

**RECOMMENDED  
HARD RED AND DURUM SPRING WHEAT VARIETIES  
FOR MONTANA BY DISTRICT**

Variety	District					
	1	2	3	4	5	6
<b><u>HARD RED SPRING WHEAT:</u></b>						
Amidon	D	D	D	D	D	D
Conan */ (P)+		D	D	D	D	D
Ernest */+		DI		DI		DI
Express (P) +	IH	I	I	I		I
Fergus (P) +	DI	DI	DI	DI	DI	
Fortuna */	D	D	D	D	D	
Hank (P) +	DI	DI	DI	DI	DI	DI
Hi-Line	DI	DI	DI	DI	DI	DI
Lew */					D	D
McNeal	DI	DI	DI	DI	DI	DI
WestBred 926 (P)		DI	DI	DI		I
WestBred 936 (P) +	IH	I	I	I		I
Scholar+				D	D	D
<b><u>DURUM WHEAT:</u></b>						
AC Avonlea		D		D	DI	DI
Ben		D		D		DI
Maier		D		D	DI	DI
Monroe						D
Mountrail		D		D	DI	DI

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I = Irrigated  
 D = Dryland  
 H = High rainfall  
 \*/ = Sawfly areas only  
 (P) = A Private Variety  
 + = A "Protected" variety under the Plant Variety Protection Act

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# SPRING WHEAT VARIETY PERFORMANCE SUMMARY IN MONTANA

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## INTRODUCTION

The agronomic characteristics of spring wheat varieties evaluated by the Montana Agricultural Experiment Station are compared in this publication with other varieties commonly grown in the state. The objective of this summary is to help farmers select the varieties which will perform best in their area. In this bulletin we use a comparable average to evaluate variety performance. Varieties recommended for production in the respective districts of Montana are designated by an asterick. A brief description of each variety is given which may include a variety's particular advantages or disadvantages. The information was extracted from data collected and analyzed from the Advanced Spring Wheat and Statewide Durum Wheat nurseries. These reports are prepared by research personnel of the Montana Agricultural Experiment Station. Where available, up to ten years (1994-2003) of yield data are shown for the varieties. In some years data are not available because of hail, frost, or other unavoidable causes.

The comparable average for spring wheat is calculated by using a "10 year check mean" from a group of long term varieties including; Newana, Fortuna, Lew, Hi-Line, Amidon and McNeal. Variety means are adjusted by multiplying the actual 10 year check mean by the ratio of the individual variety mean compared to the check mean for the same years tested as illustrated below. All varieties are then directly comparable to each other when in the same nursery.

Illustration of Formula: (Scholar -- 9 years at Sidney-irrigated, page 13)

Check Varieties 10 Year Average	= 66.9
Check Varieties Average Yield for last 9 years	= 65.28
Variety (Scholar) in question: Average Yield for last 9 years	= 69.26

$\frac{\text{Scholar 9 year average yield}}{\text{Check varieties 9 year average yield}}$	or	$\frac{69.26}{65.28}$	=	1.061 (106.1%)
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To convert Scholar yield to the 10 year comparable average:

1.061 (Scholar) x 66.9 (Check varieties 10 yr. avg.) = 71.0 bu/A for Scholar

The comparable averages for the durum wheats were calculated by using Vic as a single check variety.

The more years of production data available for any particular variety, the more reliable is the "comparable average figure." Averages using less than three years data may be unreliable in predicting future performance, and have been omitted from the tables.

## SPRING WHEAT PRODUCTION AND CULTURAL PRACTICES

Montana's spring wheat acreage during the past five years has ranged from 65 to 75 percent of the total wheat acreage planted. In 2003 spring wheat accounted for ~ 65 percent of the total wheat acreages.<sup>1</sup> Durum acreage accounted for 10 percent of acreage planted in 2003. Nationally, in 2003, Montana ranked second among the spring wheat and durum producing states.

The wheat stem sawfly, wheat stem rust and leaf diseases including Septoria, remain a threat to wheat growers in areas across Montana, and require the planting of resistant varieties.

Montana has been recognized for its production of high quality bread wheat. This reputation is essential in maintaining domestic and foreign markets. The export trade in recent years has accounted for about three-fourths of our wheat market.

Hard red spring wheat is grown in all areas of the state, with over 97% of the acreage on dryland. The largest concentration of acreage is east of the Continental Divide along the northern tier of counties. The highest producing counties in 2002 were Valley, Roosevelt and McCone.

Over 98% of durum wheat is grown on dryland, and in 2002 the highest producing counties were Sheridan, Roosevelt, and Daniels counties in northeastern Montana.

The following seeding rates and dates are general. The heavier seeding rate, where indicated, is applicable to plump seed of high test weight or seed having a kernel size larger than normal for most other varieties. The lighter rates are for seed whose test weight is below normal for wheat.

Crop	Average No. seeds/lb	Dryland (lbs)	Irrigated (lbs)	Seeding Date
Spring Wheat	15,000	45 – 60 (15 – 21 seeds/sq ft)	75 - 90 (26– 30 seeds/sq ft)	After April 1or as soon as seedbed can be prepared.
Durum Wheat	11,000	60 - 65 (15 - 16 seeds/sq ft)	75 - 90 (19 - 23 seeds/sq ft)	After April 1or as soon as seedbed can be prepared.

Research on seed size at the Montana Agricultural Experiment Station has shown that spring wheat seed that will pass through 5/64<sup>th</sup> screen is lower yielding. The primary benefit of seed sizing is greater seedling vigor.

*The map on the cover shows the districts in the state for purposes of reference for specific areas of adaptation.*

<sup>1</sup> Montana Agricultural Statistics, 2003 . Montana Agricultural Statistics Service, Helena, MT (November 2003).

## **VARIETY TESTING PROCEDURES**

### **Locations**

In 2003, the Advanced Spring Wheat nursery was planted at 10 Montana sites; including, Bozeman (dryland and irrigated), Kalispell (high rainfall), Havre (dryland), Sidney (dryland and irrigated), Huntley (dryland and irrigated), Moccasin (dryland) and Conrad (dryland). The Montana statewide durum nursery was planted at Bozeman (dryland), Havre (dryland), Sidney (dryland and irrigated), Huntley (dryland), Moccasin (dryland) and Conrad (dryland and irrigated). See page 25 for Research Center locations, soil types and miscellaneous nursery management information.

### **Experimental Design and Data Collection**

Varieties currently recommended, widely grown, recently released or owned (and entered on a fee basis) by private companies are evaluated for agronomic performance in the Advanced Spring Wheat and Statewide Durum nurseries. Also evaluated in these nurseries are experimental breeding lines tested against the check varieties. Nurseries are randomized separately at each location for statistical analysis.

Agronomic data collected throughout the growing season includes heading date, plant height, lodging, disease and insect reactions. Experimental plots are trimmed, measured and harvested with small plot combines. The grain is weighed for yield and test weight. Entries are bulked over reps and submitted to the Cereal Quality Lab at MSU, Bozeman for protein, milling, baking and Asian noodle quality evaluation as needed. Data is analyzed and summarized for each location and overall comparisons are made to determine which varieties and/or experimental lines look promising for Montana producers. When sufficient data is collected and analyzed, promising varieties and/or lines are submitted to the MAES wheat variety release and recommendation committee.

### **WHEAT RECOMMENDATION PROCEDURE FOLLOWED BY THE MAES**

Recommendation of spring wheat varieties is determined on a yearly basis by the Montana Agricultural Experiment Station (MAES) Wheat Variety Release Committee. This 15 member committee is composed of two wheat breeders, one cereal quality scientist, one plant pathologist, one entomologist, one extension specialist, one representative of Foundation Seed Stocks, six Research Center agronomists, one Montana Wheat and Barley Committee member and one representative of the Montana Seed Growers Association.

A variety is eligible for recommendation when a minimum of 16 location-years of performance data is obtained from the MAES statewide spring wheat performance trials. Test results must indicate that the variety is equal to or superior in overall merit to specified check cultivars and has end-use quality equal to or exceeding currently recommended varieties. For varieties originating from private companies, recommendation is considered at the request of the company when adequate data is available.

Recommendations of varieties are considered on a case by case basis. Yield performance of a variety is an important criteria, but also considered are test weight, grain protein content, disease and pest resistance and end-use quality data. In general, yield needs to be at least equal to currently recommended varieties in a particular district, unless the variety is being recommended for a specific purpose; such as, sawfly resistance.

If a serious defect in the variety is identified during performance testing, the variety will not be recommended. Examples of defects resulting in non-recommendation include: high probability of low test weight, low grain protein, low baking quality, etc. Lack of variety recommendation by MAES may occur due to a decision by the originating company not to test the variety in statewide performance trials. In this case the lack of recommendation is due to inadequate or no data rather than a specific varietal defect.

## SPRING WHEAT VARIETIES

### Agronomic Characteristics

Variety	Origin	Year Released	Milling <sup>1/</sup>	Baking <sup>1/</sup>	Plant Height	Maturity	Lodging	Shattering
<b>HARD RED</b>								
Amidon	North Dakota	1988	5	4	Tall	Medium	M	M
Ernest	North Dakota	1995	5	4	Tall	Medium	M <sup>2/</sup>	M
Fortuna	North Dakota & Montana	1966	5	4	Tall	Medium	M <sup>2/</sup>	S
Scholar	Montana	1998	5	4	Med-Tall	Mid-Late	M <sup>2/</sup> R	
Reeder	North Dakota	1999	4	4	Semidwarf	Med-early	MR	
Conan	Western Plant Breeders	1997	3	3	Semidwarf	Medium	R	-
Express	Western Plant Breeders	1991	4	4	Semidwarf	Medium	R	
Fergus	Western Plant Breeders	1994	3	5	Semidwarf	Medium	R	R
Hank	Western Plant Breeders	1999	3	5	Semidwarf	Early	R	R
Hi-Line	Montana	1992	3	5	Semidwarf	Medium	R	R
McNeal	Montana	1995	3	5	Semidwarf	Mid-Late	R	R
Newana	Montana	1976	2-3	5	Semidwarf	Mid-Late	R	R
WestBred 926	Western Plant Breeders	1987	4	5	Semidwarf	Early	R	M
WestBred 936	Western Plant Breeders	1992	4	4	Semidwarf	Early	R	
Outlook	Montana	2003	3	4	Semidwarf	Mid-Late	R	R
Choteau	Montana	2003	4	4	Semidwarf	Medium	R	R
<b>HARD WHITE</b>								
MTHW9420	Montana	2000	3	3	Semidwarf	Medium	R	R
Explorer	Montana	2002	4	5	Semidwarf	Medium	R	R

<sup>1/</sup> Superior = 5, Inferior = 1; <sup>2/</sup> Weak under irrigation; Legend: R = Resistant, MR = Moderately Resistant, MS = Moderately Susceptible, S = Susceptible, T = Tolerant, - = unknown

**SPRING WHEAT VARIETIES  
Insect and Disease Reaction**

Variety	Sawfly	Common Smut	Loose Smut	Stripe Rust	Leaf Rust	Stem Rust	Leaf Spot Complex
<b>HARD RED</b>							
<b>Standard</b>							
Amidon	MR	-	-	R	R	R	M
Ernest	R	-	-	R	R	R	R
Fortuna	R	S	-	MR	R	R	S
Scholar	MR	--	--	MS	MR	R	--
<b>Semidwarf</b>							
Express	S	-	-	R	R	-	MR
Fergus	S	-	-	MS	MS	MR	MS
Hank	S	-	-	R	R	R	-
Hi-Line	S	-	-	MS	S	R	M
McNeal	S	-	-	MS	MS	MR	R
Newana	S	MS	R	MS	S	R	M
Reeder	S	-	-	MS	MR	R	MR
WestBred 926	S	-	-	R	R	R	M
WestBred 936	S	-	-	R	S	R	M
Outlook	S			MR	MR	R	-
Choteau	R	-	-	-	-	R	-
<b>HARD WHITE</b>							
MTHW9420	Montana	-	-	MR	MR	R	MR
Explorer	Montana	-	-	MR	MR	R	S

R = Resistant , MR = Moderately Resistant, MS = Moderately Susceptible, S = Susceptible, T = Tolerant, - = unknown

## DURUM VARIETIES

### Agronomic Characteristics

### Disease Reaction

Variety	Origin	Year Released	Maturity	Plant Height	Stripe Rust	Leaf Rust	Stem Rust	Leaf Spot Complex
AC Avonlea	AG Canada	1999	Medium	Medium	-	R	R	-
Ben	North Dakota	1996	Medium	Medium	MS	R	R	R
Kyle	AG Canada	1984	Medium	Tall	-	MR	R	-
Lebsock	North Dakota	1999	Medium	Medium	-	R	R	-
Maier	North Dakota	1999	Med-late	Medium	-	R	R	-
Monroe	North Dakota	1985	Early	Tall	MS	R	R	-
Mountrail	North Dakota	1999	Late	Medium	-	R	R	-
Munich	North Dakota	1995	Medium	Medium	-	R	R	-
Plaza	North Dakota	1999	Late	Semidwarf	-	R	R	-
Sceptre	AG Canada	1986	Mid-Early	Medium	S	-	R	-
Utopia	World Wide Wheat	1996	Early	Semidwarf	-	-	-	-
Vic	North Dakota	1979	Mid-Early	Tall	MR	MR	R	MR

R = Resistant , MR = Moderately Resistant, MS = Moderately Susceptible, S = Susceptible, T = Tolerant, - = unknown

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**NURSERY MANAGEMENT INFORMATION FOR THE 2003 ADVANCED SPRING WHEAT NURSERY**

	<b>Bozeman irrigated</b>	<b>Bozeman dryland</b>	<b>Havre</b>	<b>Sidney dryland</b>	<b>Sidney irrigated</b>	<b>Kalispell</b>	<b>Moccasin</b>	<b>Huntley dryland</b>	<b>Huntley irrigated</b>	<b>Conrad dryland</b>
	<b>2</b>	<b>2</b>	<b>5</b>	<b>6</b>	<b>6</b>	<b>1</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>5</b>
<b>DISTRICT</b>										
Location:										
Latitude °N	45° 41'	45° 41'	48° 30'	47° 40'	47° 40'	48° 10'	47° 03'	45° 55'	45° 55'	48° 18.4'
Longitude °W	111° 00'	111° 00'	109° 48'	104° 08'	104° 08'	114° 15'	109° 57'	108° 15'	108° 15'	111° 55.5'
Elevation (ft)	4772	4772	2689	2200	1950	2890	4300	3200	3200	3700
Precipitation:										
Avg. moisture (in.) <sup>1</sup>	16.01	16.01	11.99	13.86	13.86	19.67	15.36	13.18	13.18	11.52
2003 moisture (in.)	13.32	13.32	11.54	14.57	13.03	14.91	12.97	10.97	10.97	9.69
2003 moisture (Apr.-July)	7.69	7.69	7.07	8.88	7.49	5.63	8.17	6.17	6.17	6.00
Avg. moisture (Apr.-July)	8.26	8.26	6.76	8.06	8.06	8.35	8.60	6.93	6.93	6.95
Irrigation water applied (in.)	6.25	0.00	0.00	0.00	3.00	0.00	0.00			0.00
Previous Crop:										
2000	Winter wheat	Winter wheat	Fallow	Sm.grains	Safflower	alfalfa	-	-	-	-
2001	Oats	Oats	Barley	Safflower	Durum	alfalfa	-	-	-	-
2002	fallow	Fallow	Fallow	Fallow	Sugar beets	alfalfa	fallow	fallow	Sugar beets	Fallow
Soil Type:										
Series	Amsterdam	Amsterdam	Scobey	Williams	Savage	Creston	Judith-Danvers	Fort Collins	Fort Collins	Scobey
Texture <sup>2</sup>	SiL	SiL	CL	CL	SiC	SiL	CL	SiL	SiL	CL
Fertilization:										
Available N (lb/ac)	130	130	46	107	59		60	100		
Applied N-P-K (actual lb/ac)	95/40/40	95/40/40	70/40/25	0/0/0	72 (lb.N)	78/28/128				51/52/0
Planting date	4/22/03	5/3/03	5/1/03	4/15/03	4/29/03	4/21/03	4/22/03	4/2/03	4/10/03	4/23/03
Harvest date	8/16/03	8/12/03	8/18/03	7/31/03	8/14/03	8/7/03	8/13/03	7/23/03	7/30/03	8/14/03
		Statewide Durum	Statewide Durum	Statewide Durum	Statewide Durum		Statewide Durum	Statewide Durum		Statewide Durum
Planting date		5/3/03	5/1/03	4/15/03	4/28/03		N/A	4/2/03		Dry-4/23/03
Harvest date		8/13/03	8/19/03	8/1/03	8/15/03			7/24/03		8/14/03
										Irr- 4/23/03
										8/18/03

