

2007 VARIETAL RECOMMENDATION

Corbin

WestBred, LLC request that 'Corbin' hard red spring wheat be considered for "Variety Recommendation in the State of Montana".

We move that Corbin be recommended as a hard red spring wheat for dryland sawfly areas of Montana, Districts 4 and 5.

Corbin is a hard red spring wheat selected from the progeny of the cross Border x Conan. Application for PVP will be submitted and the Title V option will **not** be selected.

Corbin is being released to replace and/or compliment the variety Conan. For the five year period 2001 - 2004, & 2006 (not entered in 2005) (49 locations), the average per acre yield of Corbin in the MSU Intrastate Trials is 58.8 bushels, compared to Conan at 57.6 bushels. The average test weight has been .4 pounds higher than Conan, with similar protein levels to Conan. The average plant height of Corbin is 30.6 inches which is 1.3 inches taller than Conan. The average heading date of Corbin is one day earlier than Conan.

Milling and baking quality data from the 2003-2004 crop indicate that flour extraction is higher than the check variety Conan. Water absorption, mixing time, loaf volume and crumb grain score for Corbin are comparable to the check varieties (Table 8 and 9.).

Disease/sawfly ratings for Corbin show it to be moderately resistant to stripe rust (Table 11. 2006 Kalispell nursery) and similar to Conan for sawfly tolerance (Table 10. 2006 Havre nursery).

Submitted by Dale Clark and Craig Cook, WestBred, LLC

Table 1. Yield in bu/ac

ID	DISTRICT 5 HAVRE DRYLAND						DISTRICT 5 CONRAD DRYLAND						DISTRICT 6 SIDNEY DRYLAND						DISTRICT 6 SIDNEY IRRIGATED					
	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE
CORBIN	20.1	34.8	9.2	48.7	29.4	28.4	12.1	45.2	48.7	62.4	56.2	44.9	42.4	40.3	60.1	62.3	54.4	51.9	48.9	55.1	94.6	70.6	67.4	67.3
THATCHER	18.4	34.0	8.2	36.1	25.6	24.5	14.4	43.8	33.2	44.6	42.9	35.8	51.0	33.0	49.4	55.8	37.6	45.3	41.4	42.6	78.2	71.1	48.7	56.4
FORTUNA	16.7	28.5	10.8	42.0	34.0	26.4	14.1	42.8	49.6	58.0	43.7	41.6	40.1	35.5	57.4	60.3	49.0	48.5	28.2	37.4	77.5	66.4	60.3	54.0
MCNEAL	18.9	36.3	13.9	40.8	27.4	27.5	13.4	41.5	49.5	57.5	51.3	42.6	48.2	43.4	60.7	68.3	52.7	54.7	62.6	56.7	107.5	83.4	69.5	76.0
ERNEST	19.6	36.4	11.8	39.8	26.6	26.8	16.6	45.7	42.6	56.7	54.6	43.3	51.1	40.8	54.7	61.2	48.9	51.4	45.2	49.9	92.8	76.4	69.8	66.8
SCHOLAR	21.0	36.4	12.2	44.7	27.0	28.3	16.5	43.0	46.4	52.8	60.8	43.9	51.6	41.6	59.4	67.6	51.5	54.3	45.1	50.9	94.4	72.1	68.3	66.2
REEDER	22.5	34.9	12.4	40.9	28.8	27.9	17.1	49.1	53.9	60.7	62.0	48.6	54.3	52.5	67.6	68.0	59.7	60.4	66.8	52.0	102.5	88.8	83.7	78.8
CONAN	20.4	33.7	13.5	43.3	31.9	28.6	15.1	40.8	45.9	58.0	53.1	42.6	44.4	39.5	55.7	59.1	46.0	49.0	56.7	47.3	88.3	76.1	72.1	68.1
HANK	20.5	37.8	10.4	45.0	33.3	29.4	13.7	42.0	48.9	60.0	59.6	44.8	44.9	39.4	63.3	66.6	55.0	53.8	59.2	53.3	113.5	87.6	69.1	76.6
OUTLOOK	22.9	44.5	16.2	49.0	31.8	32.9	15.2	43.0	48.8	60.2	63.8	46.2	54.8	44.3	69.0	67.5	57.4	58.6	66.9	49.7	104.1	84.2	69.4	74.9
CHOTEAU	19.3	34.9	13.1	42.5	32.1	28.4	14.2	45.2	59.5	63.8	67.3	50.0	55.4	42.8	61.2	61.9	52.3	54.7	55.0	60.6	107.3	76.0	71.3	74.0
NORPRO	0.0	34.2	9.4	39.1	30.9		0.0	46.4	50.2	59.9	58.0		0.0	45.6	65.8	70.7	57.2		0.0	53.6	115.8	80.0	74.3	
KNUDSON	0.0	33.0	7.0	38.6	27.8		0.0	43.6	46.6	60.2	56.9		0.0	45.7	63.8	68.3	52.1		0.0	59.7	106.2	79.3	76.0	
VIDA	0.0	0.0	14.3	51.7	34.3		0.0	0.0	55.2	63.6	64.7		0.0	0.0	73.0	71.1	60.6		0.0	0.0	105.9	90.5	77.4	
AVERAGE	20.0	35.3	11.6	43.0	30.1	28.1	14.8	44.0	48.5	58.5	56.8	44.0	48.9	41.9	61.5	64.9	52.5	53.0	52.4	51.4	99.2	78.7	69.8	69.0

ID	DISTRICT 3 HUNTLEY DRY						DISTRICT 3 HUNTLEY IRRIGATED						DISTRICT 4 MOCCASIN											
	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE						
CORBIN	27.1	13.1	37.8	17.9	51.2	29.4	100.7	119.2	77.2	94.4	88.3	96.0	37.3	16.3	35.3	33.5	30.6							
THATCHER	35.4	5.5	31.4	34.0	45.6	30.4	106.8	104.3	76.1	93.6	78.5	91.8	35.0	10.6	28.3	23.9	24.5							
FORTUNA	25.4	11.4	37.7	31.7	41.3	29.5	99.2	107.4	79.4	108.9	70.3	93.0	40.4	18.1	37.1	32.1	31.9							
MCNEAL	35.6	9.3	36.0	39.1	57.1	35.4	110.6	118.5	88.1	114.4	89.2	104.2	47.5	20.3	36.9	34.2	34.7							
ERNEST	30.9	7.6	33.1	35.1	50.0	31.4	114.8	117.0	86.0	114.0	84.3	103.2	34.3	15.9	34.1	22.8	26.8							
SCHOLAR	32.4	10.3	36.6	32.7	50.1	32.4	121.1	111.7	87.3	116.0	85.1	104.2	39.9	17.8	36.1	31.2	31.3							
REEDER	32.7	13.8	40.6	32.8	52.5	34.5	116.0	125.5	85.5	110.5	77.6	103.0	43.6	18.4	37.9	34.5	33.6							
CONAN	26.3	11.0	35.6	28.3	41.7	28.6	101.5	109.5	77.5	113.4	70.5	94.5	40.3	17.8	39.3	32.8	32.5							
HANK	26.2	11.9	42.3	29.5	47.3	31.4	107.0	123.0	85.6	123.3	92.2	106.2	45.6	21.4	41.5	37.2	36.4							
OUTLOOK	29.3	9.8	42.5	39.3	56.5	35.5	117.0	119.0	88.9	116.2	94.0	107.0	42.3	16.6	39.5	31.5	32.5							
CHOTEAU	28.1	9.8	37.2	28.7	53.5	31.5	114.9	119.0	86.6	128.7	87.9	107.4	38.3	15.0	35.6	33.9	30.7							
NORPRO	0.0	6.5	36.5	33.5	54.8		0.0	126.6	83.5	118.5	86.9		0.0	12.6	32.2	31.7								
KNUDSON	0.0	10.9	36.8	32.9	46.1		0.0	107.0	54.6	115.2	83.2		0.0	14.2	36.9	32.5								
VIDA	0.0	0.0	42.3	34.3	54.0		0.0	0.0	98.6	117.8	88.2		0.0	17.0	39.1	35.5								
AVERAGE	29.9	10.1	37.6	32.1	50.1	31.8	110.0	116.0	82.5	113.2	84.0	101.0	40.4	16.6	36.4	32.0	31.4							

