative balance indicates more efficient N use or soil N supply compared to book values.

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), Oakfield, NY (1e).

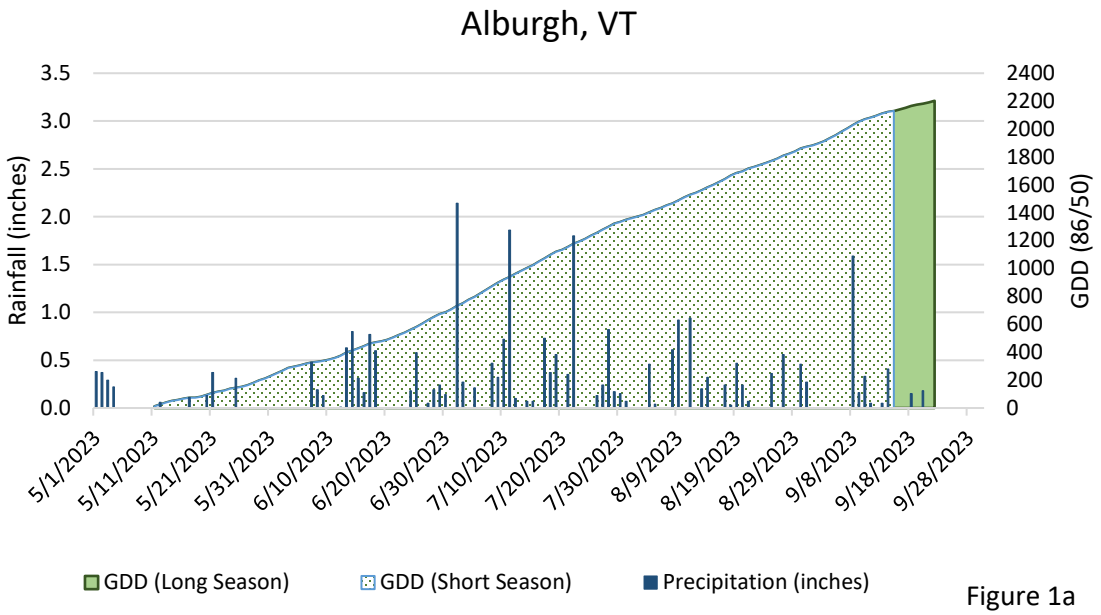


Figure 1a

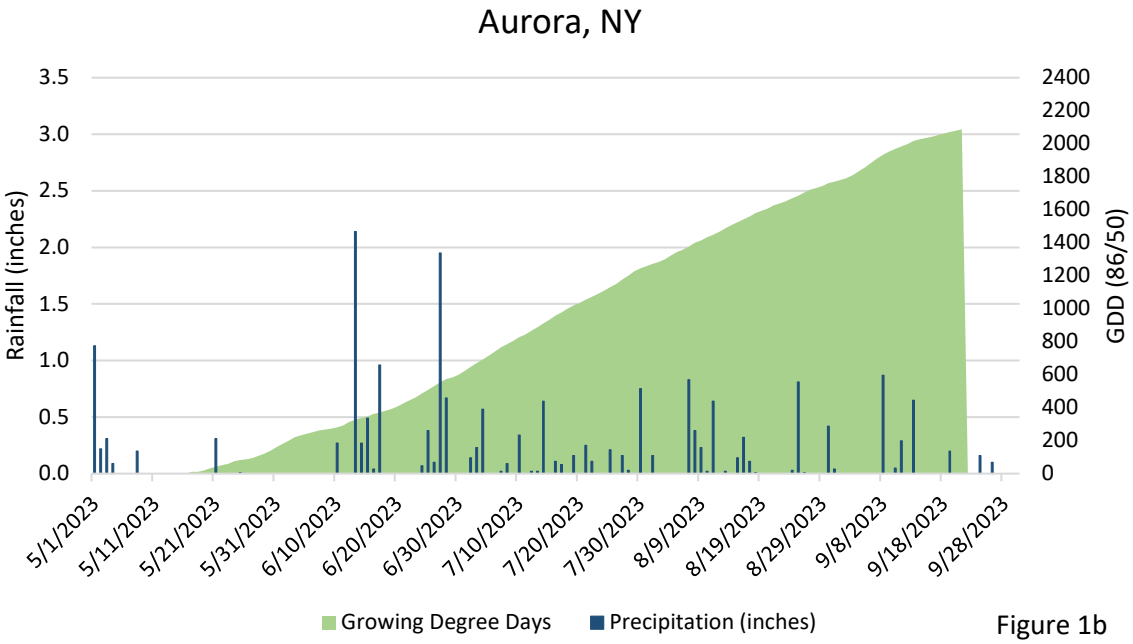


Figure 1b

Figure 1 (cont.)

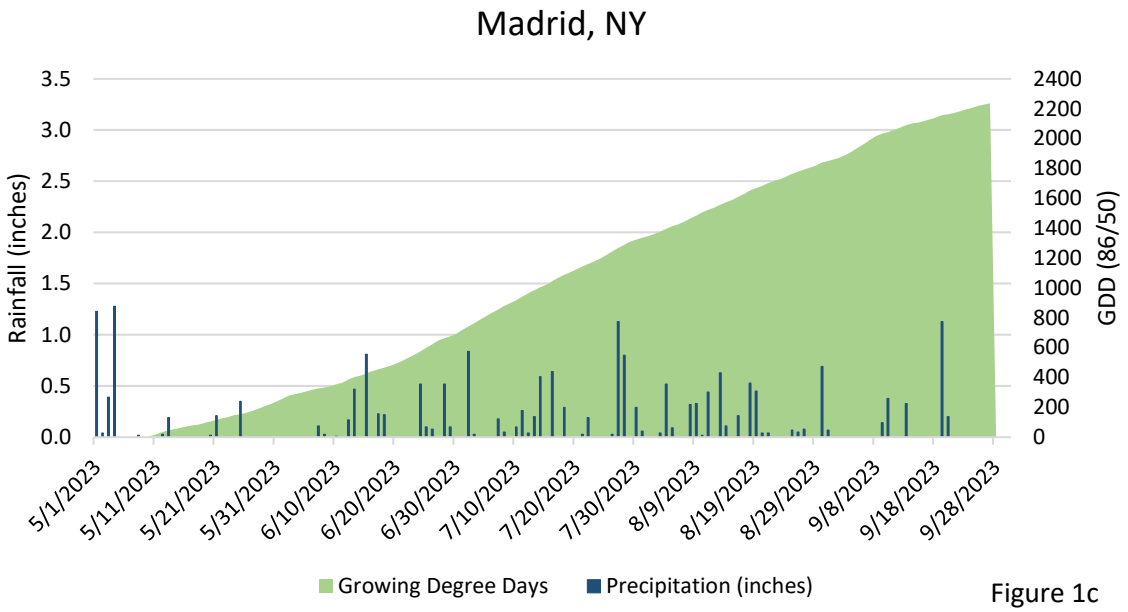


Figure 1c

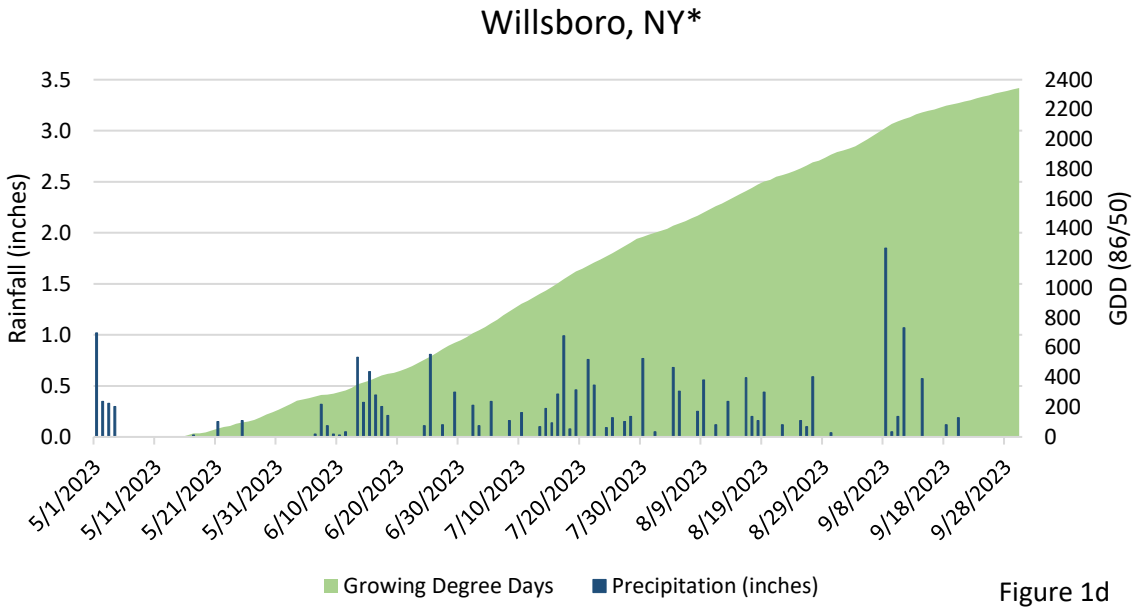


Figure 1d

* Figure 1d: This location was not harvested. Weather data is presented through September 30th.

Figure 1 (cont.)

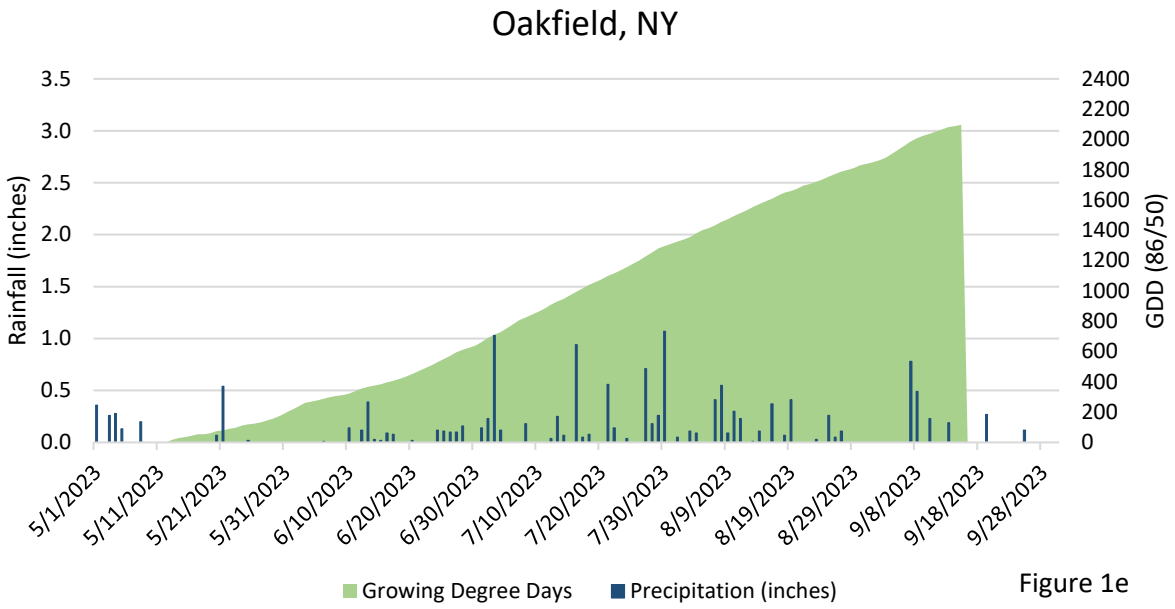


Figure 1e

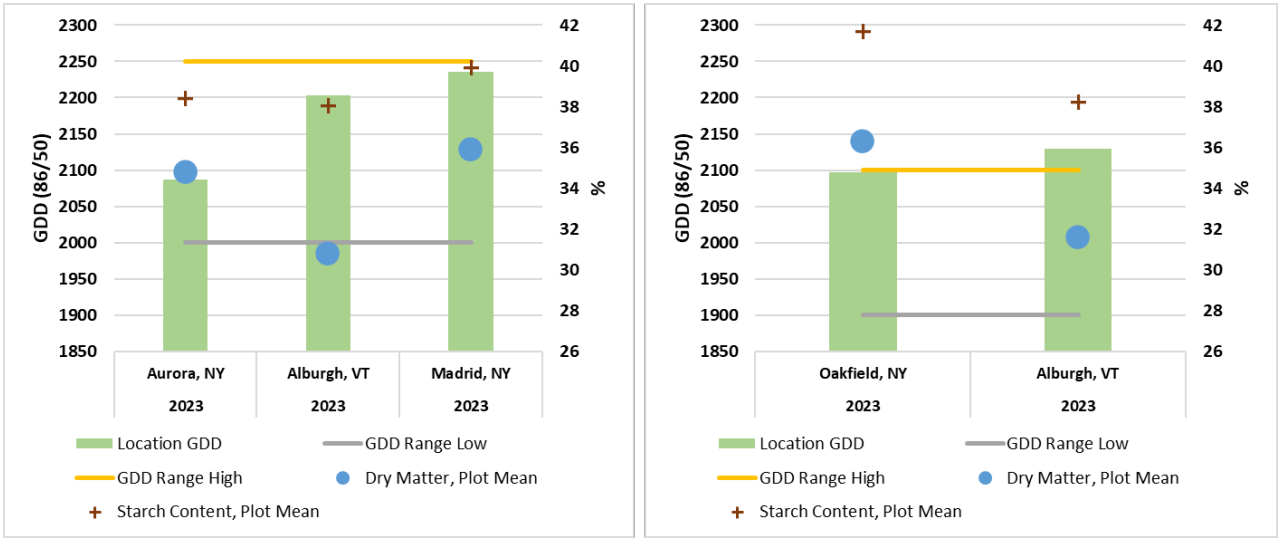


Figure 2. Contrast of growing degree day (GDD) accumulation from planting to harvest with the overall average whole plant DM (%) and Starch Content (%) for all hybrids grown at a given location.

Table 4: Summary of precipitation and growing degree day (GDD) data (Table 4a and 4b, respectively) for 2023 in comparison to previous growing seasons.

Table 4a: Rainfall (inches) Comparison by Location and Year

Maturity Group	Location	2017	2018	2019	2020	2021	2022	2023
80 – 95 day RM	Willsboro, NY	17.7	10.2	12.4	10.5	14.0	15.0	-
	Oakfield, NY	13.8	8.3	12.4	12.6	15.4	9.7	13.2
	Alburgh, VT	20.3	10.8	14.2	15.5	12.5	22.5	26.8
96 – 110 day RM	Madrid, NY	16.8	15.3	16.5	11.4	21.3	14.6	16.8
	Aurora, NY	20.7	12.1	11.9	10.4	14.9	18.8	17.8
	Alburgh, VT	20.3	10.8	18.0	15.7	12.8	25.0	27.2

Table 4b: Growing Degree Day (GDD, 86/50) Comparison by Location and Year

Maturity Group	Location	2017	2018	2019	2020	2021	2022	2023
80 – 95 day RM	Willsboro, NY	2,131	2,233	2,039	2,073	2,155	2,099	-
	Oakfield, NY	2,004	2,195	1,954	2,163	2,185	2,041	2,097
	Alburgh, VT	1,928	2,265	1,971	2,099	2,193	2,117	2,130
96 – 110 day RM	Madrid, NY	1,975	2,204	2,022	2,144	2,220	2,138	2,236
	Aurora, NY	2,087	2,283	1,972	2,231	2,175	2,132	2,087
	Alburgh, VT	2,077	2,134	2,096	2,198	2,242	2,264	2,203

Figure 3: The proportion of samples within different ranges of uNDF240 (Figure 3a) and starch (Figure 3b) combined across locations for the current year and previous growing seasons.

