

# WB-Gunnison

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## 2011 VARIETAL RECOMMENDATION

### **WB-Gunnison** (exp. # BZ902-413R)

WestBred request's that 'WB-Gunnison' hard red spring wheat be considered for "Variety Recommendation in the State of Montana".

A motion that WB-Gunnison be recommended as a hard red spring wheat for dryland in districts 3, 4, 5, and 6.

WB-Gunnison is a hard red spring wheat developed by WestBred from the cross, Conan/Agawam. Application for PVP will be submitted.

WB-Gunnison is being released as a high quality hard red spring wheat that is intended to replace Conan and Corbin acres.. For the 3 year period 2008 - 2010, (22 locations), the average per acre yield of WB-Gunnison in the MSU Intrastate Trials is 55.5 bushels, compared to Conan at 51.3 bushels and Corbin at 55.7 bushels. The average test weight has been 60.6 lbs, which is .5 pounds heavier than Conan and .6 lbs heavier than Corbin. Protein levels have averaged 13.8%, which is .4 percentage points lower than Conan and .2 percentage points lower than Corbin. The average plant height of WB-Gunnison is 30 inches, which is similar Conan and Corbin. The average heading date of WB-Gunnison is similar to Corbin and 1 day earlier than Conan. See Tables 1 through 5 for summaries by location.

Milling and baking quality data from the 2009-2010 crops indicate that WB-Gunnison has acceptable quality (Tables 6 and 7)

Disease/sawfly ratings for WB-Gunnison show it to be MR to stripe rust (Table 9.). WB-Gunnison is a hollow stemmed variety, but **has high yields under wheat stem sawfly pressure due to relative non-preference in small plot nursery trials\***. (Table 8.).

**\*Change of wording suggested by Dr. David Weaver.**

## WB-Gunnison

**Table 1. Yield bu/ac**

ID	BOZ IRR				HAVRE				SID DRY			
	2007	2009	2010	AVE	2007	2009	2010	AVE	2007	2009	2010	AVE
WB-Gunnison	43.5	70.2		56.9	38.4	45.4	62.8	48.8	51.2	36.3	41.8	43.1
FORTUNA	37.7	62.6		50.2	32.1	46.3	48.7	42.3	49.2	39.7	43.2	44.0
MCNEAL	41.3	68.9		55.1	34.8	42.4	48.8	42.0	53.8	45.0	39.4	46.1
REEDER	57.0	82.6		69.8	35.6	49.0	55.2	46.6	52.1	44.5	47.4	48.0
OUTLOOK	54.4	80.9		67.7	35.5	44.3	56.2	45.4	55.7	44.7	46.7	49.0
CHOTEAU	54.1	80.3		67.2	36.1	40.7	54.8	43.9	52.1	39.8	45.6	45.8
VIDA	58.0	81.4		69.7	42.3	53.8	59.3	51.8	56.2	49.5	53.2	53.0
HANK	56.2	79.2		67.7	34.5	46.7	56.2	45.8	53.6	42.8	44.0	46.8
CONAN	52.2	60.0		56.1	35.8	43.3	51.1	43.4	48.8	37.4	38.2	41.5
CORBIN	49.5	65.0		57.3	42.8	45.9	52.8	47.2	55.7	39.2	47.2	47.4
VOLT	60.1	87.2		73.7	35.3	42.5	49.0	42.2	53.5	39.8	46.0	46.4
ONEAL	51.2	80.6		65.9	34.5	48.6	59.2	47.5	51.0	46.8	48.7	48.8
JEDD	52.9	72.1		62.5	34.4	43.3	52.6	43.4	57.7	42.3	46.1	48.7
FREYR	57.5	65.7		61.6	33.7	43.2	46.2	41.0	51.4	43.9	43.2	46.2
KELBY	59.1	51.1		55.1	37.5	44.0	47.3	43.0	49.3	42.4	39.7	43.8
KUNTZ	59.5	64.8		62.2	31.5	44.4	44.4	40.1	51.6	45.9	39.5	45.7
AVERAGE	52.8	72.0		62.4	35.9	45.2	52.8	44.7	52.7	42.5	44.4	46.5

