

2019 Corn Silage Overview

Joe Lawrence, Allison Kerwin, and Tom Overton

For most areas of the state, the 2019 growing season got off to a wet start that significantly impacted timely planting of corn and the field locations for the 2019 Corn Silage Hybrid Evaluation Program were no exception (Table 1). However, trial locations benefited from adequate drainage and as the weather patterns changed through the summer the trials performed relatively well. The early season delays did carry through to delayed harvest and slowed dry down at several locations.

Table 1

Maturity Group	Location	Planting Date	Harvest Date
80 – 95 day RM 26 entries	Willsboro, NY	June 4	September 30
	Albion, NY	May 31	September 18
	Alburgh, VT	May 13	September 25
96 – 110 day RM 49 entries	Madrid, NY	May 22	September 27
	Aurora, NY	June 3	October 4
	Alburgh, VT	May 13	October 2

As 2019 corn silage sits in storage, hopefully fermenting for the next few months before being fed out, it is helpful to understand how this crop might feed compared to previous years. Using the trial results as an indicator of corn silage performance gives us some idea of average performance. Data for the detailed hybrid specific report of the trials is still being processed but we do have enough information to look at overall performance trends.

Keep in mind this is an average of certain locations and your conditions may vary. On your own farm it is helpful to take samples of your forage at harvest and prior to feed out to understand the opportunities and challenges as you begin to feed this year's crop. We also need to remember that while fresh samples can be a helpful indicator, some characteristics of the forage will change during fermentation, particularly starch digestibility.

Despite the wet start to the season we see notable variation in rainfall (from planting to harvest) across trial locations. As we think about the influence of weather on key forage quality parameters, such as fiber digestibility, it is worth noting 2019 rainfall generally fell somewhere in between 2017 and 2018 (Figure 1a & 1b).

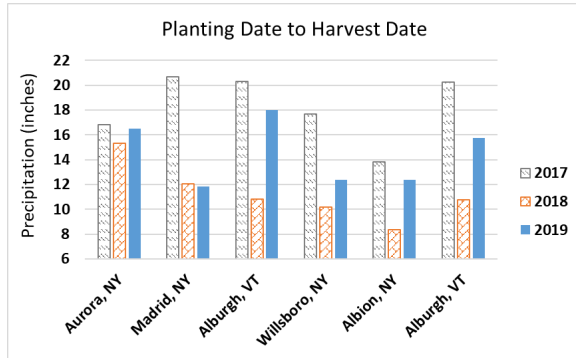


Figure 1a

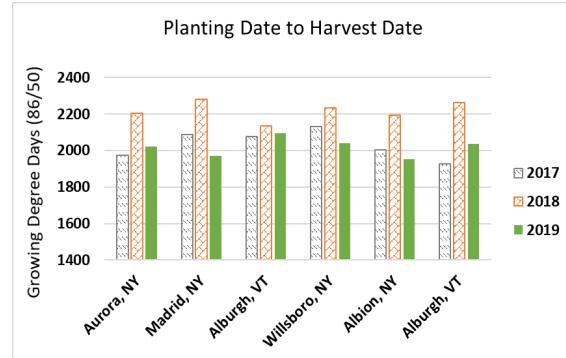


Figure 1b

Delays to planting and relatively low growing degree day (GDD) accumulation drew comparisons to 2017 and certainly took a toll on crop development and rate of maturation. However, some notable differences in the weather patterns and the total rainfall likely has some benefits to the overall quality of the 2019 crop, at least the portion that was able to mature naturally as our trial locations were able to. Data from 2019 trial locations indicates forage quality falling somewhere in between 2017 and 2018, similar to the weather indicators. So while we may take a hit from 2018 quality levels we would expect better forages than 2017 (Table 2 and Figure 2).

Table 2

Relative Maturity Group	Growing Season	Location	Yield, 35% DM tons/acre	Dry Matter %	Starch % DM	Crude Protein % DM	Lignin % DM	aNDFom % DM	30 hr NDFDom % NDF	240 hr uNDFom % NDF	240 hr uNDFom % DM
80-95 day RM	2019	Albion, NY	26.0	31.9	35.1	7.4	2.7	36.5	59.1	30.8	11.3
		Willsboro, NY	19.2	32.6	36.9	6.9	2.5	35.8	60.5	29.5	10.6
		Alburgh, VT	23.4	33.7	36.5	7.3	3.0	37.8	61.6	29.6	11.2
	2018	Albion, NY	19.2	36.2	39.2	8.3	2.4	34.2	56.1	29.0	10.0
		Willsboro, NY	18.5	35.0	34.9	8.2	2.5	35.7	62.0	27.0	9.7
		Alburgh, VT	18.3	33.3	31.0	7.8	3.1	39.0	56.2	30.0	11.8
	2017	Albion, NY	25.2	30.8	32.3	8.3	2.9	37.2	59.1	27.0	10.1
		Willsboro, NY	19.2	31.3	38.1	7.7	3.1	39.5	56.3	30.5	12.1
		Alburgh, VT	27.5	31.8	34.4	7.5	3.3	38.9	53.2	34.3	13.4
96-110 day RM	2019	Aurora, NY	27.1	34.7	38.3	6.5	2.9	36.9	55.5	34.7	12.9
		Madrid, NY	27.4	28.6	30.7	7.5	2.7	38.0	58.4	31.7	12.1
		Alburgh, VT	24.3	35.4	39.3	7.6	2.4	35.5	61.6	25.8	9.2
	2018	Aurora, NY	21.7	38.2	38.8	7.3	2.6	35.3	59.9	29.4	10.4
		Madrid, NY	28.6	32.9	35.4	7.7	2.5	35.9	61.2	27.1	9.8
		Alburgh, VT	23.3	34.9	34.2	7.2	3.1	38.3	55.2	31.2	12.0
	2017	Aurora, NY	26.0	31.9	31.2	6.1	3.4	42.6	54.5	33.5	14.4
		Madrid, NY	31.9	35.2	34.8	7.4	3.7	41.3	50.6	38.1	15.9
		Alburgh, VT	28.5	32.7	35.3	7.2	3.3	39.8	52.7	35.7	14.3

In addition to comparing whole location averages for these key quality parameters, we can also look at a set of four hybrids that were planted at all six trial locations and compare common material across the six locations instead of three, with the 2019 data presented here (Table 3).