ID	DISTRICT 1 KALISPELL						DISTRICT 2 BOZEMAN DRY						DISTRICT 2 BOZEMAN IRRIGATED											
	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE						
CORBIN	116.9	94.2	76.2	89.6	44.8	84.3	73.2	71.7	40.2	92.0	60.8	67.6	80.5	86.5	71.2	96.3	74.5	81.8						
THATCHER	115.6	88.8	69.8	81.4	22.3	75.6	60.9	48.5	31.1	64.3	44.7	49.9	64.4	61.5	53.4	71.9	36.6	57.6						
FORTUNA	106.8	85.7	74.4	100.7	41.4	81.8	69.0	50.5	41.7	81.4	53.3	59.2	73.5	72.1	63.5	100.6	55.6	73.1						
MCNEAL	121.5	102.0	78.5	86.8	51.3	88.0	78.2	69.6	39.8	85.3	47.3	64.0	92.0	88.1	65.3	102.9	33.0	76.3						
ERNEST	120.4	95.8	75.9	89.3	50.2	86.3	77.3	56.9	41.9	80.5	48.7	61.1	78.5	69.8	74.1	90.5	48.4	72.3						
SCHOLAR	138.6	99.9	82.6	99.3	37.9	91.7	74.9	55.8	41.9	84.1	59.7	63.3	81.1	65.7	69.2	95.9	60.9	74.6						
REEDER	138.0	109.5	87.4	92.4	75.1	100.5	80.1	63.3	44.5	85.4	65.4	67.7	90.5	73.4	74.7	97.2	56.2	78.4						
CONAN	104.3	91.6	79.7	99.0	56.5	86.2	73.6	68.9	37.8	81.7	55.2	63.4	80.1	84.1	68.9	89.9	63.7	77.3						
HANK	135.5	91.9	72.6	103.2	74.0	95.4	77.9	78.6	41.9	89.0	56.8	68.8	93.5	99.5	74.5	115.3	60.6	88.7						
OUTLOOK	142.5	114.1	70.5	94.7	63.0	97.0	80.2	72.8	42.7	87.4	54.9	67.6	92.7	73.6	74.3	104.2	48.4	78.6						
CHOTEAU	113.8	98.7	77.9	88.6	74.2	90.6	78.2	73.6	37.7	90.0	59.3	67.7	92.8	93.8	70.4	103.2	54.8	83.0						
NORPRO	0.0	106.3	82.3	94.4	70.7		0.0	78.5	39.3	92.6	47.2		0.0	93.4	77.8	104.4	39.1							
KNUDSON	0.0	105.3	83.0	93.3	72.4		0.0	71.1	38.6	84.6	54.8		0.0	79.6	69.2	97.7	51.3							
VIDA	0.0	0.0	91.6	101.7	54.5		0.0	0.0	48.3	97.5	64.8		0.0	0.0	80.0	107.9	53.7							
AVERAGE	123.1	98.8	78.7	93.9	56.3	88.9	74.9	66.1	40.5	85.4	55.2	63.7	83.6	80.1	70.5	98.4	52.6	76.5						

Table 2. Test Weight in lbs/bu.

ID	DISTRICT 5 HAVRE DRYLAND						DISTRICT 5 CONRAD DRYLAND						DISTRICT 6 SIDNEY DRYLAND						DISTRICT 6 SIDNEY IRRIGATED					
	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE
CORBIN	57.4	61.1	57.9	59.6	54.47	58.1	61.9	62.7	55.9	63.1	59.3	60.6	60.1	55.5	60.7	62.4	59.8	59.7	57.9	60.4	62.0	63.9	59.0	60.6
THATCHER	55.5	58.3	50.5	54.1	51	53.9	58.7	60.5	52.6	59.8	57.6	57.9	59.0	55.4	58.5	58.3	54.2	57.1	57.2	59.5	61.4	62.0	57.3	59.5
FORTUNA	57.2	59.2	57.1	59.2	56.47	57.8	60.6	61.4	57.9	62.9	60.3	60.6	58.5	58.3	61.3	61.8	59.3	59.8	52.4	59.6	62.1	63.1	59.5	59.3
MCNEAL	57.7	60.2	53.9	57.2	51.92	56.2	60.2	61.9	56.9	61.8	58.9	59.9	60.0	58.2	59.8	60.0	57.3	59.0	58.1	60.3	62.9	62.4	57.3	60.2
ERNEST	58	60.1	56.8	59.6	54.13	57.7	62.3	61.3	55.9	62.9	58.7	60.2	60.6	58.0	62.1	61.3	59.5	60.3	59.0	59.8	62.6	63.3	59.0	60.7
SCHOLAR	59.4	61.2	57.2	59.4	55.2	58.5	62.3	62.0	56.7	61.1	59.8	60.4	61.3	57.7	60.8	61.3	59.5	60.1	59.3	61.8	63.6	63.0	58.0	61.1
REEDER	58.2	60.6	57.4	59.2	53.93	57.9	62.5	61.7	56.3	60.2	60.0	60.2	60.9	58.3	61.3	61.8	59.7	60.4	59.4	61.1	63.0	63.0	60.8	61.5
CONAN	59.5	60.9	56.7	59.7	54.85	58.3	62.5	61.9	54.7	60.2	59.1	59.7	60.7	58.3	61.2	61.5	59.8	60.3	59.9	61.5	62.6	63.0	56.7	60.8
HANK	57.7	59.6	56.2	58.3	53.03	57	61.9	62.0	52.4	59.5	58.0	58.8	58.5	54.5	58.2	61.0	58.3	58.1	55.7	59.4	61.3	62.7	56.5	59.1
OUTLOOK	56.9	59.7	54.3	57.7	51.96	56.1	60.8	60.5	54.7	60.2	56.9	58.6	59.8	57.2	60.2	61.3	57.6	59.2	57.8	59.4	61.8	62.2	58.3	59.9
CHOTEAU	57	60	58	58.8	53.67	57.5	61.8	60.8	55.7	63.9	59.6	60.4	60.6	57.0	61.6	61.7	59.6	60.1	59.2	61.0	62.8	62.8	58.2	60.8
NORPRO	0	61.5	57.1	58	51.71		0.0	61.9	54.5	61.6	56.8		0.0	56.0	62.2	62.0	59.9		0.0	60.3	62.9	63.3	60.0	
KNUDSON	0	60.9	57.1	60	54.56		0.0	61.0	58.3	61.9	58.9		0.0	57.2	61.3	62.4	60.5		0.0	60.5	63.3	63.7	60.3	
VIDA	0	0	56	58.6	53.05		0.0	0.0	54.4	60.2	58.3		0.0	0.0	61.1	61.6	59.1		0.0	0.0	62.2	62.7	58.8	
AVERAGE	57.7	60.3	56.1	58.5	53.57	57.2	61.4	61.5	55.5	61.4	58.7	59.7	60.0	57.1	60.8	61.3	58.9	59.5	57.8	60.3	62.5	62.9	58.6	60.3