## WB-Gunnison

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### Yield

ID	SID IRR				KALISPELL				MOCCASIN			
	2007	2009	2010	AVE	2007	2009	2010	AVE	2007	2009	2010	AVE
WB-Gunnison	42.1	86.5	77.1	68.6	51.2	72.5	83.8	69.2	41.9	30.6	41.4	37.9
FORTUNA	40.3	75.5	68.2	61.3	51.6	78.3	86.3	72.1	34.5	26.2	38.1	33.0
MCNEAL	46.4	95.3	66.2	69.3	52.9	77.8	84.2	71.6	43.0	33.9	40.8	39.2
REEDER	44.1	95.7	85.0	74.9	62.8	99.9	103.2	88.6	42.0	30.5	41.2	37.9
OUTLOOK	42.6	96.3	87.2	75.4	55.8	71.2	89.0	72.0	44.6	27.9	44.4	39.0
CHOTEAU	35.5	94.8	79.4	69.9	47.2	92.1	95.0	78.1	43.0	24.4	40.2	35.8
VIDA	35.7	96.0	68.0	66.6	64.3	91.9	99.2	85.1	44.3	34.3	41.5	40.0
HANK	40.3	99.2	65.3	68.3	55.9	89.6	88.9	78.1	42.3	31.1	42.8	38.8
CONAN	37.5	82.7	73.3	64.5	46.1	63.3	77.2	62.2	37.7	29.6	41.1	36.1
CORBIN	29.1	93.4	61.6	61.4	53.0	87.0	95.0	78.3	41.7	26.6	37.6	35.3
VOLT	42.9	96.9	80.8	73.5	59.1	75.4	113.6	82.7	40.0	28.2	38.4	35.5
ONEAL	40.3	100.5	67.6	69.5	55.1	94.3	70.6	73.3	40.6	31.2	43.9	38.6
JEDD	37.1	82.5	51.0	56.9	54.8	95.3	71.1	73.7	46.0	26.4	41.4	38.0
FREYR	31.9	91.0	85.4	69.4	54.1	81.6	96.2	77.3	39.0	29.6	37.5	35.4
KELBY	30.6	88.3	74.0	64.3	46.8	80.0	98.4	75.1	40.2	25.5	45.4	37.1
KUNTZ	30.8	95.2	78.7	68.2	50.5	81.1	94.3	75.3	41.4	29.1	38.0	36.2
AVERAGE	37.9	91.9	73.1	67.6	53.8	83.2	90.4	75.8	41.4	29.1	40.9	37.1

## WB-Gunnison

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### Yield

ID	HUNTLEY DRY				CONRAD DRY				BOZ DRY			
	2007	2009	2010	AVE	2007	2009	2010	AVE	2007	2009	2010	AVE
<b>WB-Gunnison</b>	<b>60.4</b>	<b>49.5</b>	<b>73.5</b>	<b>61.2</b>	<b>39.3</b>	<b>67.7</b>	<b>73.8</b>	<b>60.3</b>	<b>43.5</b>	<b>64.1</b>		<b>53.8</b>
FORTUNA	54.7	45.6	62.9	54.4	32.9	62.8	55.0	50.2	40.5	63.6		52.1
MCNEAL	55.9	47.2	72.5	58.5	36.6	74.7	58.4	56.6	42.7	64.6		53.6
REEDER	61.4	51.1	68.5	60.3	35.0	78.7	57.7	57.1	46.4	72.1		59.2
OUTLOOK	63.4	47.9	74.8	62.0	33.6	82.0	42.8	52.8	43.0	72.9		57.9
CHOTEAU	61.9	45.7	74.6	60.7	37.8	75.0	81.2	64.7	39.8	73.9		56.8
VIDA	67.2	57.1	75.5	66.6	37.6	85.5	60.7	61.3	47.7	78.7		63.2
HANK	61.4	55.3	80.7	65.8	33.1	75.3	65.7	58.0	44.7	69.7		57.2
CONAN	55.4	40.4	71.8	55.9	36.2	62.2	61.2	53.2	41.0	58.7		49.8
CORBIN	62.7	48.0	72.8	61.2	37.0	72.5	69.2	59.6	40.8	67.1		53.9
VOLT	63.7	44.6	78.6	62.3	34.5	74.7	56.5	55.2	41.7	79.0		60.4
ONEAL	60.9	55.9	74.5	63.8	37.0	85.4	59.8	60.7	45.9	71.9		58.9
JEDD	60.6	50.0	75.9	62.2	39.8	68.2	60.2	56.1	44.9	69.5		57.2
FREYR	55.0	47.3	68.7	57.0	33.5	66.2	44.4	48.0	36.8	60.1		48.4
KELBY	40.1	36.2	68.9	48.4	39.7	60.6	43.9	48.1	50.1	49.3		49.7
KUNTZ	57.1	50.5	74.4	60.7	37.0	72.4	59.2	56.2	42.7	61.0		51.8
<b>AVERAGE</b>	<b>58.9</b>	<b>48.3</b>	<b>73.0</b>	<b>60.1</b>	<b>36.3</b>	<b>72.7</b>	<b>59.4</b>	<b>56.1</b>	<b>43.3</b>	<b>67.3</b>		<b>55.3</b>