Moisture September- August, Sidney is October- September;

## ADDITIONAL DESCRIPTIVE INFORMATION ON SPRING WHEAT VARIETIES

### Hard Red Spring Wheats

**AMIDON** - An awned, standard height hard red spring wheat cooperatively developed and released by North Dakota Agricultural Experiment Station and United States Department of Agriculture (USDA) in 1988. It was developed from the cross SU-28-1\*2/3/Lew//Tioga\*2/ RL6043 and tested as ND606. It is similar to Stoa in heading date and plant height with a tendency to greater lodging. It is resistant to leaf rust and stem rust, with a leaf spotting rating better than Stoa and Len. Shattering resistance and test weight have been rated as satisfactory. Amidon has been yielding consistently more than Stoa when yields were below 30 bu/A. Amidon has exhibited an intermediate level of stem solidness. Amidon has a higher protein than Newana, and overall milling and baking qualities are equal to or better than Newana. The kernel characteristics do not meet spring wheat classing requirements of the Federal Grain Inspection Service.

**CHOTEAU** – Developed and released by the Montana Agricultural Experiment Station in 2003. Choteau was derived from the cross of MT 9401/MT 9328. Choteau is a semidwarf hard red spring wheat with solid stems conferring tolerance to the wheat stem sawfly. The spike is lax and tapered with white awns and glumes. Kernels are red, ovate with a medium crease and brush. Choteau is resistant to the prevalent race of stem rust in Montana. Across 38 location years (2000-2003) in Montana, Choteau had yields similar to McNeal. Choteau has good grain protein and acceptable milling and baking quality. Application for variety protection with Title V under the PVP act is being processed.

**CONAN** - Developed and released by Western Plant Breeders in 1999. Conan was selected from the cross WestBred Rambo x WestBred 906R. Conan is a sawfly tolerant, white chaffed, semidwarf, hard red spring wheat. The spike is mid-dense, strap shaped and awned. The seeds are elliptical with rounded cheeks. The brush is long and collared. Conan is similar to WestBred Rambo in yield, but is 2 to 4 days earlier, .5 to .9 percentage points higher in protein, and has good milling and baking qualities. Conan is resistant to the prevalent races of stripe rust and leaf rust, and has shown good tolerance to Septoria and Tan spot. This variety is protected under the Plant Variety Protection Act.

**ERNEST** - Developed from the cross ND 622\*2/Cutless, made by the North Dakota Agricultural Experiment Station and released in 1995. Ernest is an awned, white chaffed, standard height, solid stemmed hard red spring wheat. It is resistant to wheat stem sawfly, prevalent races of leaf rust and stem rust. This variety is protected under the Plant Variety Protection Act and can only be sold or advertised by variety name as a class of certified seed.

**EXPRESS** - Developed from the cross of Veery/BH1146 by Western Plant Breeders. It is a semidwarf, hard red spring wheat released in 1991. Some plants in the population may average 3-5 inches taller than the average plant height of the field. The spike is awned, white chaffed with glumes being long, oblique shouldered and acuminate beaks. The kernels are red, elliptical shaped, long brush and rounded cheeks. Express is resistant to leaf rust, stripe rust, powdery mildew and Septoria tritici. This variety is protected under the Plant Variety Protection Act and can only be sold or advertised by variety name as a class of certified seed.

**FERGUS** - Developed and released by Western Plant Breeders in 1994. It was selected from a male-sterile facilitated, recurrent selection population. Fergus is a red chaffed, semidwarf, hard red spring wheat. The spike is awned, lax, and oblong. The glumes are red, long and wide, with narrow square shoulders. The beaks are narrow, mid-short, and the apex is acuminate. Fergus has purple leaf auricles with pubescent hairs. The stems and leaves have a waxy bloom. Seeds are mid-long, mid-wide, elliptical with rounded cheeks. Seed crease is mid-wide and shallow. The kernel has a mid-sized germ and mid-long brush with no collar. Fergus has a variant of tall spikes, one to two spikes taller than the normal stand height at a ratio of three per 10,000 plants. This variety is protected under the Plant Variety Protection Act.

**FORTUNA** - Developed from the cross, Rescue-Chinook x (Frontana x Kenya 58-Newthatch), made at North Dakota Agricultural Experiment Station with the Crops Research Division of USDA cooperating. A joint North Dakota-Montana release was made in 1966. Fortuna is beardless with white chaff and straw. It is a solid-stemmed variety, resistant to the wheat stem sawfly. Fortuna is susceptible to Septoria and black chaff fungus. It is a relatively high yielding variety with superior milling properties, and has acceptable baking properties.

**HANK** – Developed by Western Plant Breeders and released in 2000. Hank was derived from the cross of WestBred 926/WestBred 936. Hank is an early maturing white chaffed, awned, semi-dwarf hard red spring wheat. Seed of Hank is elliptical and long with rounded cheeks. The brush is large with long hair and the crease is medium in depth and width. Hank is resistant to stem rust, leaf rust, stripe rust and powdery mildew and has shown good tolerance to Dry Land Root Rot. Hank has good straw strength and is tolerant to shattering. Hank is tolerant to races of the Hessian fly found in the PNW region. Hank is susceptible to damage by the wheat stem sawfly. Hank is tolerant to the wild oat herbicide 'Avenge'. The milling and baking qualities of Hank are acceptable. Hank is protected under the Plant Variety Protection Act (Certificate # 200000191).

**HI-LINE** - Developed from the cross MT 7336/Shortana, made cooperatively by the Montana Agricultural Experiment Station and the Agricultural Research Service, USDA. It was released in March 1992. Hi-Line is a semidwarf, hard red spring wheat. The variety is white chaffed, white strawed, hollow stemmed with an awned spike. The glumes are glabrous and may vary in color from white to tan. Its kernels are red, ovate, and short with a mid-length brush. The spike tends to nod slightly at maturity. Hi-Line is resistant to lodging. Under some climatic conditions a few spikes will elongate 2-5 inches above the overall field height. Hi-Line is resistant to prevalent races of stem rust found in Montana. It is susceptible to leaf rust and stripe rust. The milling and baking quality of this variety is acceptable to industry.

**McNEAL** - Developed from the cross RS6880/Glenman made by the Montana Agricultural Experiment Station. It was released in March 1995. McNeal is a semidwarf, hard red spring wheat with red chaff and tan straw. The spike is awned and mid-dense. The glumes are reddish brown with some white on the outer edges of the lemma and palea. Kernels are red, ovate, medium length with a short brush. The cheeks are slightly rounded with a medium crease. Under Montana growing conditions McNeal is moderately resistant to lodging. It is moderately resistant to prevalent races of stem rust and wheat streak mosaic virus. McNeal is moderately susceptible to leaf rust and stripe rust. It is susceptible to Russian wheat aphid and the wheat stem sawfly. Under some climatic

conditions one white chaffed plant per 2,000 plants may appear in the field. McNeal's milling and baking qualities are acceptable by industry.

**NEWANA** - Developed from the cross, Sheridan/3/Norin 10/Brevor 14//5\*Centana, made at the Montana Agricultural Experiment Station by personnel of the Agricultural Research Service, USDA. The initial release of Newana was made in 1976. It is adapted for dry and irrigated land in all districts of Montana. It is a bearded, semidwarf hard red spring wheat variety with white straw and chaff. It is resistant to loose smut and stem rust, with moderate resistance to stripe rust. Newana is moderately susceptible to Septoria but is susceptible to leaf rust. Its baking quality is superior and its milling quality is satisfactory, but has somewhat low flour yield.

**OUTLOOK** – Developed from the cross of PI372129/Amidon//Amidon/3/MT 9312 and released by the Montana Agricultural Experiment Station in 2003. It is a semidwarf hard red spring wheat with good resistance to the Russian wheat aphid and has been one of the highest yielding wheats in our Advanced spring wheat nursery across Montana from 2000-2003. Outlook has middense, erect, tapering heads with red awns and glumes. Outlook shows good resistance to prevalent races of stem rust in Montana. Outlook has acceptable milling and baking quality. Outlook is protected under the Plant Variety Protection Act (Certificate # 200400008) and can only be sold or advertised by variety name as a class of certified seed.

**REEDER** - Developed by the North Dakota Agricultural Experiment Station, the cross involved a relative of 'Stoa', a NDSU experimental line and germplasm from a breeding program in Brazil. Reeder was released in 1999. Reeder is an awned, semidwarf hard red spring wheat. Reeder yields well especially in northeastern Montana and western North Dakota. Reeder has resistance to the upper midwest races of stem and leaf rust. Milling and baking qualities are acceptable. This variety is protected under the Plant Variety Protection Act and can only be sold or advertised by variety name as a class of certified seed.

**SCHOLAR** - Developed from the cross, MT8808/'Marberg', made by the Montana Agricultural Experiment Station. Scholar was released in 1998. It is a good yielding hard red spring wheat with moderate resistance to the wheat stem sawfly. Scholar is awned with white chaff and straw and is intermediate in height. Scholar has good resistance to Septoria and stem rust, is moderately resistant to leaf rust, and moderately susceptible to stripe rust. Scholar has good milling and baking qualities. This variety is protected under the Plant Variety Protection Act.

**WESTBRED 926** - Developed by Western Plant Breeders from a recurrent selection population. WestBred 926 is a semidwarf hard red spring wheat similar to WestBred 906R. WestBred 926 was released in 1987. The spike is awned, white chaffed, slightly longer and more oblong than WestBred 906R. The kernel is red, ovate, with medium length brush, and rounded cheeks. It is resistant to stem rust and powdery mildew.

**WESTBRED 936** - Developed from a male-sterile facilitated, recurrent selection population, "906 alpha-84" by Western Plant Breeders. It is a semidwarf, hard red spring wheat released in 1992. The spike is awned, white chaffed, oblong and lax. The glumes are long and wide, with narrow elevated shoulders. The beak is very long, narrow and the apex is acuminate. The kernels are mid-long, mid-wide and ovate with rounded cheeks.

The crease is shallow, mid-wide and the germ is mid-sized. The brush is long with no collar. WestBred 936 is resistant to stem rust and stripe rust. This variety is protected under the Plant Variety Protection Act.

### **Hard White Spring Wheats**

**MTHW9420** – Developed by the Montana Agricultural Experiment Station from the cross of MT8182/MT8289 and was released in 2000. It is a semidwarf spring wheat with medium maturity. MTHW9420 is white chaffed and has hard white kernels. This variety is protected under the Plant Variety Protection Act and can only be sold or advertised by variety name as a class of certified seed.

**EXPLORER** - Developed by the Montana Agricultural Experiment Station and released in 2002. It was derived from the cross of MT8182/Fortuna//Pondera/MT8182. Explorer is a semidwarf variety with early maturity. Explorer has white chaff and hard white kernels. It has good stem rust resistance, but is susceptible to foliar diseases especially Septoria. Explorer has exceptional milling and baking quality. This variety is protected under the Plant Variety Protection Act and can only be sold or advertised by variety name as a class of certified seed.

### **Durum Wheats**

**AC AVONLEA** - Released by Ag Canada in 1997. AC Avonlea has medium maturity, straw strength and height. It has good resistance to stem and leaf rusts. It has a good overall durum milling and processing quality. This variety is protected under the Plant Variety Protection Act and can only be sold or advertised by variety name as a class of certified seed.

**BEN** - Developed from the cross of D8024/Monroe by the North Dakota Agricultural Experiment Station. Ben is a high-yielding, high-test weight, stiffed-strawed variety. It is a day length-sensitive durum. Ben has long erect spikes, is awned, mid-dense and oblong. Ben is a medium tall, medium maturing variety. It has three per 10,000 plants which are taller than the average height of the crop. Depending on the environment Ben may have one per 1000 bronze-colored chaffed plants in a field. Ben is resistant to stem rust, leaf rust and tan spot. It is moderately resistant to Fusarium head blight. Ben is protected under the Plant Variety Protection Act of 1994 and can only be sold or advertised by variety name as a class of certified seed.

**KYLE** - Developed from the cross of Wakooma/2/(DT322, Blue Giant/4\*Lakota)/3/Wakooma/2/(DT320, Blue Giant/2\*Lakota) by Agriculture Canada Research Station, Swift Current, Saskatchewan. It was released in 1984. Kyle has a white glumes, glabrous spike, with long spreading awns that turn black at maturity. It has medium-sized kernels. Kyle is resistant to prevalent races of leaf and stem rust. It is moderately susceptible to tan spot and septoria leaf spot and susceptible to loose smut.

**LEBSOCK** – Lebsock was released in 1999 by the North Dakota Agricultural Experiment Station. It has good yield, high test weight and a high semolina extract. Lebsock is a stiff-strawed durum with medium height and maturity with day length sensitivity. It is resistant to stem and leaf rust and moderately resistant to Tan spot and Fusarium head blight. This variety is protected under the Plant Variety Protection Act and can only be sold or advertised by variety name as a class of certified seed.

**MAIER** – The North Dakota Agricultural Experiment Station released Maier durum wheat in 1999. Maier is a late maturing, stiff-strawed, day length sensitive durum with a medium height. Maier has a good semolina extraction with strong gluten. Maier is resistant to stem and leaf rust diseases. This variety is protected under the Plant Variety Protection Act and can only be sold or advertised by variety name as a class of certified seed.

**MONROE** - Developed from the cross of (D6771/Rugby)/Vic by the North Dakota Agriculture Experiment Station. It was released in 1985. It is early maturing with white chaff. The kernels are large. Monroe is resistant to prevalent races of stem rust and moderately resistant to prevalent races of leaf rust. The combination of earliness and high yield makes Monroe well suited for growing in all durum areas of the state.