ID	DISTRICT 3 HUNTLEY DRY						DISTRICT 3 HUNTLEY IRRIGATED						DISTRICT 4 MOCCASIN					
	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE	2001	2003	2004	2006	AVE	
CORBIN	60.1	50.9	62.5	62.9	63.0	59.9	62.8	62.8	62.1	62.0	64.0	62.8	56.0	51.8	56.0	59.0	55.7	
THATCHER	60.0	47.4	56.2	61.9	59.4	57.0	62.5	60.9	59.8	62.0	62.9	61.6	59.6	46.9	51.9	55.4	53.5	
FORTUNA	58.9	50.4	60.7	62.4	62.2	58.9	61.9	63.1	61.9	63.5	63.7	62.8	58.6	50.1	56.9	60.5	56.5	
MCNEAL	59.6	48.0	58.6	62.4	61.1	57.9	61.9	62.8	61.6	63.4	63.5	62.6	58.3	48.8	55.0	57.8	55.0	
ERNEST	60.5	48.9	61.0	63.6	62.7	59.3	63.1	62.3	60.9	63.3	63.4	62.6	58.6	50.8	55.0	59.2	55.9	
SCHOLAR	60.9	51.6	61.1	61.6	62.6	59.6	63.2	62.9	60.6	63.1	63.7	62.7	58.4	52.3	57.3	59.3	56.8	
REEDER	60.9	50.7	62.8	63.8	62.6	60.1	63.5	63.2	60.8	63.2	64.1	63.0	57.7	51.2	56.2	59.6	56.2	
CONAN	60.4	49.9	61.8	63.2	62.1	59.5	62.3	62.5	58.6	61.9	63.2	61.7	58.6	51.6	57.0	59.0	56.5	
HANK	59.5	48.2	60.3	61.7	61.0	58.1	60.7	61.5	60.6	61.0	62.5	61.2	56.6	49.1	53.6	57.1	54.1	
OUTLOOK	60.3	47.1	59.2	62.4	61.3	58.1	61.9	62.3	60.8	61.9	62.6	61.9	56.6	48.2	54.1	56.0	53.7	
CHOTEAU	59.7	49.6	61.2	62.8	62.1	59.1	63.6	62.7	61.4	63.8	63.9	63.1	57.2	51.1	57.1	60.4	56.4	
NORPRO	0.0	47.9	62.3	63.3	62.4		0.0	62.4	62.2	63.0	63.8		0.0	47.6	54.0	58.3		
KNUDSON	0.0	51.7	61.7	62.6	62.0		0.0	62.4	61.1	62.2	63.2		0.0	52.0	56.3	60.4		
VIDA	0.0	0.0	62.0	62.8	62.8		0.0	0.0	61.6	62.4	63.4		0.0	48.9	55.0	58.3		
AVERAGE	60.1	49.4	60.8	62.7	61.9	58.9	62.5	62.5	61.0	62.6	63.4	62.4	57.8	50.0	55.4	58.6	55.5	

ID	DISTRICT 1 KALISPELL						DISTRICT 2 BOZEMAN DRY						DISTRICT 2 BOZEMAN IRRIGATED					
	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE
CORBIN	62.9	61.5	60.5	63.2	58.4	61.3	61.7	60.3	54.8	63.6	60.4	60.2	62.1	61.8	60.2	63.2	61.9	61.8
THATCHER	62.0	60.2	56.2	59.4	57.9	59.1	58.2	59.4	51.2	59.6	56.6	57.0	61.0	60.5	54.3	61.8	55.4	58.6
FORTUNA	64.3	61.0	60.0	62.1	58.3	61.1	61.7	61.3	57.5	62.6	61.7	61.0	63.6	62.2	60.9	62.7	60.3	62.0
MCNEAL	62.5	59.9	55.5	60.9	58.4	59.4	59.3	59.6	54.0	60.7	56.2	58.0	61.7	62.1	58.0	62.5	56.2	60.1
ERNEST	64.2	62.3	58.9	60.7	61.4	61.5	61.1	60.2	56.9	61.3	60.1	59.9	62.6	62.4	59.4	61.1	57.5	60.6
SCHOLAR	61.6	61.6	60.3	61.7	59.8	61.0	60.6	60.4	57.2	62.5	60.1	60.2	62.1	61.8	60.2	62.8	61.3	61.6
REEDER	61.7	61.8	59.0	61.6	60.8	61.0	60.7	60.3	54.5	62.8	62.3	60.1	62.7	62.3	58.6	62.7	60.1	61.3
CONAN	62.5	61.4	58.7	61.0	61.1	60.9	60.3	59.5	55.0	60.4	59.9	59.0	61.3	62.8	58.3	62.2	59.3	60.8
HANK	60.0	57.0	55.0	59.2	56.6	57.6	57.0	57.3	51.7	60.6	56.0	56.5	60.3	61.7	57.2	62.4	56.2	59.6
OUTLOOK	61.9	60.0	53.9	58.4	58.6	58.6	59.2	58.9	52.9	62.0	56.4	57.9	60.6	60.9	57.1	61.3	54.2	58.8
CHOTEAU	62.9	61.4	57.2	60.1	61.6	60.7	60.4	59.8	54.5	61.5	58.7	59.0	63.1	62.3	58.9	61.9	57.9	60.8
NORPRO	0.0	62.0	58.9	61.4	60.5		0.0	59.1	55.5	63.1	55.0		0.0	62.2	59.2	63.0	53.2	
KNUDSON	0.0	61.4	60.0	60.8	60.9		0.0	60.2	56.3	61.8	58.9		0.0	62.5	58.8	61.3	57.0	
VIDA	0.0	0.0	58.6	60.6	60.6		0.0	0.0	55.2	61.0	57.5		0.0	0.0	58.2	62.2	57.5	
AVERAGE	62.4	60.9	58.1	60.8	59.6	60.2	60.0	59.7	54.8	61.7	58.6	59.0	61.9	62.0	58.5	62.2	57.7	60.5

Table 3. Protein %

ID	DISTRICT 5 HAVRE DRYLAND						DISTRICT 5 CONRAD DRYLAND						DISTRICT 6 SIDNEY DRYLAND						DISTRICT 6 SIDNEY IRRIGATED					
	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE
CORBIN	18.0	16.4	19.3	16.2	18.3	17.6	17.4	13.8	18.0	10.6	13.1	14.6	15.4	15.8	14.3	14.2	14.0	14.7	15.6	11.2	15.9	15.3	13.2	14.2
THATCHER	17.8	16.2	20.3	18.0	18.7	18.2	13.9	11.9	18.5	10.9	13.9	13.8	14.2	17.4	15.4	16.0	14.3	15.5	17.0	11.3	16.8	12.1	14.7	14.4
FORTUNA	16.6	16.5	18.6	15.8	16.5	16.8	15.3	13.8	16.8	10.3	13.6	14.0	15.1	15.4	14.5	14.3	13.2	14.5	16.8	11.6	16.7	13.5	13.9	14.5
MCNEAL	17.0	15.7	19.1	17.2	18.0	17.4	14.8	13.5	16.7	11.2	13.1	13.9	14.7	15.8	15.0	14.2	13.7	14.7	16.1	10.4	16.7	12.9	13.3	13.9
ERNEST	18.5	16.5	19.7	16.9	18.7	18.1	15.2	14.5	18.7	11.5	13.4	14.7	15.8	15.8	16.4	15.1	14.0	15.4	16.4	10.7	17.5	13.7	14.3	14.5
SCHOLAR	17.8	16.5	19.4	17.2	18.5	17.9	15.1	13.9	18.1	12.0	13.5	14.5	15.1	16.1	17.5	15.7	14.0	15.7	16.4	11.1	16.5	15.6	13.8	14.7
REEDER	17.0	16.4	18.3	16.6	17.2	17.1	14.3	13.7	17.1	10.9	13.9	14.0	15.6	15.6	14.6	13.4	13.9	14.6	16.4	12.1	16.8	14.6	14.0	14.8
CONAN	17.1	16.6	18.2	16.4	18.0	17.3	15.3	14.4	17.7	11.7	13.8	14.6	15.2	16.4	14.8	14.2	13.8	14.9	15.4	11.4	15.6	14.5	13.7	14.1
HANK	17.1	16.1	19.0	16.6	17.7	17.3	15.1	13.3	18.3	10.9	14.2	14.4	14.2	16.0	15.1	14.0	12.8	14.4	16.4	11.6	15.5	14.3	14.4	14.5
OUTLOOK	16.7	15.6	18.4	15.7	18.4	17.0	14.8	13.7	17.5	11.7	13.9	14.3	15.2	15.4	14.2	13.8	12.9	14.3	15.5	10.0	16.4	14.2	13.1	13.8
CHOTEAU	18.2	16.3	18.6	16.5	17.8	17.5	16.4	14.1	17.4	10.8	13.7	14.5	14.9	16.3	15.3	15.5	14.1	15.2	15.9	11.2	15.8	14.2	13.6	14.1
NORPRO	0.0	15.8	18.0	15.8	17.5		0.0	13.4	17.2	10.5	13.2		0.0	15.3	14.9	15.9	13.5		0.0	10.4	15.0	14.5	12.9	
KNUDSON	0.0	16.6	19.2	16.9	17.6		0.0	13.6	16.9	10.4	12.9		0.0	15.4	15.7	15.6	13.5		0.0	10.4	15.0	13.3	13.1	
VIDA	0.0	0.0	18.4	15.7	17.9		0.0	0.0	16.9	10.2	13.9		0.0	0.0	14.2	14.0	13.0		0.0	0.0	16.0	13.1	13.6	
AVERAGE	17.44	16.3	18.9	16.5	17.9	17.5	15.2	13.7	17.6	11.0	13.6	14.3	15.0	15.9	15.1	14.7	13.6	14.9	16.2	11.0	16.2	14.0	13.7	14.3

