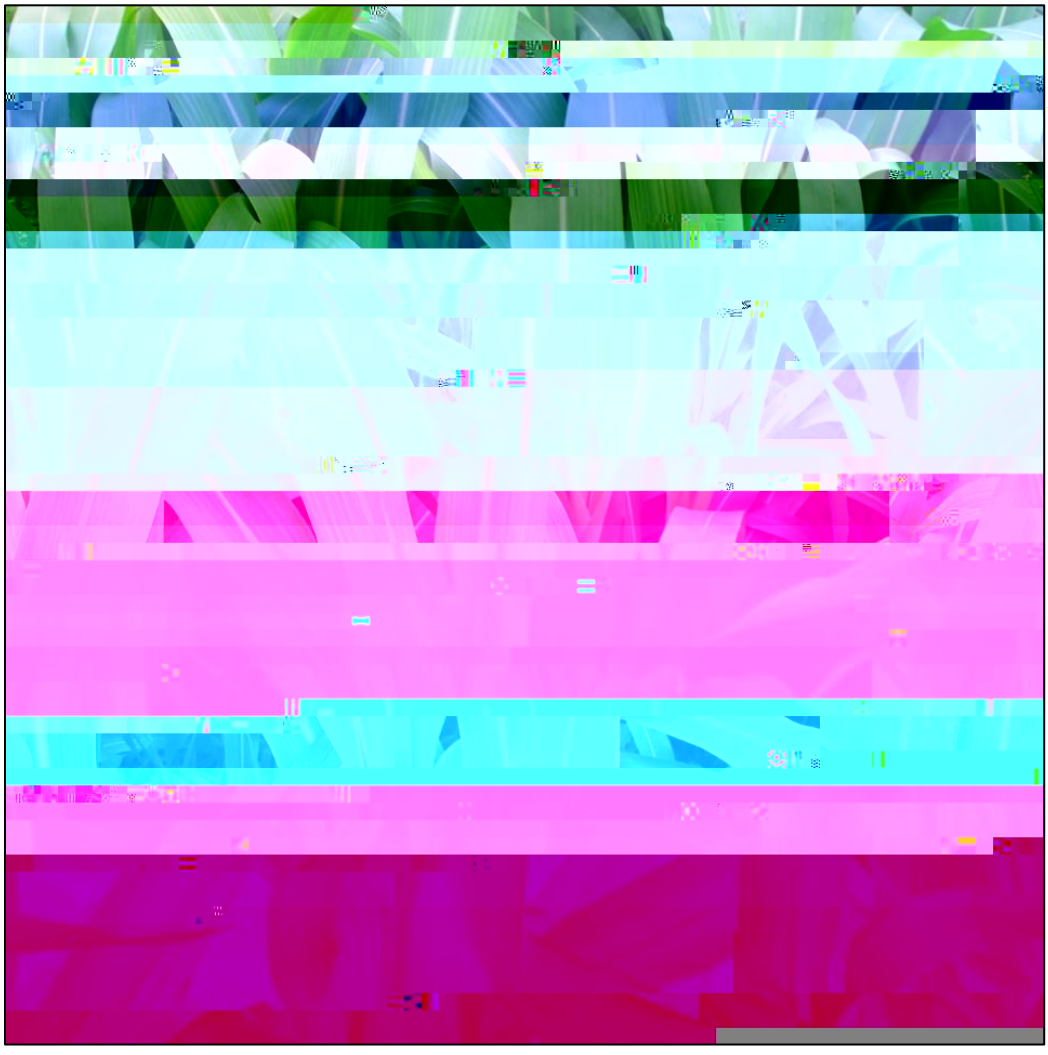
2022 Summer Annual Variety Trial



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fraction. The detergent fiber analysis system separates forages into two parts: cell contents, which include sugars, starches, proteins, non-protein nitrogen, fats and other highly digestible compounds; and the less digestible components found in the fiber fraction.

