



## Small Grain Forage Variety Testing, 2019

Wade Thomason, Extension Grains Specialist, Greg Lillard, Farm Manager, Northern Piedmont Center, Elizabeth Rucker, Research Associate, Grains Crops Testing

### Introduction

A forage production trial of commercial barley, oats, rye, triticale, and wheat cultivars has been conducted yearly from 1994-2019 at the Northern Piedmont AREC, Orange. Results from the 2018-19 crop season are presented in this report.

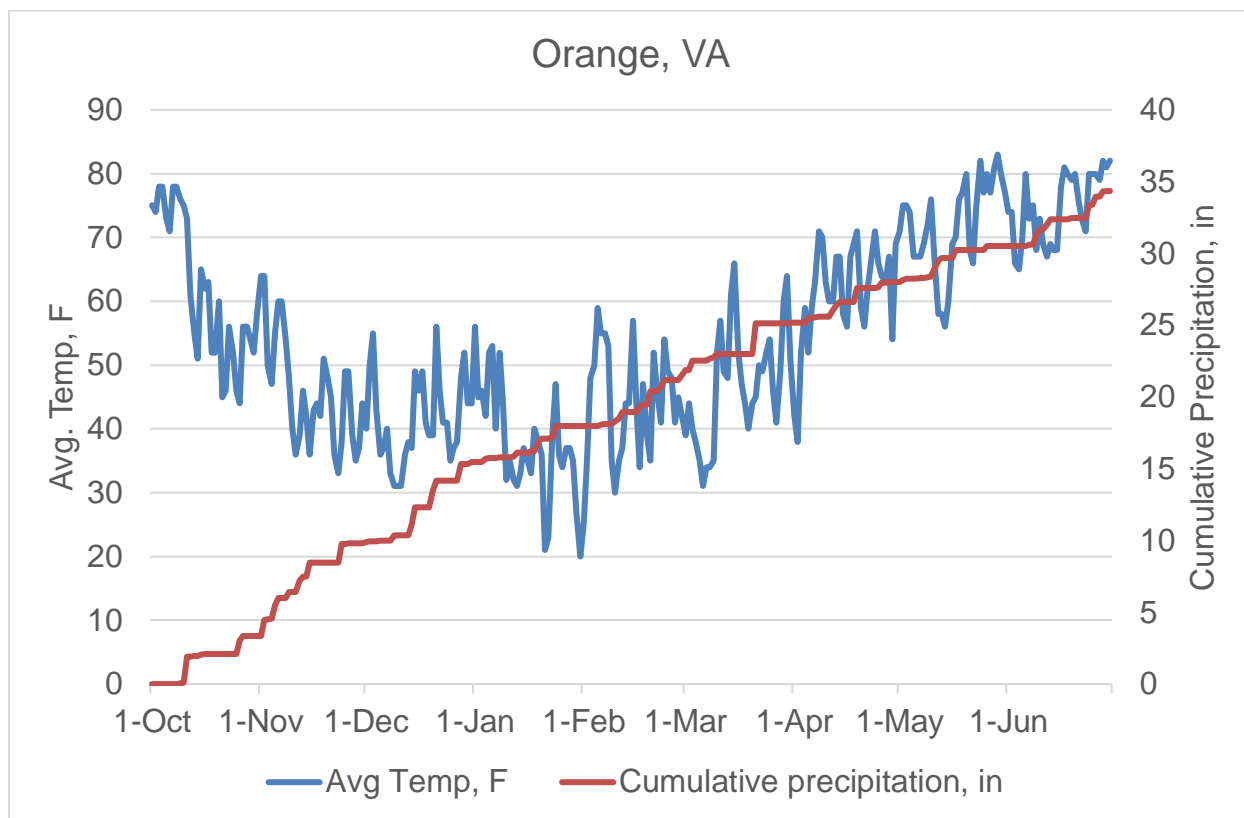
### Management and Weather

Pre-plant fertilizer of 30-80-60 was applied on October 3, 2018. Plots were planted on Oct. 22, 2018 and were seven, seven inch rows wide by 13 feet long, trimmed to 9 feet for harvest. Nitrogen as UAN at a rate of 60 lb of N per acre was applied February 27, 2019. All plots were targeted for harvest when each entry reached the boot (GS 45-50) stage, and the average growth stage was 47 at harvest timing. Two rows, the entire length of the plots, were harvested with a 12-inch Jari sickle-bar mower and weighed with an electronic hanging scale.