ID	DISTRICT 3 HUNTLEY DRY						DISTRICT 3 HUNTLEY IRRIGATED						DISTRICT 4 MOCCASIN					
	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE	2001	2003	2004	2006	AVE	
CORBIN	16.3	21.2	13.1	16.9	13.1	16.1	15.1	13.7	17.1	15.0	10.7	14.3	17.6	19.6	17.9	14.5	17.4	
THATCHER	14.9	19.4	12.2	11.6	12.7	14.2	14.9	15.2	16.9	14.5	11.8	14.7	17.2	20.5	19.2	14.8	17.9	
FORTUNA	15.1	19.7	13.0	11.8	13.5	14.6	14.8	14.1	15.6	13.4	11.9	14.0	16.4	20.0	17.8	14.1	17.1	
MCNEAL	14.9	19.4	11.8	12.2	13.1	14.3	13.5	12.9	14.8	13.2	12.1	13.3	16.2	20.3	17.2	14.4	17.0	
ERNEST	16	20.0	13.8	13.0	13.2	15.2	13.8	13.9	15.7	13.6	12.4	13.9	18.0	19.9	18.1	14.0	17.5	
SCHOLAR	15.7	20.0	12.6	11.6	13.2	14.6	14.0	13.8	16.3	13.9	12.8	14.2	19.3	20.0	18.3	14.1	17.9	
REEDER	17.2	19.6	12.3	12.2	14.4	15.1	13.8	14.4	15.9	13.9	12.1	14.0	17.0	19.8	18.4	14.6	17.4	
CONAN	17	19.5	14.0	13.0	13.8	15.5	14.9	14.2	16.0	13.9	12.3	14.3	16.8	19.6	16.6	14.0	16.8	
HANK	16.2	21.7	13.1	14.9	12.8	15.7	14.3	13.8	14.6	13.2	12.1	13.6	16.4	19.7	18.6	13.6	17.1	
OUTLOOK	13.7	19.0	12.4	12.1	12.6	14.0	13.8	12.9	14.1	13.0	10.7	12.9	16.9	20.2	17.0	15.3	17.3	
CHOTEAU	17.4	19.3	12.9	14.8	14.2	15.7	13.3	13.7	15.4	13.2	11.7	13.5	17.3	19.8	16.5	12.8	16.6	
NORPRO	0	19.9	11.4	11.6	12.7		0.0	12.7	15.3	13.3	13.2		0.0	19.7	16.8	12.8		
KNUDSON	0	19.8	13.3	13.6	13.5		0.0	12.9	16.6	12.7	12.3		0.0	18.2	17.7	14.0		
VIDA	0	0.0	12.5	13.2	12.7		0.0	0.0	15.6	13.5	11.0		0.0	20.3	16.7	13.5		
AVERAGE	15.85	19.9	12.7	13.0	13.3	15.0	14.2	13.7	15.7	13.6	11.9	13.9	17.2	19.8	17.6	14.0	17.3	

ID	DISTRICT 1 KALISPELL					DISTRICT 2 BOZEMAN DRY					DISTRICT 2 BOZEMAN IRRIGATED						
	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE
CORBIN	14.7	15.4	15.4	17.2	15.7	13.5	15.1	19.3	12.8	14.9	15.1	13.9	14.8	16.8	13.2	14.7	14.7
THATCHER	15.0	17.0	14.9	15.4	15.6	15.7	16.7	20.0	15.3	15.3	16.6	15.3	15.3	18.1	13.4	15.0	15.4
FORTUNA	14.5	15.9	15.1	16.8	15.6	14.3	15.6	18.4	13.5	14.3	15.2	14.7	15.2	16.4	14.6	13.5	14.9
MCNEAL	14.8	15.5	15.2	16.4	15.5	14.7	15.8	18.5	14.8	14.5	15.7	15.6	15.0	16.7	13.2	14.0	14.9
ERNEST	14.9	17.0	13.8	16.3	15.5	15.2	16.7	18.5	15.6	14.9	16.2	15.7	15.9	17.3	14.3	14.8	15.6
SCHOLAR	15.1	16.3	15.1	18.2	16.2	15.4	16.0	19.2	14.5	15.5	16.1	15.4	15.6	17.5	14.1	15.1	15.5
REEDER	15.4	16.0	14.3	16.4	15.5	15.3	16.0	18.7	13.5	15.1	15.7	16.0	15.8	17.3	13.5	14.4	15.4
CONAN	15.1	15.7	14.8	15.1	15.2	14.8	15.5	18.9	15.4	14.9	15.9	14.6	14.7	17.1	14.7	14.8	15.2
HANK	14.4	15.9	14.9	15.5	15.2	15.7	16.1	19.6	12.8	14.7	15.8	15.0	14.5	16.7	13.8	14.8	15.0
OUTLOOK	13.5	16.8	15.2	15.0	15.1	14.6	15.9	18.4	11.5	14.0	14.9	15.1	15.2	16.3	12.4	13.7	14.5
CHOTEAU	14.4	17.2	14.3	16.0	15.5	14.7	15.5	18.8	14.5	15.5	15.8	14.8	15.0	17.3	12.6	15.0	14.9
NORPRO	14.9	15.7	14.1	17.5		0.0	14.3	18.2	13.1	15.9		0.0	14.1	16.0	13.5	15.5	
KNUDSON	14.5	15.5	14.0	14.7		0.0	14.7	18.4	13.8	14.5		0.0	13.9	16.2	13.2	13.3	
VIDA	0.0	14.3	14.7	16.4		0.0	0.0	18.2	15.0	14.6		0.0	0.0	16.4	15.2	14.2	
AVERAGE	14.7	16.0	14.7	16.2	15.5	14.9	15.7	18.8	14.0	14.9	15.7	15.1	15.0	16.9	13.7	14.5	15.1