**MOUNTRAIL** – Developed from the cross D8479/Renville made by the North Dakota Agricultural Experiment Station which was released in 1999. Mountrail is a medium height, late maturing, stiff-strawed, day-length sensitive durum wheat. It is resistant to both leaf and stem rusts, but only moderately resistant to Tan spot and Fusarium head blight. Mountrail has a high semolina extract with strong gluten. This variety is protected under the Plant Variety Protection Act and can only be sold or advertised by variety name as a class of certified seed.

**MUNICH** - Developed from the cross D8030/D8016 by the North Dakota Agricultural Experiment Station and released in 1995. It is a day length sensitive durum wheat. Munich is a strong gluten durum variety. It is resistant to leaf rust and stem rust. It has a moderate resistance to scab. This variety is protected under the Plant Variety Protection act and can only be sold or advertised by variety name as a class of certified seed.

**PLAZA** – Derived from the cross, DT606/D8291, and released in 1999 by the North Dakota Agricultural Experiment Station. It is a late maturing semi-dwarf durum. Plaza has an average protein with strong gluten. It is resistant to leaf and stem rusts. This variety is protected under the Plant Variety Protection Act and can only be sold or advertised by variety name as a class of certified seed.

**UTOPIA** - Utopia was derived from exploitation of a "one irrigation" low input Male Sterile Facilitate Recurrent Selection population established at the University of Arizona, Mesa Experimental Station in 1982. Utopia is a semi-dwarf spring durum. Spikes are mid-dense, slightly tapered and incline at a 15 degree angle. At maturity, the stem and spike are white to tan with black awns. Glumes are large, long and glabrous with rounded to elevated shoulders. Seeds of Utopia are yellow amber, large, long, elliptical with shallow creases and rounded cheeks. Breeder seed will be maintained by World Wide Wheat, L.L.C. Utopia is protected under the Plant Variety Protection Act and can only be sold or advertised by variety name as a class of certified seed.

**VIC** - Developed from the cross, Edmore/Ward, by the North Dakota Agricultural Experiment Station cooperatively with Agricultural Research, Science and Education Administration, USDA. This variety was released to growers in 1979. It is a standard height, day length-sensitive spring durum. It has white awns and glumes. Vic is resistant to stem rust and moderately resistant to leaf rust and blackpoint. The milling, processing and cooking properties of this variety are satisfactory.

\* The asterisk is used as a part of the formulation to indicate the number of backcrosses of parents constituting the variety.

## **PLANT VARIETY PROTECTION (PVP)**

The developer of a new distinct variety may obtain protection (essentially a patent) for that variety if he/she chooses to do so, provided the variety meets the requirements of the Plant Variety Protection Act of 1970. This Act permits the owner or developer of a variety to prohibit others from selling, sexually multiplying, using for propagation for seed, or using to produce a hybrid, seed of his variety.

Two options, for plant variety protection, are available to the developer of the variety. Under the first option, the developer of the variety or his/her agent may sell either certified or uncertified seed of the variety. If the developer of the variety has reason to believe that anyone is infringing on his/her rights, he/she may resort to civil action.

The other option ("certification option") for protecting a variety utilizes the provision of Title V of the Federal Seed Act. A variety protected in this manner may be sold by variety name only as a class of certified seed.

It is the responsibility of the seller to inform the buyer if the variety is protected. Each container of seed sold should be labeled with a tag indicating the type of protection which the owner has. Under the first option, the label will state: "Unauthorized Propagation Prohibited - U.S. Protected Variety."

If the owner of the variety has chosen the other option for variety protection, the label will state, "Unauthorized Propagation Prohibited - To be Sold by Variety Name Only as a Class of Certified Seed - U.S. Protected Variety."

PLEASE NOTE: Varieties protected under the 1994 PVP act no longer can be sold without permission of the variety owner (the farmer exemption has been excluded)

A complete listing of all protected varieties is available in the "Official Journal of the Plant Variety Protection Office" which may be obtained upon request from:

Plant Variety Protection Office  
Warehouse Division, AMS  
U.S. Dept. of Agriculture  
National Agricultural Library  
Beltsville, MD 20705  
Phone: (301) 504-5518  
Internet: <http://www.ams.usda.gov/science/pvpo/pvp.htm>



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## HARD RED SPRING WHEAT – DISTRICT 1 – KALISPELL HIGH RAINFALL

1994-2003 GRAIN YIELD (BU/AC) SUMMARY FOR SELECTED SPRING WHEAT VARIETIES											NINE YEAR COMPARABLE
VARIETY	1994	1995	1996	1998	1999	2000	2001	2002	2003	YRS	AVE
FORTUNA*/	93.4	99.3	71.5	88.1	96.6	111.9	106.8	85.7	74.4	9	92.0
LEW	89.8	110.6	62.9	91.7	99.0	121.1	116.4	0.0	0.0	7	92.3
NEWANA <sup>2</sup>	98.5	119.4	64.8	103.3	122.3	126.3	130.0	109.0	83.7	9	106.4
HI-LINE* <sup>2</sup>	88.7	105.7	64.6	86.8	113.7	120.9	116.6	95.1	77.5	9	96.6
MCNEAL* <sup>2</sup>	85.2	120.2	65.3	106.0	119.8	123.3	121.5	102.0	78.5	9	102.4
AMIDON*	97.1	121.9	84.8	110.8	110.7	121.7	125.5	87.3	78.3	9	104.2
<b>CHECK AVERAGE</b>	<b>92.1</b>	<b>112.9</b>	<b>69.0</b>	<b>97.8</b>	<b>110.4</b>	<b>120.9</b>	<b>119.5</b>	<b>79.9</b>	<b>65.4</b>	<b>9</b>	<b>96.4</b>
ERNEST+	84.1	121.9	69.4	97.3	108.2	118.7	120.4	95.8	75.9	9	99.1
SCHOLAR+	0.0	121.1	65.1	101.0	117.1	122.2	138.6	99.9	82.6	8	105.3
WESTBRED 926(P) <sup>2</sup>	90.1	106.6	84.8	98.0	106.3	128.3	142.1	100.6	75.2	9	103.5
WESTBRED 936(P)+ <sup>2</sup>	103.3	109.0	60.4	0.0	0.0	0.0	0.0	0.0	0.0	3	95.9
WESTBRED EXPRESS*(P)+ <sup>2</sup>	99.5	121.9	74.6	0.0	0.0	0.0	0.0	0.0	0.0	3	104.2
FERGUS*(P)+ <sup>2</sup>	91.3	125.1	79.0	0.0	0.0	0.0	0.0	0.0	0.0	3	103.9
CONAN(P)+ <sup>2</sup>	0.0	115.4	69.3	0.0	99.6	114.8	104.3	91.6	79.7	7	96.0
REEDER+	0.0	0.0	0.0	0.0	111.1	118.1	138.0	109.5	87.4	5	109.7
HANK*(P)+ <sup>2</sup>	0.0	0.0	0.0	0.0	0.0	121.1	135.5	91.9	72.6	4	105.3
OUTLOOK+ <sup>2</sup>	0.0	0.0	0.0	0.0	113.3	124.6	142.5	114.1	70.5	5	109.9
CHOTEAU+ <sup>2</sup>	0.0	0.0	0.0	0.0	0.0	115.1	113.8	98.7	77.9	4	101.4
MTHW9420 <sup>2</sup> +(HW)	0.0	0.0	0.0	0.0	130.3	139.6	130.0	103.7	71.0	5	111.7
EXPLORER <sup>2</sup> +(HW)	0.0	0.0	0.0	0.0	0.0	120.4	115.7	89.7	70.0	4	99.0

### 1994-2003 AGRONOMIC TRAIT COMPARABLE AVERAGES

VARIETY	TEST WEIGHT (LB/BU)		HEADING DATE (178 = JUNE 27)		PLANT HEIGHT (INCHES)		PROTEIN (%)	
	YEARS	AVE	YEARS	AVE	YEARS	AVE	YEARS	AVE
FORTUNA*/	10	61.5	10	177	10	40.4	9	13.6
LEW	8	60.1	8	174	8	39.5	7	12.7
NEWANA <sup>2</sup>	10	60.9	10	180	10	32.0	9	12.6
HI-LINE* <sup>2</sup>	10	60.2	10	175	10	31.3	9	13.8
MCNEAL* <sup>2</sup>	10	60.7	10	178	10	34.2	9	13.9
AMIDON*	10	61.1	10	178	10	40.1	9	13.9
<b>CHECK AVERAGE</b>	<b>10</b>	<b>59.1</b>	<b>10</b>	<b>172</b>	<b>10</b>	<b>35.2</b>	<b>9</b>	<b>12.9</b>
ERNEST+	10	61.9	10	178	10	38.6	9	14.2
SCHOLAR+	9	61.8	9	179	9	37.7	8	14.2
WESTBRED 926(P) <sup>2</sup>	10	60.1	10	173	10	31.6	9	13.8
WESTBRED 936(P)+ <sup>2</sup>	4	58.2	4	167	4	27.2	4	12.7
WESTBRED EXPRESS*(P)+ <sup>2</sup>	4	58.7	4	170	4	25.5	4	12.0
FERGUS*(P)+ <sup>2</sup>	4	59.6	4	167	4	29.9	4	13.0
CONAN(P)+ <sup>2</sup>	8	61.7	8	177	8	32.4	7	13.8
REEDER+	5	63.6	5	183	5	37.0	4	14.9
HANK*(P)+ <sup>2</sup>	4	61.8	4	183	4	32.9	3	14.6
OUTLOOK+ <sup>2</sup>	5	61.7	5	187	5	35.8	4	14.1
CHOTEAU+ <sup>2</sup>	4	64.3	4	186	4	34.0	3	15.4
MTHW9420 <sup>2</sup> +(HW)	5	62.3	5	181	5	33.6	4	13.3
EXPLORER <sup>2</sup> +(HW)	4	63.8	4	182	4	34.0	3	14.6

\* =Recommended variety, \*/ = recommended in wheat stem sawfly areas only, (P) =Private variety, (HW) = hard white

<sup>2</sup> = Semidwarf variety, + =Protected under the Plant Variety Protection Act

<sup>1</sup>Comparable averages using less than three years data are not reliable

## HARD RED SPRING WHEAT – DISTRICT 2 – BOZEMAN DRYLAND

VARIETY	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	YRS	TEN YEAR
												COMPARABLE
												AVE
FORTUNA*/	80.0	60.4	44.2	73.0	82.8	64.8	65.1	69.0	50.5	41.7	10	63.1
LEW	79.7	67.2	44.0	74.2	80.1	60.8	63.3	69.1	0.0	0.0	8	61.6
NEWANA <sup>2</sup>	93.3	69.2	43.2	92.4	77.3	64.0	64.5	72.9	59.8	37.0	10	67.3
HI-LINE* <sup>2</sup>	85.9	70.5	46.9	95.7	86.6	66.0	67.7	82.3	66.4	36.6	10	70.5
MCNEAL* <sup>2</sup>	87.9	69.3	47.5	93.0	81.0	63.0	66.6	78.2	69.6	39.8	10	69.6
AMIDON*	84.1	70.7	48.1	86.3	93.1	65.1	66.8	75.1	56.6	37.9	10	68.4
<b>CHECK AVERAGE</b>	<b>85.1</b>	<b>67.9</b>	<b>45.6</b>	<b>85.8</b>	<b>83.5</b>	<b>64.0</b>	<b>65.6</b>	<b>74.5</b>	<b>50.5</b>	<b>32.2</b>	<b>10</b>	<b>65.5</b>
ERNEST*/+	79.5	60.5	46.3	84.1	86.9	63.9	65.8	77.3	56.9	41.9	10	66.3
SCHOLAR+	0.0	64.1	47.2	88.9	85.6	65.8	70.0	74.9	55.8	41.9	9	68.3
WESTBRED 926*(P) <sup>2</sup>	92.7	64.9	45.0	91.4	83.4	69.8	69.7	72.9	66.1	43.0	10	69.9
WESTBRED 936(P)+ <sup>2</sup>	99.4	65.6	47.4	82.4	0.0	0.0	0.0	0.0	0.0	0.0	4	67.9
WESTBRED EXPRESS(P)+ <sup>2</sup>	102.5	80.6	47.8	91.7	0.0	0.0	0.0	0.0	0.0	0.0	4	74.2
FERGUS*(P)+ <sup>2</sup>	98.9	60.8	44.3	95.4	0.0	0.0	0.0	0.0	0.0	0.0	4	68.9
CONAN*/(P)+ <sup>2</sup>	0.0	55.4	43.4	76.2	0.0	62.5	65.3	73.6	68.9	37.8	8	65.1
REEDER+	0.0	0.0	0.0	0.0	0.0	72.7	72.3	80.1	63.3	44.5	5	76.0
HANK*(P)+ <sup>2</sup>	0.0	0.0	0.0	0.0	0.0	0.0	72.7	77.9	78.6	41.9	4	79.7
OUTLOOK+ <sup>2</sup>	0.0	0.0	0.0	0.0	0.0	69.4	77.1	80.2	72.8	42.7	5	78.1
CHOTEAU+ <sup>2</sup>	0.0	0.0	0.0	0.0	0.0	0.0	70.0	78.2	73.6	37.7	4	76.2
MTHW9420 <sup>2</sup> + (HW)	0.0	0.0	0.0	0.0	0.0	70.2	74.0	79.1	54.9	39.4	5	72.5
EXPLORER <sup>2</sup> +(HW)	0.0	0.0	0.0	0.0	0.0	0.0	72.1	67.2	60.4	43.3	4	71.4

### 1994-2003 AGRONOMIC TRAIT COMPARABLE AVERAGES

VARIETY	TEST WEIGHT (LB/BU)		HEADING DATE (184 = JULY 3)		PLANT HEIGHT (INCHES)		PROTEIN (%)	
	YEARS	AVE	YEARS	AVE	YEARS	AVE	YEARS	AVE
FORTUNA*/	10	61.4	10	183	10	39.8	10	15.5
LEW	8	59.3	8	179	8	38.0	8	14.6
NEWANA <sup>2</sup>	10	58.5	10	186	10	31.0	10	14.9
HI-LINE* <sup>2</sup>	10	59.5	10	182	10	30.9	10	15.4
MCNEAL* <sup>2</sup>	10	59.4	10	185	10	32.8	10	15.6
AMIDON*	10	59.5	10	183	10	38.7	10	15.6
<b>CHECK AVERAGE</b>	<b>10</b>	<b>58.0</b>	<b>10</b>	<b>178</b>	<b>10</b>	<b>34.1</b>	<b>10</b>	<b>14.8</b>
ERNEST*/+	10	60.6	10	183	10	38.2	10	16.1
SCHOLAR+	9	60.5	9	185	9	36.9	9	16.1
WESTBRED 926*(P) <sup>2</sup>	10	58.7	10	181	10	30.7	10	15.8
WESTBRED 936(P)+ <sup>2</sup>	4	57.7	4	175	4	27.0	4	15.3
WESTBRED EXPRESS(P)+ <sup>2</sup>	4	56.6	4	178	4	28.0	4	14.6
FERGUS*(P)+ <sup>2</sup>	4	59.1	4	175	4	30.1	4	14.8
CONAN*/(P)+ <sup>2</sup>	8	60.3	8	184	8	31.5	8	15.5
REEDER+	5	62.6	5	189	5	35.3	5	16.4
HANK*(P)+ <sup>2</sup>	4	60.5	4	191	4	32.5	4	17.1
OUTLOOK+ <sup>2</sup>	5	60.7	5	192	5	33.8	5	15.7
CHOTEAU+ <sup>2</sup>	4	63.1	4	192	4	33.3	4	16.7
MTHW9420 <sup>2</sup> + (HW)	5	59.6	5	189	5	32.8	5	14.9
EXPLORER <sup>2</sup> +(HW)	4	63.0	4	190	4	32.5	4	15.7