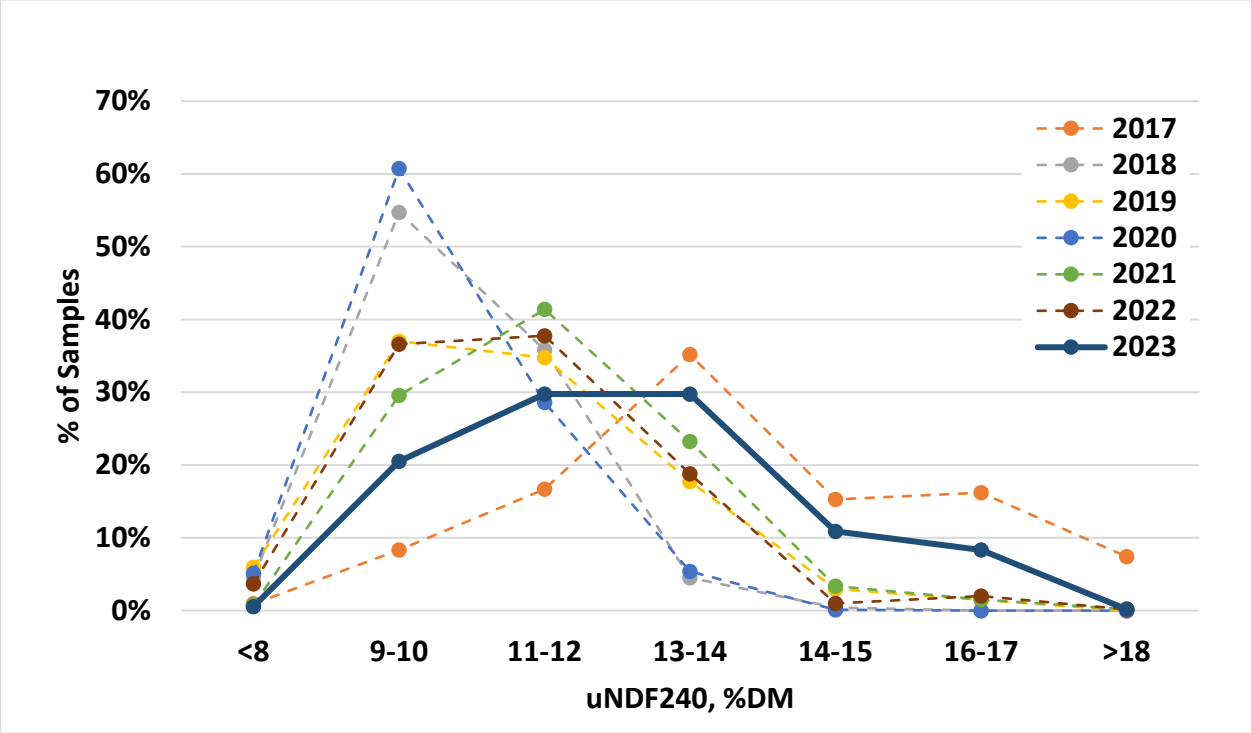


Figure 3a

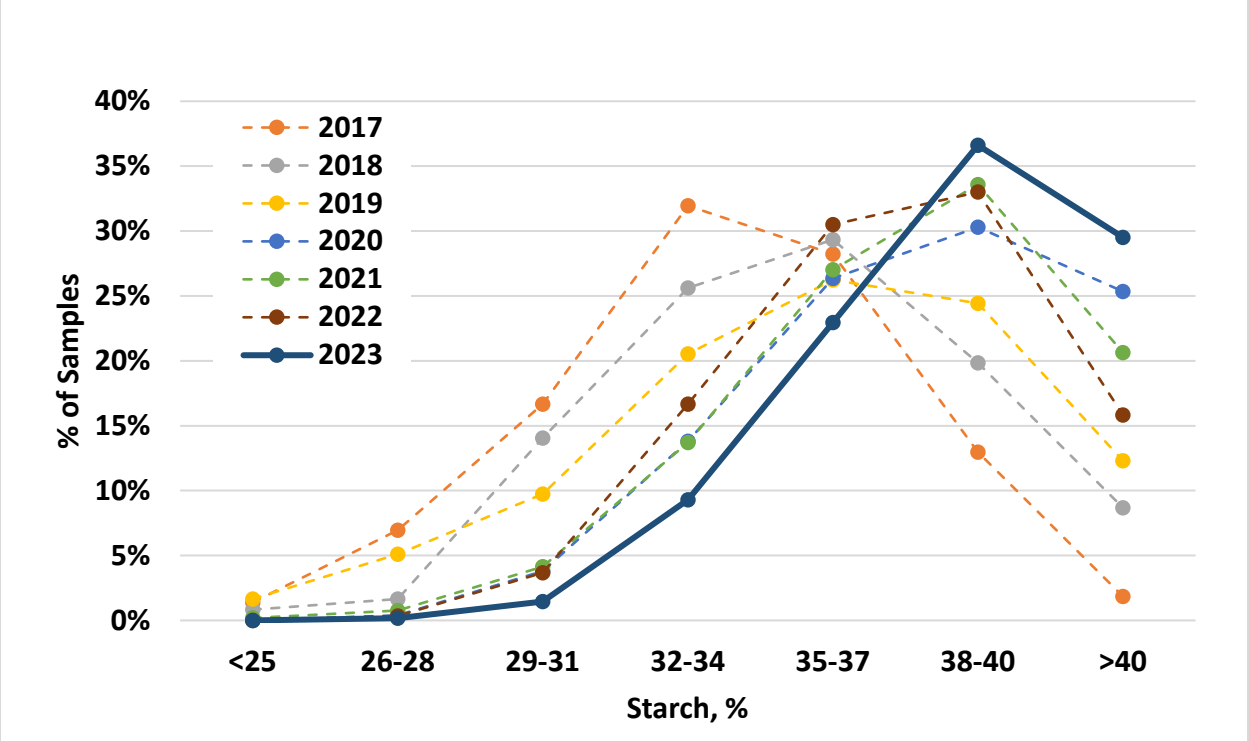


Figure 3b

November 21, 2023

Table 5:

Hybrid field and forage quality data for 85–98-day relative maturity (RM) hybrids planted at Oakfield, NY (5a) and Alburgh, VT (5b). Hybrids are sorted by dry matter content at harvest.

Table 6.

Hybrid field and forage quality data for 99–110-day relative maturity (RM) hybrids planted at Alburgh, VT (6a), Madrid, NY (6b), Aurora, NY (6c). Hybrids are sorted by dry matter content at harvest.

Tables 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%. The LSD value is presented at the base of the column for each hybrid parameter reported.

Footnotes for Tables 5 and 6.

* 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).
[2] RFC-Fill Ratio = Rumen Fermentable Carbohydrate - Fill Ratio, defined as ((NDFd30 + starch)/uNDF30).
Jones, L.R., and J. Siciliano-Jones. 2015. Index useful for ranking silage samples. Feedstuffs 17, 19.
[3] NS = Not Significant
[4] Missing data due to wildlife damage

Table 5a: Hybrid performance for 85 – 98-day RM groups at Oakfield, NY *(page 1 of 2)*.

Company/Brand	Hybrid	Relative Maturity	Harvest Population	Dry Matter	Yield, 35% DM	Starch	IVSD[1]	Crude Protein	Lignin	C 18:2	12 hr NDFD	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
			plants/ac	%	tons/ac	% DM	% Starch	% DM	% DM	% DM	% NDF	% DM	% DM	% NDFom	% NDFom	% NDFom	% NDFom	% DM		lbs/day	lbs/day
Dekalb	DKC093-05RIB	93	33,011	33.8	27.9	38.4	.	7.8	2.9	1.36	37.1	36.6	.	.	54.3	60.5	63.6	13.3	3.4	97.6	57.8
Redtail (King's Agri-seeds)	RT 43T49-D2	93	32,174	35.9	30.1	41.3	.	9.7	2.7	1.52	35.8	33.1	.	.	57.5	64.3	68.5	10.4	4.2	112.6	63.7
Growmark, Inc.	FS 4303X RIB	93	36,028	36.2	30.6	41.9	.	8.0	2.9	1.62	37.8	34.8	.	.	56.1	64.2	68.6	10.9	3.9	108.5	61.9
Brevant Seed	B92D25	92	32,341	36.3	34.2	39.4	.	8.3	2.6	1.44	41.2	34.3	34.5	57.5	57.3	63.5	66.4	11.6	4.0	108.7	62.0
CNI	Integra 4023	90	35,190	36.6	31.2	42.7	.	8.9	2.9	1.63	34.6	32.7	.	.	53.7	62.1	64.8	11.6	3.9	105.4	60.7
Seedway	SW 9333SS	93	31,671	36.9	29.4	44.6	.	8.4	2.7	1.67	37.0	32.2	.	.	56.2	62.8	65.9	11.0	4.4	111.6	63.0
Pioneer	P9489Q	94	35,190	37.3	33.3	41.5	.	8.6	2.7	1.39	38.2	32.8	.	.	57.5	65.2	68.6	10.3	4.2	114.0	64.0
Channel	193-91STXRIB	93	35,190	37.6	31.5	45.0	.	8.2	2.5	1.65	38.2	31.9	.	.	58.2	65.3	68.2	10.1	4.7	117.2	65.2
Channel	193-40VT4PRIB	93	32,341	37.8	31.4	41.9	.	7.6	2.8	1.57	34.7	33.5	.	.	55.9	61.2	64.0	12.0	4.0	107.3	61.4
Redtail (King's Agri-seeds)	RT 38T89-D1	88	35,022	38.1	33.2	42.9	.	8.3	2.9	1.62	35.4	34.0	.	.	53.5	59.4	61.8	13.0	3.8	99.9	58.4
DynaGro Seed	D34VC93	94	35,190	38.5	32.9	43.1	.	7.4	2.6	1.55	38.7	33.4	.	.	57.2	66.1	69.1	10.4	4.3	113.3	63.4
Syngenta Seeds	NK9231-AA-EZ1	92	33,347	39.2	33.7	44.6	.	8.1	2.8	1.55	35.7	32.7	.	.	54.9	61.5	64.8	11.5	4.2	108.8	61.9
Revere Seed	Revere 9108 VT2P	91	35,693	39.4	32.5	43.6	.	8.1	2.6	1.49	38.7	31.7	.	.	56.8	65.4	68.8	9.9	4.4	115.3	64.4
Growmark, Inc.	FS 4095X RIB	90	34,520	39.6	32.8	45.6	.	8.0	2.5	1.59	37.0	30.2	.	.	57.0	65.9	68.9	9.4	4.7	117.6	65.0
Hubner Seed	H4062RC2P	86	35,525	40.0	30.2	40.9	.	7.7	2.8	1.55	39.3	35.5	.	.	57.3	63.9	67.2	11.7	4.0	108.5	62.1
DynaGro Seed	D28VC33	88	33,849	40.1	28.5	46.8	.	8.1	2.6	1.72	37.1	30.3	.	.	56.8	65.0	68.7	9.5	4.8	117.5	65.0
Brevant Seed	B87D33	87	36,949	44.0	31.4	41.1	.	7.9	2.7	1.56	40.0	34.3	35.1	56.8	56.1	62.1	64.9	12.1	3.9	105.1	60.6
		RM Mean	**34,308**	**38.1**	**31.5**	**42.7**	**.**	**8.2**	**2.7**	**1.56**	**37.4**	**33.2**	**34.8**	**57.1**	**56.3**	**63.4**	**66.6**	**11.1**	**4.2**	**109.9**	**62.4**
	Overall LSD (0.10)		**2,221**	**2.6**	**NS[3]**	**4.3**	**-**	**0.5**	**0.3**	**0.12**	**2.3**	**3.2**	**NS[3]**	**2.2**	**2.4**	**3.9**	**4.2**	**1.8**	**0.6**	**9.4**	**3.5**
	Overall Mean		**34,306**	**36.3**	**31.8**	**41.7**	**51.7**	**8.3**	**2.7**	**1.53**	**37.3**	**33.7**	**34.4**	**55.4**	**56.2**	**63.4**	**66.6**	**11.3**	**4.1**	**108.8**	**62.0**

Table 5a: Hybrid performance for 85 – 98-day RM groups at Oakfield, NY *(page 2 of 2)*.

Company/Brand	Hybrid	Relative Maturity	Harvest Population	Dry Matter	Yield, 35% DM	Starch	IVSD[1]	Crude Protein	Lignin	C 18:2	12 hr NDFD	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
			plants/ac	%	tons/ac	% DM	% Starch	% DM	% DM	% DM	% NDF	% DM	% DM	% NDFom	% NDFom	% NDFom	% NDFom	% DM		lbs/day	lbs/day
CNI	Integra 4864	98	33,849	30.9	32.0	36.9	.	8.6	2.9	1.56	37.9	36.6	.	.	57.6	64.0	66.9	12.1	3.7	106.4	61.3
Revere Seed	Revere 9538 DV	95	35,525	32.2	32.3	39.1	.	9.1	3.1	1.51	34.5	35.4	.	.	52.6	58.1	60.5	14.0	3.5	93.4	56.2
Channel	198-99SSPRIB	98	35,022	32.3	33.1	40.1	.	8.0	2.7	1.53	36.6	34.3	.	.	56.6	63.0	66.4	11.5	3.9	107.8	61.6
Revere Seed	Revere 9827 SSX	98	33,849	32.7	33.5	40.5	.	8.6	2.9	1.52	36.7	35.5	.	.	56.0	65.2	68.0	11.4	3.8	107.7	61.7
Masters Choice	MCT4981-D	99	34,352	32.7	29.4	40.1	.	8.7	2.9	1.35	37.1	35.0	.	.	54.2	63.0	66.0	11.9	3.7	103.5	60.3
Stine Seed	9444-22	99	32,006	33.2	28.1	38.4	51.7	8.9	2.9	1.42	38.7	35.4	.	.	55.3	63.5	66.8	11.8	3.6	104.0	60.6
Hubner Seed	H6107RCSS	97	34,520	34.0	28.4	40.9	.	8.2	2.8	1.56	37.4	33.7	.	.	57.5	63.9	66.6	11.2	4.3	111.4	63.2
Pioneer	P9823Q	98	35,357	34.6	33.8	38.5	.	8.9	2.8	1.36	39.7	35.6	.	.	55.8	63.8	66.8	11.8	3.7	105.2	61.0
Dekalb	DKC48-34RIB	98	34,017	34.7	34.3	41.7	.	8.1	2.6	1.49	37.0	32.9	.	.	57.6	66.0	69.1	10.2	4.3	114.0	63.9
Seed Consultants, Inc.	SC964AM	96	34,184	34.7	33.7	41.8	.	8.0	2.3	1.42	40.2	32.5	.	.	59.1	67.1	70.6	9.5	4.5	117.4	65.3
Masters Choice	MCT4718-DV	97	34,687	34.8	32.2	39.3	.	8.6	2.8	1.47	35.9	34.8	.	.	55.1	63.1	67.1	11.5	3.7	106.7	61.1
Dekalb	DKC45-07RIB	95	35,190	35.5	29.6	42.3	.	8.5	2.7	1.57	37.6	33.8	.	.	56.4	63.4	67.2	11.1	4.1	109.7	62.6
Dekalb	DKC098-55RIB	98	34,520	35.6	32.6	43.7	.	8.1	2.5	1.56	38.1	32.5	.	.	58.5	65.2	68.2	10.4	4.6	116.3	64.8
Dekalb	DKC45-74RIB	95	33,179	35.7	34.4	42.2	.	8.2	2.7	1.47	38.4	34.1	.	.	58.4	66.2	69.4	10.5	4.3	113.5	63.9
Schlessmanns (Gold Star)	SX343GTV	96	33,849	36.3	37.6	40.8	.	8.3	2.8	1.57	37.6	33.3	33.7	52.1	53.1	59.3	62.5	12.6	3.7	101.7	59.2
Hubner Seed	H6134RCSS	96	36,028	36.5	33.2	42.5	.	8.4	2.6	1.60	36.3	31.4	.	.	56.5	63.6	66.3	10.7	4.3	113.6	63.7
Seedway	SW 9550SS	95	32,006	36.5	31.1	43.5	.	8.4	2.7	1.58	36.3	33.0	.	.	56.6	62.6	65.9	11.3	4.3	108.3	61.5
Seedway	SW 9726TR	98	34,184	36.9	31.1	41.0	.	7.9	2.9	1.50	36.5	35.8	.	.	55.9	63.9	66.8	11.9	3.8	105.3	60.7
Revere Seed	Revere 9796 V	97	36,195	37.1	32.2	42.0	.	8.4	3.2	1.66	33.0	33.8	.	.	51.2	57.0	59.4	13.7	3.6	94.2	56.2
CNI	Integra 4601	96	34,017	37.4	30.8	43.6	.	8.4	2.6	1.54	37.6	31.1	.	.	57.3	65.9	69.4	9.6	4.6	116.9	65.0
CNI	Integra 4509	95	33,849	37.4	29.6	40.8	.	7.8	2.9	1.55	37.5	36.1	.	.	56.2	64.4	68.2	11.4	3.8	107.1	61.5
Seed Consultants, Inc.	SC954Q[4]	95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		RM Mean	**34,304**	**34.8**	**32.0**	**40.9**	**51.7**	**8.4**	**2.8**	**1.51**	**37.2**	**34.1**	**33.7**	**52.1**	**56.1**	**63.4**	**66.6**	**11.4**	**4.0**	**107.8**	**61.7**
	Overall LSD (0.10)		**2,221**	**2.6**	**NS[3]**	**4.3**	**-**	**0.5**	**0.3**	**0.12**	**2.3**	**3.2**	**NS[3]**	**2.2**	**2.4**	**3.9**	**4.2**	**1.8**	**0.6**	**9.4**	**3.5**
	Overall Mean		**34,306**	**36.3**	**31.8**	**41.7**	**51.7**	**8.3**	**2.7**	**1.53**	**37.3**	**33.7**	**34.4**	**55.4**	**56.2**	**63.4**	**66.6**	**11.3**	**4.1**	**108.8**	**62.0**

Table 5b: Hybrid performance for 85 – 98-day RM groups at Alburgh, VT *(page 1 of 2)*.

Company/Brand	Hybrid	Relative Maturity	Harvest Population	Dry Matter	Yield, 35% DM	Starch	IVSD[1]	Crude Protein	Lignin	C 18:2	12 hr NDFD	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
			plants/ac	%	tons/ac	% DM	% Starch	% DM	% DM	% DM	% NDF	% DM	% DM	% NDFom	% NDFom	% NDFom	% NDFom	% DM		lbs/day	lbs/day
Redtail (King's Agri-seeds)	RT 43T49-D2	93	31,073	29.7	25.2	34.9	.	7.6	3.8	1.22	30.1	39.1	.	.	45.5	55.4	58.4	16.2	2.4	71.7	49.1
Dekalb	DKC093-05RIB	93	31,363	29.7	30.4	37.7	.	7.3	3.4	1.22	33.7	37.8	.	.	50.1	58.7	61.2	14.6	3.0	84.4	53.4
CNI	Integra 4023	90	30,202	31.3	25.0	38.8	.	7.6	3.5	1.33	32.7	36.4	.	.	48.1	57.1	59.6	14.7	2.9	84.5	53.6
Seedway	SW 9333SS	93	31,218	31.4	21.4	37.8	.	7.4	3.5	1.39	33.3	39.2	.	.	49.4	58.3	60.8	15.4	2.8	79.3	52.0
Brevant Seed	B92D25	92	30,492	31.5	25.7	38.0	.	6.9	3.5	1.28	32.8	38.5	39.9	51.0	48.1	60.2	62.9	14.3	2.8	78.9	52.0
Pioneer	P9489Q	94	29,911	31.9	26.5	38.2	.	7.5	3.5	1.26	31.2	36.3	.	.	48.6	57.6	60.3	14.4	2.9	85.8	54.1
Channel	193-40VT4PRIB	93	32,380	32.2	28.0	39.1	.	6.7	3.6	1.30	31.9	38.0	.	.	47.8	58.2	60.7	15.0	2.9	80.5	52.3
Growmark, Inc.	FS 4303X RIB	93	31,944	32.3	21.1	38.1	.	7.1	3.6	1.41	32.4	38.8	.	.	47.1	55.5	57.8	16.4	2.7	75.4	50.6
Channel	193-91STXRIB	93	31,218	32.6	27.4	39.8	.	7.2	3.3	1.42	32.9	37.4	.	.	49.1	56.7	59.2	15.2	3.0	83.6	53.3
Growmark, Inc.	FS 4095X RIB	90	29,911	32.7	25.7	38.2	.	7.4	3.5	1.32	32.9	36.9	.	.	48.9	57.5	59.9	14.7	2.9	84.5	53.6
Syngenta Seeds	NK9231-AA-EZ1	92	30,347	33.3	25.9	40.5	.	7.2	3.4	1.35	31.5	36.1	.	.	47.5	56.3	58.6	15.0	3.0	83.8	53.3
Revere Seed	Revere 9108 VT2P	91	31,218	33.6	22.9	37.5	.	7.3	3.8	1.28	29.8	37.0	.	.	45.3	54.0	56.2	16.2	2.7	73.7	49.8
Redtail (King's Agri-seeds)	RT 38T89-D1	88	30,347	33.8	25.2	39.9	.	7.0	3.7	1.43	30.4	37.7	.	.	45.4	54.1	56.4	16.4	2.8	75.6	50.5
DynaGro Seed	D34VC93	94	31,944	33.8	27.4	38.1	.	6.9	3.6	1.27	31.7	36.9	.	.	47.4	56.7	59.2	15.1	2.8	81.8	52.8
DynaGro Seed	D28VC33	88	29,476	34.7	23.8	36.8	.	7.0	3.7	1.25	33.5	40.7	.	.	48.1	58.0	60.5	16.0	2.6	73.2	49.5
Brevant Seed	B87D33	87	30,492	35.0	21.7	38.9	.	7.8	3.4	1.43	32.1	35.4	37.4	48.8	47.7	56.1	58.5	14.7	3.0	84.7	53.6
Hubner Seed	H4062RC2P	86	31,508	35.4	22.0	40.8	.	7.3	3.6	1.42	30.8	36.4	.	.	45.3	55.1	57.5	15.5	2.9	78.1	51.2
		RM Mean	**30,885**	**32.7**	**25.0**	**38.4**	**.**	**7.2**	**3.5**	**1.33**	**32.0**	**37.6**	**38.6**	**49.9**	**47.6**	**56.8**	**59.3**	**15.3**	**2.8**	**80.0**	**52.1**
	Overall LSD (0.10)		**NS[3]**	**2.2**	**2.9**	**3.5**	**-**	**NS[3]**	**0.3**	**0.13**	**NS[3]**	**NS[3]**	**NS[3]**	**NS[3]**	**3.1**	**NS[3]**	**NS[3]**	**NS[3]**	**NS[3]**	**NS[3]**	**NS[3]**
	Overall Mean		**31,077**	**31.6**	**25.2**	**38.2**	**64.6**	**7.4**	**3.5**	**1.33**	**31.9**	**37.3**	**38.0**	**49.2**	**47.7**	**56.8**	**59.2**	**15.2**	**2.8**	**80.6**	**52.2**

Table 5b: Hybrid performance for 85 – 98-day RM groups at Alburgh, VT *(page 2 of 2)*.