Table 4. Plant Height in inches

ID	DISTRICT 5 HAVRE DRYLAND						DISTRICT 5 CONRAD DRYLAND						DISTRICT 6 SIDNEY DRYLAND						DISTRICT 6 SIDNEY IRRIGATED					
	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE
	CORBIN	19.5	23.3	20.1	31.0	23.2	23.4	20.0	28.0	33.0	37.0	33.0	30.2	25.9	24.9	32.0	30.9	29.5	28.6	27.0	26.4	37.1	31.1	28.7
THATCHER	20.0	28.7	24.4	36.6	31.3	28.2	26.0	34.0	43.0	42.0	43.0	37.6	35.8	30.7	39.9	39.3	38.8	36.9	32.0	35.9	45.9	41.9	39.6	39.1
FORTUNA	19.4	24.9	23.4	34.0	27.9	25.9	23.0	33.0	41.0	38.0	42.0	35.4	30.5	30.6	39.0	37.0	34.2	34.3	31.9	32.9	42.3	38.2	35.4	36.1
MCNEAL	18.2	24.2	21.8	29.7	24.2	23.6	21.0	28.0	34.0	34.0	33.0	30.0	27.9	25.9	33.2	31.0	30.6	29.7	26.5	27.7	39.0	33.2	30.5	31.4
ERNEST	20.1	25.7	24.2	33.0	28.5	26.3	22.0	33.0	39.0	39.0	39.0	34.4	31.3	29.1	37.3	33.7	35.2	33.3	32.0	34.7	43.1	37.6	36.3	36.7
SCHOLAR	19.1	25.5	22.7	30.8	26.3	24.9	21.0	30.0	40.0	38.0	38.0	33.4	31.5	28.9	36.9	35.0	34.5	33.4	30.0	34.7	41.1	31.9	36.0	34.7
REEDER	19.1	23.3	21.3	31.1	25.4	24.0	20.0	29.0	34.0	37.0	35.0	31.0	26.7	25.6	33.4	32.7	28.2	29.3	28.5	27.8	40.5	35.4	30.2	32.5
CONAN	17.5	22.5	20.5	30.4	21.7	22.5	20.0	26.0	30.0	34.0	33.0	28.6	23.9	23.4	30.7	29.5	27.0	26.9	26.0	25.6	36.0	31.9	29.1	29.7
HANK	18.3	21.9	19.2	28.6	23.8	22.3	21.0	30.0	33.0	34.0	33.0	30.2	23.4	24.8	30.1	29.7	27.6	27.1	26.7	28.0	36.5	28.3	27.5	29.4
OUTLOOK	19.3	24.1	21.2	29.9	26.1	24.1	22.0	28.0	32.0	34.0	34.0	30.0	28.0	26.1	34.3	32.0	30.0	30.1	27.5	30.4	38.4	32.0	30.8	31.8
CHOTEAU	17.4	23.0	19.7	28.5	26.0	22.9	19.0	26.0	33.0	34.0	33.0	29.0	25.5	24.4	31.2	29.1	28.7	27.8	25.1	28.7	35.9	28.9	28.8	29.5
NORPRO	0.0	21.7	20.0	28.0	24.6		0.0	27.0	30.0	29.0	29.0		0.0	24.2	29.9	30.0	27.7		0.0	25.2	34.3	29.3	27.5	
KNUDSON	0.0	20.7	19.9	29.2	24.9		0.0	27.0	33.0	35.0	31.0		0.0	24.9	31.3	30.3	28.2		0.0	25.7	37.1	32.0	28.4	
VIDA	0.0	0.0	22.6	31.2	26.9		0.0	0.0	33.0	35.0	34.0		0.0	0.0	33.2	30.7	30.2		0.0	0.0	38.5	34.7	30.7	
AVERAGE	18.9	23.8	21.5	30.8	25.8	24.4	21.4	29.2	34.9	35.7	35.0	31.8	28.2	26.4	33.8	32.2	30.7	30.7	28.5	29.5	39.0	33.3	31.4	32.8

ID	DISTRICT 3 HUNTLEY DRY						DISTRICT 3 HUNTLEY IRRIGATED						DISTRICT 4 MOCCASIN											
	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE						
	CORBIN	20	23.1	30.4	19.1	32.3	25.0	33.5	35.7	32.3	40.9	39.2	36.3	29.3	23.0	36.6	34.5	30.8	31.1	23.4	37.2	27.9	43.0	32.5
THATCHER	31.1	23.4	37.2	27.9	43.0	32.5	41.6	45.8	45.1	53.1	50.5	47.2	35.5	25.3	38.0	43.8	35.7	34.0	27.3	37.7	39.8	34.7	35.7	
FORTUNA	25.8	28.1	32.5	24.5	38.9	30.0	41.9	43.8	38.1	44.7	45.6	42.8	34.0	27.3	37.7	39.8	34.7	34.4	37.1	35.1	40.9	40.2	37.6	31.3
MCNEAL	22.9	23.0	29.8	24.9	34.7	27.1	34.4	37.1	35.1	40.9	40.2	37.6	31.3	25.0	37.5	36.0	32.5	26.1	23.6	34.0	26.3	39.0	29.8	40.8
ERNEST	26.1	23.6	34.0	26.3	39.0	29.8	40.8	45.5	38.6	48.5	44.6	43.6	33.2	26.0	39.3	39.0	34.4	24.6	24.8	34.3	24.3	36.6	28.9	38.6
SCHOLAR	24.6	24.8	34.3	24.3	36.6	28.9	38.6	42.5	37.7	45.8	45.7	42.1	31.9	26.7	36.4	38.1	33.3	20.8	24.1	30.4	20.1	31.3	25.4	35.6
REEDER	20.8	24.1	30.4	20.1	31.3	25.4	35.6	39.8	35.5	44.8	41.3	39.4	30.8	25.7	32.5	33.8	30.7	19.7	21.3	28.6	20.9	29.3	24.0	31.5
CONAN	19.7	21.3	28.6	20.9	29.3	24.0	31.5	34.8	29.1	39.3	35.0	33.9	33.4	23.3	31.9	32.8	30.4	18.9	23.6	28.8	20.3	30.7	24.4	32.7
HANK	18.9	23.6	28.8	20.3	30.7	24.4	32.7	35.3	30.4	39.1	35.8	34.7	30.3	26.0	32.9	33.1	30.6	25.8	20.9	30.8	24.1	32.9	26.9	36.1
OUTLOOK	25.8	20.9	30.8	24.1	32.9	26.9	36.1	37.7	36.1	44.1	40.5	38.9	30.6	24.3	32.5	33.6	30.3	19.5	21.3	28.6	19.8	31.3	24.1	34.1
CHOTEAU	19.5	21.3	28.6	19.8	31.3	24.1	34.1	35.9	33.2	39.9	36.3	35.9	29.3	22.7	32.5	34.6	29.8	0	21.0	29.1	21.6	30.1		0
NORPRO	0	21.0	29.1	21.6	30.1		0	34.0	32.1	40.7	36.2		0	24.0	29.9	33.4		0	24.0	30.5	21.2	30.9		0
KNUDSON	0	24.0	30.5	21.2	30.9		0	35.2	34.5	41.0	35.7		0	24.3	33.8	33.3		0	0.0	29.8	21.5	32.6		0
VIDA	0	0.0	29.8	21.5	32.6		0	0.0	34.6	40.8	39.8		0	25.3	33.5	34.7		0	0.0	33.6	27.1			0
AVERAGE	23.2	23.2	31.0	22.6	33.8	27.1	36.4	38.7	35.2	43.1	40.5	39.3	31.8	24.9	34.6	35.8	32.1							

ID	DISTRICT 1 LISPELL						DISTRICT 2 BOZEMAN DRY						DISTRICT 2 BOZEMAN IRRIGATED											
	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE						
	CORBIN	31.6	30.2	31.9	38.4	35.7	33.6	31.6	36.4	30.4	37.4	31.4	33.4	32.1	37.8	33.6	38.7	31.5	34.7	39.4	44.6	47.9	47.5	42.9
THATCHER	39.4	35.1	44.6	47.9	47.5	42.9	41.3	47.0	37.1	49.6	44.0	43.8	43.8	45.0	41.6	46.6	43.5	44.1	38.5	35.5	39.8	45.3	46.3	41.1
FORTUNA	38.5	35.5	39.8	45.3	46.3	41.1	37.5	45.1	36.6	44.7	38.2	40.4	38.3	40.3	40.2	43.1	38.0	40.0	33.4	32.7	31.8	36.8	39.9	34.9
MCNEAL	33.4	32.7	31.8	36.8	39.9	34.9	33.2	35.5	29.6	36.5	31.5	33.2	34.5	38.9	33.1	39.7	31.4	35.5	38.2	35.1	39.1	40.1	44.9	39.5
ERNEST	38.2	35.1	39.1	40.1	44.9	39.5	36.9	44.1	33.1	42.9	39.4	39.3	41.2	46.9	37.8	45.8	37.4	41.8	35.6	34.4	37.3	39.2	42.8	37.9
SCHOLAR	35.6	34.4	37.3	39.2	42.8	37.9	36.4	44.2	32.8	42.0	37.4	38.6	38.1	43.6	35.7	42.7	37.7	39.5	35.5	32.1	35.2	37.6	39.1	35.9
REEDER	35.5	32.1	35.2	37.6	39.1	35.9	31.6	36.6	30.7	39.2	33.7	34.4	34.7	39.8	35.1	40.1	32.9	36.5	31.8	28.9	32.2	34.8	35.7	32.7
CONAN	31.8	28.9	32.2	34.8	35.7	32.7	30.3	33.1	27.3	36.4	29.9	31.4	31.9	35.9	32.0	36.1	29.7	33.1	30.5	28.0	31.0	34.1	37.5	32.2
HANK	30.5	28.0	31.0	34.1	37.5	32.2	29.3	34.6	28.0	34.5	29.2	31.1	30.5	33.7	31.5	33.5	29.4	31.7	33.7	31.7	32.9	36.6	38.2	34.6
OUTLOOK	33.7	31.7	32.9	36.6	38.2	34.6	32.2	35.9	29.4	36.5	32.2	33.2	35.9	37.7	32.8	40.6	32.9	36.0	30.6	29.5	31.4	35.4	36.6	32.7
CHOTEAU	0	28.5	31.3	34.7	35.7		0	32.3	27.7	33.2	29.3		0	34.3	31.6	34.8	29.6		0	31.4	32.7	35.3	37.9	
NORPRO	0	31.4	32.7	35.3	37.9		0	36.0	28.5	36.1	32.1		0	37.8	32.0	37.9	32.0		0	0.0	33.6	37.7	38.2	
KNUDSON	0	0.0	33.6	37.7	38.2		0	0.0	29.2	36.9	33.1		0	0.0	33.2	38.1	32.1		0	0.0	36.2	37.7	38.2	
VIDA	0	0.0	33.6	37.7	38.2		0	0.0	29.2	36.9	33.1		0	0.0	33.2	38.1	32.1		0	0.0	33.6	37.7	38.2	
AVERAGE	34.4	31.8	34.6	38.1	39.7	36.2	33.7	38.2	30.6	38.6	33.7	35.5	35.7	39.1	34.4	39.6	33.4	36.9						