\* =Recommended variety, \*/ = recommended in wheat stem sawfly areas only, (P) =Private variety, (HW) = hard white

<sup>2</sup> = Semidwarf variety, + =Protected under the Plant Variety Protection Act

<sup>1</sup>Comparable averages using less than three years data are not reliable

## HARD RED SPRING WHEAT – DISTRICT 2 – BOZEMAN IRRIGATED

1996-2003 GRAIN YIELD (BU/AC) SUMMARY FOR SELECTED SPRING WHEAT VARIETIES									SEVEN YEAR COMPARABLE
VARIETY	1996	1998	1999	2000	2001	2002	2003	YRS	AVE
FORTUNA	91.1	79.7	91.7	52.7	73.5	72.1	63.5	7	74.9
LEW	94.2	78.6	95.8	65.8	73.2	0.0	0.0	5	73.9
NEWANA <sup>2</sup>	104.0	100.9	108.4	92.0	87.6	82.7	66.6	7	91.7
HI-LINE <sup>*2</sup>	101.8	97.1	100.4	87.3	85.6	80.1	70.0	7	88.9
MCNEAL <sup>*2</sup>	106.3	101.5	103.8	87.4	92.0	88.1	65.3	7	92.1
AMIDON	107.9	90.9	95.7	84.9	76.1	74.7	66.8	7	85.3
<b>CHECK AVERAGE</b>	<b>100.9</b>	<b>91.5</b>	<b>99.3</b>	<b>78.4</b>	<b>81.3</b>	<b>66.3</b>	<b>55.4</b>	<b>7</b>	<b>81.9</b>
ERNEST <sup>*/+</sup>	100.2	92.1	90.8	75.2	78.5	69.8	74.1	7	83.0
SCHOLAR <sup>+</sup>	106.4	94.3	95.5	84.6	81.1	65.7	69.2	7	85.2
WESTBRED 926 <sup>*(P)<sup>2</sup></sup>	92.1	92.8	104.4	65.4	80.2	82.1	71.6	7	84.1
WESTBRED 936 <sup>(P)+<sup>2</sup></sup>	104.7	0.0	0.0	0.0	0.0	0.0	0.0	1	
WESTBRED EXPRESS <sup>(P)+<sup>2</sup></sup>	109.0	0.0	0.0	0.0	0.0	0.0	0.0	1	
FERGUS <sup>*(P)+<sup>2</sup></sup>	88.5	0.0	0.0	0.0	0.0	0.0	0.0	1	
CONAN <sup>(P)+<sup>2</sup></sup>	90.6	0.0	91.8	71.0	80.1	84.1	68.9	6	82.7
REEDER <sup>+</sup>	0.0	0.0	94.0	72.8	90.5	73.4	74.7	5	87.2
HANK <sup>*(P)+<sup>2</sup></sup>	0.0	0.0	0.0	91.8	93.5	99.5	74.5	4	104.5
OUTLOOK <sup>+<sup>2</sup></sup>	0.0	0.0	106.0	83.9	92.7	73.6	74.3	5	92.6
CHOTEAU <sup>+<sup>2</sup></sup>	0.0	0.0	0.0	79.6	92.8	93.8	70.4	4	97.9
MTHW9420 <sup>2</sup> + (HW)	0.0	0.0	115.9	74.8	80.0	63.2	67.2	5	86.2
EXPLORER <sup>2</sup> + (HW)	0.0	0.0	0.0	81.6	72.7	64.7	63.4	4	82.1

### 1996-2003 AGRONOMIC TRAIT COMPARABLE AVERAGES

VARIETY	TEST WEIGHT (LB/BU)		HEADING DATE (180 = JUNE 29)		PLANT HEIGHT (INCHES)		PROTEIN %	
	YEARS	AVE	YEARS	AVE	YEARS	AVE	YEARS	AVE
FORTUNA	7	62.3	7	181	7	41.1	7	15.0
LEW	5	59.6	5	175	5	39.3	5	13.8
NEWANA <sup>2</sup>	7	60.7	7	184	7	34.3	7	13.6
HI-LINE <sup>*2</sup>	7	61.6	7	180	7	33.0	7	14.7
MCNEAL <sup>*2</sup>	7	61.2	7	183	7	36.3	7	15.1
AMIDON	7	61.0	7	181	7	40.5	7	15.2
<b>CHECK AVERAGE</b>	<b>7</b>	<b>58.6</b>	<b>7</b>	<b>173</b>	<b>7</b>	<b>35.8</b>	<b>7</b>	<b>14.0</b>
ERNEST <sup>*/+</sup>	7	61.8	7	180	7	41.3	7	16.2
SCHOLAR <sup>+</sup>	7	61.5	7	182	7	38.9	7	15.4
WESTBRED 926 <sup>*(P)<sup>2</sup></sup>	7	60.4	7	178	7	33.4	7	15.0
WESTBRED 936 <sup>(P)+<sup>2</sup></sup>	1	58.1	1	171	1	29.1	1	14.8
WESTBRED EXPRESS <sup>(P)+<sup>2</sup></sup>	1	56.8	1	172	1	28.0	1	14.3
FERGUS <sup>*(P)+<sup>2</sup></sup>	1	57.7	1	170	1	31.6	1	14.2
CONAN <sup>(P)+<sup>2</sup></sup>	6	61.3	6	182	6	34.0	6	15.2
REEDER <sup>+</sup>	5	63.0	5	184	5	37.8	5	15.9
HANK <sup>*(P)+<sup>2</sup></sup>	4	63.0	4	187	4	33.9	4	15.6
OUTLOOK <sup>+<sup>2</sup></sup>	5	61.5	5	187	5	37.0	5	15.1
CHOTEAU <sup>+<sup>2</sup></sup>	4	64.3	4	188	4	35.0	4	15.9
MTHW9420 <sup>2</sup> + (HW)	5	61.7	5	184	5	34.1	5	13.8
EXPLORER <sup>2</sup> + (HW)	4	63.2	4	185	4	33.9	4	14.9

\* =Recommended variety, \*/ = recommended in wheat stem sawfly areas only, (P) =Private variety, (HW) = hard white

<sup>2</sup> = Semidwarf variety, + =Protected under the Plant Variety Protection Act

<sup>1</sup>Comparable averages using less than three years data are not reliable

## HARD RED SPRING WHEAT – DISTRICT 3 – HUNTLEY DRYLAND

1994-2003 GRAIN YIELD (BU/AC) SUMMARY FOR SELECTED SPRING WHEAT VARIETIES											NINE YEAR COMPARABLE
VARIETY	1994	1995	1996	1997	1999	2000	2001	2002	2003	YRS	AVE
FORTUNA*/	35.4	56.6	25.9	55.9	38.5	41.9	25.4	11.4	37.7	9	36.5
LEW	33.5	53.5	26.0	48.8	33.1	48.0	33.9	0.0	0.0	7	34.7
NEWANA <sup>2</sup>	32.4	62.4	33.7	55.0	36.4	46.2	35.0	7.8	36.6	9	38.4
HI-LINE <sup>*2</sup>	40.1	65.7	34.5	50.9	37.5	57.2	29.0	11.4	39.0	9	40.6
MCNEAL <sup>*2</sup>	39.2	66.1	31.6	54.8	40.8	53.4	35.6	9.3	36.0	9	40.8
AMIDON*	35.4	70.9	34.7	54.2	34.6	49.6	34.5	9.1	34.6	9	39.7
<b>CHECK AVERAGE</b>	<b>36.0</b>	<b>62.5</b>	<b>31.1</b>	<b>53.3</b>	<b>36.8</b>	<b>49.4</b>	<b>32.2</b>	<b>8.2</b>	<b>30.7</b>	<b>9</b>	<b>37.8</b>
ERNEST+	26.9	63.9	27.6	46.2	34.1	42.8	30.9	7.6	33.1	9	34.8
SCHOLAR+	0.0	66.0	31.5	47.9	36.4	47.5	32.4	10.3	36.6	8	38.3
WESTBRED 926*(P) <sup>2</sup>	28.6	57.7	33.8	51.3	39.9	54.1	22.9	14.0	39.0	9	37.9
WESTBRED 936(P) <sup>+2</sup>	30.4	55.9	25.7	51.6	0.0	0.0	0.0	0.0	0.0	4	33.8
WESTBRED EXPRESS(P) <sup>+2</sup>	29.1	59.5	23.5	48.5	0.0	0.0	0.0	0.0	0.0	4	33.2
FERGUS*(P) <sup>+2</sup>	25.3	59.2	37.4	45.6	0.0	0.0	0.0	0.0	0.0	4	34.6
CONAN*/(P) <sup>+2</sup>	0.0	56.2	32.0	44.3	38.7	41.7	26.3	11.0	35.6	8	35.5
REEDER+	0.0	0.0	0.0	0.0	45.5	48.6	32.7	13.8	40.6	5	43.6
HANK*(P) <sup>+2</sup>	0.0	0.0	0.0	0.0	0.0	57.4	26.2	11.9	42.3	4	43.2
OUTLOOK <sup>+2</sup>	0.0	0.0	0.0	0.0	40.0	58.8	29.3	9.8	42.5	5	43.3
CHOTEAU <sup>+2</sup>	0.0	0.0	0.0	0.0	0.0	52.6	28.1	9.8	37.2	4	40.1
MTHW9420 <sup>2</sup> +(HW)	0.0	0.0	0.0	0.0	36.1	47.4	27.4	11.0	37.1	5	38.2
EXPLORER <sup>2</sup> +(HW)	0.0	0.0	0.0	0.0	0.0	55.5	21.5	12.5	39.0	4	40.3

### 1994-2003 AGRONOMIC TRAIT COMPARABLE AVERAGES

VARIETY	TEST WEIGHT (LB/BU)		HEADING DATE (166 = JUNE 15)		PLANT HEIGHT (INCHES)		PROTEIN (%)	
	YEARS	AVE	YEARS	AVE	YEARS	AVE	YEARS	AVE
FORTUNA*/	9	58.0	7	167	9	33.3	9	16.2
LEW	7	56.2	5	162	7	31.4	7	15.7
NEWANA <sup>2</sup>	9	57.6	7	170	9	27.2	9	16.0
HI-LINE <sup>*2</sup>	9	56.8	7	165	9	26.7	9	16.9
MCNEAL <sup>*2</sup>	9	56.6	7	169	9	28.9	9	16.4
AMIDON*	9	57.6	7	168	9	32.7	9	16.2
<b>CHECK AVERAGE</b>	<b>9</b>	<b>55.4</b>	<b>7</b>	<b>160</b>	<b>9</b>	<b>29.1</b>	<b>9</b>	<b>15.7</b>
ERNEST+	9	58.3	7	169	9	33.0	9	17.1
SCHOLAR+	8	59.3	6	170	8	31.6	8	16.8
WESTBRED 926*(P) <sup>2</sup>	9	57.3	7	164	9	27.5	9	16.9
WESTBRED 936(P) <sup>+2</sup>	4	54.6	2	156	4	22.1	4	16.7
WESTBRED EXPRESS(P) <sup>+2</sup>	4	54.7	2	157	4	22.8	4	15.9
FERGUS*(P) <sup>+2</sup>	4	55.8	2	157	4	25.5	4	15.8
CONAN*/(P) <sup>+2</sup>	8	58.4	6	167	8	27.1	8	16.6
REEDER+	5	61.1	5	170	5	30.1	5	16.8
HANK*(P) <sup>+2</sup>	4	60.1	4	172	4	28.3	4	17.8
OUTLOOK <sup>+2</sup>	5	58.4	5	173	5	30.4	5	16.0
CHOTEAU <sup>+2</sup>	4	61.1	4	174	4	28.1	4	17.4
MTHW9420 <sup>2</sup> +(HW)	5	59.3	5	170	5	27.9	5	16.8
EXPLORER <sup>2</sup> +(HW)	4	60.0	4	171	4	29.3	4	17.3

\* =Recommended variety, \*/ = recommended in wheat stem sawfly areas only, (P) =Private variety, (HW) = hard white

<sup>2</sup> = Semidwarf variety, + =Protected under the Plant Variety Protection Act

<sup>1</sup>Comparable averages using less than three years data are not reliable

## HARD RED SPRING WHEAT – DISTRICT 3 – HUNTLEY IRRIGATED

1994-2003 GRAIN YIELD (BU/AC) SUMMARY FOR SELECTED SPRING WHEAT VARIETIES										EIGHT YEAR COMPARABLE
VARIETY	1994	1995	1997	1999	2000	2001	2002	2003	YRS	AVE
FORTUNA*/ LEW	37.3	74.8	79.7	92.7	93.2	99.2	107.4	79.4	8	83.0
NEWANA <sup>2</sup>	26.6	78.5	67.3	91.1	86.7	99.3	0.0	0.0	6	74.5
HI-LINE* <sup>2</sup>	39.9	85.9	80.6	122.7	96.1	112.4	108.4	93.3	8	92.4
MCNEAL* <sup>2</sup>	47.6	81.1	86.1	117.1	89.7	107.2	110.8	93.9	8	91.7
AMIDON	42.3	85.7	78.1	130.1	90.5	110.6	118.5	88.1	8	93.0
<b>CHECK AVERAGE</b>	<b>44.7</b>	<b>87.6</b>	<b>81.9</b>	<b>132.3</b>	<b>92.2</b>	<b>123.9</b>	<b>117.9</b>	<b>89.2</b>	<b>8</b>	<b>96.2</b>
ERNEST+	39.7	82.2	78.9	114.3	91.4	108.8	93.8	74.0	8	85.4
SCHOLAR+	22.3	84.5	82.9	118.7	103.3	114.8	117.0	86.0	8	91.2
WESTBRED 926*(P) <sup>2</sup>	0.0	82.7	82.1	112.5	101.8	121.1	111.7	87.3	7	92.8
WESTBRED 936*(P)+ <sup>2</sup>	32.5	73.1	68.2	119.7	89.7	103.6	122.2	78.4	8	85.9
WESTBRED EXPRESS*(P)+ <sup>2</sup>	36.1	71.5	56.6	0.0	0.0	0.0	0.0	0.0	3	69.8
FERGUS*(P)+ <sup>2</sup>	33.2	77.8	74.7	0.0	0.0	0.0	0.0	0.0	3	78.9
CONAN(P)+ <sup>2</sup>	34.7	79.4	61.3	0.0	0.0	0.0	0.0	0.0	3	74.5
REEDER+	0.0	77.4	61.9	95.5	91.0	101.5	109.5	77.5	7	81.5
HANK*(P)+ <sup>2</sup>	0.0	0.0	0.0	123.9	96.5	116.0	125.5	85.5	5	96.9
OUTLOOK+ <sup>2</sup>	0.0	0.0	0.0	0.0	104.9	107.0	123.0	85.6	4	97.6
CHOTEAU+ <sup>2</sup>	0.0	0.0	0.0	125.1	99.7	117.0	119.0	88.9	5	97.3
MTHW9420 <sup>2</sup> + (HW)	0.0	0.0	0.0	0.0	95.3	114.9	119.0	86.6	4	96.5
EXPLORER <sup>2</sup> + (HW)	0.0	0.0	0.0	126.8	85.7	121.0	115.6	87.9	5	95.1
	0.0	0.0	0.0	0.0	83.9	91.0	105.5	74.2	4	82.3