Company/Brand	Hybrid	Relative Maturity	Harvest Population	Dry Matter	Yield, 35% DM	Starch	IVSD[1]	Crude Protein	Lignin	C 18:2	12 hr NDFD	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
			plants/ac	%	tons/ac	% DM	% Starch	% DM	% DM	% DM	% NDF	% DM	% DM	% NDFom	% NDFom	% NDFom	% NDFom	% DM		lbs/day	lbs/day
Hubner Seed	H6107RCSS	97	30,782	28.1	22.3	36.9	.	8.1	3.6	1.34	31.9	37.5	.	.	49.0	58.5	61.0	14.6	2.8	82.8	53.3
Revere Seed	Revere 9538 DV	95	30,782	28.2	23.4	36.5	.	7.9	3.7	1.27	30.4	37.4	.	.	46.4	55.5	58.0	15.7	2.7	78.4	51.3
Masters Choice	MCT4981-D	99	30,056	28.7	24.4	34.8	.	8.0	3.5	1.14	33.1	37.5	.	.	49.1	57.9	60.4	14.9	2.7	85.0	53.8
Stine Seed	9444-22	99	31,073	28.9	23.3	36.7	64.6	7.3	3.8	1.35	31.2	39.9	.	.	45.1	55.9	58.2	16.7	2.5	68.1	47.9
Channel	198-99SSPRIB	98	32,525	29.0	27.7	37.3	.	7.6	3.3	1.27	32.4	36.4	.	.	50.4	58.0	60.3	14.4	3.0	88.3	54.9
Dekalb	DKC45-74RIB	95	29,911	29.5	24.4	35.6	.	7.2	3.7	1.21	32.5	39.6	.	.	47.5	58.0	60.5	15.7	2.6	74.4	50.2
CNI	Integra 4864	98	31,508	29.9	26.6	35.7	.	7.4	3.5	1.22	32.7	37.6	.	.	48.0	57.8	60.3	14.9	2.7	81.8	52.8
Masters Choice	MCT4718-DV	97	32,089	30.1	24.6	37.0	.	7.5	3.8	1.39	30.3	38.1	.	.	45.2	55.1	57.3	16.3	2.6	74.1	50.1
Revere Seed	Revere 9827 SSX	98	31,218	30.5	23.6	35.9	.	7.3	3.6	1.29	32.5	39.3	.	.	48.9	58.3	61.0	15.3	2.7	78.8	51.6
Revere Seed	Revere 9796 V	97	31,944	30.6	27.6	35.7	.	7.2	3.9	1.28	29.2	39.2	.	.	43.2	52.8	55.0	17.7	2.4	65.7	47.2
Seedway	SW 9726TR	98	32,089	31.1	26.8	41.2	.	8.0	3.3	1.40	31.5	33.9	.	.	47.7	55.0	57.4	14.5	3.2	86.8	54.1
Pioneer	P9823Q	98	30,347	31.3	27.6	40.1	.	7.7	3.4	1.39	32.0	35.2	.	.	47.6	56.0	58.4	14.7	3.1	84.8	53.5
Dekalb	DKC48-34RIB	98	30,637	31.4	24.4	36.0	.	6.9	3.5	1.29	33.6	39.8	.	.	50.4	58.9	61.5	15.3	2.8	81.3	52.5
Schlessmanns (Gold Star)	SX343GTV	96	30,782	31.5	25.9	40.9	.	7.4	3.5	1.48	31.1	36.1	36.8	47.7	46.4	55.9	58.3	15.0	3.0	80.5	52.1
Seedway	SW 9550SS	95	30,347	31.7	24.0	38.7	.	7.5	3.5	1.33	32.1	37.1	.	.	47.6	55.8	58.3	15.5	2.9	80.6	52.2
CNI	Integra 4509	95	31,799	31.8	29.0	40.2	.	7.2	3.3	1.41	32.7	35.2	.	.	48.9	57.1	59.6	14.3	3.1	88.7	55.1
Dekalb	DKC098-55RIB	98	30,782	31.9	25.5	39.5	.	7.3	3.2	1.30	33.1	36.3	.	.	49.3	57.5	60.0	14.5	3.1	86.5	54.1
Seed Consultants, Inc.	SC964AM	96	31,654	32.2	22.3	42.4	.	6.8	3.3	1.35	31.5	34.7	.	.	47.9	57.5	59.9	13.9	3.2	87.7	54.8
Hubner Seed	H6134RCSS	96	31,799	32.2	25.7	39.8	.	7.4	3.3	1.41	32.5	35.6	.	.	48.8	56.6	59.1	14.6	3.1	86.4	54.4
Dekalb	DKC45-07RIB	95	31,654	32.2	26.3	39.7	.	7.8	3.5	1.41	31.5	36.4	.	.	46.9	56.5	59.0	14.9	2.9	81.0	52.4
Seed Consultants, Inc.	SC954Q	95	32,234	33.3	23.5	38.8	.	7.5	3.4	1.37	32.9	37.3	.	.	48.0	57.5	59.9	14.9	2.9	81.2	52.4
CNI	Integra 4601	96	30,928	33.3	28.2	39.3	.	7.1	3.6	1.36	31.0	37.5	.	.	47.3	56.5	58.9	15.4	2.9	79.3	51.6
		RM Mean	**31,225**	**30.8**	**25.3**	**38.1**	**64.6**	**7.5**	**3.5**	**1.33**	**31.9**	**37.2**	**36.8**	**47.7**	**47.7**	**56.8**	**59.2**	**15.2**	**2.8**	**81.0**	**52.4**
	Overall LSD (0.10)		**NS[3]**	**2.2**	**2.9**	**3.5**	**-**	**NS[3]**	**0.3**	**0.13**	**NS[3]**	**NS[3]**	**NS[3]**	**NS[3]**	**3.1**	**NS[3]**	**NS[3]**	**NS[3]**	**NS[3]**	**NS[3]**	**NS[3]**
	Overall Mean		**31,077**	**31.6**	**25.2**	**38.2**	**64.6**	**7.4**	**3.5**	**1.33**	**31.9**	**37.3**	**38.0**	**49.2**	**47.7**	**56.8**	**59.2**	**15.2**	**2.8**	**80.6**	**52.2**

Table 6a: Hybrid performance for 99–110-day RM groups at Alburgh, VT *(page 1 of 2)*.

Company/Brand	Hybrid	Relative Maturity	Harvest Population	Dry Matter	Yield, 35% DM	Starch	IVSD[1]	Crude Protein	Lignin	C 18:2	12 hr NDFD	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
			plants/ac	%	tons/ac	% DM	% Starch	% DM	% DM	% DM	% NDF	% DM	% DM	% NDFom	% NDFom	% NDFom	% NDFom	% DM		lbs/day	lbs/day
Redtail (King's Agri-seeds)	RT 51T86-PC	101	31,654	29.8	24.4	39.1	.	7.2	3.5	1.37	29.7	37.2	.	.	46.5	56.0	58.4	15.5	2.8	79.3	52.0
Seedway	SW 0321SS	103	30,056	29.9	23.5	36.0	.	7.3	3.5	1.25	31.9	38.3	.	.	49.8	61.6	64.3	13.8	2.8	83.9	53.9
Syngenta Seeds	NK0007-AA-EZ1	100	29,911	30.2	24.5	40.1	.	7.7	3.4	1.44	31.3	35.9	.	.	48.9	58.5	60.9	14.0	3.1	86.5	54.5
Channel	198-99SSPRIB	98	31,508	30.3	24.2	37.9	.	7.4	3.4	1.24	32.9	38.2	.	.	51.0	61.1	63.8	13.8	3.0	86.8	54.6
Hubner Seed	H0151P	101	29,911	30.5	19.6	34.4	.	6.8	3.6	1.29	33.8	41.0	.	.	50.1	60.0	62.5	15.4	2.7	76.0	50.9
Growmark, Inc.	FS 5115X RIB	101	30,928	30.9	25.0	39.2	.	7.2	3.3	1.37	32.5	36.7	.	.	49.9	58.8	61.2	14.3	3.2	88.5	55.0
Seed Consultants, Inc.	SC1018AM	101	30,492	31.1	22.6	39.0	.	7.3	3.4	1.32	34.9	38.5	.	.	51.1	62.1	64.8	13.5	3.1	86.4	54.6
Syngenta Seeds	NK0295-AA	102	31,363	31.1	20.7	40.2	.	7.5	3.5	1.38	31.4	36.6	.	.	48.1	57.5	60.0	14.6	3.0	84.0	53.7
Dekalb	DKC53-94RIB	103	30,056	31.7	23.6	38.2	.	6.9	3.4	1.34	34.1	37.8	.	.	50.9	60.8	63.6	13.8	3.1	88.0	55.1
Seedway	SW 0030SS	100	30,637	31.9	25.1	37.5	.	6.9	3.7	1.37	32.4	40.3	.	.	48.4	59.2	61.9	15.3	2.7	74.2	50.3
Dekalb	DKC101-33RIB	101	31,654	32.1	25.7	40.7	.	7.1	3.3	1.33	32.5	36.2	.	.	50.6	59.7	62.3	13.6	3.3	91.6	56.2
Channel	201-07SSPRIB	101	29,330	32.2	25.4	39.6	.	7.3	3.3	1.34	32.5	36.2	.	.	51.1	60.9	63.4	13.3	3.2	93.4	57.1
Growmark, Inc.	FS5101X RIB	100	30,492	32.5	26.3	38.9	.	6.7	3.4	1.33	32.2	36.1	.	.	49.4	60.8	64.1	12.9	3.1	89.3	56.0
Brevant Seed	B99A24Q	99	31,073	33.1	22.3	38.9	.	7.0	3.7	1.28	34.4	39.6	42.4	48.8	47.9	60.4	63.0	14.7	2.8	75.4	50.7
Growmark, Inc.	FS4927T RIB	99	27,443	33.4	23.7	36.1	.	6.6	3.8	1.23	31.1	41.1	.	.	45.7	56.5	58.9	16.8	2.4	64.2	46.6
Seedway	SW 0345DV	103	30,347	33.5	25.3	37.7	.	7.8	3.6	1.42	33.1	39.3	.	.	50.7	60.0	62.5	14.8	3.0	83.2	53.1
Revere Seed	Revere 0297 VT2P	102	30,637	34.8	25.2	38.7	.	6.9	3.5	1.32	34.0	39.9	.	.	50.2	60.8	63.5	14.6	2.9	80.3	52.3
		RM Mean	**30,441**	**31.7**	**24.0**	**38.4**	**.**	**7.2**	**3.5**	**1.33**	**32.6**	**38.2**	**42.4**	**48.8**	**49.4**	**59.7**	**62.3**	**14.4**	**2.9**	**83.0**	**53.3**
	Overall LSD (0.10)		**1,443**	**1.5**	**2.9**	**NS[3]**	**-**	**NS[3]**	**0.3**	**0.13**	**2.0**	**NS[3]**	**NS[3]**	**3.9**	**3.1**	**3.1**	**3.3**	**1.8**	**0.5**	**13.9**	**4.9**
	Overall Mean		**30,536**	**30.8**	**24.4**	**38.1**	**56.1**	**7.1**	**3.5**	**1.33**	**32.9**	**38.4**	**42.0**	**55.7**	**49.5**	**59.8**	**62.4**	**14.4**	**2.9**	**82.7**	**53.2**

Table 6a: Hybrid performance for 99–110-day RM groups at Alburgh, VT *(page 2 of 2)*.

Company/Brand	Hybrid	Relative Maturity	Harvest Population	Dry Matter	Yield, 35% DM	Starch	IVSD[1]	Crude Protein	Lignin	C 18:2	12 hr NDFD	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
			plants/ac	%	tons/ac	% DM	% Starch	% DM	% DM	% DM	% NDF	% DM	% DM	% NDFom	% NDFom	% NDFom	% NDFom	% DM		lbs/day	lbs/day
KingFisher (King's Agri-seeds)	KF 59B70	109	30,637	25.1	23.6	37.1	.	7.3	2.7	1.38	40.4	39.2	40.8	62.2	61.2	69.8	72.9	10.6	3.9	113.0	64.3
Dekalb	DKC108-64RIB	108	30,347	27.9	27.2	39.7	.	7.4	3.5	1.35	31.0	36.7	.	.	47.6	57.3	59.7	14.8	3.0	82.8	53.0
Brevant Seed	B09F18	109	29,766	28.3	24.9	36.2	.	7.2	3.5	1.24	35.2	41.2	43.3	56.0	50.1	61.1	63.7	14.9	2.7	76.2	50.7
Brevant Seed	B06F91Q	106	30,782	28.5	25.1	37.6	.	7.1	3.5	1.30	36.5	39.9	41.6	55.7	51.4	62.7	66.1	13.5	3.0	83.0	53.3
Seed Consultants, Inc.	SC1094Q	109	30,782	28.7	24.7	38.8	.	7.9	3.5	1.36	32.4	37.2	.	.	49.2	59.4	62.0	14.1	2.9	84.7	54.0
Dekalb	DKC61-80RIB	111	30,202	28.8	26.9	35.0	.	7.7	4.0	1.31	29.5	38.9	.	.	44.4	54.6	56.9	16.7	2.4	69.1	48.5
Masters Choice	MCT6014-D	110	30,782	29.1	23.5	35.2	.	7.3	3.7	1.33	32.1	41.4	.	.	47.0	57.6	60.1	16.5	2.5	67.7	47.9
Seed Consultants, Inc.	SC1054AM	105	29,621	29.4	23.2	36.2	.	7.1	3.4	1.12	33.5	38.2	.	.	50.1	61.5	64.2	13.7	2.9	85.6	54.2
Hubner Seed	H0881D	108	31,363	30.3	26.4	35.8	.	7.4	3.7	1.25	30.8	38.8	.	.	48.7	59.9	62.5	14.6	2.7	79.3	52.0
Stine Seed	9658-32	106	30,928	30.4	24.6	38.2	56.1	6.8	3.5	1.24	34.3	40.8	.	.	48.9	60.1	62.8	15.2	2.8	75.2	50.4
Channel	204-54SSPRIB	104	31,508	30.6	26.4	38.8	.	6.8	3.4	1.42	32.6	37.4	.	.	50.8	61.3	63.9	13.5	3.1	88.9	55.7
DynaGro Seed	D48VC84	108	30,637	30.7	26.1	37.4	.	7.3	3.8	1.37	31.7	40.1	.	.	47.6	57.1	59.6	16.2	2.7	73.7	49.8
Masters Choice	MCT5877-D	108	30,492	30.7	26.5	36.2	.	7.1	3.8	1.33	31.7	39.9	.	.	47.0	57.5	60.1	15.9	2.6	72.4	49.6
Seed Consultants, Inc.	SC1042Q	104	30,928	30.9	22.1	38.6	.	6.6	3.5	1.39	33.4	37.9	.	.	48.4	60.0	62.5	14.2	2.9	81.6	53.0
Pioneer	P0732Q	107	30,492	31.0	19.9	39.2	.	6.1	3.4	1.32	33.7	38.8	.	.	49.2	60.3	62.8	14.4	2.9	81.2	52.6
Dekalb	DKC105-33RIB	105	30,202	31.5	23.8	39.0	.	7.5	3.4	1.44	30.9	36.7	.	.	48.7	57.5	60.2	14.6	3.0	84.4	54.1
Revere Seed	Revere 0518 VT2P	105	30,782	31.7	23.6	38.0	.	6.8	3.4	1.24	32.4	38.4	.	.	49.9	58.9	61.4	14.8	3.0	82.6	52.8
Hubner Seed	H0475P	104	30,056	32.3	26.3	39.5	.	7.1	3.2	1.38	33.6	36.3	.	.	51.7	62.3	65.0	12.7	3.3	94.0	57.4
Redtail (King's Agri-seeds)	RT 55T79-D1	105	31,508	33.2	25.8	41.1	.	6.9	3.2	1.40	32.7	35.8	.	.	49.5	59.5	62.0	13.6	3.2	91.7	56.4
		RM Mean	**30,622**	**29.9**	**24.8**	**37.8**	**56.1**	**7.1**	**3.5**	**1.32**	**33.1**	**38.6**	**41.9**	**58.0**	**49.5**	**59.9**	**62.5**	**14.5**	**2.9**	**82.5**	**53.1**
	Overall LSD (0.10)		**1,443**	**1.5**	**2.9**	**NS[3]**	**-**	**NS[3]**	**0.3**	**0.13**	**2.0**	**NS[3]**	**NS[3]**	**3.9**	**3.1**	**3.1**	**3.3**	**1.8**	**0.5**	**13.9**	**4.9**
	Overall Mean		**30,536**	**30.8**	**24.4**	**38.1**	**56.1**	**7.1**	**3.5**	**1.33**	**32.9**	**38.4**	**42.0**	**55.7**	**49.5**	**59.8**	**62.4**	**14.4**	**2.9**	**82.7**	**53.2**

Table 6b: Hybrid performance for 99–110-day RM groups at Madrid, NY *(page 1 of 2)*.