## WB-Gunnison

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Yield

ID	Yield		
	OVERALL MEAN	STA. YEARS	RANK
WB- Gunnison	55.5	22	9
FORTUNA	51.1	22	16
MCNEAL	54.7	22	12
REEDER	59.9	22	2
OUTLOOK	57.5	22	7
CHOTEAU	57.8	22	6
VIDA	61.6	22	1
HANK	58.2	22	5
CONAN	51.3	22	15
CORBIN	55.7	22	8
VOLT	58.5	22	3
ONEAL	58.2	22	4
JEDD	55.0	22	10
FREYR	53.7	22	13
KELBY	51.5	22	14
KUNTZ	55.0	22	11
AVERAGE	56.2	22	0
C.V.	6.3		
F-VALUE (ID)	7.54**		
LSD (.05)	3.3		

## WB-Gunnison

**Table 2. Test Weight lbs/bu**

ID	BOZ IRR				HAVRE				SID DRY			
	2007	2009	2010	AVE	2007	2009	2010	AVE	2007	2009	2010	AVE
<b>WB-Gunnison</b>	<b>59.5</b>	<b>62.7</b>		<b>61.1</b>	<b>57.4</b>	<b>60.2</b>	<b>59.3</b>	<b>59.0</b>	<b>61.7</b>	<b>62.9</b>	<b>62.5</b>	<b>62.4</b>
FORTUNA	59.0	62.8		60.9	56.8	59.5	57.8	58.0	61.4	62.7	61.0	61.7
MCNEAL	57.2	61.7		59.5	54.8	58.5	57.6	57.0	60.9	62.5	60.0	61.1
REEDER	59.8	62.2		61.0	56.6	59.9	58.0	58.2	61.8	63.6	61.5	62.3
OUTLOOK	57.1	61.7		59.4	55.6	59.2	56.8	57.2	60.7	62.5	60.5	61.2
CHOTEAU	56.9	62.5		59.7	55.5	57.9	56.5	56.6	62.0	63.2	61.0	62.1
VIDA	56.2	59.6		57.9	56.3	58.9	57.5	57.5	61.3	62.8	60.0	61.4
HANK	56.8	60.4		58.6	54.6	58.8	55.8	56.4	60.6	62.8	59.5	61.0
CONAN	58.7	61.2		60.0	57.3	59.8	58.3	58.5	61.3	63.3	62.0	62.2
CORBIN	56.9	62.8		59.9	57.6	59.9	57.1	58.2	61.6	63.6	60.0	61.7
VOLT	59.7	64.1		61.9	57.4	59.8	57.9	58.4	62.4	65.0	61.5	63.0
ONEAL	57.7	61.5		59.6	55.9	60.6	59.0	58.5	61.1	64.1	60.5	61.9
JEDD	59.6	63.6		61.6	58.2	59.7	57.5	58.5	62.7	65.0	61.0	62.9
FREYR	59.2	62.3		60.8	57.1	59.4	57.4	58.0	62.0	63.7	61.5	62.4
KELBY	58.5	62.5		60.5	59.3	59.5	58.2	59.0	62.8	63.7	61.0	62.5
KUNTZ	58.2	62.5		60.4	56.4	58.4	56.6	57.1	62.4	64.4	60.0	62.3
AVERAGE	58.2	62.1		60.2	56.7	59.4	57.6	57.9	61.7	63.5	60.8	62.0