### 1994-2003 AGRONOMIC TRAIT COMPARABLE AVERAGES

VARIETY	TEST WEIGHT (LB/BU)		HEADING DATE (166 = JUNE 15)		PLANT HEIGHT (INCHES)		PROTEIN (%)	
	YEARS	AVE	YEARS	AVE	YEARS	AVE	YEARS	AVE
FORTUNA*/ LEW	8	61.1	7	167	7	41.1	8	15.1
NEWANA <sup>2</sup>	6	58.7	5	162	5	36.8	6	14.3
HI-LINE* <sup>2</sup>	8	60.7	7	170	7	33.6	8	13.8
MCNEAL* <sup>2</sup>	8	61.1	7	166	7	32.6	8	14.5
AMIDON	8	60.4	7	169	7	35.5	8	14.6
<b>CHECK AVERAGE</b>	<b>8</b>	<b>58.2</b>	<b>7</b>	<b>160</b>	<b>7</b>	<b>35.2</b>	<b>8</b>	<b>13.9</b>
ERNEST+	8	60.2	7	168	7	40.8	8	14.3
SCHOLAR+	8	60.6	7	168	7	40.2	8	15.3
WESTBRED 926*(P) <sup>2</sup>	7	61.2	6	170	6	38.8	7	15.3
WESTBRED 936*(P)+ <sup>2</sup>	8	59.4	7	163	7	32.2	8	15.3
WESTBRED EXPRESS*(P)+ <sup>2</sup>	3	54.6	2	156	2	27.1	3	14.8
FERGUS*(P)+ <sup>2</sup>	3	56.6	2	160	2	26.4	3	14.1
CONAN(P)+ <sup>2</sup>	3	56.2	2	157	2	30.5	3	14.1
REEDER+	7	60.3	6	168	6	32.6	7	15.0
HANK*(P)+ <sup>2</sup>	5	62.6	5	169	5	36.8	5	15.6
OUTLOOK+ <sup>2</sup>	4	62.1	4	172	4	34.2	4	15.7
CHOTEAU+ <sup>2</sup>	4	61.8	5	174	5	37.5	5	14.6
MTHW9420 <sup>2</sup> + (HW)	4	63.2	4	174	4	35.3	4	16.0
EXPLORER <sup>2</sup> + (HW)	5	62.3	5	170	5	33.6	5	14.5
	4	62.9	4	170	4	32.4	4	15.9

\* =Recommended variety, \*/ = recommended in wheat stem sawfly areas only, (P) =Private variety, (HW) = hard white

<sup>2</sup> = Semidwarf variety, + =Protected under the Plant Variety Protection Act

<sup>1</sup>Comparable averages using less than three years data are not reliable

## HARD RED SPRING WHEAT – DISTRICT 4 – MOCCASIN DRYLAND

VARIETY	1994	1995	1996	1997	1998	1999	2001	2003	YRS	EIGHT YEAR
										COMPARABLE
										AVE
FORTUNA*/	27.6	28.0	24.9	59.1	45.5	42.8	40.4	18.1	8	35.8
LEW	30.6	27.9	22.0	60.6	42.2	41.6	36.8	0.0	7	34.4
NEWANA <sup>2</sup>	31.4	29.7	24.2	65.6	48.8	42.4	38.7	14.8	8	36.9
HI-LINE* <sup>2</sup>	28.4	25.6	21.8	68.4	61.1	46.5	38.0	15.3	8	38.1
MCNEAL* <sup>2</sup>	30.2	34.5	25.4	66.2	56.1	48.9	47.5	20.3	8	41.1
AMIDON*	26.0	34.8	28.1	56.2	51.0	44.1	43.4	17.5	8	37.7
<b>CHECK AVERAGE</b>	<b>29.0</b>	<b>30.1</b>	<b>24.4</b>	<b>62.7</b>	<b>50.8</b>	<b>44.4</b>	<b>40.8</b>	<b>14.3</b>	<b>8</b>	<b>37.1</b>
ERNEST*/+	28.6	29.7	28.6	59.9	47.9	41.8	34.3	15.9	8	35.8
SCHOLAR*+	0.0	28.7	27.0	58.7	47.6	46.2	39.9	17.8	7	36.8
WESTBRED 926*(P) <sup>2</sup>	32.0	34.1	23.4	58.2	48.3	44.5	38.1	16.0	8	36.8
WESTBRED 936(P)+ <sup>2</sup>	28.4	33.6	23.8	68.0	0.0	0.0	0.0	0.0	4	39.0
WESTBRED EXPRESS(P)+ <sup>2</sup>	30.0	29.9	26.3	60.5	0.0	0.0	0.0	0.0	4	37.2
FERGUS*(P)+ <sup>2</sup>	30.1	32.3	21.3	64.2	0.0	0.0	0.0	0.0	4	37.5
CONAN*/(P)+ <sup>2</sup>	0.0	29.4	23.5	54.6	0.0	37.4	40.3	17.8	6	34.7
REEDER+	0.0	0.0	0.0	0.0	0.0	48.7	43.6	18.4	3	41.2
HANK*(P)+2	0.0	0.0	0.0	0.0	0.0	0.0	45.6	21.4	2	
OUTLOOK+ <sup>2</sup>	0.0	0.0	0.0	0.0	0.0	46.0	42.3	16.6	3	39.1
CHOTEAU+ <sup>2</sup>	0.0	0.0	0.0	0.0	0.0	0.0	38.3	15.0	2	
MTHW9420 <sup>2</sup> +(HW)	0.0	0.0	0.0	0.0	0.0	45.2	39.2	18.6	3	38.4
EXPLORER <sup>2</sup> +(HW)	0.0	0.0	0.0	0.0	0.0	0.0	40.0	19.1	2	

### 1994-2003 AGRONOMIC TRAIT COMPARABLE AVERAGES

VARIETY	TEST WEIGHT		HEADING DATE		PLANT HEIGHT		PROTEIN	
	(LB/BU)		(183 = JULY 2)		(INCHES)		(% )	
	YEARS	AVE	YEARS	AVE	YEARS	AVE	YEARS	AVE
FORTUNA*/	8	58.6	8	183	8	33.2	8	15.3
LEW	7	57.6	7	182	7	33.5	7	15.3
NEWANA <sup>2</sup>	8	57.5	8	186	8	28.0	8	15.2
HI-LINE* <sup>2</sup>	8	56.8	8	181	8	27.9	8	15.8
MCNEAL* <sup>2</sup>	8	57.4	8	185	8	30.7	8	15.6
AMIDON*	8	58.3	8	183	8	33.4	8	15.4
<b>CHECK AVERAGE</b>	<b>8</b>	<b>56.8</b>	<b>8</b>	<b>180</b>	<b>8</b>	<b>30.6</b>	<b>8</b>	<b>15.1</b>
ERNEST*/+	8	58.7	8	183	8	33.4	8	15.9
SCHOLAR*+	7	59.2	7	185	7	32.4	7	16.2
WESTBRED 926*(P) <sup>2</sup>	8	57.3	8	180	8	28.5	8	16.0
WESTBRED 936(P)+ <sup>2</sup>	4	56.5	4	177	4	27.6	4	15.4
WESTBRED EXPRESS(P)+ <sup>2</sup>	4	56.5	4	178	4	26.5	4	15.0
FERGUS*(P)+ <sup>2</sup>	4	57.2	4	178	4	29.1	4	15.7
CONAN*/(P)+ <sup>2</sup>	6	59.4	6	184	6	29.3	6	15.9
REEDER+	3	61.3	3	189	3	31.5	3	15.8
HANK*(P)+2	2	60.6	2	195	2	32.2	2	16.0
OUTLOOK+ <sup>2</sup>	3	58.0	3	192	3	30.6	3	15.9
CHOTEAU+ <sup>2</sup>	2	62.0	2	196	2	29.8	2	16.4
MTHW9420 <sup>2</sup> +(HW)	3	58.1	3	189	3	29.0	3	16.0
EXPLORER <sup>2</sup> +(HW)	2	61.3	2	193	2	31.1	2	16.9

\* =Recommended variety, \*/ = recommended in wheat stem sawfly areas only, (P) =Private variety, (HW) = hard white

<sup>2</sup> = Semidwarf variety, + =Protected under the Plant Variety Protection Act

<sup>1</sup>Comparable averages using less than three years data are not reliable

## HARD RED SPRING WHEAT – DISTRICT 5 – HAVRE DRYLAND

1994-2003 GRAIN YIELD (BU/AC) SUMMARY FOR SELECTED SPRING WHEAT VARIETIES											TEN YEAR COMPARABLE	
VARIETY	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	YRS	AVE
FORTUNA*/	39.7	47.1	33.3	43.3	36.0	35.9	35.9	16.7	28.5	10.8	10	32.7
LEW*/	35.4	60.0	33.6	42.0	37.7	37.2	35.5	17.9	0.0	0.0	8	33.7
NEWANA <sup>2</sup>	42.0	70.6	37.8	50.4	39.5	45.9	35.6	21.5	39.1	12.3	10	39.5
HI-LINE <sup>+2</sup>	40.8	63.3	36.8	45.7	40.0	45.3	37.6	19.7	38.0	11.2	10	37.8
MCNEAL <sup>+2</sup>	42.1	72.3	36.2	51.8	44.1	49.2	40.2	18.9	36.3	13.9	10	40.5
AMIDON*	39.7	70.6	35.6	48.1	42.3	40.4	35.9	22.2	41.4	10.9	10	38.7
<b>CHECK AVERAGE</b>	<b>40.0</b>	<b>64.0</b>	<b>35.6</b>	<b>46.9</b>	<b>39.9</b>	<b>42.3</b>	<b>36.8</b>	<b>19.5</b>	<b>30.5</b>	<b>9.9</b>	<b>10</b>	<b>36.5</b>
ERNEST+	40.0	66.3	35.4	44.6	36.6	39.9	37.3	19.6	36.4	11.8	10	36.8
SCHOLAR <sup>++</sup>	0.0	69.7	39.0	50.9	42.4	42.2	38.5	21.0	36.4	12.2	9	39.5
WESTBRED 926(P) <sup>2</sup>	45.6	52.8	34.6	46.7	32.8	41.9	38.0	18.7	29.9	10.5	10	35.2
WESTBRED 936(P) <sup>+2</sup>	48.5	59.1	34.6	46.6	0.0	0.0	0.0	0.0	0.0	0.0	4	37.0
WESTBRED EXPRESS(P) <sup>+2</sup>	46.7	56.3	34.4	39.9	0.0	0.0	0.0	0.0	0.0	0.0	4	34.8
FERGUS*(P) <sup>+2</sup>	41.3	55.6	34.4	47.0	0.0	0.0	0.0	0.0	0.0	0.0	4	34.9
CONAN*/(P) <sup>+2</sup>	0.0	66.6	36.2	48.5	0.0	47.8	36.0	20.4	33.7	13.5	8	38.8
REEDER+	0.0	0.0	0.0	0.0	0.0	49.1	43.3	22.5	34.9	12.4	5	42.6
HANK*(P) <sup>+2</sup>	0.0	0.0	0.0	0.0	0.0	0.0	41.7	20.5	37.8	10.4	4	41.8
OUTLOOK <sup>+2</sup>	0.0	0.0	0.0	0.0	0.0	44.1	41.0	22.9	44.5	16.2	5	44.3
CHOTEAU <sup>+2</sup>	0.0	0.0	0.0	0.0	0.0	0.0	34.2	19.3	34.9	13.1	4	38.3
MTHW9420 <sup>2</sup> + (HW)	0.0	0.0	0.0	0.0	0.0	35.6	38.7	16.4	28.3	8.1	5	33.4
EXPLORER <sup>2</sup> + (HW)	0.0	0.0	0.0	0.0	0.0	0.0	41.6	19.8	37.6	13.2	4	42.4

### 1994-2003 AGRONOMIC TRAIT COMPARABLE AVERAGES

VARIETY	TEST WEIGHT (LB/BU)		HEADING DATE (173 = JUNE 22)		PLANT HEIGHT (INCHES)		PROTEIN (%)	
	YEARS	AVE	YEARS	AVE	YEARS	AVE	YEARS	AVE
FORTUNA*/	10	59.6	10	176	10	30.1	10	15.2
LEW*/	8	57.5	8	172	8	30.0	8	15.1
NEWANA <sup>2</sup>	10	59.0	10	179	10	25.9	10	14.7
HI-LINE <sup>+2</sup>	10	58.5	10	176	10	25.5	10	16.1
MCNEAL <sup>+2</sup>	10	58.0	10	178	10	27.6	10	15.5
AMIDON*	10	59.2	10	176	10	30.5	10	15.1
<b>CHECK AVERAGE</b>	<b>10</b>	<b>57.0</b>	<b>10</b>	<b>171</b>	<b>10</b>	<b>27.6</b>	<b>10</b>	<b>14.8</b>
ERNEST+	10	59.8	10	176	10	30.2	10	16.3
SCHOLAR <sup>++</sup>	9	60.6	9	178	9	29.6	9	16.0
WESTBRED 926(P) <sup>2</sup>	10	58.7	10	175	10	25.0	10	16.1
WESTBRED 936(P) <sup>+2</sup>	4	56.1	4	168	4	22.8	4	15.6
WESTBRED EXPRESS(P) <sup>+2</sup>	4	56.2	4	171	4	22.1	4	15.1
FERGUS*(P) <sup>+2</sup>	4	56.8	4	170	4	24.9	4	15.5
CONAN*/(P) <sup>+2</sup>	8	60.6	8	178	8	26.1	8	15.7
REEDER+	5	62.3	5	183	5	29.1	5	16.1
HANK*(P) <sup>+2</sup>	4	61.8	4	185	4	27.6	4	16.4
OUTLOOK <sup>+2</sup>	5	60.1	5	184	5	28.5	5	15.8
CHOTEAU <sup>+2</sup>	4	62.5	4	186	4	27.1	4	16.7
MTHW9420 <sup>2</sup> + (HW)	5	60.1	5	182	5	26.2	5	15.5
EXPLORER <sup>2</sup> + (HW)	4	62.2	4	184	4	28.4	4	16.2

\* = Recommended variety, \*/ = Recommended in wheat stem sawfly areas only, (P) = Private variety, (HW) = hard white

<sup>2</sup> = Semidwarf variety, + = Protected under the Plant Variety Protection Act

<sup>1</sup>Comparable averages using less than three years data are not reliable