Company/Brand	Hybrid	Relative Maturity	Harvest Population	Dry Matter	Yield, 35% DM	Starch	IVSD[1]	Crude Protein	Lignin	C 18:2	12 hr NDFD	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
			plants/ac	%	tons/ac	% DM	% Starch	% DM	% DM	% DM	% NDF	% DM	% DM	% NDFom	% NDFom	% NDFom	% NDFom	% DM		lbs/day	lbs/day
Redtail (King's Agri-seeds)	RT 51T86-PC	101	30,163	35.4	32.7	40.4	.	6.8	3.0	1.35	33.4	36.0	.	.	53.3	61.7	64.4	12.8	3.5	99.9	59.0
Hubner Seed	H0151P	101	32,509	35.4	33.4	37.4	.	7.1	3.0	1.32	35.4	37.4	.	.	55.6	61.8	64.5	13.3	3.5	99.4	58.6
Dekalb	DKC53-94RIB	103	32,844	35.5	33.6	38.3	.	6.7	2.9	1.28	35.5	36.8	.	.	55.5	63.6	66.3	12.4	3.5	103.4	60.3
Dekalb	DKC101-33RIB	101	32,676	36.4	34.9	41.2	.	6.7	2.7	1.34	35.7	34.9	.	.	56.2	63.9	66.7	11.7	4.0	106.9	61.5
Channel	201-07SSPRIB	101	29,492	36.8	31.7	42.2	.	7.2	2.7	1.41	34.2	32.8	.	.	56.5	64.8	67.6	10.7	4.1	112.2	63.5
Syngenta Seeds	NK0295-AA	102	32,006	36.8	29.0	40.1	.	7.1	3.2	1.46	33.2	35.4	.	.	51.4	59.3	62.0	13.6	3.4	94.3	56.8
Growmark, Inc.	FS 5115X RIB	101	31,336	36.9	34.2	41.8	.	6.9	2.8	1.49	35.2	34.1	.	.	56.2	62.3	65.1	11.9	4.0	108.3	61.8
Channel	198-99SSPRIB	98	31,336	37.1	36.5	40.7	.	6.5	2.7	1.38	35.6	34.5	.	.	56.9	64.2	66.9	11.4	4.0	109.8	62.5
Seed Consultants, Inc.	SC1018AM	101	33,011	37.2	37.5	43.1	.	7.0	2.6	1.37	39.1	33.7	.	.	58.4	68.2	71.1	9.7	4.4	115.6	64.7
Growmark, Inc.	FS5101X RIB	100	32,676	37.5	33.6	41.9	.	6.5	2.9	1.43	34.9	34.7	.	.	56.0	63.2	65.9	11.9	4.0	107.5	61.6
Seedway	SW 0321SS	103	31,838	37.5	33.3	38.1	.	7.1	3.0	1.35	35.4	36.8	.	.	55.8	62.9	65.6	12.7	3.6	102.0	59.6
Brevant Seed	B99A24Q	99	34,520	37.7	36.1	38.9	.	6.9	3.1	1.24	35.1	36.0	36.0	52.0	53.9	62.1	64.7	12.7	3.4	99.1	58.6
Seedway	SW 0345DV	103	32,174	38.7	35.5	37.0	.	7.2	3.3	1.41	33.9	38.7	.	.	52.3	59.4	62.0	14.7	3.1	89.4	55.1
Seedway	SW 0030SS	100	34,184	39.1	35.7	44.0	.	6.3	2.8	1.46	35.6	33.6	.	.	55.6	64.0	66.8	11.2	4.2	109.1	62.2
Revere Seed	Revere 0297 VT2P	102	32,676	39.8	37.5	42.0	.	6.5	3.0	1.43	35.6	35.7	.	.	54.2	62.4	65.3	12.5	3.7	101.0	59.4
Growmark, Inc.	FS4927T RIB	99	30,833	39.9	34.3	39.5	.	6.5	3.4	1.41	32.5	38.6	.	.	51.0	58.7	61.3	14.9	3.1	84.2	53.2
Syngenta Seeds	NK0007-AA-EZ1	100	32,341	40.0	34.4	43.8	.	7.3	2.9	1.63	33.7	32.5	.	.	51.9	59.2	61.9	12.4	3.8	101.6	59.2
		RM Mean	**32,154**	**37.5**	**34.4**	**40.6**	**.**	**6.9**	**2.9**	**1.40**	**34.9**	**35.4**	**36.0**	**52.0**	**54.7**	**62.5**	**65.2**	**12.4**	**3.7**	**102.6**	**59.9**
		Overall LSD (0.10)	**2,452**	**2.4**	**NS[3]**	**3.8**	**-**	**0.4**	**0.3**	**0.12**	**1.4**	**NS[3]**	**NS[2]**	**3.0**	**2.0**	**2.7**	**2.7**	**1.8**	**0.6**	**10.4**	**3.7**
		Overall Mean	**32,551**	**35.9**	**34.5**	**39.9**	**56.8**	**7.0**	**2.9**	**1.37**	**35.3**	**35.7**	**37.4**	**58.8**	**55.6**	**63.2**	**66.0**	**12.2**	**3.7**	**104.2**	**60.5**

Table 6b: Hybrid performance for 99–110-day RM groups at Madrid, NY *(page 2 of 2)*.

Company/Brand	Hybrid	Relative Maturity	Harvest Population	Dry Matter	Yield, 35% DM	Starch	IVSD[1]	Crude Protein	Lignin	C 18:2	12 hr NDFD	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
			plants/ac	%	tons/ac	% DM	% Starch	% DM	% DM	% DM	% NDF	% DM	% DM	% NDFom	% NDFom	% NDFom	% NDFom	% DM		lbs/day	lbs/day
KingFisher (King's Agri-seeds)	KF 59B70	109	34,520	28.8	31.8	37.8	.	7.6	2.3	1.26	42.3	37.8	37.0	67.4	67.0	73.9	77.2	8.6	4.9	125.5	69.0
Brevant Seed	B09F18	109	33,179	31.0	35.3	35.3	.	7.7	2.9	1.18	35.9	38.7	38.7	59.7	58.1	64.6	67.4	12.6	3.5	104.9	60.9
Brevant Seed	B06F91Q	106	34,687	32.5	36.4	38.1	.	7.1	3.1	1.26	36.5	37.8	37.8	56.2	56.1	64.5	67.3	12.4	3.5	101.5	59.6
Pioneer	P0732Q	107	34,184	32.9	38.4	38.4	.	7.3	2.8	1.28	36.0	35.6	.	.	57.5	65.4	68.2	11.3	3.8	108.5	62.1
Seed Consultants, Inc.	SC1054AM	105	30,163	33.1	30.9	36.7	.	7.3	2.9	1.15	35.2	36.2	.	.	57.5	65.2	68.0	11.6	3.6	107.6	61.9
Seed Consultants, Inc.	SC1094Q	109	34,184	33.2	33.7	39.7	.	7.3	2.7	1.33	36.4	34.6	.	.	57.6	63.8	67.2	11.4	4.0	110.8	62.8
Stine Seed	9658-32	106	32,844	33.3	31.6	38.4	56.8	7.1	2.9	1.17	36.3	37.5	.	.	55.4	65.8	68.8	11.7	3.5	101.9	59.8
Dekalb	DKC108-64RIB	108	32,341	33.5	31.5	40.0	.	6.7	2.8	1.33	35.3	35.6	.	.	56.1	63.8	66.6	11.9	3.8	107.5	61.7
Dekalb	DKC61-80RIB	111	31,001	33.6	32.9	39.9	.	7.2	3.1	1.42	33.6	35.2	.	.	54.5	59.9	62.6	13.2	3.6	99.1	58.3
Masters Choice	MCT5877-D	108	34,184	34.0	32.6	36.6	.	7.3	3.2	1.34	33.7	37.9	.	.	53.4	60.0	62.6	14.2	3.2	93.1	56.4
Hubner Seed	H0881D	108	33,682	34.5	37.5	39.7	.	7.1	3.0	1.36	34.2	35.2	.	.	55.2	61.7	64.2	12.6	3.7	103.2	60.0
Seed Consultants, Inc.	SC1042Q	104	32,844	34.7	35.7	40.4	.	7.3	2.7	1.35	36.4	34.7	.	.	56.9	66.1	68.9	10.8	4.0	110.7	62.9
DynaGro Seed	D48VC84	108	34,352	34.8	38.2	39.0	.	7.0	3.0	1.39	34.4	35.4	.	.	55.3	61.6	64.3	12.6	3.6	103.3	60.0
Channel	204-54SSPRIB	104	31,671	35.9	30.6	42.7	.	6.9	2.8	1.44	36.6	34.9	.	.	56.8	66.0	68.9	10.9	4.1	110.7	62.9
Masters Choice	MCT6014-D	110	31,838	36.8	37.6	39.4	.	7.6	2.9	1.41	35.2	34.8	.	.	54.1	61.1	63.8	12.6	3.6	103.1	60.0
Redtail (King's Agri-seeds)	RT 55T79-D1	105	33,347	37.0	35.0	40.6	.	7.1	2.8	1.36	35.9	36.5	.	.	55.1	62.6	65.2	12.7	3.6	102.4	59.7
Hubner Seed	H0475P	104	32,676	37.2	34.3	39.6	.	7.1	2.9	1.51	34.7	35.8	.	.	55.8	62.3	65.3	12.5	3.7	103.5	60.2
Dekalb	DKC105-33RIB	105	31,671	37.6	35.7	40.4	.	6.8	3.0	1.50	33.5	35.5	.	.	53.8	62.1	65.1	12.3	3.6	101.7	59.7
Revere Seed	Revere 0518 VT2P	105	31,838	39.0	38.7	42.4	.	6.9	2.9	1.42	35.4	34.3	.	.	55.7	62.9	65.6	11.8	4.0	107.9	61.6
		RM Mean	**32,906**	**34.4**	**34.6**	**39.2**	**56.8**	**7.2**	**2.9**	**1.34**	**35.7**	**36.0**	**37.9**	**61.1**	**56.4**	**63.9**	**66.7**	**12.0**	**3.7**	**105.6**	**61.0**
		Overall LSD (0.10)	**2,452**	**2.4**	**NS[3]**	**3.8**	**-**	**0.4**	**0.3**	**0.12**	**1.4**	**NS[3]**	**NS[2]**	**3.0**	**2.0**	**2.7**	**2.7**	**1.8**	**0.6**	**10.4**	**3.7**
		Overall Mean	**32,551**	**35.9**	**34.5**	**39.9**	**56.8**	**7.0**	**2.9**	**1.37**	**35.3**	**35.7**	**37.4**	**58.8**	**55.6**	**63.2**	**66.0**	**12.2**	**3.7**	**104.2**	**60.5**

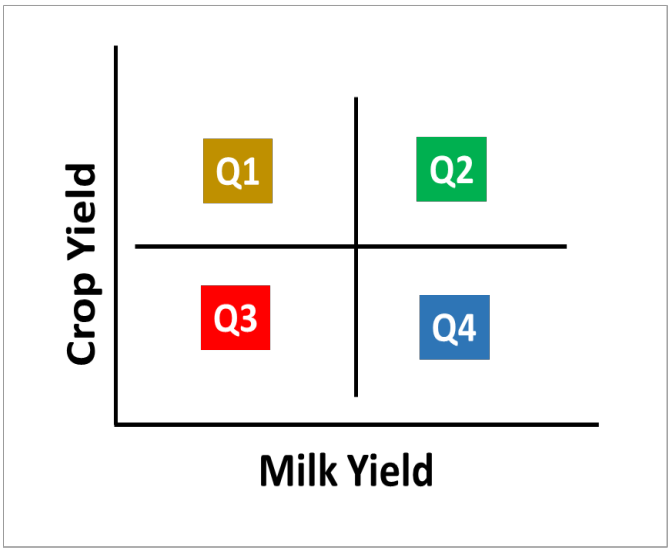
Table 6c: Hybrid performance for 99–110-day RM groups at Aurora, NY *(page 1 of 2)*.

Company/Brand	Hybrid	Relative Maturity	Harvest Population	Dry Matter	Yield, 35% DM	Starch	IVSD[1]	Crude Protein	Lignin	C 18:2	12 hr NDFD	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
			plants/ac	%	tons/ac	% DM	% Starch	% DM	% DM	% DM	% NDF	% DM	% DM	% NDFom	% NDFom	% NDFom	% NDFom	% DM		lbs/day	lbs/day
Channel	198-99SSPRIB	98	31,336	33.0	23.9	39.4	.	6.4	2.6	1.37	36.6	35.4	.	.	57.7	63.8	66.9	11.7	3.9	112.7	63.5
Redtail (King's Agri-seeds)	RT 51T86-PC	101	31,168	34.2	22.1	37.9	.	6.0	2.8	1.38	36.4	36.5	.	.	54.2	59.5	62.0	13.9	3.4	94.9	56.9
Dekalb	DKC53-94RIB	103	32,174	34.4	22.9	35.7	.	6.5	2.7	1.26	38.7	37.2	.	.	58.8	64.9	68.7	11.6	3.7	109.3	62.3
Seedway	SW 0321SS	103	32,006	34.5	26.4	38.5	.	6.7	2.8	1.41	38.6	36.3	.	.	57.0	66.2	69.1	11.2	3.7	108.3	62.1
Hubner Seed	H0151P	101	33,011	34.8	25.7	37.9	.	6.3	2.9	1.36	35.3	36.1	.	.	54.2	63.8	66.7	12.2	3.5	100.6	59.1
Seed Consultants, Inc.	SC1018AM	101	32,006	34.8	29.1	40.1	.	6.7	2.5	1.36	39.7	35.5	.	.	60.1	67.4	70.3	10.5	4.2	115.9	64.7
Growmark, Inc.	FS 5115X RIB	101	31,336	35.0	26.2	38.1	.	6.3	2.7	1.32	38.3	36.1	.	.	58.3	63.6	66.9	12.0	3.9	108.3	61.7
Syngenta Seeds	NK0007-AA-EZ1	100	30,163	35.1	21.1	42.1	.	6.7	2.6	1.54	37.6	33.5	.	.	55.5	63.2	66.5	11.3	4.0	109.6	62.3
Dekalb	DKC101-33RIB	101	33,011	35.2	25.7	40.8	.	6.4	2.4	1.34	38.5	33.8	.	.	59.9	66.7	69.6	10.3	4.4	117.4	65.1
Channel	201-07SSPRIB	101	28,990	36.0	23.2	42.2	.	6.7	2.4	1.46	39.2	32.5	.	.	58.2	65.5	69.0	10.1	4.4	119.2	65.9
Growmark, Inc.	FS5101X RIB	100	32,509	36.1	25.1	39.1	.	6.0	2.8	1.40	38.6	36.0	.	.	57.5	65.3	69.1	11.1	3.8	109.5	62.3
Syngenta Seeds	NK0295-AA	102	31,838	36.4	23.7	43.1	.	6.9	2.6	1.56	36.7	32.7	.	.	54.8	62.3	65.0	11.5	4.1	109.9	62.3
Seedway	SW 0030SS	100	32,844	37.0	26.3	41.3	.	6.3	2.6	1.52	38.0	33.9	.	.	59.0	64.2	66.9	11.3	4.4	114.7	64.0
Revere Seed	Revere 0297 VT2P	102	32,676	37.3	26.5	40.9	.	6.5	2.8	1.47	37.9	34.8	.	.	56.3	64.2	67.4	11.3	3.9	111.1	62.9
Brevant Seed	B99A24Q	99	33,849	37.9	25.8	37.8	.	6.2	2.6	1.21	41.4	36.6	36.5	58.1	57.9	66.2	69.5	11.2	3.7	106.7	61.4
Growmark, Inc.	FS4927T RIB	99	30,330	38.7	24.2	41.4	.	6.5	2.8	1.36	36.2	34.7	.	.	54.7	61.4	64.1	12.4	3.8	102.6	59.6
Seedway	SW 0345DV	103	30,163	39.2	25.4	39.5	.	6.8	3.0	1.51	37.3	37.0	.	.	54.3	62.5	65.1	12.9	3.5	98.8	58.4
		RM Mean	**31,730**	**35.9**	**24.9**	**39.7**	**.**	**6.5**	**2.7**	**1.40**	**37.9**	**35.2**	**36.5**	**58.1**	**57.0**	**64.2**	**67.2**	**11.6**	**3.9**	**108.8**	**62.0**
	Overall LSD (0.10)		**2,448**	**2.0**	**NS[3]**	**3.5**	**-**	**0.4**	**0.3**	**0.13**	**2.4**	**2.9**	**NS[3]**	**1.8**	**2.7**	**4.3**	**4.4**	**2.0**	**0.6**	**11.8**	**4.4**
	Overall Mean		**32,015**	**34.8**	**25.0**	**38.4**	**55.9**	**6.5**	**2.7**	**1.35**	**38.5**	**36.1**	**38.6**	**62.4**	**57.7**	**65.2**	**68.3**	**11.4**	**3.8**	**109.5**	**62.4**

Table 6c: Hybrid performance for 99–110-day RM groups at Aurora, NY *(page 2 of 2)*.

