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Small Grain Forage Variety Testing, 2016

Wade Thomason, Extension Grains Specialist, Steve Gulick, Farm Manager, Northern Piedmont Center, Elizabeth Hokanson, Research Associate, Grains Crops Testing

Introduction

A forage production trial of commercial barley, oats, rye, triticale, and wheat cultivars has been conducted yearly from 1994-2016 at the Northern Piedmont AREC, Orange. Results from the 2015-16 crop season are presented in this report.

Management and Weather

Pre-plant fertilizer of 30-80-60 was applied on October 8, 2015. Plots were planted on Oct. 09, 2015 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 on March 1, 2016. All plots were targeted for harvest when each entry reached the boot (GS 45-50) stage, however harvest was slightly delayed in 2016 and the average harvest timing was GS 55. 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.

Statewide temperatures and rainfall in fall 2015 were generally near the 30-year means and mostly conducive for wheat seeding, though some areas were delayed due to excess moisture. By mid-October barley planted was 32% of intentions, compared with a 5-yr average of 55%. Areas of wet weather slowed wheat planting in some areas, but by mid-November winter wheat planting was estimated to be 71% complete, compared with 77% by this date over the last 5-yr. Both November and December were warmer than the long-term average and were favorable for small grain growth, especially benefitting late plantings. On December 1, barley was rated 85% good or excellent while 82% of the wheat crop was also estimated to be good or excellent. Temperatures in January and February were near normal while March was again much warmer than the 30-yr average. These warmer temperatures encouraged small grain growth, to excess in some field and areas. By the end of March, the crop was progressing several weeks ahead of normal. Freezing temperatures in the second week of April severely damaged a few small grain fields in parts of the state, but damage was confined to the areas that were the coldest and those fields that were most advanced. Still, by April 29, only 49% and 64% of the barley and wheat crops, respectively were rated good or excellent. April was dry in most areas of Virginia while May brought rain shower almost daily through the first three weeks of the month.

Figure 1. 2015-16 and 75-yr mean monthly growing season precipitation measured at the Northern Piedmont Center, Orange, VA

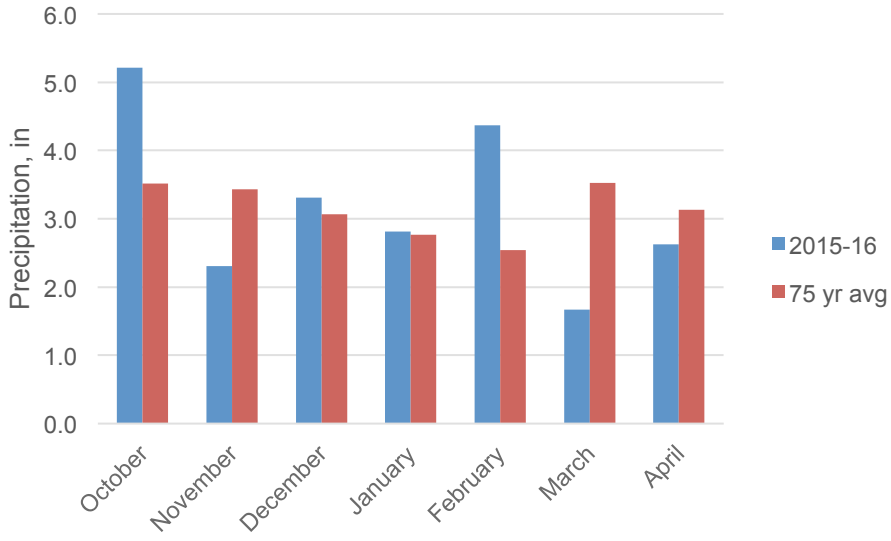
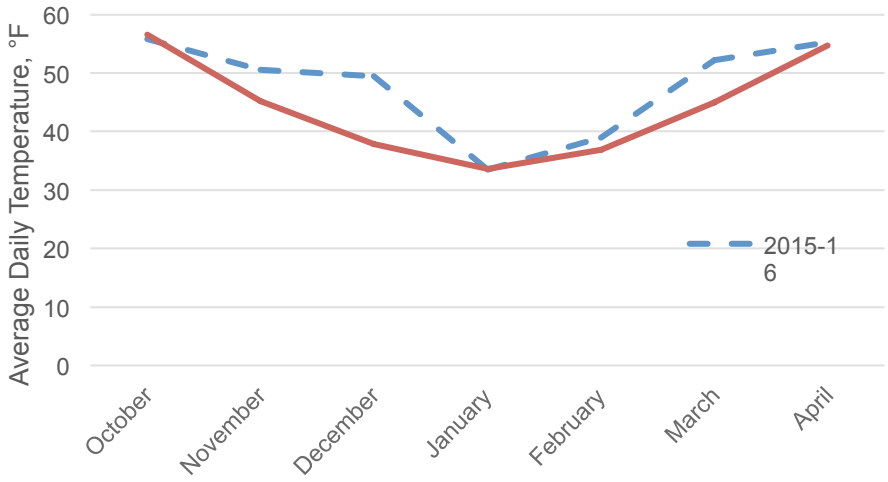