## HARD RED SPRING WHEAT – DISTRICT 5 – CONRAD DRYLAND

VARIETY	1994-2003 GRAIN YIELD (BU/AC) SUMMARY FOR SELECTED SPRING WHEAT VARIETIES										TEN YEAR COMPARABLE	
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	YRS	AVE
FORTUNA*/	49.7	71.6	57.6	59.4	61.8	57.7	39.2	14.1	42.8	49.6	10	50.3
LEW*/	42.8	72.8	57.2	61.5	60.7	45.9	38.7	16.1	0.0	0.0	8	46.7
NEWANA <sup>2</sup>	52.9	79.8	64.6	61.6	70.5	64.4	46.3	15.1	44.6	44.8	10	54.5
HI-LINE* <sup>2</sup>	44.7	75.1	62.4	59.8	72.7	59.3	39.1	12.7	43.7	53.0	10	52.2
MCNEAL* <sup>2</sup>	49.7	77.6	67.2	62.0	75.9	61.7	38.8	13.4	41.5	49.5	10	53.7
AMIDON*	38.9	67.0	65.9	62.7	65.5	50.9	35.6	16.1	44.0	39.9	10	48.7
<b>CHECK AVERAGE</b>	<b>46.5</b>	<b>74.0</b>	<b>62.5</b>	<b>61.2</b>	<b>67.8</b>	<b>56.7</b>	<b>39.6</b>	<b>14.6</b>	<b>36.1</b>	<b>39.5</b>	<b>10</b>	<b>49.8</b>
ERNEST+	44.0	77.8	63.7	58.4	66.3	55.3	37.5	16.6	45.7	42.6	10	50.8
SCHOLAR*+	0.0	73.3	59.5	66.7	68.7	51.5	44.8	16.5	43.0	46.4	9	51.9
WESTBRED 926(P) <sup>2</sup>	51.4	76.1	68.8	56.8	68.2	59.8	46.5	13.0	40.9	54.1	10	53.6
WESTBRED 936(P)+ <sup>2</sup>	51.3	74.1	68.7	68.6	0.0	0.0	0.0	0.0	0.0	0.0	4	53.6
WESTBRED EXPRESS(P)+ <sup>2</sup>	45.3	69.1	70.3	58.6	0.0	0.0	0.0	0.0	0.0	0.0	4	49.7
FERGUS*(P)+ <sup>2</sup>	44.6	73.4	60.5	62.2	0.0	0.0	0.0	0.0	0.0	0.0	4	49.1
CONAN*/(P)+ <sup>2</sup>	0.0	74.7	64.9	55.8	0.0	55.2	42.6	15.1	40.8	45.9	8	51.3
REEDER+	0.0	0.0	0.0	0.0	0.0	61.5	47.6	17.1	49.1	53.9	5	61.3
HANK*(P)+ <sup>2</sup>	0.0	0.0	0.0	0.0	0.0	0.0	46.4	13.7	42.0	48.9	4	58.0
OUTLOOK+ <sup>2</sup>	0.0	0.0	0.0	0.0	0.0	54.8	44.4	15.2	43.0	48.8	5	55.1
CHOTEAU+ <sup>2</sup>	0.0	0.0	0.0	0.0	0.0	0.0	40.8	14.2	45.2	59.5	4	61.3
MTHW9420 <sup>2</sup> + (HW)	0.0	0.0	0.0	0.0	0.0	55.0	42.5	11.6	41.2	46.0	5	52.5
EXPLORER <sup>2</sup> + (HW)	0.0	0.0	0.0	0.0	0.0	0.0	42.6	13.3	39.1	46.6	4	54.4

### 1994-2003 AGRONOMIC TRAIT COMPARABLE AVERAGES

VARIETY	TEST WEIGHT (LB/BU)		HEADING DATE (184 = JULY 3)		PLANT HEIGHT (INCHES)		PROTEIN (%)	
	YEARS	AVE	YEARS	AVE	YEARS	AVE	YEARS	AVE
FORTUNA*/	10	61.2	9	182.8	10	37.6	10	14.0
LEW*/	8	58.6	7	178.4	8	35.8	8	13.1
NEWANA <sup>2</sup>	10	59.8	9	184.9	10	29.5	10	13.2
HI-LINE* <sup>2</sup>	10	60.6	9	181.2	10	29.5	10	14.0
MCNEAL* <sup>2</sup>	10	59.8	9	183.4	10	31.4	10	13.7
AMIDON*	10	59.5	9	183.6	10	36.0	10	13.8
<b>CHECK AVERAGE</b>	<b>10</b>	<b>58.3</b>	<b>9</b>	<b>176.7</b>	<b>10</b>	<b>32.3</b>	<b>10</b>	<b>13.2</b>
ERNEST+	10	60.9	9	183.1	10	36.2	10	14.4
SCHOLAR*+	9	60.9	9	184.9	9	35.8	9	14.1
WESTBRED 926(P) <sup>2</sup>	10	60.0	9	180.0	10	29.8	10	14.0
WESTBRED 936(P)+ <sup>2</sup>	4	57.4	3	174.2	4	25.6	4	13.3
WESTBRED EXPRESS(P)+ <sup>2</sup>	4	58.4	3	175.8	4	25.5	4	12.8
FERGUS*(P)+ <sup>2</sup>	4	57.8	3	174.5	4	28.8	4	13.2
CONAN*/(P)+ <sup>2</sup>	8	60.6	8	183.3	8	30.2	8	14.1
REEDER+	5	63.4	5	188.0	5	33.6	5	13.9
HANK*(P)+ <sup>2</sup>	4	62.6	4	191.0	4	34.1	4	14.4
OUTLOOK+ <sup>2</sup>	5	61.6	5	190.1	5	33.2	5	14.1
CHOTEAU+ <sup>2</sup>	4	63.7	4	192.6	4	32.3	4	14.8
MTHW9420 <sup>2</sup> + (HW)	5	62.0	5	188.4	5	31.6	5	13.6
EXPLORER <sup>2</sup> + (HW)	4	63.8	4	190.5	4	31.4	4	14.5

\* =Recommended variety, \*/ = recommended in wheat stem sawfly areas only, (P) =Private variety, (HW) = hard white

<sup>2</sup> = Semidwarf variety, + =Protected under the Plant Variety Protection Act

<sup>1</sup>Comparable averages using less than three years data are not reliable

## HARD RED SPRING WHEAT – DISTRICT 6 – SIDNEY DRYLAND

VARIETY	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	YRS	TEN YEAR
												COMPARABLE
												AVE
FORTUNA	51.8	33.6	38.9	31.8	59.2	49.1	54.4	40.1	35.5	57.4	10	45.2
LEW*/	54.7	38.0	39.6	41.4	64.9	46.1	55.3	44.0	0.0	0.0	8	46.2
NEWANA <sup>2</sup>	62.1	45.8	39.5	39.3	59.1	55.7	61.9	53.0	34.3	55.9	10	50.7
HI-LINE <sup>+2</sup>	59.7	41.2	42.5	38.4	64.1	48.6	54.1	39.0	40.1	61.9	10	49.0
MCNEAL <sup>*2</sup>	68.5	46.3	42.8	43.2	65.7	54.4	60.3	48.2	43.4	60.7	10	53.3
AMIDON*	61.4	38.2	39.7	48.7	63.2	61.0	60.6	50.8	40.6	57.9	10	52.2
<b>CHECK AVERAGE</b>	<b>59.7</b>	<b>40.5</b>	<b>40.5</b>	<b>40.5</b>	<b>62.7</b>	<b>52.5</b>	<b>57.8</b>	<b>45.9</b>	<b>32.3</b>	<b>49.0</b>	<b>10</b>	<b>48.1</b>
ERNEST*/+	62.4	35.2	37.9	45.2	58.1	54.4	56.1	51.1	40.8	54.7	10	49.6
SCHOLAR**	0.0	40.9	41.3	45.1	64.6	59.5	56.1	51.6	41.6	59.4	9	52.5
WESTBRED 926(P) <sup>2</sup>	59.4	45.4	38.4	38.8	63.0	54.1	58.4	46.3	43.9	59.6	10	50.7
WESTBRED 936(P) <sup>+2</sup>	61.5	43.5	41.3	37.9	0.0	0.0	0.0	0.0	0.0	0.0	4	48.9
WESTBRED EXPRESS(P) <sup>+2</sup>	66.5	37.7	39.4	36.6	0.0	0.0	0.0	0.0	0.0	0.0	4	47.9
FERGUS(P) <sup>+2</sup>	55.5	43.9	38.9	39.5	0.0	0.0	0.0	0.0	0.0	0.0	4	47.2
CONAN*/(P) <sup>+2</sup>	0.0	43.9	41.1	40.6	0.0	51.7	51.0	44.4	39.5	55.7	8	49.3
REEDER+	0.0	0.0	0.0	0.0	0.0	65.3	67.4	54.3	52.5	67.6	5	62.3
HANK*(P) <sup>+2</sup>	0.0	0.0	0.0	0.0	0.0	0.0	61.7	44.9	39.4	63.3	4	54.5
OUTLOOK <sup>+2</sup>	0.0	0.0	0.0	0.0	0.0	59.8	63.4	54.8	44.3	69.0	5	59.1
CHOTEAU <sup>+2</sup>	0.0	0.0	0.0	0.0	0.0	0.0	60.5	55.4	42.8	61.2	4	57.3
MTHW9420 <sup>2</sup> +(HW)	0.0	0.0	0.0	0.0	0.0	55.9	62.5	51.7	41.4	63.9	5	55.8
EXPLORER <sup>2</sup> +(HW)	0.0	0.0	0.0	0.0	0.0	0.0	54.9	43.1	43.7	62.6	4	53.2

### 1994-2003 AGRONOMIC TRAIT COMPARABLE AVERAGES

VARIETY	TEST WEIGHT (LB/BU)		HEADING DATE (170 = June 19)		PLANT HEIGHT (INCHES)		PROTEIN (%)	
	YEARS	AVE	YEARS	AVE	YEARS	AVE	YEARS	AVE
FORTUNA	10	60.5	10	172	10	32.7	10	14.1
LEW*/	8	59.0	8	169	8	32.9	8	13.4
NEWANA <sup>2</sup>	10	60.3	10	174	10	27.4	9	12.7
HI-LINE <sup>+2</sup>	10	60.5	10	170	10	26.7	10	14.1
MCNEAL <sup>*2</sup>	10	60.0	10	174	10	29.1	10	13.9
AMIDON*	10	60.1	10	172	10	33.5	10	14.0
<b>CHECK AVERAGE</b>	<b>10</b>	<b>58.4</b>	<b>10</b>	<b>167</b>	<b>10</b>	<b>29.5</b>	<b>10</b>	<b>13.0</b>
ERNEST*/+	10	61.3	10	172	10	32.5	10	14.9
SCHOLAR**	9	61.5	9	174	9	32.6	9	14.6
WESTBRED 926(P) <sup>2</sup>	10	59.7	10	168	10	26.3	10	14.4
WESTBRED 936(P) <sup>+2</sup>	4	57.9	4	163	4	23.8	4	13.8
WESTBRED EXPRESS(P) <sup>+2</sup>	4	58.3	4	165	4	23.4	4	13.3
FERGUS(P) <sup>+2</sup>	4	59.2	4	164	4	26.5	4	13.5
CONAN*/(P) <sup>+2</sup>	8	61.6	8	172	8	27.1	8	14.5
REEDER+	5	63.4	5	177	5	29.8	5	14.8
HANK*(P) <sup>+2</sup>	4	61.9	4	178	4	28.0	4	15.2
OUTLOOK <sup>+2</sup>	5	62.2	5	180	5	30.9	5	14.8
CHOTEAU <sup>+2</sup>	4	64.4	4	181	4	28.8	4	15.7
MTHW9420 <sup>2</sup> +(HW)	5	62.0	5	176	5	28.2	5	13.4
EXPLORER <sup>2</sup> +(HW)	4	63.5	4	179	4	29.0	4	15.3

\* =Recommended variety, \*/ = recommended in wheat stem sawfly areas only, (P) =Private variety, (HW) = hard white

<sup>2</sup> = Semidwarf variety, + =Protected under the Plant Variety Protection Act

<sup>1</sup>Comparable averages using less than three years data are not reliable

## HARD RED SPRING WHEAT – DISTRICT 6 – SIDNEY IRRIGATED

VARIETY	1994-2003 GRAIN YIELD (BU/AC) SUMMARY FOR SELECTED SPRING WHEAT VARIETIES										TEN YEAR COMPARABLE	
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	YRS	AVE
FORTUNA	76.3	45.1	80.9	56.1	44.0	62.4	78.3	28.2	37.4	77.5	10	58.6
LEW	80.7	49.0	76.7	68.8	37.3	54.2	77.7	42.2	0.0	0.0	8	59.5
NEWANA <sup>2</sup>	82.5	49.0	86.6	65.7	40.4	79.0	89.6	48.6	56.9	93.0	10	69.1
HI-LINE <sup>*2</sup>	74.7	59.2	94.4	66.5	48.1	71.4	87.6	46.5	51.9	106.3	10	70.7
MCNEAL <sup>*2</sup>	84.4	61.1	95.4	82.2	50.5	87.9	101.6	62.6	56.7	107.5	10	79.0
AMIDON	89.3	67.1	93.5	79.2	48.6	85.9	99.5	45.0	48.0	97.4	10	75.3
<b>CHECK AVERAGE</b>	<b>81.3</b>	<b>55.1</b>	<b>87.9</b>	<b>69.7</b>	<b>44.8</b>	<b>73.4</b>	<b>89.0</b>	<b>45.5</b>	<b>41.8</b>	<b>80.3</b>	<b>10</b>	<b>66.9</b>
ERNEST <sup>*/+</sup>	92.3	60.7	92.6	72.6	51.2	90.4	99.7	45.2	49.9	92.8	10	74.7
SCHOLAR <sup>+</sup>	0.0	59.8	92.3	73.6	45.3	71.1	90.8	45.1	50.9	94.4	9	71.0
WESTBRED 926 <sup>*(P)<sup>2</sup></sup>	91.3	49.9	92.9	71.7	42.5	81.4	91.2	52.4	51.6	101.9	10	72.7
WESTBRED 936 <sup>*(P)<sup>2</sup></sup>	73.8	51.5	92.7	67.0	0.0	0.0	0.0	0.0	0.0	0.0	4	64.8
WESTBRED EXPRESS <sup>*(P)<sup>2</sup></sup>	83.6	52.3	93.3	69.8	0.0	0.0	0.0	0.0	0.0	0.0	4	68.0
FERGUS <sup>(P)<sup>2</sup></sup>	78.6	59.3	100.3	63.8	0.0	0.0	0.0	0.0	0.0	0.0	4	68.7
CONAN <sup>(P)<sup>2</sup></sup>	0.0	56.3	78.8	66.3	0.0	81.0	80.3	56.7	47.3	88.3	8	68.4
REEDER <sup>+</sup>	0.0	0.0	0.0	0.0	0.0	95.5	111.1	66.8	52.0	102.5	5	86.7
HANK <sup>*(P)<sup>2</sup></sup>	0.0	0.0	0.0	0.0	0.0	0.0	98.1	59.2	53.3	113.5	4	84.5
OUTLOOK <sup>+2</sup>	0.0	0.0	0.0	0.0	0.0	85.4	109.9	66.9	49.7	104.1	5	84.3
CHOTEAU <sup>+2</sup>	0.0	0.0	0.0	0.0	0.0	0.0	102.3	55.0	60.6	107.3	4	84.7
MTHW9420 <sup>2</sup> +(HW)	0.0	0.0	0.0	0.0	0.0	75.3	83.4	44.6	46.8	102.7	5	71.5
EXPLORER <sup>2+</sup> (HW)	0.0	0.0	0.0	0.0	0.0	0.0	83.5	32.7	47.3	91.9	4	66.5