Company/Brand	Hybrid	Relative Maturity	Harvest Population	Dry Matter	Yield, 35% DM	Starch	IVSD[1]	Crude Protein	Lignin	C 18:2	12 hr NDFD	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
			plants/ac	%	tons/ac	% DM	% Starch	% DM	% DM	% DM	% NDF	% DM	% DM	% NDFom	% NDFom	% NDFom	% NDFom	% DM		lbs/day	lbs/day
KingFisher (King's Agri-seeds)	KF 59B70	109	31,336	26.8	21.8	30.4	.	7.4	1.8	1.10	49.2	41.4	39.8	71.8	74.3	86.2	89.9	4.1	4.6	147.6	77.2
Brevant Seed	B09F18	109	33,682	31.1	25.2	32.8	.	7.2	2.7	1.12	42.8	40.8	38.6	59.6	59.9	67.8	70.7	12.0	3.0	106.8	61.4
Dekalb	DKC108-64RIB	108	29,492	31.7	25.2	37.1	.	6.7	2.7	1.38	37.4	36.4	.	.	56.8	61.8	64.9	12.8	3.6	103.7	59.7
Brevant Seed	B06F91Q	106	34,520	31.9	24.0	32.9	.	6.7	2.5	1.11	44.3	41.1	39.7	60.1	61.3	70.8	73.9	10.8	3.1	110.0	62.7
Dekalb	DKC61-80RIB	111	34,017	32.2	25.6	34.0	.	6.3	2.9	1.15	37.6	38.7	.	.	56.4	64.0	66.7	12.8	3.2	97.7	58.1
Seed Consultants, Inc.	SC1094Q	109	32,174	32.8	23.7	37.8	.	6.5	2.6	1.28	39.5	35.7	.	.	57.9	66.0	69.4	10.9	3.8	113.2	64.0
Masters Choice	MCT5877-D	108	31,503	33.0	22.3	35.4	.	6.6	3.1	1.31	36.6	38.5	.	.	55.0	61.7	65.1	13.5	3.2	98.5	58.4
Stine Seed	9658-32	106	30,330	34.3	25.7	34.8	55.9	6.5	2.6	1.11	39.7	38.5	.	.	59.9	66.3	69.4	11.8	3.7	108.5	62.2
Channel	204-54SSPRIB	104	32,676	34.4	26.8	38.1	.	6.1	2.8	1.43	36.3	36.8	.	.	56.4	62.1	64.8	13.0	3.6	102.5	59.8
Hubner Seed	H0475P	104	31,336	34.5	21.2	38.2	.	6.6	2.6	1.41	38.4	35.2	.	.	58.8	68.5	72.0	9.9	4.0	116.4	65.2
Pioneer	P0732Q	107	34,184	34.5	28.3	39.3	.	6.1	2.6	1.30	39.7	35.1	.	.	56.7	64.1	68.6	11.0	3.8	113.9	64.1
Hubner Seed	H0881D	108	34,017	34.6	25.5	38.7	.	6.3	2.8	1.39	37.1	35.5	.	.	56.3	65.4	68.6	11.2	3.7	108.7	62.2
Seed Consultants, Inc.	SC1042Q	104	33,514	34.8	25.2	36.9	.	6.3	2.8	1.33	39.8	37.7	.	.	57.2	64.4	68.2	12.0	3.6	104.9	60.6
Seed Consultants, Inc.	SC1054AM	105	29,157	34.8	25.3	40.7	.	6.2	2.6	1.26	38.9	34.4	.	.	57.4	64.2	67.1	11.3	4.1	111.6	63.0
Masters Choice	MCT6014-D	110	32,174	35.2	26.2	36.7	.	6.7	2.6	1.33	39.6	36.3	.	.	59.1	66.4	69.7	11.0	3.9	113.5	63.7
DynaGro Seed	D48VC84	108	30,833	35.4	27.9	39.5	.	6.1	2.8	1.34	37.4	34.7	.	.	56.7	63.5	66.2	11.8	3.9	107.4	61.1
Redtail (King's Agri-seeds)	RT 55T79-D1	105	33,514	35.8	26.0	38.7	.	6.8	2.7	1.49	36.9	35.5	.	.	56.4	64.1	67.4	11.6	3.7	107.9	61.8
Dekalb	DKC105-33RIB	105	31,838	36.2	23.2	39.7	.	6.3	2.8	1.43	34.8	35.1	.	.	55.0	62.9	65.7	12.1	3.7	104.0	60.4
Revere Seed	Revere 0518 VT2P	105	32,844	37.5	26.7	43.3	.	6.7	2.6	1.47	36.7	32.7	.	.	57.2	65.2	68.6	10.3	4.4	117.2	65.0
		RM Mean	**32,271**	**33.8**	**25.0**	**37.1**	**55.9**	**6.5**	**2.7**	**1.30**	**39.1**	**36.9**	**39.4**	**63.8**	**58.4**	**66.1**	**69.3**	**11.3**	**3.7**	**110.2**	**62.7**
	Overall LSD (0.10)		**2,448**	**2.0**	**NS[3]**	**3.5**	**-**	**0.4**	**0.3**	**0.13**	**2.4**	**2.9**	**NS[3]**	**1.8**	**2.7**	**4.3**	**4.4**	**2.0**	**0.6**	**11.8**	**4.4**
	Overall Mean		**32,015**	**34.8**	**25.0**	**38.4**	**55.9**	**6.5**	**2.7**	**1.35**	**38.5**	**36.1**	**38.6**	**62.4**	**57.7**	**65.2**	**68.3**	**11.4**	**3.8**	**109.5**	**62.4**

Figure 4. Interpretation of quartile plots used in Figures 5 and 6.



Q1: Crop Yield: Above Average
Milk Yield: Below Average

Q2: Crop Yield: Above Average
Milk Yield: Above Average

Q3: Crop Yield: Below Average
Milk Yield: Below Average

Q4: Crop Yield: Below Average
Milk Yield: Above Average

Figure 5.

Relationship between crop yield and predicted milk yield (PMY) for 85–98-day relative maturity (RM) hybrids planted at Oakfield, NY (5a) and Alburgh, VT (5b). 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 99–110-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 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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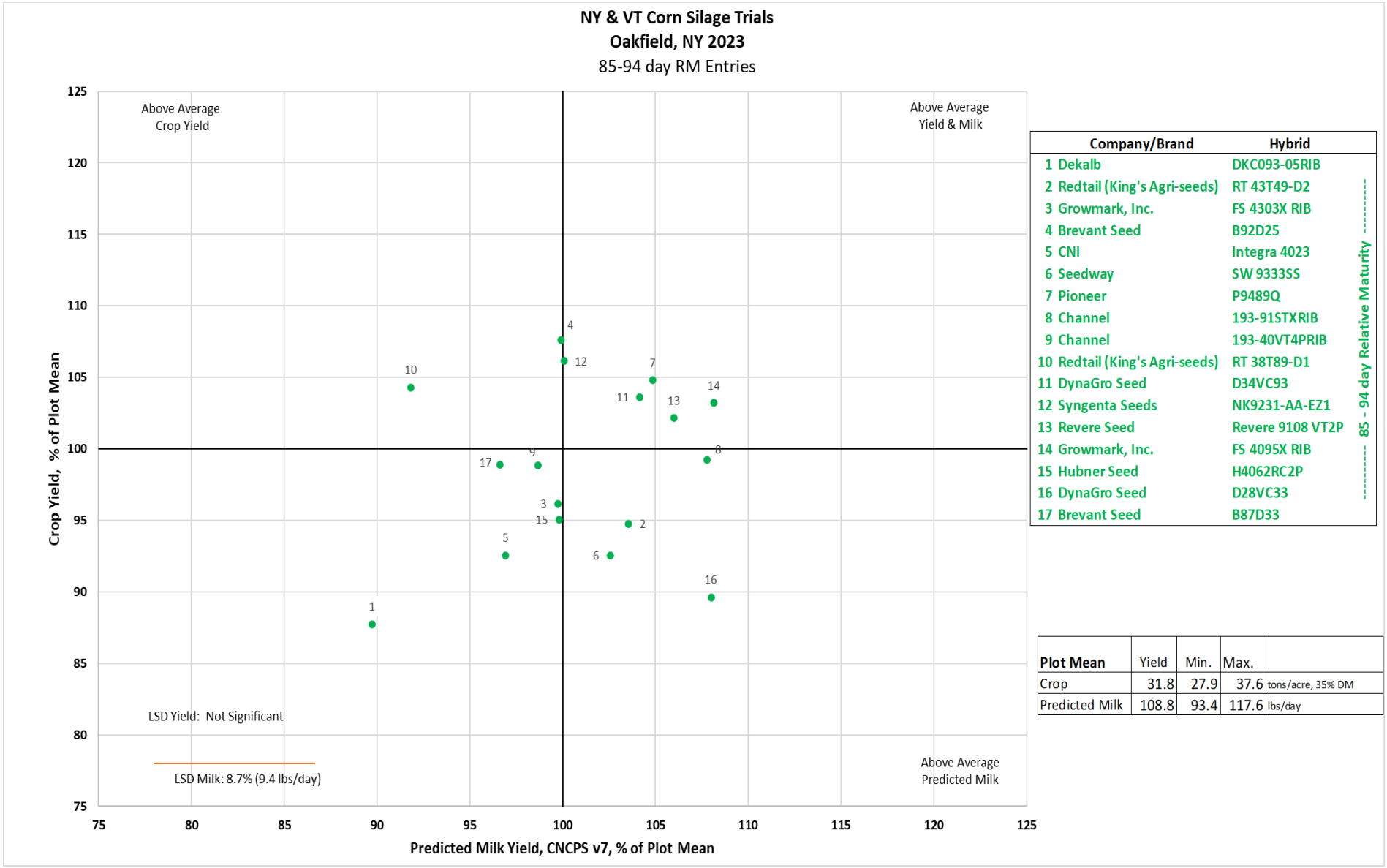
Figure 5a: Oakfield, NY 85–98-day RM hybrids, 85-94 RM entries.



	Company/Brand	Hybrid
1	Dekalb	DKC093-05RIB
2	Redtail (King's Agri-seeds)	RT 43T49-D2
3	Growmark, Inc.	FS 4303X RIB
4	Brevant Seed	B92D25
5	CNI	Integra 4023
6	Seedway	SW 9333SS
7	Pioneer	P9489Q
8	Channel	193-91STXRIB
9	Channel	193-40VT4PRIB
10	Redtail (King's Agri-seeds)	RT 38T89-D1
11	DynaGro Seed	D34VC93
12	Syngenta Seeds	NK9231-AA-EZ1
13	Revere Seed	Revere 9108 VT2P
14	Growmark, Inc.	FS 4095X RIB
15	Hubner Seed	H4062RC2P
16	DynaGro Seed	D28VC33
17	Brevant Seed	B87D33

85 - 94 day Relative Maturity

Plot Mean	Yield	Min.	Max.	
Crop	31.8	27.9	37.6	tons/acre, 35% DM
Predicted Milk	108.8	93.4	117.6	lbs/day

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Figure 5a: Oakfield, NY 85–98-day RM hybrids, 95-98 RM entries *(cont.)*.

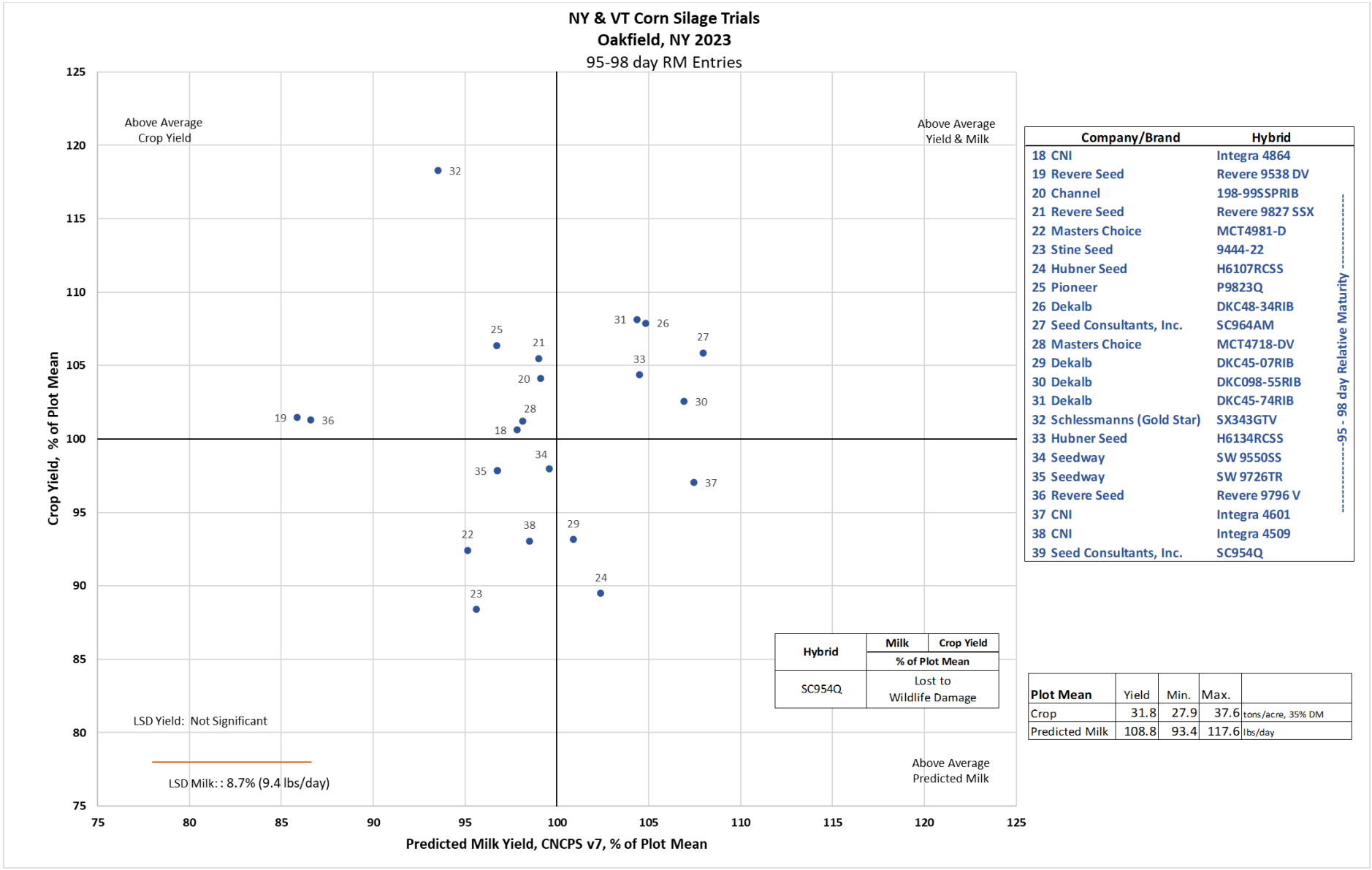

Figure 5b: Alburgh, VT 85–98-day RM hybrids, 85-94 RM entries.

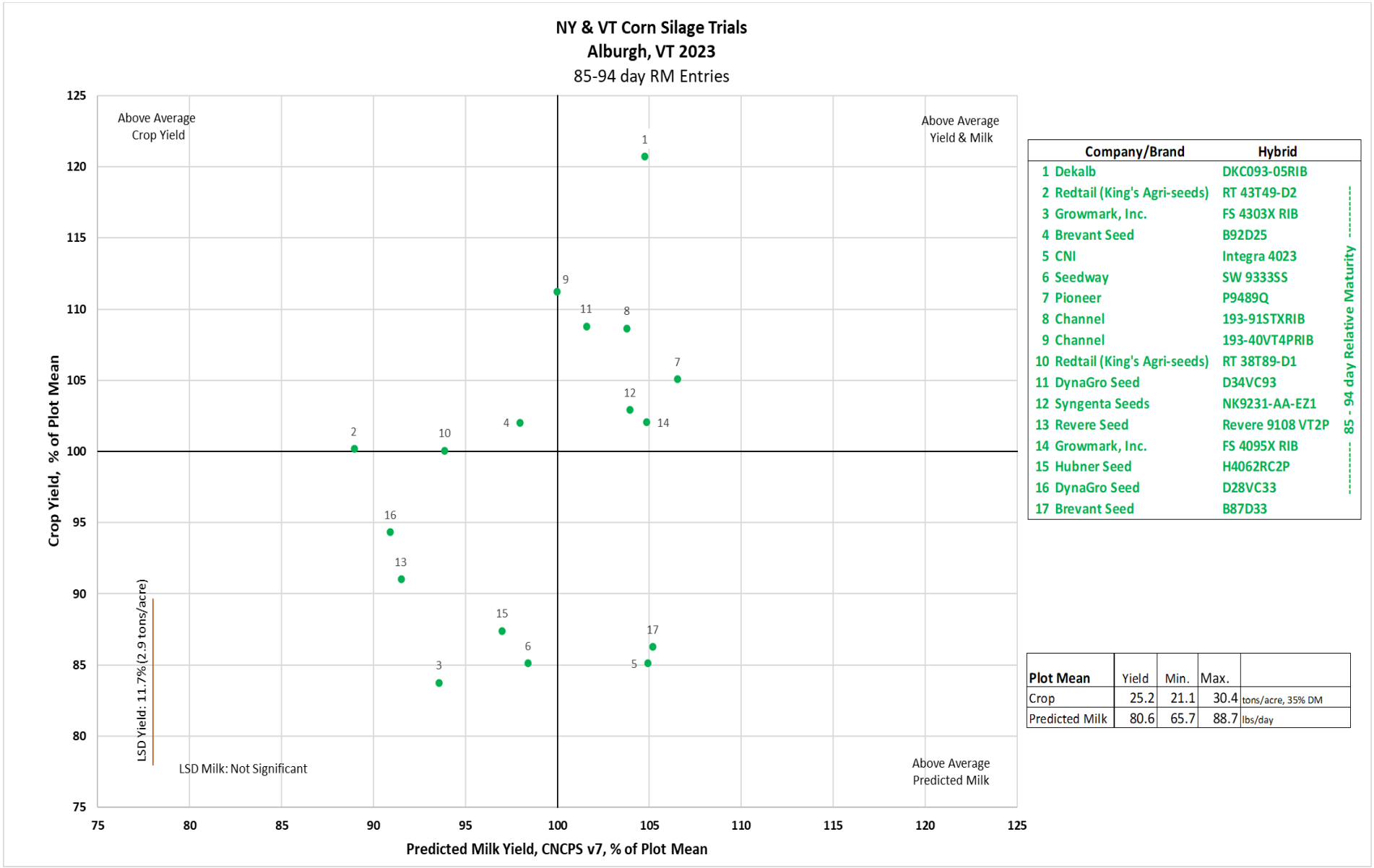

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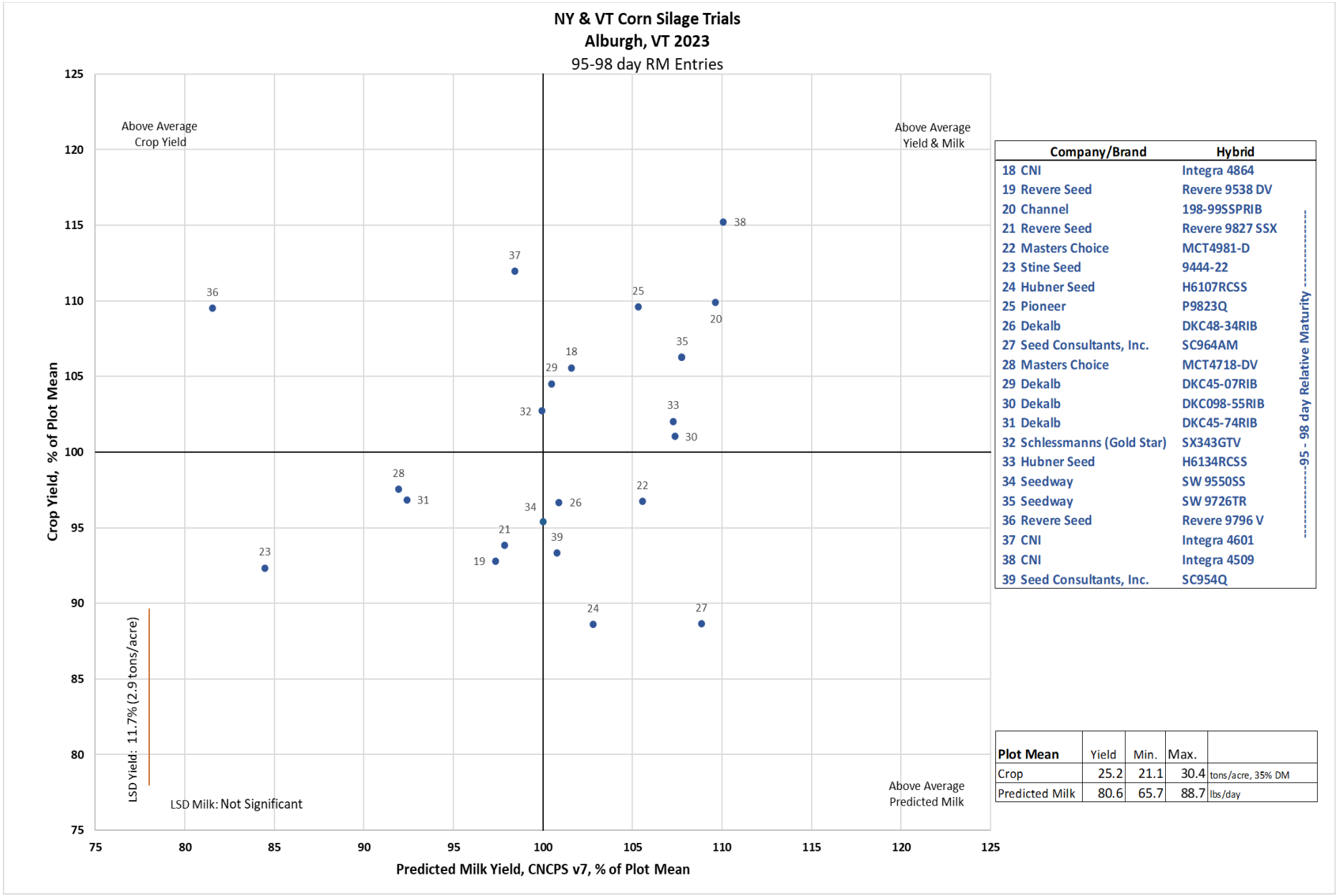
Figure 5b: Alburgh, VT 85–98-day RM hybrids, 95-98 RM entries *(cont.)*.