A wet fall in 2018 resulted in some small grain acres not planted but those acres that were seeded were mostly planted on time, with 44 and 66% of wheat acres seeded by October 21 and November 11, respectively. These proportions mirrored the 5-year average for planting progress. December and January were drier with variable, but seasonal temperatures. Due to later planting of some wheat acres and wet soils, only 61% of the small grain crop was rated as good or excellent in January. Significant statewide precipitation in February resulted in a decline in small grain ratings with only 43% of the crop rated good or excellent. Over 80% of acres were reported to have excess topsoil moisture. By March 31, only 15% of acres were reported to have excess topsoil moisture and 55% of the wheat crop was rated as good or excellent. Favorable weather continued through most of April and resulted in 9% of the wheat crop headed by April 21, compared with a 5-year average of 12%. By May 6, half the wheat crop was headed which was very near the 5-year average, but well below the 78% headed mark reported by this date in 2018. Rain in early June hampered some harvesting efforts but farmers were still able to harvest 11% of the crop by June 10. Farmers pushed to harvest fields as quickly as possible but continued periods of heavy rain in mid and late June resulted in delays and declining grain quality. Because of unplanted acres and wet, unfavorable conditions through much of the winter, the Virginia wheat crop was expected to produce only 7.7 million bushels, a 17% reduction from 2018 production. Yields were estimated at 67 bushels

per acre, up 7 bushels per acre from 2018 and up 5.0 bushels from May. Virginia farmers planted a total of 180,000 acres in fall of 2018 with 115,000 acres intended to be harvested for grain. 65,000 acres were planted as cover crop or to be cut as silage or hay

Figure 1. 2018-19 mean daily temperature and cumulative precipitation during the growing season measured at the Northern Piedmont Center, Orange, VA



# Results

Results are reported for 35 percent dry matter (DM) yield, DM yield, and nutritive value for all crops including mixtures.

Experimental plots vary in yield and other measurements due to their location in the field and other factors which cannot be controlled. The statistics given in the tables are intended to help the reader make valid comparisons between cultivars. The magnitude of differences which may have been due to experimental error has been computed for the data and listed at the bottom of columns as the LSD (.05) (least significant difference with 95 percent confidence). Differences must be greater than the LSD to be believed to truly exist.

Table 1. Small Grain Forage Variety Test, Northern Piedmont AREC, Orange, Va 2018-2019, Boot Stage Harvest

Northern Piedmont Center, Orange, Va 2018-19											
Boot Stage											
Cultivar	Species <sup>†</sup>	Harvest	Zadoks	Height	Lodging	% Crude	ADF	NDF	TDN	35% DM	DM Yield
		Date	Maturity	(inches)	%	Protein	%	%	%	Yield (tons/ac)	(tons/ac)
VA11B-141 LA	B	20-Apr	48	32	12	15.23	36.64	60.55	58.36	8.20	2.87
Thoroughbred	B	21-Apr	46	33	12	16.66	34.66	58.93	60.40	6.52	2.28
Secretariat	B	18-Apr	51	28	12	15.51	35.13	59.09	59.62	5.47	1.92
VA16BFHB-268 NA	B	15-Apr	46	32	12	17.30	33.08	56.77	61.84	5.30	1.85
VA16BFHB-266 NA	B	17-Apr	46	33	12	17.57	34.07	56.46	61.18	5.10	1.79
Nomini	B	15-Apr	50	30	12	18.28	32.24	56.84	62.85	4.91	1.72
VA16BFHB-273 NA	B	19-Apr	49	31	11	16.95	34.12	57.27	60.92	4.74	1.66
VA16BFHB-279 NA	B	16-Apr	52	29	13	16.98	33.45	56.83	61.44	4.53	1.59
VA16BFHB-277 NA	B	18-Apr	47	29	15	16.52	33.43	57.51	61.29	4.51	1.58
VA16BFHB-269 NA	B	16-Apr	45	31	12	17.67	32.71	56.64	62.26	4.21	1.47
SS 76-30	O	29-Apr	45	24	11	15.59	32.48	57.98	61.69	6.82	2.39
TriCal Exp 19R01	R	12-Apr	48	34	13	15.77	36.41	60.90	58.73	6.48	2.27
TriCal Exp 19R02	R	12-Apr	48	33	13	16.53	35.34	59.25	59.83	6.02	2.11
SS 1414	T	22-Apr	45	32	11	14.72	37.58	60.79	57.45	12.83	4.49
NT07403	T	22-Apr	46	34	11	16.09	35.98	59.31	59.18	11.65	4.08
NT09404	T	25-Apr	46	33	11	16.01	36.18	59.80	58.99	11.44	4.00
TriCal Exp 19T05	T	23-Apr	45	32	11	15.24	38.66	60.90	56.81	11.23	3.93
NT12414	T	26-Apr	48	35	11	13.97	37.81	61.34	57.01	10.80	3.78
TriCal Gainer 154	T	22-Apr	46	34	11	15.47	35.94	59.38	58.98	10.56	3.69
NT13416	T	26-Apr	45	40	11	13.63	38.32	62.58	56.49	10.19	3.57
Mercer Brand MBX Tri-Cow 518	T	22-Apr	46	31	12	16.20	35.92	59.10	59.26	9.97	3.49
NT12403	T	24-Apr	49	33	11	15.78	36.68	59.74	58.53	9.68	3.39
NT96T441 (NE96T441)	T	29-Apr	45	39	12	15.10	34.84	60.24	59.70	9.59	3.36
MBX Tri-Cow Exp 18-70	T	22-Apr	46	34	11	16.11	35.32	59.49	59.70	9.54	3.34
HyOctane	T	27-Apr	45	33	11	14.43	36.81	61.46	57.94	9.36	3.28
NT11406	T	26-Apr	45	31	11	16.68	34.34	58.80	60.65	9.14	3.20
TriCal Exp 08TF01	T	29-Apr	45	36	13	15.37	35.41	60.03	59.35	8.66	3.03
TriCal Merlin Max	T	29-Apr	45	36	11	13.67	38.39	62.53	56.45	8.63	3.02
TriCal Surge	T	29-Apr	45	34	12	14.61	36.44	61.38	58.29	8.58	3.00
TriCal Exp 19T04	T	22-Apr	45	34	12	16.45	35.38	58.70	59.77	8.57	3.00
NT11428	T	24-Apr	45	36	11	15.51	35.93	59.51	59.00	8.54	2.99
SY Tf 813	T	25-Apr	45	34	12	16.05	34.85	58.21	60.03	8.47	2.96
NT09423	T	27-Apr	46	32	14	16.49	33.79	58.85	61.01	8.34	2.92
Mercer Brand MBX Tri-Cow Exp 18-68	T	24-Apr	48	32	11	15.55	36.17	58.32	58.84	8.24	2.88
NT13443	T	25-Apr	45	36	12	15.91	35.94	58.52	59.14	7.13	2.50
TriCal Exp 917	T	28-Apr	46	35	12	15.75	35.60	59.67	59.35	6.80	2.38
NT12434	T	27-Apr	45	27	11	16.70	33.49	56.88	61.31	6.67	2.33
Hilliard	W	26-Apr	50	27	11	15.31	34.30	60.97	60.19	7.03	2.46
<b>LSD 0.05</b>				<b>3</b>		<b>1.56</b>	<b>2.78</b>	<b>2.70</b>	<b>2.62</b>	<b>3.14</b>	<b>1.10</b>