### 1994-2003 AGRONOMIC TRAIT COMPARABLE AVERAGES

VARIETY	TEST WEIGHT (LB/BU)		HEADING DATE (173 = JUNE 22)		PLANT HEIGHT (INCHES)		PROTEIN (%)	
	YEARS	AVE	YEARS	AVE	YEARS	AVE	YEARS	AVE
FORTUNA	10	59.8	10	174	10	36.5	10	14.5
LEW	8	58.7	8	171	8	36.5	8	13.9
NEWANA <sup>2</sup>	10	59.9	10	177	10	31.4	10	13.1
HI-LINE <sup>*2</sup>	10	60.3	10	173	10	30.2	10	13.9
MCNEAL <sup>*2</sup>	10	60.7	10	176	10	33.1	10	13.9
AMIDON	10	60.5	10	174	10	37.8	10	14.0
<b>CHECK AVERAGE</b>	<b>10</b>	<b>58.3</b>	<b>10</b>	<b>169</b>	<b>10</b>	<b>33.2</b>	<b>10</b>	<b>13.5</b>
ERNEST <sup>*/+</sup>	10	61.4	10	173	10	37.0	10	14.6
SCHOLAR <sup>+</sup>	9	61.6	9	176	9	35.8	9	14.1
WESTBRED 926 <sup>*(P)<sup>2</sup></sup>	10	59.8	10	171	10	29.7	10	14.4
WESTBRED 936 <sup>*(P)<sup>2</sup></sup>	4	56.9	4	165	4	26.8	4	14.0
WESTBRED EXPRESS <sup>*(P)<sup>2</sup></sup>	4	57.9	4	168	4	25.6	4	14.0
FERGUS <sup>(P)<sup>2</sup></sup>	4	58.4	4	167	4	30.0	4	13.5
CONAN <sup>(P)<sup>2</sup></sup>	8	61.3	8	175	8	30.7	8	14.2
REEDER <sup>+</sup>	5	63.9	5	179	5	35.2	5	15.1
HANK <sup>*(P)<sup>2</sup></sup>	4	62.6	4	182	4	32.8	4	14.9
OUTLOOK <sup>+2</sup>	5	62.2	5	183	5	35.1	5	14.3
CHOTEAU <sup>+2</sup>	4	65.1	4	183	4	32.7	4	14.7
MTHW9420 <sup>2</sup> +(HW)	5	61.4	5	179	5	31.9	4	13.7
EXPLORER <sup>2+</sup> (HW)	4	62.0	4	181	4	31.4	4	14.7

\* =Recommended variety, \*/ = recommended in wheat stem sawfly areas only, (P) =Private variety, (HW) = hard white

<sup>2</sup> = Semidwarf variety, + =Protected under the Plant Variety Protection Act

<sup>1</sup>Comparable averages using less than three years data are not reliable

## DURUM WHEAT – DISTRICT 2– BOZEMAN DRYLAND

1994-2003 GRAIN YIELD (BU/AC) SUMMARY FOR SELECTED DURUM VARIETIES												TEN YEAR COMPARABLE AVERAGE <sup>1</sup>
VARIETY	1994	1995	1996	1997	1998	1999	2000	2001 <sup>3</sup>	2002	2003	YEARS	
VIC	89.2	75.5	46.3	79.3	81.8	49.3	60.9	76.3	52.2	42.5	10	65.3
<b>CHECK AVE</b>	<b>89.2</b>	<b>75.5</b>	<b>46.3</b>	<b>79.3</b>	<b>81.8</b>	<b>49.3</b>	<b>60.9</b>	<b>76.3</b>	<b>52.2</b>	<b>42.5</b>	<b>10</b>	<b>65.3</b>
MONROE	79.1	61.0	43.5	71.3	77.9	56.6	58.0	71.9	52.6	42.5	10	61.4
KYLE	0.0	66.1	45.2	72.7	70.6	47.0	56.0	74.4	47.9	39.6	9	60.2
MUNICH+	0.0	0.0	39.1	89.7	87.4	49.9	64.8	79.3	60.1	41.8	8	68.5
BEN **	0.0	0.0	42.7	81.4	89.1	48.1	61.0	79.9	56.2	41.8	8	66.9
SCEPTRE	79.5	74.1	0.0	0.0	83.7	53.4	62.9	76.1	54.2	0.0	7	65.2
MOUNTRAIL * +	0.0	0.0	0.0	0.0	0.0	51.6	64.7	83.8	60.4	41.9	5	70.3
MAIER * +	0.0	0.0	0.0	0.0	0.0	56.9	64.5	81.2	62.7	41.5	5	71.3
PLAZA+	0.0	0.0	0.0	0.0	0.0	51.2	61.0	73.6	58.9	34.1	5	64.8
LEBSOCK+	0.0	0.0	0.0	0.0	0.0	55.1	59.9	76.6	61.7	41.2	5	68.4
UTOPIA(P)+ <sup>2</sup>	0.0	0.0	0.0	104.3	93.0	51.6	66.0	75.8	61.3	42.7	7	73.1
AC AVONLEA * +	0.0	0.0	0.0	0.0	0.0	0.0	0.0	76.4	59.7	40.6	3	67.5

### 1994-2003 AGRONOMIC TRAIT COMPARABLE AVERAGES

VARIETY	TEST WEIGHT (LB/BU)		HEADING DATE (185 = JULY 4)		PLANT HEIGHT (INCHES)		PROTEIN (%)	
	YEARS	AVE	YEARS	AVE	YEARS	AVE	YEARS	AVE
VIC	10	61.0	10	185	10	39.4	4	15.7
<b>CHECK AVE</b>	<b>10</b>	<b>61.0</b>	<b>10</b>	<b>185</b>	<b>10</b>	<b>39.4</b>	<b>4</b>	<b>15.7</b>
MONROE	10	60.4	10	182	10	37.9	4	15.5
KYLE	9	59.8	9	187	9	40.7	4	15.8
MUNICH+	8	60.2	8	184	8	33.2	4	15.7
BEN **	8	61.0	8	184	8	37.0	4	15.8
SCEPTRE	7	59.9	7	185	7	37.8	3	15.4
MOUNTRAIL * +	5	59.7	5	186	5	35.4	4	15.1
MAIER * +	5	60.1	5	185	5	34.6	4	16.1
PLAZA+	5	59.0	5	187	5	27.9	4	15.4
LEBSOCK+	5	61.1	5	184	5	34.6	4	15.3
UTOPIA(P)+ <sup>2</sup>	7	58.7	7	183	7	26.2	4	15.4
AC AVONLEA * +	3	60.0	3	185	3	37.3	3	16.3

\* Recommended variety, (P) private variety, + Protected under the Plant Variety Protection Act

<sup>1</sup> Comparable averages are not very reliable when using less than three years data

<sup>2</sup> Semidwarf variety

<sup>3</sup> The 2001 durum nursery at Bozeman was irrigated with 7 inches of water

## DURUM WHEAT – DISTRICT 3 – HUNTLEY DRYLAND

1999-2003 GRAIN YIELD (BU/AC) SUMMARY FOR SELECTED DURUM VARIETIES							
VARIETY	1999	2000	2001	2002	2003	YEARS	FIVE YEAR COMPARABLE AVERAGE <sup>1</sup>
VIC	25.9	41.4	31.9	8.5	28.9	5	27.3
CHECK AVE	25.9	41.4	31.9	8.5	28.9	5	27.3
MONROE	31.2	47.4	31.1	14.7	31.8	5	31.2
KYLE	26.0	52.2	34.5	4.9	34.7	5	30.5
MUNICH+	32.5	55.9	34.3	10.5	32.6	5	33.2
BEN+	28.2	44.3	29.4	11.0	28.7	5	28.3
SCEPTRE	24.1	49.8	29.8	8.5	0.0	4	28.5
MOUNTRAIL+	30.0	43.0	33.6	6.6	30.3	5	28.7
MAIER+	29.3	54.0	29.9	11.2	30.2	5	30.9
PLAZA+	24.8	44.7	32.2	8.2	30.4	5	28.1
LEB SOCK+	29.3	44.7	29.0	9.3	35.0	5	29.4
UTOPIA(P)+ <sup>2</sup>	29.9	57.5	36.5	13.9	37.3	5	35.0
AC AVONLEA+	0.0	0.0	34.8	10.6	32.2	3	30.5

### 1999-2003 AGRONOMIC TRAIT COMPARABLE AVERAGES

VARIETY	TEST WEIGHT (LB/BU)		HEADING DATE (164 = JUNE 13)		PLANT HEIGHT (INCHES)		PROTEIN (%)	
	YEARS	AVE	YEARS	AVE	YEARS	AVE	YEARS	AVE
VIC	5	57.4	5	166.7	5	31.0	4	18.2
CHECK AVE	5	57.4	5	166.7	5	31.0	4	18.2
MONROE	5	57.9	5	163.4	5	31.7	4	18.0
KYLE	5	57.4	5	169.4	5	32.5	4	18.2
MUNICH+	5	57.3	5	166.5	5	28.4	4	18.2
BEN+	5	58.5	5	167.0	5	30.1	4	18.8
SCEPTRE	4	57.1	4	167.7	4	28.1	3	18.7
MOUNTRAIL+	5	56.8	5	168.4	5	27.6	4	19.0
MAIER+	5	58.3	5	166.9	5	28.6	4	18.4
PLAZA+	5	56.8	5	167.5	5	24.0	4	18.1
LEB SOCK+	5	58.3	5	166.6	5	28.7	4	17.6
UTOPIA(P)+ <sup>2</sup>	5	57.5	5	164.4	5	23.0	4	17.9
AC AVONLEA+	3	58.8	3	166.3	3	30.3	2	19.5

\* Recommended variety, (P) private variety, + Protected under the Plant Variety Protection Act

<sup>1</sup> Comparable averages are not very reliable when using less than three years data

<sup>2</sup> Semidwarf variety

## DURUM WHEAT – DISTRICT 4 – MOCCASIN DRYLAND

1996-2003 GRAIN YIELD (BU/AC) SUMMARY FOR SELECTED DURUM VARIETIES									SEVEN YEAR COMPARABLE AVERAGE <sup>1</sup>
VARIETY	1996	1997	1998	1999	2000	2001	2003	YEARS	
VIC	21.1	57.6	35.2	31.2	30.6	29.5	12.5	7	31.1
CHECK AVE	21.1	57.6	35.2	31.2	30.6	29.5	12.5	7	31.1
MONROE	23.4	56.0	32.9	30.9	27.9	29.2	15.0	7	30.8
KYLE	21.3	56.4	30.9	31.6	30.2	30.7	15.1	7	30.9
MUNICH+	20.2	56.9	32.8	33.7	27.0	30.5	12.3	7	30.5
BEN * +	22.6	53.4	32.6	31.8	27.3	28.7	13.9	7	30.0
SCEPTRE	0.0	0.0	33.4	33.1	24.4	29.0	0.0	4	29.5
MOUNTRAIL * +	0.0	0.0	0.0	36.0	32.2	32.3	18.8	4	35.8
MAIER * +	0.0	0.0	0.0	35.9	31.4	29.8	12.8	4	32.9
PLAZA+	0.0	0.0	0.0	35.6	28.0	29.5	11.6	4	31.4
LEBSOCK+	0.0	0.0	0.0	39.3	27.6	29.6	12.1	4	32.5
UTOPIA(P)+ <sup>2</sup>	0.0	58.7	35.2	40.1	34.6	30.1	13.6	6	33.6
AC AVONLEA * +	0.0	0.0	0.0	0.0	0.0	33.9	14.8	2	

### 1996-2003 AGRONOMIC TRAIT COMPARABLE AVERAGES

VARIETY	TEST WEIGHT (LB/BU)		HEADING DATE (185 = JULY 4)		PLANT HEIGHT (INCHES)		PROTEIN %	
	YEARS	AVE	YEARS	AVE	YEARS	AVE	YEARS	AVE
VIC	7	59.7	8	184	8	32.2	4	15.1
CHECK AVE	7	59.7	8	184	8	32.2	4	15.1
MONROE	7	58.7	8	180	8	31.9	4	15.1
KYLE	7	59.5	8	187	8	33.5	4	14.6
MUNICH+	7	58.3	8	184	8	27.3	4	15.2
BEN * +	7	59.9	8	184	8	30.8	4	15.1
SCEPTRE	4	57.5	5	184	5	29.8	3	15.4
MOUNTRAIL * +	4	58.3	5	185	5	29.3	4	14.3
MAIER * +	4	59.3	5	184	5	28.5	4	14.9
PLAZA+	4	58.3	5	185	5	25.3	4	15.0
LEBSOCK+	4	60.3	5	184	5	29.9	4	14.1
UTOPIA(P)+ <sup>2</sup>	6	58.4	7	182	7	23.3	4	14.2
AC AVONLEA * +	2	60.9	3	183	3	31.4	2	13.7

\* Recommended variety, (P) private variety, + Protected under the Plant Variety Protection Act

<sup>1</sup> Comparable averages are not very reliable when using less than three years data

<sup>2</sup> Semidwarf variety

## DURUM WHEAT – DISTRICT 5 – HAVRE DRYLAND

1996-2003 GRAIN YIELD (BU/AC) SUMMARY FOR SELECTED DURUM VARIETIES										EIGHT YEAR COMPARABLE AVERAGE <sup>1</sup>
VARIETY	1996	1997	1998	1999	2000	2001	2002	2003	YEARS	
VIC	34.8	43.1	34.3	36.4	33.2	19.1	35.3	10.9	8	30.9
<b>CHECK AVE</b>	<b>34.8</b>	<b>43.1</b>	<b>34.3</b>	<b>36.4</b>	<b>33.2</b>	<b>19.1</b>	<b>35.3</b>	<b>10.9</b>	<b>8</b>	<b>30.9</b>
MONROE	35.5	45.5	28.8	40.0	35.0	16.9	33.7	7.1	8	30.3
KYLE	38.1	43.5	32.4	39.6	31.4	20.5	36.7	12.5	8	31.8
MUNICH+	35.2	43.1	32.7	42.6	36.0	17.0	38.7	10.6	8	32.0
BEN+	35.8	43.7	36.5	38.9	33.8	15.8	35.9	8.4	8	31.1
SCEPTRE	0.0	0.0	33.2	40.4	30.2	16.1	31.2	0.0	5	29.5
MOUNTRAIL * +	0.0	0.0	0.0	41.4	34.6	18.9	39.5	11.6	5	33.4
MAIER * +	0.0	0.0	0.0	45.2	34.3	15.7	39.0	10.0	5	33.0
PLAZA+	0.0	0.0	0.0	44.6	33.8	19.1	38.0	12.4	5	33.9
LEB SOCK+	0.0	0.0	0.0	43.0	35.1	16.3	35.2	10.5	5	32.1
UTOPIA(P)+ <sup>2</sup>	0.0	49.2	31.5	49.0	35.4	12.1	37.6	11.1	7	32.9
AC AVONLEA * +	0.0	0.0	0.0	0.0	0.0	21.4	40.3	8.1	3	33.1