Company/Brand	Hybrid
18 CNI	Integra 4864
19 Revere Seed	Revere 9538 DV
20 Channel	198-99SSPRIB
21 Revere Seed	Revere 9827 SSX
22 Masters Choice	MCT4981-D
23 Stine Seed	9444-22
24 Hubner Seed	H6107RCSS
25 Pioneer	P9823Q
26 Dekalb	DKC48-34RIB
27 Seed Consultants, Inc.	SC964AM
28 Masters Choice	MCT4718-DV
29 Dekalb	DKC45-07RIB
30 Dekalb	DKC098-55RIB
31 Dekalb	DKC45-74RIB
32 Schlessmanns (Gold Star)	SX343GTV
33 Hubner Seed	H6134RCSS
34 Seedway	SW 9550SS
35 Seedway	SW 9726TR
36 Revere Seed	Revere 9796 V
37 CNI	Integra 4601
38 CNI	Integra 4509
39 Seed Consultants, Inc.	SC954Q

----------95 - 98 day Relative Maturity ----------

Plot Mean	Yield	Min.	Max.	
Crop	25.2	21.1	30.4	tons/acre, 35% DM
Predicted Milk	80.6	65.7	88.7	lbs/day

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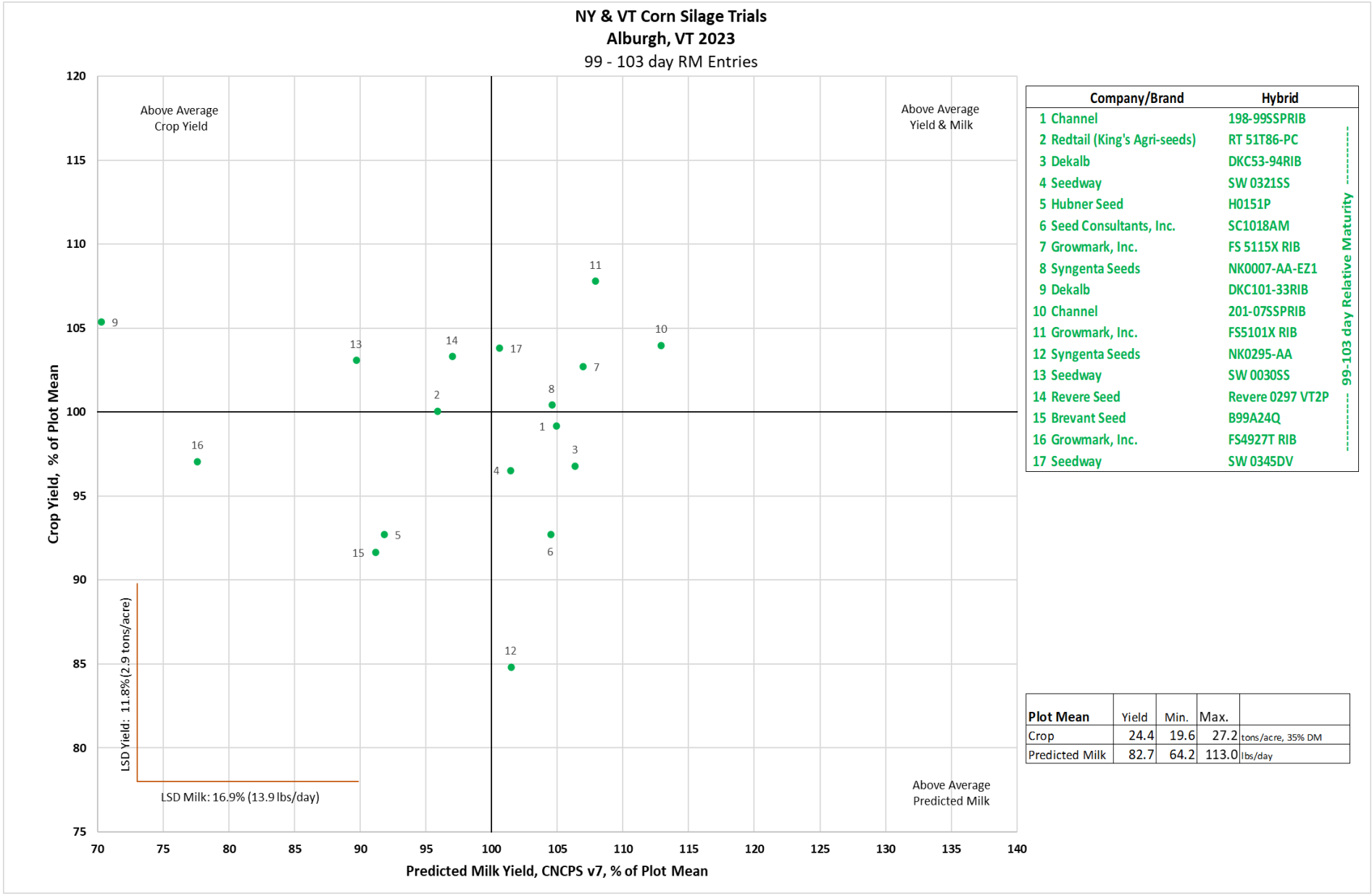
Figure 6a: Alburgh, VT 99–110-day RM hybrids, 99-103 RM entries.



	Company/Brand	Hybrid
1	Channel	198-99SSPRIB
2	Redtail (King's Agri-seeds)	RT 51T86-PC
3	Dekalb	DKC53-94RIB
4	Seedway	SW 0321SS
5	Hubner Seed	H0151P
6	Seed Consultants, Inc.	SC1018AM
7	Growmark, Inc.	FS 5115X RIB
8	Syngenta Seeds	NK0007-AA-EZ1
9	Dekalb	DKC101-33RIB
10	Channel	201-07SSPRIB
11	Growmark, Inc.	FS5101X RIB
12	Syngenta Seeds	NK0295-AA
13	Seedway	SW 0030SS
14	Revere Seed	Revere 0297 VT2P
15	Brevant Seed	B99A24Q
16	Growmark, Inc.	FS4927T RIB
17	Seedway	SW 0345DV

99-103 day Relative Maturity

Plot Mean	Yield	Min.	Max.	
Crop	24.4	19.6	27.2	tons/acre, 35% DM
Predicted Milk	82.7	64.2	113.0	lbs/day

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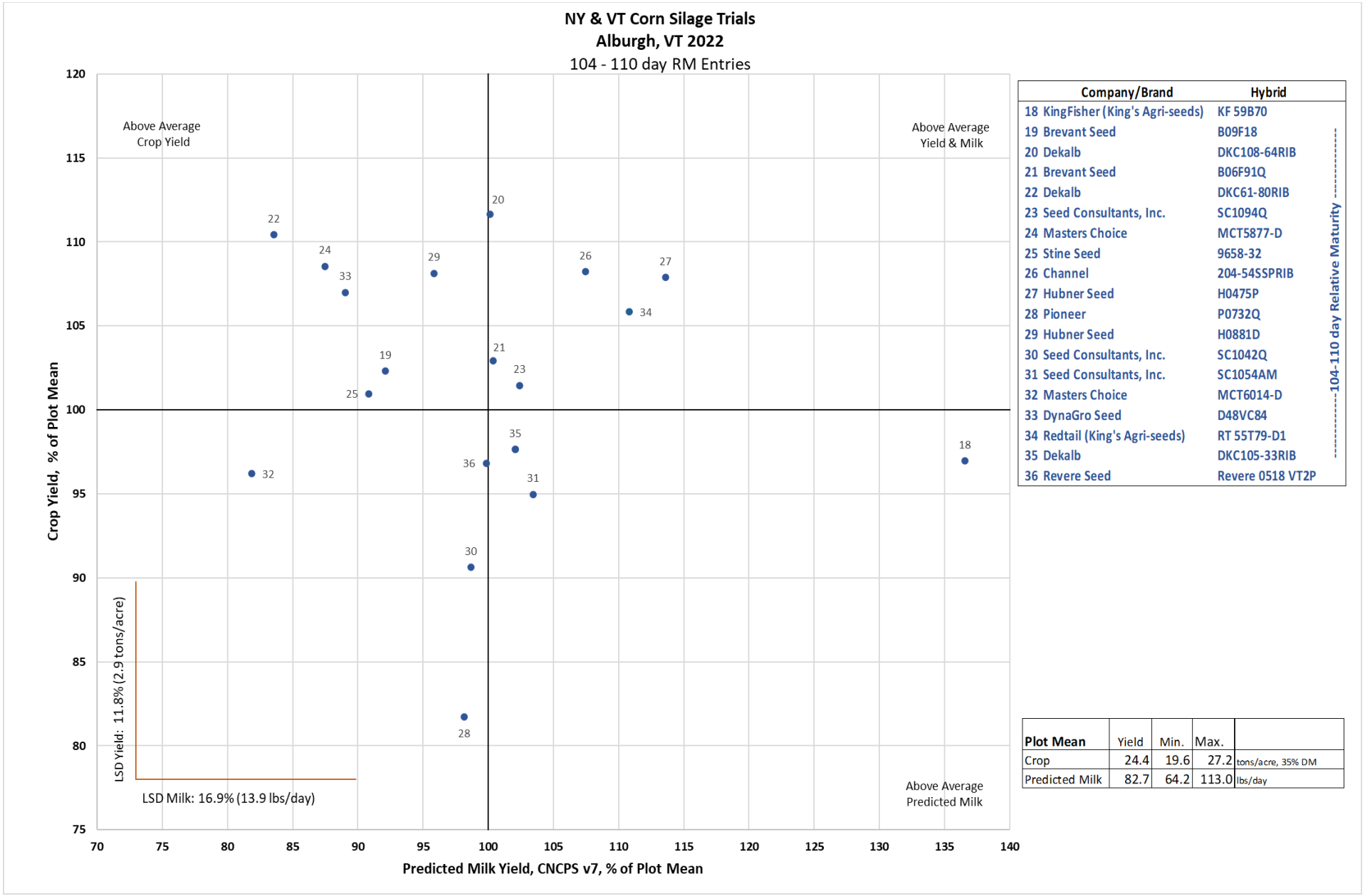
Figure 6a: Alburgh, VT 99–110-day RM hybrids, 104-110 RM entries *(cont.)*.



	Company/Brand	Hybrid
18	KingFisher (King's Agri-seeds)	KF 59B70
19	Brevant Seed	B09F18
20	Dekalb	DKC108-64RIB
21	Brevant Seed	B06F91Q
22	Dekalb	DKC61-80RIB
23	Seed Consultants, Inc.	SC1094Q
24	Masters Choice	MCT5877-D
25	Stine Seed	9658-32
26	Channel	204-54SSPRIB
27	Hubner Seed	H0475P
28	Pioneer	P0732Q
29	Hubner Seed	H0881D
30	Seed Consultants, Inc.	SC1042Q
31	Seed Consultants, Inc.	SC1054AM
32	Masters Choice	MCT6014-D
33	DynaGro Seed	D48VC84
34	Redtail (King's Agri-seeds)	RT 55T79-D1
35	Dekalb	DKC105-33RIB
36	Revere Seed	Revere 0518 VT2P

104-110 day Relative Maturity

Plot Mean	Yield	Min.	Max.	
Crop	24.4	19.6	27.2	tons/acre, 35% DM
Predicted Milk	82.7	64.2	113.0	lbs/day

Figure 6b: Madrid, NY 99–110-day RM hybrids, 99-103 RM entries.

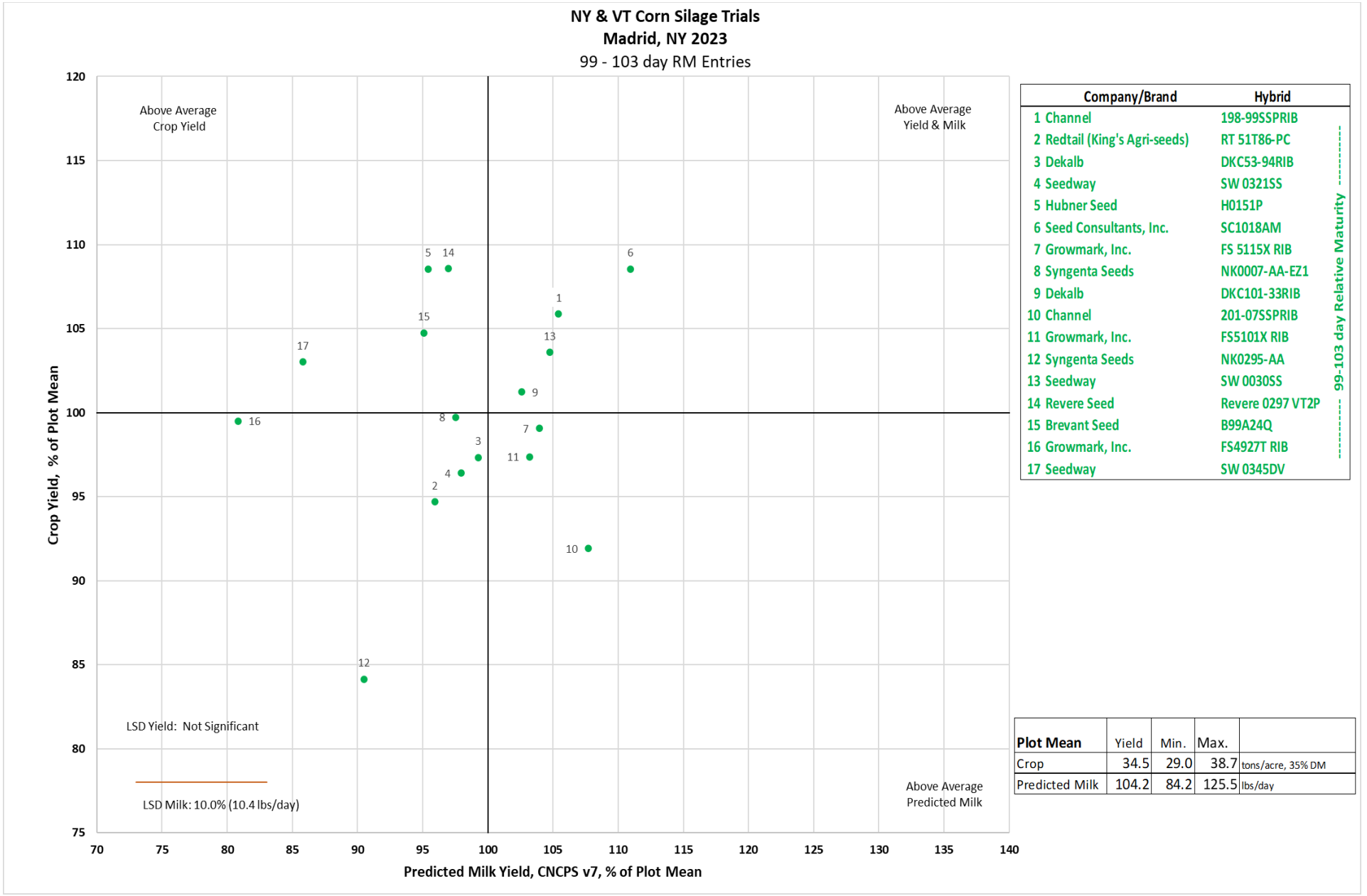


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Figure 6b: Madrid, NY 99–110-day RM hybrids, 104-110 RM entries *(cont.)*.

