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Small Grain Forage Variety Testing, 2022

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Introduction

A forage production trial of commercial barley, oats, rye, triticale, and wheat cultivars has been conducted yearly from 1994-2022 at the Northern Piedmont Center, Orange. Results from the 2021-22 crop season are presented in this report.

Management and Weather

Pre-plant fertilizer of 30-60-30 was applied on October 12, 2021. Plots were planted on Oct. 14, 2021 and were seven, seven-inch rows wide by 13 feet long, trimmed to 9 feet for harvest. Nitrogen, as UAN, was applied at a rate of 50 lb of N per acre along with 0.5 oz per acre Harmony Extra on February 11, and March 26. All plots were targeted for harvest when each entry reached the boot stage (GS 45-50), and the average growth stage was 48 at the time of harvest. 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.

Warm and dry conditions prevailed in the first two weeks of October, 2021, for most of the Commonwealth. By October 24, 44% of intended small grain acres were planted, equal to the 5-year average. By mid-November, 94 and 79% of barley and wheat acres, respectively were planted. Some areas of the state were reported to be abnormally dry, but 74% of wheat acres were considered to be in good or excellent condition. Dry conditions persisted into December in many areas resulting in later planted fields showing delayed emergence. January and February were generally cold with rain and snow amounts of three to six inches in most places, yet abnormally dry conditions persisted over much of the state. March brought rain and warmer temperatures, however due to the stressful winter, only 39% of the wheat crop was rated good or excellent. Temperatures and rainfall were near normal in April, with 86% of respondents reporting adequate soil moisture. On April 18, 43% of the wheat crop was good or excellent with 7% headed. Thirty-eight percent of wheat acres had headed by the end of April, compared to 63% the previous year and 51% for the five-year average. Sunny, dry conditions helped the crop mature, however, and by May 15, 89% of wheat had headed, compared with 78% in 2021. By the end of May, 11% of barley was harvested, reflecting the same rate as the previous five years. On June 5, 66% of the wheat crop was good or excellent, with 8% of acres harvested. Forty-five percent of wheat and 25% of barley was harvested by June 12. The USDA-NASS expects an average of 64.0 bu/ac on 150,000 acres harvested for grain resulting in total production of 9.6 million bu. The 2022 harvest is expected to be 19% larger than 2021.

