MONTANA STATE UNIVERSITY
MONTANA AGRICULTURAL EXPERIMENT STATION

RESULTS OF AGRONOMIC AND WEED SCIENCE RESEARCH CONDUCTED IN SOUTH CENTRAL MONTANA - 2016

The Annual Report of the Investigations at and Administration of the Southern Agricultural Research Center, Huntley, Montana

PROJECT TITLE: Dryland Advanced Spring Wheat Variety Performance Trial near Huntley, Montana. (Exp. 163108).

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OBJECTIVES: To provide wheat growers in south central Montana with a reliable, unbiased, up-to-date source of information that will permit valid comparisons among new experimental lines and existing wheat varieties. This information should help wheat producers in south central Montana select varieties best suited to their particular area and growing conditions.

METHODS: The 2016 dryland on-station advanced spring wheat trial had 64 entries and was planted using an 8 x 8 partially-balanced lattice design with three replications. Test plots consisted of a 15-foot, 4-row plot with 14-inch row spacing. All rows of each test plot were trimmed 36 inches and were harvested using an experimental-plot combine. Recorded grain yields were adjusted to 13% grain moisture content and are reported in bushels per acre (bu/ac) based on a 60-pound standard bushel weight. Test weight (pounds per bushel, lb/bu) and percent grain moisture content were obtained for each plot using a Dickey-john GAC 2100 grain analyzer. Grain protein was determined for each entry bulked across replications. Plant height was measured in inches from the soil surface to the top of the head, excluding the awns if present. Heading date was noted when 50% of the heads in a plot had extended above the flag leaf collar. Heading dates were recorded in Julian days (number of days from January 1) for statistical purposes. Corresponding calendar dates also are presented.

RESULTS and SUMMARY:

Unusually warm and dry conditions prevailed during the preceding fall and winter months at Huntley. Although conditions remained warmer than average during March, April and May of 2016, precipitation also was above average during those months. June growing conditions were much warmer than normal with less than average precipitation.

Agronomic performance of the dryland spring wheat cultivars and experimental lines tested during 2016 is presented in Table 1. The average yield produced was 86.1 bu/ac and ranged from 60.1 bu/ac for ‘Fortuna’ to 98.1 bu/ac for ‘Duclair’. ‘LCS Prime’, ‘SY Valda’, ‘WF161’, ‘WPSP2-McNeal1’ and 12 experimental lines produced yields that varied from 91.1 to 97.3 bu/ac, which were statistically equal to that of the highest yielding entry. Test weights averaged 62.7 lb/bu, and all entries had test weights greater than or equal to 60 lb/bu. Grain protein averaged 12.1 percent and ranged from 10.9 percent for ‘Sy Tyra’ to 14.3 percent for ‘Egan’.

FUTURE PLANS: On-station dryland spring wheat variety evaluation will continue in 2017 at the Southern Agricultural Research Center.

Table 1. 2016 Dryland (Sub-Irrigated) Spring Wheat Advanced Trial. MSU Southern Agricultural Research Center, Huntley, MT.