Table 3

Location	Yield, 35% DM tons/acre	Dry Matter %	Starch % DM	Crude Protein % DM	Lignin % DM	aNDFom % DM	30 hr NDFDom % NDF	240 hr uNDFom % NDF	240 hr uNDFom % DM
Albion, NY	25.5	30.7	33.4	7.3	2.5	37.3	61.9	27.6	10.2
Aurora, NY	25.7	34.7	38.9	6.7	2.8	36.4	56.7	32.9	12.0
Madrid, NY	25.9	28.7	31.1	7.5	2.6	37.6	59.8	29.1	11.0
Willsboro, NY	19.0	29.4	33.1	7.0	2.4	37.7	63.7	24.9	9.4
Alburgh, VT Early	23.0	31.3	35.2	7.5	2.8	38.3	60.0	26.5	10.2
Alburgh, VT Late	23.6	36.8	39.3	7.6	2.4	35.6	61.9	26.3	9.5

Another way to look at these key parameters and compare to previous years is by looking at how the samples spread across a range of values for these parameters. Figure 2a and 2b shows the differences in undigested Neutral Detergent Fiber after 240 hours of digestion (uNDF240) and Starch Content, respectively. The data here represents the last three growing seasons (2017 – 2019) with results combined from all locations (Albion, Willsboro, Aurora, Madrid and Alburgh) by year.

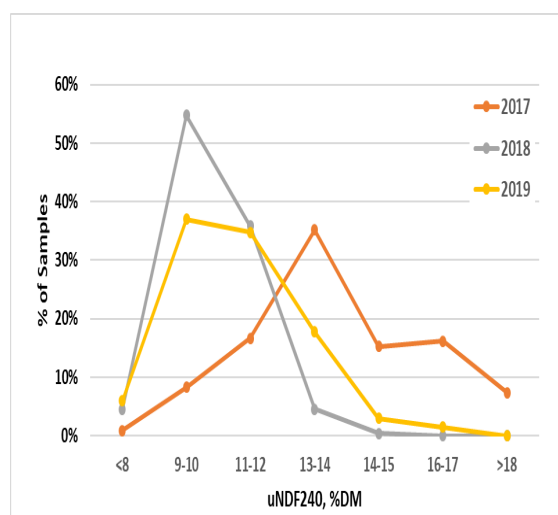


Figure 2a

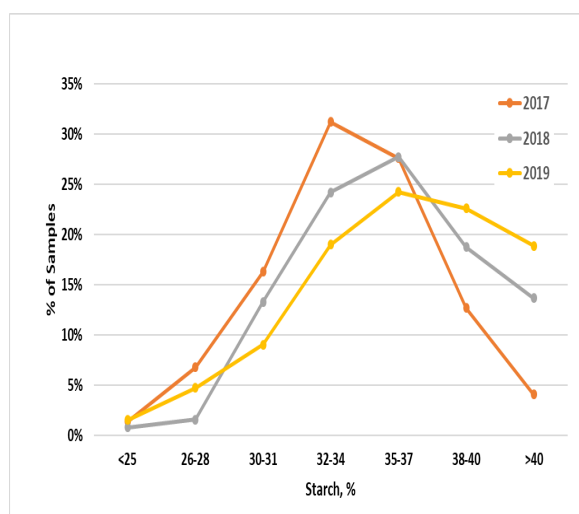


Figure 2b

Each year brings its own challenges and opportunities. Given the variation in growing conditions across the region, it is critical to test your own forages particularly given the notable portion of this year’s corn silage crop that had to be harvested at an immature stage and/or after a frost event.

It is important to evaluate this data in the context of your farm when selecting hybrids. The top performing hybrid at any one location or in any one category may not be a good fit for your feeding program. Factors that influence this vary by farm but include land base, soil resources, forage inventory, quality of available hay crops, access and cost of supplemental ingredients, and expectations of cow performance.

The trial results and location averages serve as a means to calibrate hybrid performance to a particular growing season and these averages can be used in conjunction with a company’s data on hybrids in their lineup, including hybrids not entered into these trials, to understand how a hybrid performed relative to what is realistic for that growing season. For example, in Figure 2

we see that the highest percentage of samples have an uNDF240, percent DM value in the 9 to 10 percent and 11 to 12 percent categories so this can be used to evaluate how close or far away from these values other hybrids performed in 2019.

It is important to recognize the companies that make these trials possible through their entry of hybrids. The following companies participated in the 2019 trials: Albert Lea – Viking, Channel, Dekalb, Growmark FS, Hubner, Local Seed Company, Masters Choice, Mycogen, Nutrien Ag Solutions – Dyna-Gro, Pioneer, Schlessmanns, Seed Consultants, Seedway and Syngenta – NK.