Table 2. Summer annual varieties and characteristics, 2022.

Variety	Species	Characteristics
VNS	Japanese Millet	
Exceed	Pearl millet	BMR
KF Sugar Pro 55 SS	Sorghum x Sudangrass	BMR
AS6501	Sorghum x Sudangrass	BMR
AS6201	Sorghum x Sudangrass	BMR
AS6401	Sorghum x Sudangrass	BMR
FSG 214	Sorghum x Sudangrass	BMR, dry stalk
FSG 215	Sorghum x Sudangrass	BMR
King's 150	Sorghum x Sudangrass	BMR
SSA-251	Sorghum x Sudangrass	BMR, dry stalk
SSA-252	Sorghum x Sudangrass	BMR
SS275	Sorghum x Sudangrass	Male sterile
Viking 510	Sorghum x Sudangrass	BMR
AS9301	Sudangrass	BMR
Viking 210	Sudangrass	BMR

The total fiber content of forage is contained in the neutral detergent fiber (NDF) which includes cellulose, hemicellulose, and lignin. This measure indicates the bulky characteristic of the forage and therefore, is negatively correlated with animal dry matter intake. The portion of the NDF that is digestible within 30 hours is represented by NDFD30. The acid detergent fraction (ADF) is composed of highly indigestible fiber and therefore, is negatively correlated with digestibility.

Results were analyzed using a general linear model procedure of SAS (SAS Institute, 2008). Replications were treated as random effects, and treatments were treated as fixed. Mean comparisons were made using the Least Significant Difference (LSD) procedure where the F-test was considered significant, at $p<0.10$. Variations in yield and quality can occur because of variations in genetics, soil, weather and other growing conditions. Statistical analysis makes it possible to determine whether a difference between varieties is likely attributable to the treatment or 6(r)7(ea)-2(t)-4(e)9(d)nTf1 0 01G[( )] TJE Tm0 G[(v)11(ar)5(i)-4(e)] TJET00 Gu T.

RESULTS

Seasonal precipitation and temperatures, recorded with a Davis Instruments Vantage Pro 2 weather station with a WeatherLink data logger in Alburgh, VT, are shown in Table 3. The beginning of the season was cooler and wetter than normal with almost 4 inches above normal precipitation being accumulated. These conditions subsided by July when conditions became much drier with approximately normal temperatures. Wetter conditions returned in August, but temperatures remained approximately normale 3

Forage Quality Across Cuttings

In addition to yield, quality also varied significantly across varieties (Table 5). Crude protein levels ranged from 11.5 to 17.6% and averaged 13.7% across the trial. Water soluble carbohydrates (WSC) ranged from 7.03 to 12.4% and averaged 10.1% across the trial. NDF content ranged from 55.6 to 59.6% with a range in NDF digestibility from 63.2 to 75.1%. When dry matter yield is considered in tandem with these nutrient contents, protein yields per acre averaged 0.601 tons ac^{-1}, WSC 0.456 tons ac^{-1}, digestible NDF 1.83 tons ac^{-1}, and predicted milk 7.17 tons ac^{-1}.

Table 5. Average quality and component yields of 15 summer annual varieties, 2022.

Variety	Species	Average quality				Component and milk yield			
		CP	WSC	NDF	NDF digestibility	CP	WSC	Digestible NDF	Milk
		% of DM			% of NDF	tons ac^{-1}			
VNS	Japanese Millet	13.2	9.04	58.5	63.9	0.512	0.330	1.36	5.86
Exceed	Pearl Milet	**17.6**	7.03	**54.0**	**75.1**	0.284	0.123	0.679	2.91

Figure 2. Total yield and 30-hr NDF digestibility of 15 summer annual varieties across harvests, 2022.

DISCUSSION

These data demonstrate the value of integrating summer annual forages into forage production systems in the Northeast. In a year with temperatures that were relatively low with fluctuating precipitation , summer annuals produced on average 4.5