Table 5. Heading Date from 1/1

ID	DISTRICT 5 HAVRE DRYLAND						DISTRICT 5 CONRAD DRYLAND						DISTRICT 6 SIDNEY DRYLAND						DISTRICT 6 SIDNEY IRRIGATED					
	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE
CORBIN	172	187	179	180	164	176	173	185	181	184	175	180	170	179	167	172	164	170	177	181	174	175	167	175
THATCHER	177	186	184	183	168	180	178	188	185	186	180	183	176	183	172	178	170	176	184	185	180	183	173	181
FORTUNA	173	187	178	180	165	177	174	185	183	183	176	180	173	181	169	173	165	172	181	182	175	180	170	178
MCNEAL	175	188	181	182	170	179	176	186	183	185	178	182	175	182	171	176	168	174	182	184	179	182	171	180
ERNEST	174	187	177	182	167	178	175	186	183	184	177	181	173	181	170	174	167	173	180	182	175	178	170	177
SCHOLAR	176	189	180	182	170	179	176	188	184	186	179	183	175	182	171	175	168	174	183	183	179	179	172	179
REEDER	173	187	179	182	166	178	174	183	180	185	176	180	174	181	168	173	165	172	180	182	174	179	169	177
CONAN	175	188	180	180	166	178	174	185	181	185	175	180	173	179	168	171	166	171	181	182	176	178	170	177
HANK	172	186	177	179	164	176	174	182	180	183	175	179	170	179	167	170	163	170	179	181	173	173	166	175
OUTLOOK	174	188	180	182	170	179	176	186	183	186	179	182	175	182	171	176	169	175	182	184	179	179	172	179
CHOTEAU	174	187	179	182	166	178	174	186	181	185	177	181	173	180	169	173	166	172	181	182	174	179	170	177
NORPRO	0	188	178	182	165		0	186	181	185	176		0	181	169	173	166		0	181	174	178	169	
KNUDSON	0	187	180	182	166		0	185	183	185	178		0	180	170	174	165		0	182	176	179	169	
VIDA	0	0	180	183	167		0	0	183	185	178		0	0	170	174	166		0	0	176	178	170	
AVERAGE	174	187	179	182	167	178	175	185.5	182.2	185	177	181	173	181	169	174	166	173	181	182	176	179	170	178

ID	DISTRICT 3 HUNTLEY DRY						DISTRICT 3 HUNTLEY IRRIGATED						DISTRICT 4 MOCCASIN										
	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE					
CORBIN	157	170	164	159	157	161	160	170	164	160	156	162	175	181	183	171	177	163	175	186	189	176	183
THATCHER	163	175	168	161	157	165	168	173	168	166	158	167	181	186	189	176	183	163	175	183	185	171	179
FORTUNA	160	172	166	158	156	163	168	172	166	160	156	165	175	183	185	171	179	163	175	183	185	171	179
MCNEAL	162	175	167	160	159	165	169	174	167	161	160	166	179	184	186	174	181	163	175	183	185	171	179
ERNEST	161	175	166	160	156	164	167	172	166	161	157	165	177	182	185	172	179	163	175	183	186	174	181
SCHOLAR	161	174	167	159	157	164	167	173	167	161	158	165	179	183	186	174	181	163	175	183	186	174	181
REEDER	159	173	165	158	157	163	163	171	164	159	157	163	176	183	185	171	179	163	175	183	186	174	181
CONAN	159	171	165	157	159	162	165	171	165	159	157	164	178	182	184	171	178	163	175	183	186	174	181
HANK	159	171	164	158	159	162	164	172	163	160	158	163	176	181	182	171	177	163	175	183	186	174	181
OUTLOOK	162	175	167	160	160	165	168	175	167	164	163	168	180	184	186	175	181	163	175	183	186	174	181
CHOTEAU	160	173	165	158	158	163	167	173	167	161	158	165	177	183	184	172	179	163	175	183	186	174	181
NORPRO	0	174	167	159	159		0	173	166	161	160		0	183	184	170		0	183	184	172	179	
KNUDSON	0	173	167	159	159		0	173	166	162	158		0	183	185	173		0	183	186	174	181	
VIDA	0	0	166	158	158		0	0	166	160	158		0	183	186	173		0	183	186	174	181	
AVERAGE	160	173	166	159	158	163	166	173	166	161	158	165	178	183	185	172	179	163	175	183	186	174	181

ID	DISTRICT 1 KALISPELL						DISTRICT 2 BOZEMAN DRY						DISTRICT 2 BOZEMAN IRRIGATED										
	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE	2001	2002	2003	2004	2006	AVE					
CORBIN	172	180	170	166	178	173	171	184	183	179	174	178	172	184	180	181	173	178	163	175	186	174	181
THATCHER	176	188	177	174	184	180	178	187	187	184	179	183	179	187	183	183	179	182	163	175	186	174	181
FORTUNA	175	184	173	168	180	176	174	185	184	181	176	180	176	184	181	180	176	179	163	175	186	174	181
MCNEAL	177	184	173	169	180	177	176	186	187	183	177	182	178	186	182	182	177	181	163	175	186	174	181
ERNEST	175	186	174	171	179	177	175	184	183	182	176	180	175	183	180	182	176	179	163	175	186	174	181
SCHOLAR	176	186	174	170	181	178	175	186	186	183	177	181	177	186	181	183	177	181	163	175	186	174	181
REEDER	174	180	173	168	178	175	174	184	184	181	173	179	175	184	180	181	176	179	163	175	186	174	181
CONAN	175	179	171	166	179	174	173	183	184	181	175	179	175	184	179	180	176	179	163	175	186	174	181
HANK	173	178	170	166	178	173	172	183	182	182	174	179	173	184	180	179	174	178	163	175	186	174	181
OUTLOOK	179	186	175	171	181	178	177	187	188	183	178	183	180	186	183	183	178	182	163	175	186	174	181
CHOTEAU	175	181	172	168	179	175	173	184	183	182	176	180	177	183	179	180	176	179	163	175	186	174	181
NORPRO	0	181	173	168	179		0	184	184	182	176		0	184	180	181	176		0	184	180	176	179
KNUDSON	0	183	173	169	179		0	186	184	182	176		0	185	180	181	177		0	185	180	176	179
VIDA	0	0	173	169	180		0	0	184	183	177		0	0	181	184	176		0	0	176	178	170
AVERAGE	175	183	173	169	180	176	174	184.9	184.5	182	176	180	176	185	181	181	176	180	163	175	186	174	181

Table 6.