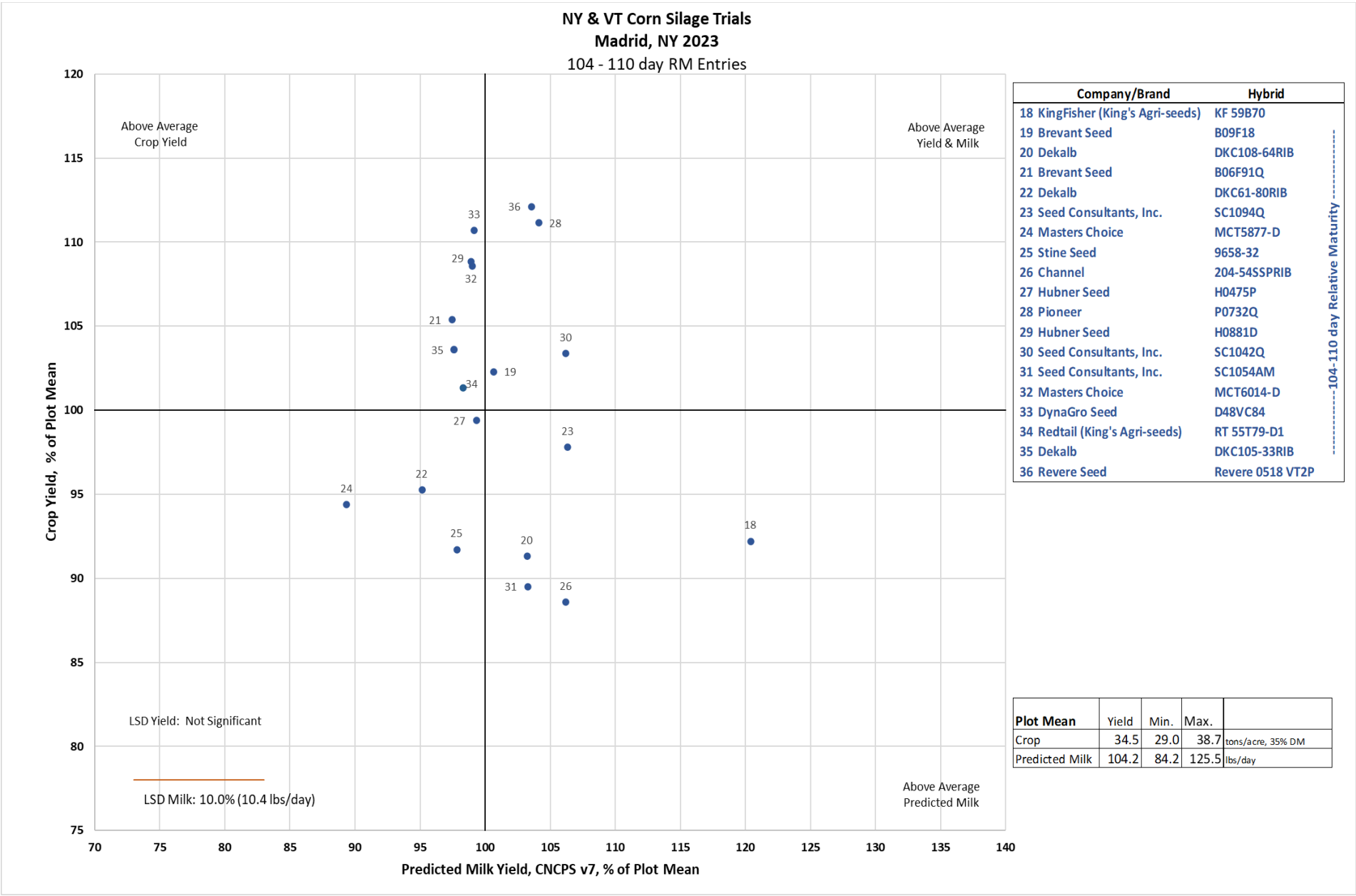

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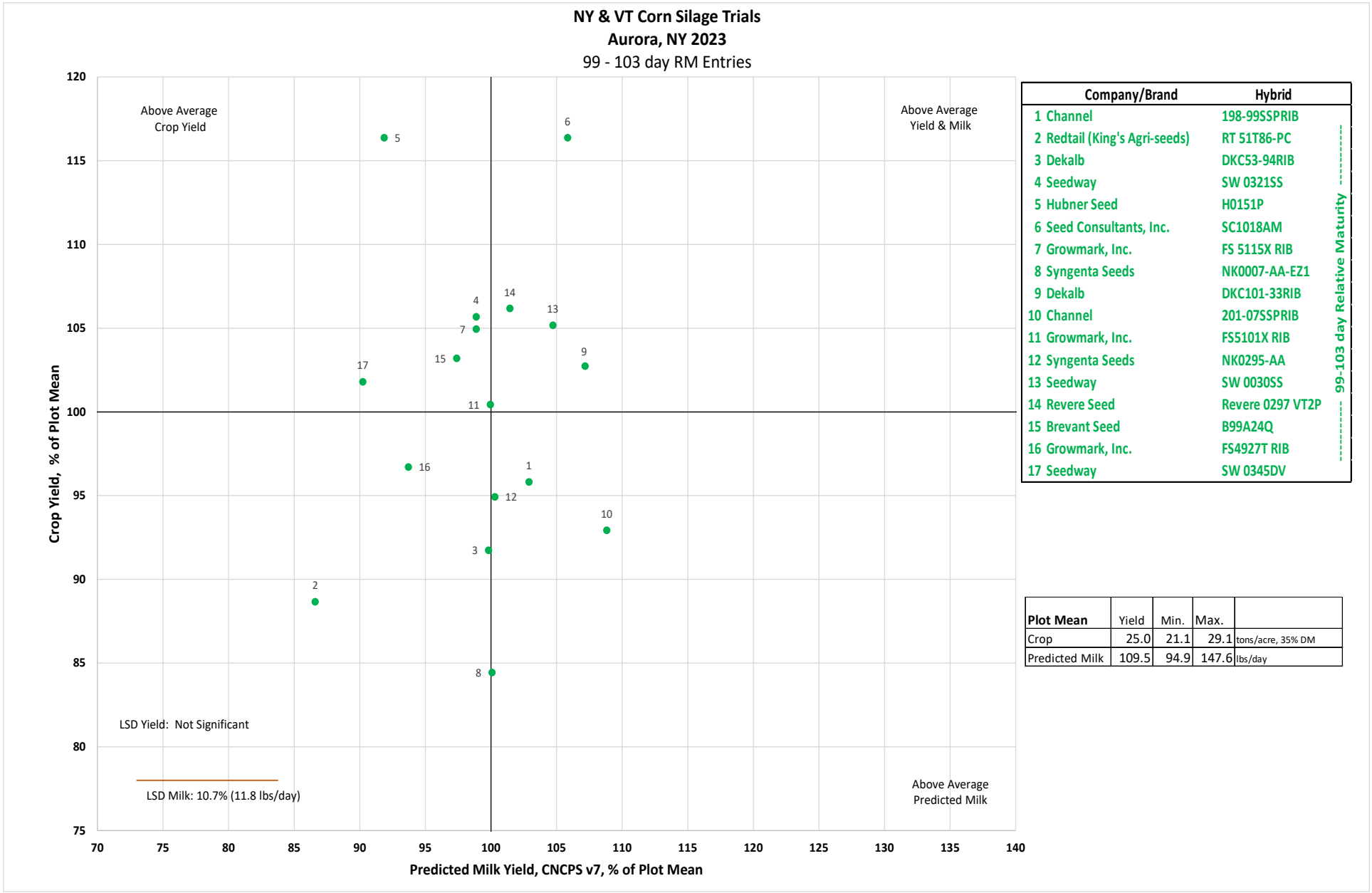
Figure 6c: Aurora, NY 99–110-day RM hybrids, 99-103 RM entries.



	Company/Brand	Hybrid
1	Channel	198-99SSPRIB
2	Redtail (King's Agri-seeds)	RT 51T86-PC
3	Dekalb	DKC53-94RIB
4	Seedway	SW 0321SS
5	Hubner Seed	H0151P
6	Seed Consultants, Inc.	SC1018AM
7	Growmark, Inc.	FS 5115X RIB
8	Syngenta Seeds	NK0007-AA-EZ1
9	Dekalb	DKC101-33RIB
10	Channel	201-07SSPRIB
11	Growmark, Inc.	FS5101X RIB
12	Syngenta Seeds	NK0295-AA
13	Seedway	SW 0030SS
14	Revere Seed	Revere 0297 VT2P
15	Brevant Seed	B99A24Q
16	Growmark, Inc.	FS4927T RIB
17	Seedway	SW 0345DV

99-103 day Relative Maturity

Plot Mean	Yield	Min.	Max.	
Crop	25.0	21.1	29.1	tons/acre, 35% DM
Predicted Milk	109.5	94.9	147.6	lbs/day

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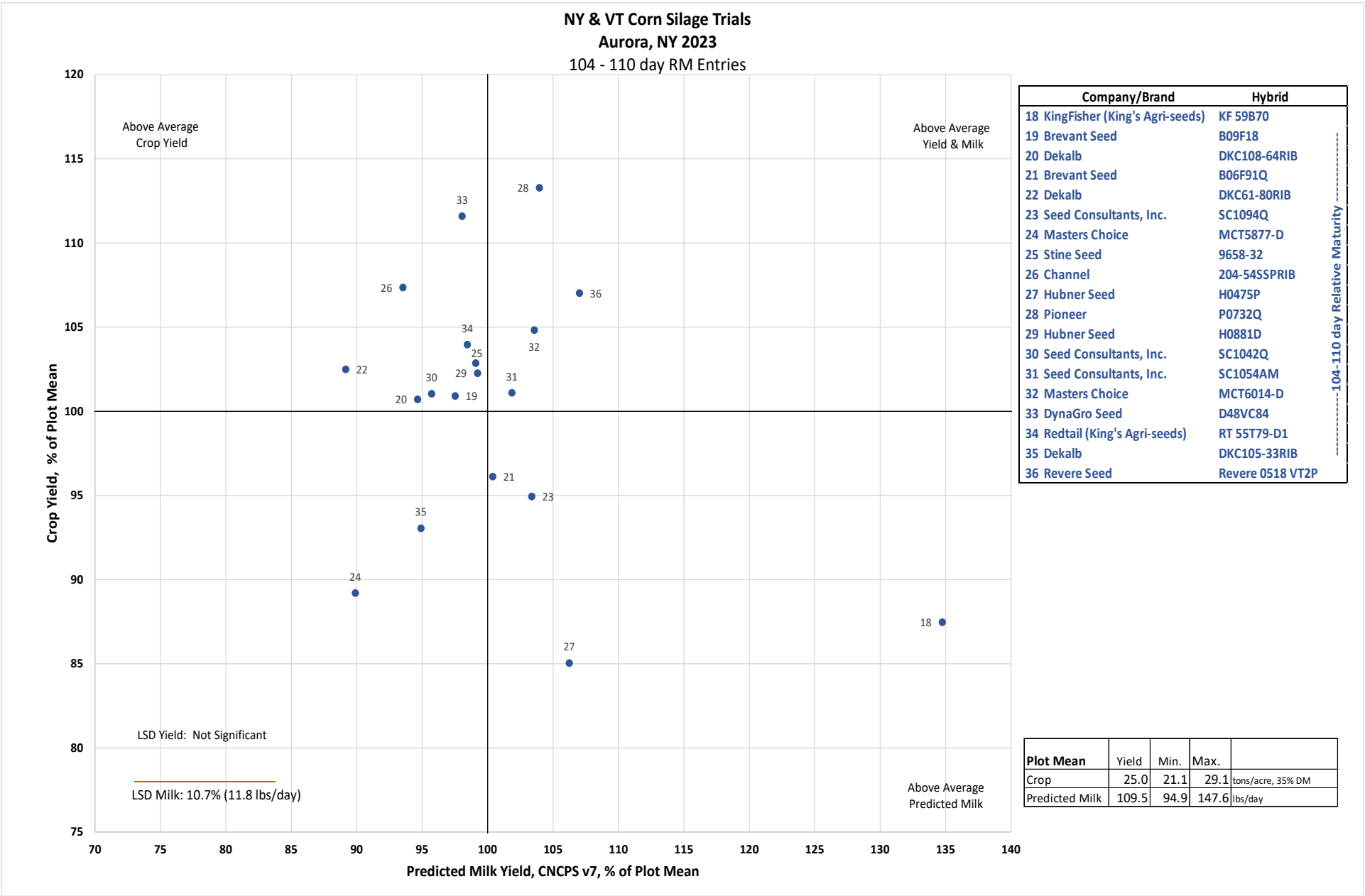
Figure 6c: Aurora, NY 99–110-day RM hybrids, 104-110 RM entries *(cont.)*.



	Company/Brand	Hybrid
18	KingFisher (King's Agri-seeds)	KF 59B70
19	Brevant Seed	B09F18
20	Dekalb	DKC108-64RIB
21	Brevant Seed	B06F91Q
22	Dekalb	DKC61-80RIB
23	Seed Consultants, Inc.	SC1094Q
24	Masters Choice	MCT5877-D
25	Stine Seed	9658-32
26	Channel	204-54SSPRIB
27	Hubner Seed	H0475P
28	Pioneer	P0732Q
29	Hubner Seed	H0881D
30	Seed Consultants, Inc.	SC1042Q
31	Seed Consultants, Inc.	SC1054AM
32	Masters Choice	MCT6014-D
33	DynaGro Seed	D48VC84
34	Redtail (King's Agri-seeds)	RT 55T79-D1
35	Dekalb	DKC105-33RIB
36	Revere Seed	Revere 0518 VT2P

----------104-110 day Relative Maturity ----------

Plot Mean	Yield	Min.	Max.	
Crop	25.0	21.1	29.1	tons/acre, 35% DM
Predicted Milk	109.5	94.9	147.6	lbs/day

Table 7: Comparative Hybrid Performance across Locations and Years

Footnotes for Table 7

[1]Comparative values based on mean equal to 100%, Crop Yield is reported in tons/acre, 35% DM and Milk Yield is reported in lbs/day.

[2]Environments are site-year combinations for current year and across all years a hybrid has been entered.

Table 7a: 85 - 98-day Relative Maturity (RM)

Company/Brand	Hybrid	RM	2023			All Years		
			Comparative Crop Yield	Comparative Milk Yield	No. Environ-ments[2]	Comparative Crop Yield	Comparative Milk Yield	No. Environ-ments[2]
			% of overall mean[1]			% of overall mean[1]		
Hubner Seed	H4062RC2P	86	91%	98%	2	99%	97%	11
Brevant Seed	B87D33	87	93%	101%	2	93%	101%	2
Redtail (King's Agri-seeds)	RT 38T89-D1	88	102%	93%	2	104%	92%	5
DynaGro Seed	D28VC33	88	92%	99%	2	92%	99%	2
CNI	Integra 4023	90	99%	101%	2	99%	101%	2
Growmark, Inc.	FS 4095X RIB	90	103%	107%	2	100%	102%	14
Revere Seed	Revere 9108 VT2	91	97%	99%	2	97%	99%	2
Brevant Seed	B92D25	92	105%	99%	2	105%	99%	2
Syngenta Seeds	NK9231-AA-EZ1	92	105%	102%	2	105%	102%	2
Dekalb	DKC093-05RIB	93	104%	97%	2	104%	97%	2
Redtail (King's Agri-seeds)	RT 43T49-D2	93	97%	96%	2	97%	96%	2
Growmark, Inc.	FS 4303X RIB	93	90%	97%	2	96%	99%	11
Seedway	SW 9333SS	93	89%	100%	2	94%	102%	5
Channel	193-91STXRIB	93	104%	106%	2	101%	104%	8
Channel	193-40VT4PRIB	93	105%	99%	2	105%	99%	2
Pioneer	P9489Q	94	105%	106%	2	105%	106%	2
DynaGro Seed	D34VC93	94	106%	103%	2	106%	103%	2
Revere Seed	Revere 9538 DV	95	97%	92%	2	97%	92%	2
Dekalb	DKC45-07RIB	95	99%	101%	2	99%	102%	20
Dekalb	DKC45-74RIB	95	103%	98%	2	107%	100%	5
Seedway	SW 9550SS	95	97%	100%	2	104%	101%	5
CNI	Integra 4509	95	104%	104%	2	104%	102%	5
Seed Consultants, Inc.	SC954Q	95	93%	101%	2	93%	101%	2
Seed Consultants, Inc.	SC964AM	96	97%	108%	2	97%	108%	2
Schlessmanns (Gold Star)	SX343GTV	96	111%	97%	2	111%	97%	2
Hubner Seed	H6134RCSS	96	103%	106%	2	101%	103%	11
CNI	Integra 4601	96	104%	103%	2	103%	97%	5
Hubner Seed	H6107RCSS	97	89%	103%	2	95%	102%	5
Masters Choice	MCT4718-DV	97	99%	95%	2	99%	95%	2
Revere Seed	Revere 9796 V	97	105%	84%	2	101%	97%	5
CNI	Integra 4864	98	103%	100%	2	103%	100%	2
Channel	198-99SSPRIB	98	103%	104%	5	103%	104%	5
Revere Seed	Revere 9827 SSX	98	100%	98%	2	100%	98%	2
Pioneer	P9823Q	98	108%	101%	2	108%	101%	2
Dekalb	DKC48-34RIB	98	102%	103%	2	102%	104%	5
Dekalb	DKC098-55RIB	98	102%	107%	2	102%	107%	2
Seedway	SW 9726TR	98	102%	102%	2	100%	98%	5
Masters Choice	MCT4981-D	99	95%	100%	2	95%	100%	2
Stine Seed	9444-22	99	90%	90%	2	90%	90%	2

Table 7b: 99 - 110-day Relative Maturity (RM)

Company/Brand	Hybrid	RM	2023			All Years		
			Comparative Crop Yield	Comparative Milk Yield	No. Environments[2]	Comparative Crop Yield	Comparative Milk Yield	No. Environments[2]
			% of overall mean[1]			% of overall mean[1]		
Channel	198-99SSPRIB	98	103%	104%	5	103%	104%	5
Brevant Seed	B99A24Q	99	100%	95%	3	100%	95%	3
Growmark, Inc.	FS4927T RIB	99	97%	78%	1	97%	78%	1
Syngenta Seeds	NK0007-AA-EZ1	100	95%	101%	3	95%	101%	3
Seedway	SW 0030SS	100	104%	100%	3	103%	97%	9
Growmark, Inc.	FS 5101X RIB	100	102%	104%	3	105%	102%	12
Redtail (King's Agri-seeds)	RT 51T86-PC	101	94%	93%	3	94%	93%	3
Hubner Seed	H0151P	101	93%	93%	3	93%	93%	3
Growmark, Inc.	FS 5115X RIB	101	102%	103%	3	100%	99%	6
Seed Consultants, Inc.	SC1018AM	101	106%	107%	3	105%	110%	9
Dekalb	DKC101-33RIB	101	103%	107%	3	103%	107%	3
Channel	201-07SSPRIB	101	96%	110%	3	97%	111%	6
Syngenta Seeds	NK0295-AA	102	88%	97%	3	88%	97%	3
Revere Seed	Revere 0297 VT2P	102	106%	98%	3	106%	98%	3
Seedway	SW 0321SS	103	100%	99%	3	102%	107%	6
Dekalb	DKC53-94RIB	103	95%	102%	3	98%	99%	6
Seedway	SW 0345DV	103	103%	92%	3	103%	92%	3
Channel	204-54SSPRIB	104	101%	102%	3	101%	102%	3
Seed Consultants, Inc.	SC1042Q	104	98%	100%	3	101%	105%	9
Hubner Seed	H0475P	104	97%	106%	3	97%	106%	3
Seed Consultants, Inc.	SC1054AM	105	95%	103%	3	95%	103%	3
Dekalb	DKC105-33RIB	105	98%	98%	3	98%	98%	3
Revere Seed	Revere 0518 VT2P	105	105%	103%	3	105%	103%	3
Redtail (King's Agri-seeds)	RT 55T79-D1	105	104%	103%	3	104%	103%	3
Brevant Seed	B06F91Q	106	101%	99%	3	104%	103%	6
Stine Seed	9658-32	106	99%	96%	3	99%	96%	3
Pioneer	P0732 Q	107	102%	102%	3	102%	103%	9
Dekalb	DKC108-64RIB	108	101%	99%	3	101%	99%	3
Hubner Seed	H0881D	108	106%	98%	3	106%	98%	3
DynaGro Seed	D48VC84	108	110%	95%	3	110%	95%	3
Masters Choice	MCT5877-D	108	97%	89%	3	97%	89%	3
KingFisher (King's Agri-seeds)	KF 59B70	109	92%	131%	3	92%	131%	3
Brevant Seed	B09F18	109	102%	97%	3	102%	97%	3
Seed Consultants, Inc.	SC1094Q	109	98%	104%	3	98%	104%	3
Masters Choice	MCT6014-D	110	103%	95%	3	103%	95%	3
Dekalb	DKC61-80RIB	111	103%	89%	3	103%	89%	3

Table 8: Description of Seed Traits for Hybrids listed in Tables 4 and 5.

