

PROJECT TITLE: Dryland Soft White Winter Wheat Performance Trial near Huntley, Montana.
(Exp. 995008).

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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 soft white winter 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 1999 on-station soft white winter wheat trial had 14 soft white winter wheat entries and one hard red winter wheat check. The trial was planted using a randomized complete block design with three replications. Test plots consisted of a 15-foot, 4-row plot with 12-inch row spacing. All rows of each test plot were trimmed 36 inches and harvested using an experimental-plot combine. Recorded grain yields were adjusted to 13% grain moisture content, and are reported in bushels per acre based on a 60 pound per bushel test weight. Test weight (pounds per bushel) 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. Grain protein values were adjusted to 12% grain moisture content. Plant height was measured in inches from the soil surface to the top of the head, excluding the awns if present. Reported values have been rounded to the nearest inch. Heading date was noted at the Huntley irrigated and Huntley dryland site 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: Agronomic performance of the soft white winter wheat cultivars tested during 1999 near Huntley is presented in Table 1. Above normal fall precipitation resulted in good seedling establishment. Adequate stands of all soft white winter wheat entries survived the winter. Warmer than average temperatures during February and March followed by above normal rainfall in April resulted in early spring green up and good growing conditions. Soft white winter wheat yields averaged 59.4 bu/ac and ranged from 68.6 bu/ac for 'Brundage' to 53.0 bu/ac for 'W301'. 'Eltan' and 'Kmor' produced grain yields of 63.3 and 63.5 bu/ac, respectively, which was equal to the yield of Brundage. Drier than normal conditions experienced during anthesis and seed fill negatively influenced test weights. Test weights averaged 57.7 lb/bu. 'Stephens' had the highest test weight at 59.8 lb/bu. No entry had a test weight greater than 60.0 lb/bu. Grain protein averaged 15.5 percent and ranged from 14.7 percent for 'Daws' and 'Lambert' to 16.4 percent for 'Hill 81'.

FUTURE PLANS: The soft white winter wheat performance trial will continue in 2000 at Southern Agricultural Research Center.

Table 1. Performance of 14 soft white winter wheat cultivars tested under dryland conditions near Huntley, Montana during 1999. Cultivars listed alphabetically. (Exp. 995008).

Cultivar	1/	Test Weight	Grain Moisture	Plant Height	2/	Heading Date	
	Grain Yield				Grain Protein	Julian	Calendar
	bu/ac	lb/bu	%	inches	%		
Brundage	68.6**	57.9	8.2	33	15.4	154	Jun 2
Cashup	59.3	57.3	8.0	30	14.8	160	Jun 7
Daws	61.8	58.8	8.4	29	14.7	159	Jun 7
Eltan	63.3*	58.4	9.1	32	16.2	164	Jun 12
Hill 81	53.3	57.6	8.5	32	16.4	160	Jun 8
Kmor	63.5*	57.1	8.3	30	15.1	164	Jun 12
Lambert	59.3	57.2	8.5	33	14.7	158	Jun 6
Lewjain	60.8	59.1	8.7	30	15.7	164	Jun 12
MacVicar	56.7	57.3	8.5	32	15.0	159	Jun 6
Madsen	57.0	57.7	8.1	33	16.0	159	Jun 7
Malcolm	57.6	57.6	8.5	32	15.8	158	Jun 6
Neeley (hard red)	62.8	59.8	8.8	34	16.3	158	Jun 6
Rod	56.7	54.8	7.9	30	15.6	164	Jun 12
Stephens	57.5	59.8	8.9	31	15.6	161	Jun 9
W301	53.0	54.3	7.9	32	15.6	158	Jun 6
Average	59.4	57.7	8.4	32	15.5	160	Jun 5
LSD (p=0.05)	5.3	0.7	0.3	4	-	<1	
CV%	5.3	0.8	2.5	8.0	-	0.2	

1/ Yields are based on 60 pound standard bushel weight and adjusted to 13.0 percent moisture content.

2/ Grain protein values adjusted to 12 percent grain moisture content.

** Indicates highest yielding cultivar.

* Indicates cultivars yielding equal to highest yielding cultivar based on Fisher's protected LSD (p=0.05).

Huntley Dryland Soft White Winter Wheat (Exp. 995008)

Planted: September 21, 1998
 Harvested: July 23, 1999
 Fertility: 18-46-00, 100 lb/ac, ppi, September 15, 1999
 34-00-00, 88 lb/ac, broadcast, April 26, 1999
 Herbicide: none
 Insecticide: none
 Previous Crop: summer fallow
 Precipitation: 10.13 inches