PAIRED T-TEST (2001-2006)

GRAIN YIELD (BU/AC)

REFERENCE MEAN: CORBIN (58.8 N=49)

NAME	ACTUAL MEAN	NO. OBS	MEAN DIFF	T-PAIRED VALUE	P-VALUE
THATCHER	49.7	49	-9.1	-6.3	0.000
FORTUNA	54.3	49	-4.4	-3.8	0.000
MCNEAL	60.9	49	2.1	1.5	0.130
ERNEST	57.5	49	-1.2	-1.1	0.282
SCHOLAR	59.6	49	0.8	0.7	0.508
Reeder	63.9	49	5.1	4	0.000
Conan	57.6	49	-1.2	-1.3	0.205
HANK	63.7	49	4.9	4.1	0.000
OUTLOOK	63.7	49	4.9	3.7	0.000
CHOTEAU	62.4	49	3.7	3.1	0.003
NORPRO	62.6	39	3.1	1.9	0.071
KNUDSON	59.9	39	0.4	0.2	0.812
VIDA	66.3	30	7.6	5.1	0.000

GRAIN TEST WEIGHT (LB/BU)

REFERENCE MEAN: CORBIN (60.2 N=49)

NAME	ACTUAL MEAN	NO. OBS	MEAN DIFF	T-PAIRED VALUE	P-VALUE
THATCHER	57.6	49	-2.6	-8.7	0.000
FORTUNA	60.1	49	-0.1	-0.4	0.666
MCNEAL	58.9	49	-1.2	-5.1	0.000
ERNEST	60	49	-0.2	-1	0.344
SCHOLAR	60.3	49	0.1	0.7	0.464
Reeder	60.2	49	0.1	0.5	0.617
Conan	59.8	49	-0.3	-1.7	0.103
HANK	58.1	49	-2.1	-10.3	0.000
OUTLOOK	58.4	49	-1.8	-7.3	0.000
CHOTEAU	59.8	49	-0.3	-1.6	0.113
NORPRO	59.2	39	-0.9	-2.8	0.008
KNUDSON	59.9	39	-0.2	-0.8	0.424
VIDA	59.2	30	-1.1	-4.5	0.000

HEADING DATE (JULIAN DAYS)

REFERENCE MEAN: CORBIN (173 N=49)

NAME	ACTUAL MEAN	NO. OBS	MEAN DIFF	T-PAIRED VALUE	P-VALUE
THATCHER	178	49	4.8	17.5	0.000
FORTUNA	175	49	1.7	7.1	0.000
MCNEAL	177	49	3.4	14	0.000
ERNEST	175	49	2.1	8.8	0.000
SCHOLAR	176	49	3.3	16.4	0.000
Reeder	174	49	1.2	6.4	0.000
Conan	174	49	1.2	6.1	0.000
HANK	173	49	0	0	0.977
OUTLOOK	177	49	4	16.5	0.000
CHOTEAU	175	49	1.7	7.6	0.000
NORPRO	175	39	1.5	7.1	0.000
KNUDSON	176	39	1.9	10.5	0.000
VIDA	174	30	2.3	13.5	0.000

PLANT HEIGHT (INCHES)

REFERENCE MEAN: CORBIN (30.6 N=49)

NAME	ACTUAL MEAN	NO. OBS	MEAN DIFF	T-PAIRED VALUE	P-VALUE
THATCHER	38.9	49	8.2	18.2	0.000
FORTUNA	36.1	49	5.5	17.5	0.000
MCNEAL	31.5	49	0.9	4.2	0.000
ERNEST	35.9	49	5.3	16.2	0.000
SCHOLAR	34.7	49	4.1	13.2	0.000
Reeder	31.9	49	1.3	5.9	0.000
Conan	29.3	49	-1.3	-5.9	0.000
HANK	29.3	49	-1.3	-5.2	0.000
OUTLOOK	31.6	49	1	3.7	0.000
CHOTEAU	29.7	49	-0.9	-4.9	0.000
NORPRO	29.5	39	-2	-6.2	0.000
KNUDSON	31.1	39	-0.4	-1.8	0.074
VIDA	32.8	30	0.7	2.5	0.018

GRAIN PROTEIN (%)

REFERENCE MEAN: CORBIN (15.4 N=49)

NAME	ACTUAL MEAN	NO. OBS	MEAN DIFF	T-PAIRED VALUE	P-VALUE
THATCHER	15.6	48	0.2	0.8	0.456
FORTUNA	15.1	48	-0.3	-2.2	0.035
MCNEAL	15	48	-0.4	-2.4	0.023
ERNEST	15.6	48	0.2	1.2	0.244
SCHOLAR	15.7	48	0.3	1.5	0.147
Reeder	15.3	48	-0.1	-0.5	0.646
Conan	15.3	48	-0.1	-0.5	0.635
HANK	15.3	48	-0.2	-1.1	0.274
OUTLOOK	14.8	48	-0.7	-3.8	0.000
CHOTEAU	15.3	48	-0.1	-0.8	0.457
NORPRO	14.8	39	-0.5	-2.8	0.009
KNUDSON	14.8	39	-0.5	-3	0.005
VIDA	14.8	30	-0.5	-2.5	0.019

Table 7. 2003-2006 Yield

ID	HAVRE	CONRAD	SIDNEY	SIDNEY	MOCCASIN	HUNTLEY	HUNTLEY	KALISPELL	BOZEMAN	BOZEMAN
	DRY	DRY	DRY	IRR	DRY	DRY	IRR		DRY	IRR
CHOTEAU	29.2	<u>63.5</u>	58.5	84.9*	28.2	39.8*	101.1*	80.2*	62.3	76.1*
CONAN	29.6*	52.3	53.6	78.8	30.0	35.2	87.1	78.4*	58.2	74.2*
CORBIN	29.1	55.8	58.9	77.5	28.4	35.6	86.6	70.2*	64.3*	80.7*
ERNEST	26.1	51.3	54.9	79.7	24.3	39.4*	94.8*	71.8*	57.0	71.0*
FORTUNA	28.9	50.4	55.6	68.1	29.1	36.9	86.2	72.2*	58.8	73.2*
HANK	29.6*	56.2	61.6	90.1*	<u>33.4</u>	39.7*	100.4*	83.3*	62.6	<u>83.5</u>
KNUDSON	24.5	54.6	61.4	87.2*	27.9	38.6	84.3	82.9*	59.3	72.7*
MCNEAL	27.4	52.8	60.6	86.8*	30.5*	44.1*	97.2*	72.2*	57.5	67.1
NORPRO	26.5	56.0	64.6	90.0*	25.5	41.6*	96.3*	82.5*	59.7	73.8*
OUTLOOK	32.3*	57.6	64.6	85.9*	29.2	<u>46.1</u>	99.7*	76.1*	61.7	75.6*
REEDER	27.4	58.9*	65.1*	<u>91.7</u>	30.3*	42.0*	91.2*	<u>85.0</u>	65.1*	76.0*
SCHOLAR	28.0	53.3	59.5	78.3	28.4	39.8*	96.1*	73.3*	61.9	75.3*
THATCHER	23.3	40.2	47.6	66.0	20.9	37.0	82.7	57.8	46.7	54.0
VIDA	<u>33.4</u>	61.2*	<u>68.2</u>	91.3*	30.5*	43.5*	<u>101.5</u>	82.6*	<u>70.2</u>	80.5*
MEAN	28.2	54.6	59.6	82.6	28.3	39.9	93.2	76.3	60.4	73.8
C.V. (%)	8.74	6.06	3.41	6.73	6.69	10.21	7.9	12.4	6.83	10.6
LSD (.05)	4.14	5.55	3.41	9.32	3.18	6.84	12.37	15.88	6.92	13.15
F-VALUE (ID)	3.7	8.46	21.43	6.56	7.84	1.89 ns	2.48	1.82 ns	4.92	2.45

means followed by an asterik are not significantly different (at the .05 level) from the highest yielding wheat which is underlined