### 1996-2003 AGRONOMIC TRAIT COMPARABLE AVERAGES

VARIETY	TEST WEIGHT (LB/BU)		HEADING DATE (177 = JUNE 26)		PLANT HEIGHT (INCHES)		PROTEIN %	
	YEARS	AVE	YEARS	AVE	YEARS	AVE	YEARS	AVE
VIC	8	60.2	8	179.7	8	27.8	3	16.14
<b>CHECK AVE</b>	<b>8</b>	<b>60.2</b>	<b>8</b>	<b>179.7</b>	<b>8</b>	<b>27.8</b>	<b>3</b>	<b>16.14</b>
MONROE	8	59.6	8	177.3	8	27.0	3	16.53
KYLE	8	60.0	8	181.1	8	31.0	3	16.3
MUNICH+	8	58.9	8	179.4	8	24.9	3	16.89
BEN+	8	60.5	8	179.6	8	27.2	3	16.67
SCEPTRE	5	58.5	5	179.6	5	26.4	2	16.06
MOUNTRAIL * +	5	59.2	5	179.8	5	26.9	3	16.52
MAIER * +	5	59.7	5	180.0	5	27.8	3	17.01
PLAZA+	5	59.7	5	180.8	5	26.6	3	15.94
LEB SOCK+	5	60.3	5	179.6	5	26.7	3	15.96
UTOPIA(P)+ <sup>2</sup>	7	59.6	7	178.7	7	21.4	3	15.79
AC AVONLEA * +	3	60.3	3	179.4	3	27.4	2	17.02

\* Recommended variety, (P) private variety, + Protected under the Plant Variety Protection Act

<sup>1</sup> Comparable averages are not very reliable when using less than three years data

<sup>2</sup> Semidwarf variety

## DURUM WHEAT – DISTRICT 5 – CONRAD DRYLAND

1994-2003 GRAIN YIELD (BU/AC) SUMMARY FOR SELECTED DURUM VARIETIES											NINE YEAR COMPARABLE AVERAGE <sup>1</sup>
VARIETY	1994	1995	1997	1998	1999	2000	2001	2002	2003	YEARS	
VIC	35.6	66.5	46.5	67.8	52.3	33.8	12.8	37.7	30.6	9	42.6
<b>CHECK AVE</b>	<b>35.6</b>	<b>66.5</b>	<b>46.5</b>	<b>67.8</b>	<b>52.3</b>	<b>33.8</b>	<b>12.8</b>	<b>37.7</b>	<b>30.6</b>	<b>9</b>	<b>42.6</b>
MONROE	36.5	72.8	46.3	68.9	58.6	32.5	12.3	37.6	34.5	9	44.4
KYLE	0.0	77.4	51.3	70.9	58.6	36.1	14.4	51.0	33.1	8	48.1
MUNICH+	0.0	0.0	52.4	75.0	64.4	35.9	11.5	44.4	38.3	7	48.7
BEN+	0.0	0.0	50.0	69.4	50.7	34.4	12.1	40.6	35.6	7	44.3
SCEPTRE	37.3	84.5	0.0	69.2	53.7	33.7	11.6	41.4	0.0	7	46.1
MOUNTRAIL * +	0.0	0.0	0.0	0.0	59.0	36.3	15.0	49.5	39.2	5	50.7
MAIER * +	0.0	0.0	0.0	0.0	67.9	39.8	12.7	43.6	46.0	5	53.6
PLAZA+	0.0	0.0	0.0	0.0	67.0	35.3	13.8	43.4	39.1	5	50.6
LEBSOCK+	0.0	0.0	0.0	0.0	58.1	39.0	13.1	42.6	33.6	5	47.5
UTOPIA(P)+ <sup>2</sup>	0.0	0.0	54.0	72.0	66.5	39.7	11.4	40.8	41.4	7	49.3
AC AVONLEA * +	0.0	0.0	0.0	0.0	0.0	0.0	16.1	47.8	42.5	3	55.9

### 1994-2003 AGRONOMIC TRAIT COMPARABLE AVERAGES

VARIETY	TEST WEIGHT (LB/BU)		HEADING DATE (183 = JULY 2)		PLANT HEIGHT (INCHES)		PROTEIN (%)	
	YEARS	AVE	YEARS	AVE	YEARS	AVE	YEARS	AVE
VIC	9	60.3	8	183	9	35.9	6	14.7
<b>CHECK AVE</b>	<b>9</b>	<b>60.3</b>	<b>8</b>	<b>183</b>	<b>9</b>	<b>35.9</b>	<b>6</b>	<b>14.7</b>
MONROE	9	59.9	8	180	9	34.4	6	15.3
KYLE	8	60.1	8	186	8	38.9	5	14.9
MUNICH+	7	59.9	7	182	7	31.6	5	14.9
BEN+	7	60.9	7	183	7	35.4	5	14.7
SCEPTRE	7	59.3	6	183	7	33.7	5	14.8
MOUNTRAIL * +	5	59.2	5	184	5	34.6	5	14.6
MAIER * +	5	61.0	5	184	5	32.8	5	15.1
PLAZA+	5	59.8	5	183	5	29.5	5	14.4
LEBSOCK+	5	60.9	5	183	5	33.0	5	14.8
UTOPIA(P)+ <sup>2</sup>	7	58.6	7	181	7	27.0	5	14.9
AC AVONLEA * +	3	60.0	3	182	3	35.1	3	16.1

\* Recommended variety, (P) private variety, + Protected under the Plant Variety Protection Act

<sup>1</sup> Comparable averages are not very reliable when using less than three years data

<sup>2</sup> Semidwarf variety



## DURUM WHEAT – DISTRICT 5 – CONRAD IRRIGATED

1994-2003 GRAIN YIELD (BU/AC) SUMMARY FOR SELECTED DURUM VARIETIES											NINE YEAR COMPARABLE AVERAGE <sup>1</sup>
VARIETY	1994	1995	1997	1998	1999	2000	2001	2002	2003	YEARS	
	VIC	44.0	87.1	80.0	73.2	74.5	45.4	37.8	71.5		
CHECK AVE	44.0	87.1	80.0	73.2	74.5	45.4	37.8	71.5	64.5	9	64.2
MONROE	39.0	74.9	71.7	65.0	73.3	50.4	40.6	65.1	63.2	9	60.4
KYLE	0.0	71.3	85.8	69.4	73.3	50.2	45.2	79.1	57.0	8	63.9
MUNICH+	0.0	0.0	87.9	71.3	80.4	63.5	50.1	92.6	73.8	7	74.7
BEN+	0.0	0.0	84.2	68.1	64.2	60.1	43.6	72.8	73.3	7	67.0
SCEPTRE	39.8	90.7	0.0	63.1	80.8	54.1	49.7	81.7	0.0	7	68.1
MOUNTRAIL * +	0.0	0.0	0.0	0.0	88.4	69.7	47.4	88.9	83.8	5	82.7
MAIER * +	0.0	0.0	0.0	0.0	77.3	63.3	45.3	85.4	79.2	5	76.6
PLAZA+	0.0	0.0	0.0	0.0	89.7	62.1	44.1	100.5	65.8	5	79.2
LEBSOCK+	0.0	0.0	0.0	0.0	78.4	58.2	42.3	83.3	72.8	5	73.2
UTOPIA(P)+ <sup>2</sup>	0.0	0.0	91.0	64.0	88.6	62.9	44.7	98.1	85.7	7	76.9
AC AVONLEA * +	0.0	0.0	0.0	0.0	0.0	0.0	48.1	91.5	76.5	3	79.9

### 1994-2003 AGRONOMIC TRAIT COMPARABLE AVERAGES

VARIETY	TEST WEIGHT (LB/BU)		HEADING DATE (181 = JUNE 30)		PLANT HEIGHT (INCHES)		PROTEIN (%)	
	YEARS	AVE	YEARS	AVE	YEARS	AVE	YEARS	AVE
VIC	9	62.2	6	182	9	37.7	5	12.8
CHECK AVE	9	62.2	6	182	9	37.7	5	12.8
MONROE	9	62.0	6	179	9	36.7	5	13.0
KYLE	8	61.7	6	184	8	41.5	4	12.5
MUNICH+	7	61.8	5	182	7	34.3	4	12.5
BEN+	7	62.8	5	183	7	38.1	4	12.2
SCEPTRE	7	61.1	5	182	7	34.6	4	12.3
MOUNTRAIL * +	5	62.0	4	181	5	35.5	4	11.6
MAIER * +	5	62.8	4	180	5	33.0	4	12.2
PLAZA+	5	62.5	4	182	5	30.0	4	11.7
LEBSOCK+	5	62.4	4	181	5	33.5	4	12.5
UTOPIA(P)+ <sup>2</sup>	7	61.3	5	180	7	28.2	4	11.8
AC AVONLEA * +	3	62.2	3	180	3	34.7	3	12.4

\* Recommended variety, (P) private variety, + Protected under the Plant Variety Protection Act

<sup>1</sup> Comparable averages are not very reliable when using less than three years data

<sup>2</sup> Semidwarf variety

## DURUM WHEAT – DISTRICT 6 – SIDNEY DRYLAND

1995-2003 GRAIN YIELD (BU/AC) SUMMARY FOR SELECTED DURUM VARIETIES										EIGHT YEAR COMPARABLE AVERAGE <sup>1</sup>
VARIETY	1995	1996	1997	1998	2000	2001	2002	2003	YEARS	
VIC	35.4	12.6	25.1	48.5	14.4	41.8	35.5	50.4	8	33.0
CHECK AVE	35.4	12.6	25.1	48.5	14.4	41.8	35.5	50.4	8	33.0
MONROE*	33.9	14.2	15.4	48.2	14.9	35.8	34.6	49.3	8	30.8
KYLE	28.3	15.5	31.3	54.7	12.4	53.8	37.8	51.0	8	35.6
MUNICH+	0.0	13.8	21.4	50.4	14.1	49.1	34.7	49.8	7	33.7
BEN * +	0.0	14.6	22.8	54.6	13.4	48.0	35.4	52.3	7	34.8
SCEPTRE	35.6	0.0	0.0	55.3	13.1	50.9	33.0	0.0	5	35.3
MOUNTRAIL * +	0.0	0.0	0.0	61.2	15.6	58.2	36.9	53.9	5	39.0
MAIER * +	0.0	0.0	0.0	57.2	14.4	45.6	37.3	55.2	5	36.3
PLAZA+	0.0	0.0	0.0	55.4	13.5	50.8	36.8	51.4	5	36.0
LEB SOCK+	0.0	0.0	0.0	51.4	13.8	50.5	38.2	53.3	5	35.8
UTOPIA(P)+ <sup>2</sup>	0.0	0.0	16.1	57.2	16.2	31.6	38.6	55.4	6	32.9
AC AVONLEA * +	0.0	0.0	0.0	0.0	0.0	50.4	34.5	53.8	3	35.8

### 1995-2003 AGRONOMIC TRAIT COMPARABLE AVERAGES

VARIETY	TEST WEIGHT (LB/BU)		HEADING DATE (173 = JUNE 22)		PLANT HEIGHT (INCHES)		PROTEIN %	
	YEARS	AVE	YEARS	AVE	YEARS	AVE	YEARS	AVE
VIC	8	60.7	8	173	8	28.3	3	16.2
CHECK AVE	8	60.7	8	173	8	28.3	3	16.2
MONROE*	8	60.1	8	170	8	26.4	3	15.8
KYLE	8	60.6	8	176	8	29.7	3	16.2
MUNICH+	7	60.1	7	173	7	23.0	3	16.2
BEN * +	7	61.2	7	173	7	26.3	3	16.0
SCEPTRE	5	59.4	5	174	5	25.6	2	16.1
MOUNTRAIL * +	5	59.7	5	174	5	26.1	2	15.1
MAIER * +	5	60.9	5	174	5	25.4	2	16.5
PLAZA+	5	59.8	5	175	5	22.5	2	15.2
LEB SOCK+	5	61.2	5	174	5	25.2	2	16.0
UTOPIA(P)+ <sup>2</sup>	6	59.0	6	171	6	20.4	2	15.6
AC AVONLEA * +	3	59.8	3	174	3	26.3	1	16.7

\* Recommended variety, (P) private variety, + Protected under the Plant Variety Protection Act

<sup>1</sup> Comparable averages are not very reliable when using less than three years data

<sup>2</sup> Semidwarf variety

## DURUM WHEAT – DISTRICT 6 – SIDNEY IRRIGATED

1996-2003 GRAIN YIELD (BU/AC) SUMMARY FOR SELECTED DURUM VARIETIES									
VARIETY	1996	1997	1999	2000	2001	2002	2003	YEARS	SEVEN YEAR
									COMPARABLE
									AVERAGE <sup>1</sup>
VIC	85.1	68.4	77.7	97.1	49.8	66.6	109.3	7.0	79.1
CHECK AVE	85.1	68.4	77.7	97.1	49.8	66.6	109.3	7.0	79.1
MONROE	83.8	59.6	76.0	95.7	54.8	66.0	100.0	7.0	76.6
KYLE	90.4	77.5	73.6	88.4	29.0	65.7	89.3	7.0	73.4
MUNICH+	95.7	64.5	86.9	90.0	54.0	67.8	123.0	7.0	83.1
BEN * +	96.8	66.6	83.7	98.9	58.4	66.2	112.3	7.0	83.3
SCEPTRE	0.0	0.0	83.1	92.8	35.5	64.9	0.0	4.0	75.1
MOUNTRAIL * +	0.0	0.0	98.7	110.5	56.3	70.5	125.3	5.0	91.2
MAIER * +	0.0	0.0	90.6	107.9	56.3	72.1	117.6	5.0	87.8
PLAZA+	0.0	0.0	94.2	105.6	57.7	64.4	118.4	5.0	87.0
LEB SOCK+	0.0	0.0	85.1	100.7	53.2	62.1	112.5	5.0	81.7
UTOPIA(P)+ <sup>2</sup>	0.0	56.0	81.9	79.2	42.1	61.6	109.4	6.0	72.6
AC AVONLEA * +	0.0	0.0	0.0	0.0	48.2	60.8	106.0	3.0	75.4

### 1996-2003 AGRONOMIC TRAIT COMPARABLE AVERAGES

VARIETY	TEST WEIGHT (LB/BU)		HEADING DATE (177 = JUNE 26)		PLANT HEIGHT (INCHES)		PROTEIN %	
	YEARS	AVE	YEARS	AVE	YEARS	AVE	YEARS	AVE
	VIC	7	62.0	7	176	7	40.2	3
CHECK AVE	7	62.0	7	176	7	40.2	3	13.8
MONROE	7	61.6	7	173	7	37.0	3	13.5
KYLE	7	61.2	7	179	7	42.6	3	14.0
MUNICH+	7	61.6	7	175	7	33.7	3	13.5
BEN * +	7	62.8	7	176	7	37.8	3	13.5
SCEPTRE	4	60.7	4	177	4	36.4	2	13.4
MOUNTRAIL * +	5	62.3	5	178	5	36.8	2	12.9
MAIER * +	5	62.1	5	177	5	36.0	2	13.6
PLAZA+	5	61.9	5	178	5	31.3	2	12.5
LEB SOCK+	5	63.1	5	176	5	35.4	2	13.2
UTOPIA(P)+ <sup>2</sup>	6	58.5	6	173	6	26.9	2	13.5
AC AVONLEA * +	3	61.3	3	176	3	35.8	1	14.3

\* Recommended variety, (P) private variety, + Protected under the Plant Variety Protection Act

<sup>1</sup> Comparable averages are not very reliable when using less than three years data

<sup>2</sup> Semidwarf variety