Table 8a. 85 - 98-day Relative Maturity (RM)

Brand	Hybrid	RM	Trait Package	
Brevant Seed	B87D33	87	Acremax	AM
Brevant Seed	B92D25	92	Acremax	AM
Channel	193-91STXRIB	93	SmartStax	SS, SX
Channel	193-40VT4PRIB	93	VT4Prow/RNAi Tech.	VT4PRO
Channel	198-99SSPRIB	98	Smart StaxPRO	SSPro
CNI	Integra 4023	90	VT Double PRO	VT2P
CNI	Integra 4509	95	VT Double PRO	VT2P
CNI	Integra 4601	96	VT Double PRO	VT2P
CNI	Integra 4864	98	SmartStax	SS, SX
Dekalb	DKC093-05RIB	93	SmartStax RIB Complete	SSRIB
Dekalb	DKC45-07RIB	95	SmartStax RIB Complete	SSRIB
Dekalb	DKC45-74RIB	95	SmartStax RIB Complete	SSRIB
Dekalb	DKC48-34RIB	98	SmartStax RIB Complete	SSRIB
Dekalb	DKC098-55RIB	98	SmartStax RIB Complete	SSRIB
DynaGro Seed	D28VC33	88	VT Double PRO	VT2P
DynaGro Seed	D34VC93	94	VT Double PRO	VT2P
Growmark, Inc.	FS 4095X RIB	90	SmartStax RIB Complete	SSRIB
Growmark, Inc.	FS 4303X RIB	93	SmartStax RIB Complete	SSRIB
Hubner Seed	H4062RC2P	86	VT Double PRO	VT2P
Hubner Seed	H6134RCSS	96	SmartStax	SS, SX
Hubner Seed	H6107RCSS	97	SmartStax	SS, SX
Masters Choice	MCT4718-DV	97	Duracade Viptera	DV
Masters Choice	MCT4981-D	99	Duracade	D
Pioneer	P9489Q	94	Qrome	Q
Pioneer	P9823Q	98	Qrome	Q
Redtail (King's Agri-seeds)	RT 38T89-D1	88	Duracade	D
Redtail (King's Agri-seeds)	RT 43T49-D2	93	Duracade	D
Revere Seed	Revere 9108 VT2P	91	VT Double PRO	VT2P
Revere Seed	Revere 9538 DV	95	Duracade Viptera	DV
Revere Seed	Revere 9796 V	97	Viptera	V
Revere Seed	Revere 9827 SSX	98	SmartStax	SS, SX
Schlessmanns (Gold Star)	SX343GTV	96	Viptera	V
Seed Consultants, Inc.	SC954Q	95	Qrome	Q
Seed Consultants, Inc.	SC964AM	96	Acremax	AM
Seedway	SW 9333SS	93	SmartStax	SS, SX
Seedway	SW 9550SS	95	SmartStax	SS, SX
Seedway	SW 9726TR	98	Trecepta	TRE
Stine Seed	9444-22	99	Duracade Refuge Renew	D
Syngenta Seeds	NK9231-AA-EZ1	92	Agrisure Above	AA

Table 8b. 99 - 110-day Relative Maturity

Brand	Hybrid	RM	Trait Package	
Brevant Seed	B99A24Q	99	Qrome	Q
Brevant Seed	B06F91Q	106	Qrome	Q
Brevant Seed	B09F18Q	109	Qrome	Q
Channel	198-99SSPRIB	98	Smart StaxPRO	SSPro
Channel	201-07SSPRIB	101	Smart StaxPRO	SSPro
Channel	204-54SSPRIB	104	Smart StaxPRO	SSPro
Dekalb	DKC101-33RIB	101	SmartStax RIB Complete	SSRIB
Dekalb	DKC53-94RIB	103	SmartStax RIB Complete	SSRIB
Dekalb	DKC105-33RIB	105	SmartStax RIB Complete	SSRIB
Dekalb	DKC108-64RIB	108	SmartStax RIB Complete	SSRIB
Dekalb	DKC61-80RIB	111	SmartStax RIB Complete	SSRIB
DynaGro Seed	D48VC84	108	VT Double PRO	VT2P
Growmark, Inc.	FS4927T RIB	99	TreceptaRIBComplete	TRERIB
Growmark, Inc.	FS 5101X RIB	100	SmartStax RIB Complete	SSRIB
Growmark, Inc.	FS 5115X RIB	101	SmartStax RIB Complete	SSRIB
Hubner Seed	H0151P	101	Smart StaxPRO	SSPro
Hubner Seed	H0475P	104	Smart StaxPRO	SSPro
Hubner Seed	H0881D	108	VT Double PRO	VT2P
KingFisher (King's Agri-seeds)	KF 59B70	109	Conventional	Conv
Masters Choice	MCT5877-D	108	Duracade	D
Masters Choice	MCT6014-D	110	Duracade	D
Pioneer	P0732 Q	107	Qrome	Q
Redtail (King's Agri-seeds)	RT 51T86-PC	101	Powercore	PW
Redtail (King's Agri-seeds)	RT 55T79-D1	105	Duracade	D
Revere Seed	Revere 0297 VT2P	102	Agrisure Above	AA
Revere Seed	Revere 0518 VT2P	105	VT Double PRO	VT2P
Seed Consultants, Inc.	SC1018AM	101	Acremax	AM
Seed Consultants, Inc.	SC1042Q	104	Qrome	Q
Seed Consultants, Inc.	SC1054AM	105	Acremax	AM
Seed Consultants, Inc.	SC1094Q	109	Qrome	Q
Seedway	SW 0030SS	100	Agrisure Above	AA
Seedway	SW 0321SS	103	SmartStax	SS, SX
Seedway	SW 0345DV	103	Duracade Viptera	DV
Stine Seed	9658-32	106	Duracade Viptera Refuge Renew	DV
Syngenta Seeds	NK0007-AA-EZ1	100	SmartStax	SS, SX
Syngenta Seeds	NK0295-AA	102	VT Double PRO	VT2P

Table 9: Trait descriptions

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

For questions & corrections: Chris DiFonzo, Michigan State Univ., difonzo@msu.edu
Contributor: Pat Porter, Texas A&M University (web site host)

November 21, 2023

The Handy Bt Trait Table

Updated March 2023

for U.S. Corn Production

Complied by
Chris DiFonzo
Michigan State University

Web site hosting by
Pat Porter
Texas A&M University

The most up-to-date version of this table plus related extension materials are free online at:
https://www.texasinsects.org/bt-corn-trait-table.html
Questions? Comments? Complaints? difonzo@msu.edu

The Handy Bt Trait Table provides a helpful list of trait packages to make it easier to understand seed guides, sales materials, and bag tags.

The big change for 2023: The table increased from one to two pages. Companies renamed some of their trait stacks, introduced the dvSnf7 trait (RNAi technology) for rootworm control, or added Enlist 2,4-D/fops herbicide tolerance to existing hybrid packages. Each new combination and name increased the length of the table. Thus, the 2023 version flows over two pages. As a result of the extra space, font size increased in a few columns and a separate column was added for bag tag letter codes.

For those who need it, the table of 'transformation events' (on page 1 of previous versions) has moved online. Also new online: a *checklist of events x stacks*, plus a *list of EPA registration numbers* for the trait packages on the Handy Bt Trait Table. Visit the web link in the header.

I am often asked why older trait packages with limited or no commercial availability remain on the table. This is for historical reference, to interpret previous year's planting records, seed guides, and research results. Also, companies often refer to older trait stack names in current seed guides (e.g. 'AwesomeSeed's new XYZ-Pro is a combination of trait packages A, B, and C'). Thus, the Handy Bt Trait Table is a one-stop shop for both past and present Bt hybrid information.

ABBREVIATIONS in the TRAIT TABLE

Insect Pest Targets

BCW	black cutworm
CEW	corn earworm
CRW	corn rootworm
ECB	European corn borer
FAW	fall armyworm
NCR	northern corn rootworm
SB	stalk borer
SCB	sugarcane borer
SWCB	southwestern corn borer
TAW	true armyworm
WBC	western bean cutworm
WCR	western corn rootworm

Herbicide Tolerance

GLY	glyphosate / Roundup-Ready
LL	glufosinate / Liberty Link
LL?	check the bag tag for LL status
2,4D	2,4-D
fops	group 1 'fops'

Refuge

Unless specified as RIB (Refuge In Bag), all other percentages assume separate, structured refuge areas planted in strips, blocks, borders, or whole fields

Version: March 2023 **Trait packages A-Z** = former name	Bag tag code	**Toxins in package** ********** **Font type denotes target:** caterpillar or *rootworm*	**Marketed to control:** BCW	CEW	ECB	FAW	SB	SCB	SWCB	TAW	WBC	CRW	**Resistance cases for all Bts in package**	**Refuge, northern states** (higher in south)	**Herbicide tolerance** (? = check the bag tag)
AcreMax	AM	Cry1Ab - Cry1F	x	x	x	x	x	x	x				CEW FAW WBC	5% RIB	GLY LL
AcreMax1	AM1	Cry1F - *Cry34Ab1* - *Cry35Ab1*	x		x	x	x	x	x			x	ECB FAW NCR SWCB WBC WCR	10% RIB 20% ECB	GLY LL
AcreMax Leptra	AML	Cry1Ab - Cry1F - Vip3A	x	x	x	x	x	x	x	x	x			5% RIB	GLY LL
AcreMax RW	AMRW	*Cry34Ab1* - *Cry35Ab1*										x	NCR WCR	10% RIB	GLY LL
AcreMax TRIsect	AMT	Cry1Ab - Cry1F - *mCry3A*	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	10% RIB	GLY LL
AcreMax Xtra	AMX	Cry1Ab - Cry1F - *Cry34Ab1* - *Cry35Ab1*	x	x	x	x	x	x	x			x	CEW FAW NCR WBC WCR	10% RIB	GLY LL
AcreMax Xtreme	AMXT	Cry1Ab - Cry1F - *Cry34Ab1* - *Cry35Ab1* - *mCry3A*	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	5% RIB	GLY LL
Agrisure 3000GT	3000GT	Cry1Ab - *mCry3A*		x	x			x	x			x	CEW WCR	20%	GLY LL
Agrisure 3010	3010	Cry1Ab		x	x			x	x				CEW	20%	GLY LL
Agrisure Above =Agrisure 3120EZ AA Refuge Renew =Agrisure 3120	AA	Cry1Ab - Cry1F	x	x	x	x	x	x	x				CEW FAW WBC	EZ: 5% RIB Renew: 5%	GLY LL?
Agrisure Total =Agrisure 3122EZ AT Refuge Renew =Agrisure 3122	AT	Cry1Ab - Cry1F - *Cry34Ab1* - *Cry35Ab1* - *mCry3A*	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	EZ: 5% RIB Renew: 5%	GLY LL?
Agrisure Viptera 3110	3110	Cry1Ab - Vip3A	x	x	x	x	x	x	x	x	x			20%	GLY LL
Agrisure Viptera 3111	3111	Cry1Ab - Vip3A - *mCry3A*	x	x	x	x	x	x	x	x	x	x	WCR	20%	GLY LL

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Duracade =Agrisure 5122EZ D Refuge Renew =Agrisure 5122	D	Cry1Ab - Cry1F - *eCry3.1Ab - mCry3A*	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	EZ: 5% RIB Renew: 5%	GLY LL?
Duracade Viptera =Agrisure 5222EZ DV Refuge Renew =Agrisure 5222	DV	Cry1Ab - Cry1F - Vip3A - *eCry3.1Ab - mCry3A*	x	x	x	x	x	x	x	x	x	x	WCR	EZ: 5% RIB Renew: 5%	GLY LL?
Duracade Viptera Z3 =Agrsr 5332EZ DVZ Refuge Renew =Agrisure 5332	DVZ	Cry1Ab - Cry1A.105 - Cry2Ab2 - Vip3A - *eCry3.1Ab - mCry3A*	x	x	x	x	x	x	x	x	x	x	WCR	EZ: 5% RIB Renew: 5%	GLY LL?
Herculex I	HXI	Cry1F	x		x	x	x	x	x				ECB FAW SWCB WBC	20%	GLY LL
Herculex RW	HXRW	*Cry34Ab1 - Cry35Ab1*										x	NCR WCR	20%	GLY LL
Herculex XTRA	HXX	Cry1F - *Cry34Ab1 - Cry35Ab1*	x		x	x	x	x	x			x	ECB FAW NCR SWCB WBC WCR	20%	GLY LL
Intrasect	YHR	Cry1Ab - Cry1F	x	x	x	x	x	x	x				CEW FAW WBC	5%	GLY LL
Intrasect TRIsect	CYHR	Cry1Ab - Cry1F - *mCry3A*	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	20%	GLY LL
Intrasect Xtra	YXR	Cry1Ab - Cry1F - *Cry34Ab1 - Cry35Ab1*	x	x	x	x	x	x	x			x	CEW FAW NCR WBC WCR	20%	GLY LL
Intrasect Xtreme	CYXR	Cry1Ab - Cry1F - *Cry34Ab1 - Cry35Ab1 - mCry3A*	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	5%	GLY LL
Leptra	VYHR	Cry1Ab - Cry1F - Vip3A	x	x	x	x	x	x	x	x	x			5%	GLY LL
Powercore	PW	Cry1A.105 - Cry2Ab2 - Cry1F	x	x	x	x	x	x	x				CEW WBC	5%	GLY LL
Powercore Refuge Adv.	PWRA	Cry1A.105 - Cry2Ab2 - Cry1F	x	x	x	x	x	x	x				CEW WBC	5% RIB	GLY LL
Powercore Enlist Refuge Adv.	PWE	Cry1A.105 - Cry2Ab2 - Cry1F	x	x	x	x	x	x	x				CEW WBC	5% RIB	GLY LL 2,4-D fops
QROME	Q	Cry1Ab - Cry1F - *Cry34Ab1 - Cry35Ab1 - mCry3A*	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	5% RIB	GLY LL
SmartStax & Genuity SmartStax	SS SX	Cry1A.105 - Cry2Ab2 - Cry1F - *Cry3Bb1 - Cry34Ab1 - Cry35Ab1*	x	x	x	x	x	x	x			x	CEW NCR WBC WCR	5%	GLY LL
SmartStax Enlist	SSE	Same as SmartStax	x	x	x	x	x	x	x			x	CEW NCR WBC WCR	5%	GLY LL 2,4-D fops
SmartStax Enlist Refuge Adv.		Same as SmartStax	x	x	x	x	x	x	x			x	CEW NCR WBC WCR	5% RIB	GLY LL 2,4-D fops
SmartStax Refuge Adv. or SmartsStax RIB Complete	SXRA	Same as SmartStax	x	x	x	x	x	x	x			x	CEW NCR WBC WCR	5% RIB	GLY LL
SmartStax PRO		Cry1A.105 - Cry2Ab2 - Cry1F- *Cry3Bb1 - Cry34Ab1 -Cry35Ab1 - dvSnf7*	x	x	x	x	x	x	x			x	CEW WBC	5%	GLY LL
SmartStax PRO Enlist		Same as SmartStax Pro	x	x	x	x	x	x	x			x	CEW WBC	5%	GLY LL 2,4-D fops
SmartStax PRO Enlist Refuge Advanced		Same as SmartStax Pro	x	x	x	x	x	x	x			x	CEW WBC	5% RIB	GLY LL 2,4-D fops
SmartStax PRO Refuge Adv. RIB Complete, or w/RNAi Tech	SSPro	Same as SmartStax Pro	x	x	x	x	x	x	x			x	CEW WBC	5% RIB	GLY LL
Trecepta RIB Complete	TRERIB	Cry1A.105 - Cry2Ab2 - Vip3A	x	x	x	x	x	x	x	x	x			5% RIB	GLY
TRIsect	CHR	Cry1F - *mCry3A*	x		x	x	x	x	x			x	ECB FAW SWCB WBC WCR	20%	GLY LL
Viptera =Agrisure 3220EZ Vip Refuge Renew =Agrisure 3220	V	Cry1Ab - Cry1F - Vip3A	x	x	x	x	x	x	x	x	x			EZ: 5% RIB Renew: 5%	GLY LL?
Viptera Z3 =Agrisure 3330EZ VZ Refuge Renew =Agrisure 3330	VZ	Cry1Ab - Cry1A.105 - Cry2Ab2 - Vip3A	x	x	x	x	x	x	x	x	x			EZ: 5% RIB Renew: 5%	GLY LL?
Vorceed Enlist	V	Cry1A.105 - Cry2Ab2 - Cry1F- *Cry3Bb1 - Cry34Ab1 - Cry35Ab1 - dvSnf7*	x	x	x	x	x	x	x			x	CEW NCR WBC	5% RIB	GLY LL 2,4-D fops
VT Double PRO	VT2P	Cry1A.105 - Cry2Ab2		x	x	x	x	x	x				CEW	5%	GLY
VT2 PRO RIB Complete	VT2PRIB	Cry1A.105 - Cry2Ab2		x	x	x	x	x	x				CEW	5% RIB	GLY
VT Triple PRO	VT3P	Cry1A.105 - Cry2Ab2 - *Cry3Bb1*		x	x	x	x	x	x			x	CEW NCR WCR	20%	GLY
VT3 PRO RIB Complete	VT3PRIB	Cry1A.105 - Cry2Ab2 - *Cry3Bb1*		x	x	x	x	x	x			x	CEW NCR WCR	10% RIB	GLY
VT4 PRO w/RNAi Tech. *Expected 2024*	VT4PRO	Cry1A.105 - Cry2Ab2 - Vip3A - *Cry3Bb1 - dvSnf7*	x	x	x	x	x	x	x	x	x	x		5% RIB	GLY
YieldGard Corn Borer	YGCB	Cry1Ab		x	x			x	x				CEW	20%	GLY
YieldGard Rootworm	YGRW	*Cry3Bb1*										x	NCR WCR	20%	GLY
YieldGard VT Triple	VT3	Cry1Ab - *Cry3Bb1*		x	x			x	x			x	CEW NCR WCR	20%	GLY