Cultivar	Grain[1/] Yield	Test Weight	Grain Moisture	Grain Protein	Plant Height	Heading Date	
						Julian	Calendar
	- bu/a -	- lb/bu -	- % -	- % -	- inches -		
27-3	83.2	62.1	9.0	11.4	34.1	160.7	Jun 9
Brennan	84.9	63.7	9.0	13.0	33.2	157.7	Jun 6
Choteau	88.6	62.6	9.0	12.2	34.9	159.3	Jun 8
Corbin	87.5	63.5	9.1	11.3	36.4	157.0	Jun 6
Duclair	**98.1****	62.1	9.1	12.0	37.7	157.7	Jun 6
Egan	80.4	62.1	8.4	14.3	36.2	160.0	Jun 9
Fortuna	60.1	62.5	8.9	14.0	46.4	158.7	Jun 7
LCS Prime	**93.4***	63.1	9.3	11.1	38.1	158.3	Jun 7
LCS Pro	75.5	62.4	9.1	12.6	38.8	158.7	Jun 7
LNR12-0283	83.5	63.8	8.9	13.1	33.5	158.3	Jun 7
McNeal	84.2	62.0	8.6	12.6	37.0	159.7	Jun 8
MT1173	85.5	61.8	9.2	11.4	38.1	160.7	Jun 9
MT1219	**93.1***	63.2	8.9	11.8	34.6	159.0	Jun 8
MT1316	77.9	61.9	8.7	13.1	34.8	156.3	Jun 5
MT1320	76.8	63.0	9.0	12.5	41.2	158.7	Jun 7
MT1348	75.5	62.8	9.2	11.5	23.2	157.7	Jun 6
MT1401	80.9	63.2	9.2	12.8	38.6	157.0	Jun 6
MT1415	84.1	64.0	9.2	13.1	36.4	159.3	Jun 8
MT1426	90.3	61.8	9.3	11.9	38.8	156.3	Jun 5
MT1427	**91.1***	61.1	8.9	11.7	36.9	157.0	Jun 6
MT1442	**93.3***	63.6	9.3	12.1	41.3	159.7	Jun 8
MT1447	83.1	62.4	9.3	12.0	38.9	157.7	Jun 6
MT1451	**96.9***	62.1	9.1	11.7	38.0	158.3	Jun 7
MT1455	83.5	62.5	9.3	11.5	36.2	158.7	Jun 7
MT1506	86.3	62.9	9.1	12.1	38.7	157.3	Jun 6
MT1509	84.3	62.8	9.2	11.5	36.1	160.0	Jun 9
MT1510	87.4	61.6	8.9	12.3	39.2	157.7	Jun 6
MT1511	**93.0***	62.2	9.1	12.0	37.9	159.3	Jun 8
MT1512	**91.7***	62.8	9.2	11.9	38.0	157.0	Jun 6
MT1514	**91.8***	62.2	9.2	12.3	39.8	159.7	Jun 8
MT1517	84.1	62.8	9.0	11.7	33.4	159.3	Jun 8
MT1518	**97.3***	63.3	9.3	11.4	35.4	159.3	Jun 8
MT1519	**94.3***	63.6	9.3	11.9	34.4	159.3	Jun 8
MT1523	**92.3***	63.8	9.3	11.8	37.2	158.3	Jun 7
MT1525	89.5	64.7	9.0	11.9	34.4	160.0	Jun 9
MT1531	87.8	63.9	9.4	12.1	36.9	159.7	Jun 8
MT1533	83.6	61.1	9.0	12.2	38.4	158.7	Jun 7
MT1538	87.5	62.3	9.0	11.4	35.0	160.0	Jun 9
MT1542	**93.1***	62.6	9.1	12.7	37.5	157.3	Jun 6
MT1543	86.2	61.6	8.9	12.3	36.2	157.3	Jun 6
MT1549	83.1	62.7	8.8	12.3	33.1	160.3	Jun 9
MT1556	80.7	63.6	9.2	13.1	37.2	161.0	Jun 10
MT1565	79.0	62.2	9.1	12.2	37.4	159.7	Jun 8
MT1570	**94.5***	62.4	9.0	11.9	34.7	157.0	Jun 6
MT1572	86.2	63.7	9.3	11.3	33.9	158.7	Jun 7
MT1573	86.5	63.1	9.1	11.1	33.3	159.0	Jun 8

MT1574	89.7	62.6	9.0	11.6	35.9	159.3	Jun 8
Reeder	87.4	63.3	8.9	12.4	38.6	158.3	Jun 7
SY Ingmar	87.7	63.2	9.0	12.7	35.0	160.7	Jun 9
SY Soren	83.0	63.2	8.9	12.8	33.0	160.0	Jun 9
SY Tyra	81.7	63.2	9.3	10.9	31.8	159.7	Jun 8
SY Valda	**92.2***	62.4	8.8	12.3	33.8	161.0	Jun 10
Thatcher	54.0	62.3	8.7	13.8	47.4	162.0	Jun 11
Vida	89.0	61.7	9.1	11.6	37.1	159.0	Jun 8
WB Gunnison	86.8	62.6	8.8	12.6	32.6	158.7	Jun 7
WB161	88.5	62.5	8.9	12.1	34.5	156.7	Jun 5
WB162	84.4	62.2	9.0	11.5	34.4	158.3	Jun 7
WB163	80.2	60.6	8.7	11.8	31.1	160.3	Jun 9
WB9879CLP	86.4	62.7	9.3	12.1	36.1	159.0	Jun 8
WF161	**93.7***	62.4	9.0	12.7	34.8	159.7	Jun 8
WF162	87.9	61.8	8.9	11.1	32.4	160.7	Jun 9
WF163	84.2	62.4	9.3	11.7	38.1	160.7	Jun 9
WPSP2-McNeal1	**91.1***	62.3	9.3	11.0	32.9	158.7	Jun 7
WSCIA	89.5	63.6	9.3	11.4	35.3	159.0	Jun 8
Average	86.1	62.7	9.1	12.1	36.2	158.9	Jun 7
PLSD (p=0.05)	7.3	0.6	0.3	0.7	4.5	1.2	
CV%	5.0	0.6	2.0	3.8	7.6	0.5	
Lattice RE%[2/]	123	102	100	100	101	102	

1/ Grain yields are based on a 60-pound per bushel standard bushel weight and adjusted to 13% grain moisture content.
2/ Adjusted means provided for Lattice RE% values equal to or greater than 105%.