Figure 2. Monthly average growing season temperatures, 2015-16 and 30-yr mean, Northern Piedmont Center, Orange, VA.



Results

Results are reported for 35 percent dry matter (DM) yield, DM yield, and nutritive value for wheat, barley, rye, and triticale crops.

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 2015-2016, Boot Stage Harvest

		Harvest	Zadoks	Height	Lodging	% Crude	ADF	NDF	TDN	35% DM	DM Yield
Cultivar	**Species†**	**Date**	**Maturity**	**(inches)**	**%**	**Protein**	**%**	**%**	**%**	**Yield (tons/ac)**	**(tons/ac)**
Atlantic	B	18-Apr	55	28	0	10.14	32.03	53.58	60.07	5.77	2.02
Nomini	B	18-Apr	55	28	0	9.75	31.25	50.78	60.53	3.72	1.30
Secretariat	B	18-Apr	55	27	0	10.06	30.52	51.19	61.21	5.59	1.96
Thoroughbred	B	20-Apr	56	27	0	10.17	30.37	50.81	61.36	4.71	1.65
SS 1414	T	20-Apr	56	26	0	10.39	30.71	53.14	61.18	5.16	1.81
Arcia	T	20-Apr	56	25	0	10.96	30.53	53.71	61.53	5.07	1.77
Hy Octane	T	26-Apr	54	26	0	10.20	30.30	52.79	61.43	4.56	1.60
SYN154	T	20-Apr	55	28	0	10.27	31.14	53.99	60.81	5.58	1.95
Trical 336	T	26-Apr	57	29	0	9.00	33.30	57.54	58.69	6.09	2.13
Trical 815	T	26-Apr	56	28	0	10.17	33.79	58.28	58.73	5.68	1.99
Featherstone 258	W	26-Apr	56	26	0	9.47	28.73	48.99	62.37	5.19	1.82
Jamestown	W	20-Apr	55	23	0	10.88	27.29	47.51	63.99	5.21	1.82
Hilliard	W	26-Apr	55	21	0	9.00	28.86	48.44	62.11	4.90	1.72
LSD 0.05						**1.07**	**1.24**	**2.52**	**1**	**1.02**	**0.35**

† B - Barley, HB - Hulless Barley, R - Rye, T - Triticale, W- Wheat

Compared to 2015, forage yield over all entries was 0.8 tons/ac higher in 2016. Crude protein was, over all entries, 20 % higher than 2015 while TDN was 3% higher. These values for 2015-16 are near, or slightly above the 5-yr averages in this study. Overall, the triticale and wheat entries produced the highest yield, 5.4 and 5.1 ton/ac, respectively. Hulled barley entries, except Thoroughbred, reached the boot stage of maturity much earlier than the triticale or wheat. 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 – Arcia triticale.
Featherstone Seed Company, 13941 Genito Rd, Amelia, VA 23002 – Featherstone 258 wheat
Seedway LLC, 5901 Vera Cruz Rd, Emmaus, PA 18049 – HyOctane triticale.
Southern States, 6606 West Broad St, Richmond, VA 23230 – SS 1414 triticale.
Syngenta, 8416 Hwy 903 North, Ayden, NC 28513 –SYN154 triticale, Trical 336 triticale, Trical 815 triticale.
Virginia Crop Improvement Association, 9142 Atlee Station Rd, Mechanicsville, VA 23111 – Atlantic barley, Nomini barley, Secretariat barley, Thoroughbred barley, Jamestown wheat, Hilliard wheat.