<sup>†</sup> B - Barley, O - Oats, R - Rye, T - Triticale, W - Wheat

Compared to 2018, forage yield over all entries was about 600 lbs less in 2019. Crude protein was, over all entries, 3.1% greater than last year, likely to a more timely harvest in 2019. TDN values were 1.2% greater. Overall, the triticale lines had the highest yield average of 9.36 ton/ac with SS1414 producing the highest yield overall. Barley entries and the rye lines TriCal Exp 19R01 and 19R02 reached harvest maturity prior to other entries. This difference in maturity should be considered when evaluating the performance among species.

## Entries

**Eddie Mercer Agri-Services, Inc**, 6900 Linganore Rd, Frederick, MD 21701 – Mercer Brand MBX Tri-Cow Exp 18-70, Mercer Brand MBX Tri-Cow 518, Mercer Brand MBX Tri-Cow Exp 18-68.

**University of Nebraska** 1071 County Road 10 Ithaca, NE 68033 – (all triticales) NT12403, NT12414, NT96T441 (NE96T441), NT12434, NT13416, NT13443, NT07403, NT09404, NT11406, NT11428, NT09423.

**Seedway LLC**, 5901 Vera Cruz Rd, Emmaus, PA 18049 – HyOctane triticales.

**Southern States**, 6606 West Broad St, Richmond, VA 23230 – SS 1414 triticales SS 76-30 oat.

**TriCal Superior Forage**, 2355 Rice Pike Union, KY 41091 – (all triticales) TriCal Gainer 154, TriCal Merlin Max, TriCal Surge, TriCal Exp 19T04, TriCal Exp 08TF01, TriCal Exp 917, TriCal Exp 19T05, TriCal Exp 19R01, TriCal Exp 19R02, SY Tf 813

**Virginia Crop Improvement Association**, 9142 Atlee Station Rd, Mechanicsville, VA 23111 – Nomini, Secretariat, Thoroughbred, VA16BFHB-266 NA, VA16BFHB-268 NA, VA16BFHB-269 NA, VA16BFHB-273 NA, VA16BFHB-277 NA, VA16BFHB-279 NA barley and Hilliard wheat.