

**Table 3. Fresh chop corn forage quality yield measures for hybrids grown at Miner Institute, Chazy, NY, 2017. BMR/non-BMR comparison trial, NNYADP, 2017.**

Item (35% DM basis)	Hybrids					SE	P-value
	1	2	3	4	5		
Yield, ton/ac	15.2 <sup>ab</sup>	11.6 <sup>b</sup>	14.8 <sup>ab</sup>	15.9 <sup>ab</sup>	16.9 <sup>a</sup>	1.0	0.03
NDF <sup>1</sup> yield, ton/ac	6.2 <sup>ab</sup>	4.6 <sup>b</sup>	5.7 <sup>ab</sup>	6.4 <sup>a</sup>	7.0 <sup>a</sup>	0.4	0.01
uNDF <sup>2</sup> 30-h yield, ton/ac	1.9 <sup>bc</sup>	1.4 <sup>c</sup>	2.2 <sup>b</sup>	2.6 <sup>ab</sup>	2.9 <sup>a</sup>	0.1	<0.001
uNDF 120-h yield, ton/ac	1.17 <sup>bc</sup>	0.83 <sup>c</sup>	1.61 <sup>b</sup>	1.97 <sup>a</sup>	2.01 <sup>a</sup>	0.1	<0.001
uNDF 240-h yield, ton/ac	1.06 <sup>bc</sup>	0.77 <sup>c</sup>	1.52 <sup>b</sup>	1.78 <sup>a</sup>	1.82 <sup>a</sup>	0.1	<0.001
pdNDF <sup>3</sup> yield, ton/ac	5.1 <sup>ab</sup>	3.9 <sup>b</sup>	4.2 <sup>ab</sup>	4.6 <sup>ab</sup>	5.2 <sup>a</sup>	0.3	0.03

<sup>1</sup> Neutral detergent fiber.

<sup>2</sup> Undigested neutral detergent fiber.

<sup>3</sup> Potentially digestible neutral detergent fiber.

<sup>abc</sup> Least squares means within a row without a common superscript differ ( $P \leq 0.05$ ).

### Comparison of uNDF measured by Tilley-Terry and NIR Methods

Both the Tilley-Terry and NIR methods were used to compare uNDF for this trial. The Tilley-Terry procedure for measuring uNDF is considered the standard method using an in vitro fermentation in buffered ruminal media for 0, 30, 120, and 240 hours. However, many commercial laboratories use NIR equations to predict uNDF because it is faster and more efficient. Since the Tilley-Terry method is considered the standard method for uNDF determination and many labs use NIR to predict uNDF, it is important to better understand how Tilley-Terry and NIR-based measures relate so nutritionists and farmers can have confidence in NIR-based uNDF measures going forward.

We used fresh chop and 120-day fermentation samples from Miner and Adirondack Farms to determine relative agreement between the two methods with respect to uNDF. Results showed that there was a strong relationship ( $R^2 = 0.95$ ) between aNDFomNIR and aNDFom (Table A7 and Fig. A1). There was a good relationship ( $R^2 = 0.64$ ) between uNDF30omNIR and uNDF30om, uNDF120om and uNDF120omNIR ( $R^2 = 0.73$ ), and between uNDF240omNIR and uNDF240om ( $R^2 = 0.68$ ). Our results showed that *NIR-based estimates of uNDF were relatively accurate in predicting wet chemistry (Tilley-Terry) uNDF values and ranked hybrids similarly with respect to uNDF.*

### Conclusions/Outcomes/Impacts:

Our results showed large differences in silage quality among bm3, bm1, and non-BMR hybrids. There was difference in yield between hybrid 2 (bm3) and hybrid 5 (non-BMR), because hybrid 2 was harvested before it reached maturity. However, BMR hybrids had a distinct advantage in fiber digestibility and therefore milk production potential.

In general, bm3 hybrids had significantly greater fiber digestibility over bm1 for fresh chop and fermented samples and bm3 had lower uNDF240 yields than bm1 and non-BMR hybrids for hybrids grown at Miner Institute. There were no differences between hybrids for starch content for hybrids grown at Miner Institute. Rumen fill and dry matter intake are affected by uNDF of forages, with higher uNDF resulting in lower intake and milk potential.

Starch digestibility and soluble protein increased with fermentation time, with few consistent differences among hybrids. Differences in starchD trends between sites suggest that growing environment influenced starch

degradability. Our results show hybrid differences in NDFd and uNDFom profiles have trended similarly for two growing seasons, highlighting the importance of hybrid selection on dairy farms in Northern NY.

**Outreach:**

Results from 2016 were shared at the 2017 Corn Congress. A Miner Institute Farm Report article will be written in 2018 summarizing our findings. An agronomic science manuscript on this three-year study is in development.

**Next Steps:**

Preparing manuscript using all three years of the study.

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