Table 8. 2003 Quality data

2003 ADVANCED SPRING WHEAT NURSERY- MEANS- HAVRE,SIDNEY,MOCCASIN,BOZEMAN

Variety	Pedigree	Class	Wheat Protein, % (12% m.b.)	Flour Protein, % (14% m.b.)	Flour Yield, %	Flour Ash, %	Mixing Tolerance	Mixing Time, min	Mixing Water Absorption, %	Bake Mixing Time, min	Bake Water Absorption, %	Loaf Volume	Crumb Grain Score
CI 13596	FORTUNA	HRS	17.4	66.8	14.3	0.50	3.3	2.9	62.7	4.0	72.0	1145	3.8
PI574642	MCNEAL	HRS	17.8	62.8	14.8	0.47	6.0	5.5	64.1	8.6	76.8	1270	3.3
PI527682	AMIDON	HRS	17.8	67.5	14.9	0.47	4.8	3.7	64.5	4.0	72.8	1166	3.0
PI592761	ERNEST	HRS	18.3	66.9	15.4	0.43	4.8	3.6	64.4	7.1	74.1	1266	3.5
PI607557	SCHOLAR	HRS	18.6	66.8	15.6	0.49	3.8	3.2	64.5	3.4	72.7	1193	2.5
ND 695	Reeder	HRS	17.5	65.4	14.6	0.41	3.0	2.8	63.8	3.5	72.7	1138	2.5
WB 926	WESTBRED 926	HRS	17.9	64.0	15.0	0.48	3.3	3.4	63.8	5.5	73.5	1205	3.5
BZ992588	Conan	HRS	17.4	64.6	14.2	0.46	5.3	4.3	62.9	6.9	73.4	1225	4.0
BZ996434	CORBIN	HRS	17.5	65.5	14.4	0.45	3.8	4.0	64.7	7.9	75.8	1121	3.5
BZ992322	HANK	HRS	17.6	66.5	14.6	0.47	4.8	5.0	64.1	8.0	74.0	1230	3.5
MT 9874	OUTLOOK	HRS	17.3	65.8	14.5	0.48	5.5	3.4	63.0	4.5	72.4	1161	3.5
PI612605	MTHW9420	HWS	16.8	64.0	14.3	0.53	3.3	3.6	64.3	4.8	73.8	1144	3.0
	Nursery MIN		15.9	62.7	13.1	0.41	2.0	2.8	61.2	3.4	72.0	1064	2.5
	Nursery MAX		18.6	67.5	15.6	0.54	6.0	5.5	65.9	8.6	76.8	1323	4.0
	Nursery MEAN		17.3	65.3	14.5	0.46	4.2	3.8	64.0	5.8	73.9	1197	3.4

Table 9. Quality Data														
2004 Advanced Spring Wheat Yield Trial Means Across Locations														
Location: Means Across Locations														
Identification	Class	Wheat Protein, % (12% m.b.)	Flour Protein, % (14% m.b.)	Flour Yield, %	Flour Ash, %	Mixograph Type	Mixing Tolerance	Mixing Time, min	Mixing Time, min	Bake Water Absorption, %	Bake Water Absorption, %	Bake Water Absorption, %	Loaf Volume	Crumb Grain Score
CI 10003	THATCHER	HRS	16.7	65.5	14.4	0.43		4.8	4.8	66.9	9.8	77.4	1249	3.8
CI 13596	FORTUNA	HRS	15.6	69.8	13.2	0.41		4.0	3.3	63.4	4.9	73.1	1161	3.5
CI 17430	NEWANA	HRS	15.6	63.7	13.0	0.39		4.8	3.6	63.1	6.4	72.8	1212	3.0
PI549275	HI-LINE	HRS	16.0	62.6	13.5	0.40		6.5	7.2	64.2	11.9	76.2	1275	3.8
PI574642	MCNEAL	HRS	15.5	65.4	13.0	0.40		6.3	8.2	63.8	15.0	77.2	1202	3.0
PI527682	AMIDON	HRS	15.1	69.0	12.9	0.40		4.8	3.7	63.0	6.2	72.7	1137	3.8
PI592761	ERNEST	HRS	16.1	68.3	13.5	0.40		5.5	4.3	64.3	10.9	74.8	1189	4.0
PI607557	SCHOLAR	HRS	16.4	69.3	13.7	0.41		5.3	3.2	64.2	5.6	73.8	1166	3.3
ND 695	REEDER	HRS	15.5	66.5	13.1	0.38		4.5	3.4	63.4	4.9	73.1	1086	3.0
WB 926	WESTBRED 926	HRS	15.6	66.2	13.1	0.41		4.5	4.5	62.0	6.9	71.9	1166	3.5
BZ992588	CONAN	HRS	15.5	65.6	12.7	0.39		4.8	5.6	62.2	9.4	73.8	1172	3.8
BZ996434	CORBIN	HRS	15.4	68.7	12.9	0.40		5.3	5.1	63.7	14.2	75.7	1093	4.0
BZ992322	HANK	HRS	15.8	67.2	13.1	0.38		4.8	6.3	62.5	9.2	72.7	1170	3.8
PI632252	OUTLOOK	HRS	14.8	67.2	12.4	0.40		4.8	4.5	62.4	7.1	72.6	1129	3.0
PI633974	CHOTEAU	HRS	15.3	66.6	13.1	0.37		5.0	3.7	63.1	6.0	72.7	1157	3.3
AGRIPRO3	FREYR	HRS	15.2	68.4	13.0	0.39		5.3	4.3	63.3	6.7	74.4	1129	3.3
	NURSERY MIN		13.7	62.6	11.9	0.36		3.3	2.1	61.3	2.5	69.3	1054	2.3
	NURSERY MAX		16.7	70.3	14.4	0.44		7.0	11.4	66.9	23.3	79.7	1275	4.0
	NURSERY AVE		15.4	67.2	13.1	0.40		5.0	4.8	63.6	8.9	74.2	1159	3.4

Table 10. 2006 Havre							
Saw Fly rating %							
ID	HEADDATE	PLANT HT.	YIELD	TESTWT	SAWFLY	PROTEIN	
	(JULIAN DAYS)	(inches)	(BU/AC)	(lb/bu)	RATING %	%	
	LAT MEANS	LAT MEANS	LAT MEANS	LAT MEANS	LAT MEANS	1 REP	
CORBIN	164.2	23.2	29.4	54.5	0.5	18.3	
THATCHER	167.9	31.3	25.6	51.0	11.5	18.7	
FORTUNA	165.1	27.9	34.0	56.5	3.1	16.5	
MCNEAL	169.5	24.2	27.4	51.9	14.5	18.0	
ERNEST	167.3	28.5	26.6	54.1	4.0	18.7	
SCHOLAR	169.9	26.3	27.0	55.2	13.3	18.5	
Reeder	166.2	25.4	28.8	53.9	7.6	17.2	
Conan	166.5	21.7	31.9	54.9	1.2	18.0	
HANK	164.1	23.8	33.3	53.0	9.8	17.7	
OUTLOOK	169.8	26.1	31.8	52.0	15.7	18.4	
CHOTEAU	166.3	26.0	32.1	53.7	0.8	17.8	
NORPRO	165.3	24.6	30.9	51.7	11.9	17.5	
KNUDSON	166.0	24.9	27.8	54.6	6.2	17.6	
Vida	166.9	26.9	34.3	53.0	4.4	17.9	

Table 11. 2006 Kalispell							
ID	VARIETY/PEDIGREE	HEADDATE (Julian Days)	PLANT HT. (inches)	LODGING (%)	STRIPE RUST (%)	YIELD (bu/ac)	TEST WT. (lb/bu)
		RCB MEANS	RCB MEANS	RCB MEANS	RCB MEANS	LAT MEANS	(1 REP)
BZ996434	CORBIN	178	35.7	40.3	42.2	44.8	58.4
CI 10003	THATCHER	184	47.5	50.0	82.2	22.3	57.9
CI 13596	FORTUNA	180	46.3	38.7	29.5	41.4	58.3
PI574642	MCNEAL	180	39.9	23.0	82.7	51.3	58.4
PI592761	ERNEST	179	44.9	58.0	29.2	50.2	61.4
PI607557	SCHOLAR	181	42.8	61.7	64.0	37.9	59.8
ND 695	Reeder	178	39.1	29.0	13.6	75.1	60.8
BZ992588	Conan	179	35.7	1.7	10.1	56.5	61.1
BZ992322	HANK	178	37.5	0.0	72.3	74.0	56.6
PI632252	OUTLOOK	181	38.2	3.7	21.0	63.0	58.6
PI633974	CHOTEAU	179	36.6	0.0	13.2	74.2	61.6
AGRIPRO1	NORPRO	179	35.7	14.3	43.9	70.7	60.5
AGRIPRO2	KNUDSON	179	37.9	9.7	17.1	72.4	60.9
PI642366	VIDA	180	38.2	40.0	3.1	54.5	60.6
MEAN		178.5	38.3	15.7	41.0	65.3	60.4