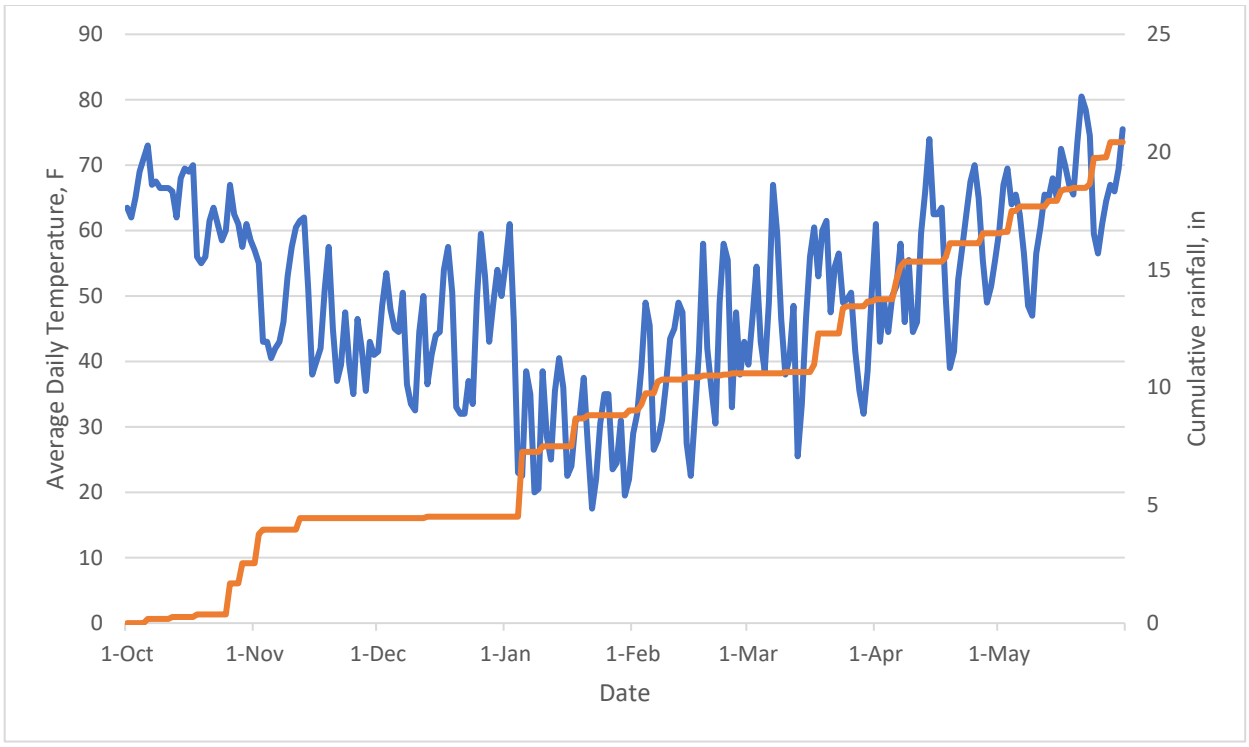

Figure 1. 2021-22 mean daily temperature and cumulative precipitation during the growing season measured at the Northern Piedmont Center, Orange, VA

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.

Forage yield, over all entries in 2022, averaged 1.2 ton/ac less than forage yield in 2021. Crude protein was 14.4% in 2022 compared to 13.4 % last year. TDN values were 64.6% in 2022 and 60.8% in 2021. Overall, the Rye and Barley lines had the highest yield averages of 5.1 ton/ac and 5.0 ton/ac, respectively with KWS Progas (Rye) producing the highest yield overall. Barley entries VA17BFHB-266NA-16, VA16FHB-268NA, Nomini, and VA17BFHB-266NA-19 as well as rye entries KWS SH-06 and KWS SH-05 reached harvest maturity prior to other entries. This difference in maturity should be considered when evaluating the performance among species and cultivars.

Table 1. Small Grain Forage Variety Test, Northern Piedmont AREC, Orange, Va, 2021-2022, boot stage harvest.

Cultivar	Species†	Harvest Date	Zadoks Maturity	Height (inches)	% Crude Protein	ADF %	NDF %	TDN %	35% DM Yield (tons/ac)	DM Yield (tons/ac)
KWS Progas	R	20-Apr	45	32	12.7	33.1	58.8	60	7.32	2.56
KWS SH-06	R	11-Apr	46	29	14.7	27.8	51.2	65	4.96	1.74
KWS SH-05	R	12-Apr	46	28	13.1	31.2	56.1	62	4.41	1.54
KWS Propower	R	25-Apr	46	32	16.6	28.5	55.2	65	3.82	1.34
BCT 18001	T	25-Apr	46	31	14.4	29.5	54.4	64	5.24	1.84
BCT 19001	T	25-Apr	47	29	12.9	29.5	54.3	63	4.37	1.53
Outlaw	T	25-Apr	46	30	13.3	27.1	50.0	65	3.89	1.36
BCT 18002	T	25-Apr	46	32	12.1	29.5	53.1	63	3.88	1.36
BCT 19004	T	25-Apr	46	31	12.8	29.5	53.8	63	3.84	1.34
BCT 19003	T	25-Apr	45	32	11.2	29.9	52.5	62	3.46	1.21
Marouetta	B	20-Apr	53	29	13.8	28.5	51.2	64	6.47	2.26
Hirondella	B	20-Apr	50	29	13.6	29.0	53.3	64	6.22	2.18
Flavia	B	20-Apr	48	27	12.0	30.5	54.6	62	5.31	1.86
VA17BFHB-266NA-16	B	14-Apr	46	27	18.0	28.0	53.1	66	4.39	1.54
VA16FHB-268NA	B	14-Apr	49	22	17.3	28.1	52.2	66	4.32	1.51
Nomini	B	14-Apr	49	25	16.3	28.3	51.6	65	4.24	1.48
VA17BFHB-266NA-19	B	14-Apr	47	24	13.4	30.5	54.3	62	3.72	1.30
SS130-06	W	25-Apr	49	23	15.7	24.4	48.1	68	2.45	0.86
LSD 0.05				**4**	**3.3**	**2.6**	**3.6**	**3**	**1.59**	**0.56**

† B - Barley, O - Oats, R - Rye, T - Triticale, W- Wheat

Entries

KWS Cereals, 495 County Road 1300 N, Champaign, IL 61822 – KWS Progas, KWS Propower, KWS SH-05 and KWS SH-06.

Growmark FS, 1701 Towanda Ave, Bloomington, IL 61701 – Outlaw triticale.

Seed-Link Inc., 208 St. David Street, Lindsay, Ontario K9V 4Z4 – BCT18001, BCT18002, BCT19001, BCT19003 and BCT19004 triticale.

Specialty Seeds, Inc., 132 Ferry Road, Anguilla, MS 38721 – SSI30-06.

Virginia Tech and Virginia Crop Improvement Association (VT and VCIA), 9142 Atlee Station Road, Mechanicsville, VA 23111 –Nomini, Marouetta, Flavia, Hirondella and all lines prefixed by VA.

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