## WB-Gunnison

ID	SID IRR				KALISPELL				MOCCASIN			
	2007	2009	2010	AVE	2007	2009	2010	AVE	2007	2009	2010	AVE
<b>WB-Gunnison</b>	<b>60.7</b>	<b>62.1</b>	<b>59.5</b>	<b>60.8</b>	<b>58.8</b>	<b>61.5</b>	<b>60.1</b>	<b>60.1</b>	<b>57.3</b>	<b>60.7</b>	<b>59.0</b>	<b>59.0</b>
FORTUNA	60.4	61.4	58.5	60.1	57.5	63.4	59.1	60.0	58.4	58.7	60.2	59.1
MCNEAL	58.3	61.7	57.5	59.2	56.2	61.9	59.5	59.2	59.1	61.3	58.4	59.6
REEDER	60.8	62.2	59.0	60.7	57.0	62.5	60.3	59.9	59.4	60.9	60.5	60.3
OUTLOOK	59.3	60.9	58.0	59.4	55.2	59.5	58.0	57.6	57.7	59.0	59.3	58.7
CHOTEAU	60.1	60.9	58.0	59.7	58.3	62.7	58.9	60.0	59.2	58.5	60.2	59.3
VIDA	56.3	60.3	56.5	57.7	58.0	61.4	59.4	59.6	58.7	59.3	59.8	59.2
HANK	58.8	60.8	55.5	58.4	55.2	62.2	56.2	57.9	53.3	58.1	57.0	56.1
CONAN	60.2	61.6	60.0	60.6	58.0	61.3	59.4	59.6	58.1	61.5	58.6	59.4
CORBIN	59.3	62.0	57.5	59.6	58.0	63.4	59.3	60.2	56.9	60.6	58.4	58.6
VOLT	61.3	63.1	60.0	61.5	60.4	63.1	60.7	61.4	59.7	61.7	61.5	61.0
ONEAL	57.6	61.9	54.5	58.0	56.9	61.5	57.9	58.8	58.3	60.9	59.8	59.7
JEDD	59.8	61.8	56.0	59.2	60.4	63.8	57.2	60.5	59.5	60.9	59.8	60.0
FREYR	59.3	62.2	59.0	60.2	59.5	62.7	59.8	60.7	59.7	60.5	59.8	60.0
KELBY	61.3	61.7	59.5	60.8	59.3	64.0	59.4	60.9	61.0	60.1	61.1	60.7
KUNTZ	58.4	62.6	58.0	59.7	58.7	63.4	59.5	60.5	60.4	59.8	60.2	60.1
AVERAGE	59.5	61.7	57.9	59.7	58.0	62.4	59.0	59.8	58.5	60.2	59.6	59.4

## WB-Gunnison

T.W

ID	HUNTLEY DRY				CONRAD DRY				BOZ DRY		
	2007	2009	2010	AVE	2007	2009	2010	AVE	2007	2009	AVE
<b>WB-Gunnison</b>	<b>63.6</b>	<b>61.2</b>	<b>62.4</b>	<b>62.4</b>	<b>59.3</b>	<b>63.4</b>	<b>60.6</b>	<b>61.1</b>	<b>56.1</b>	<b>63.3</b>	<b>59.7</b>
FORTUNA	62.2	60.3	61.9	61.5	58.8	63.3	59.8	60.6	56.1	62.4	59.3
MCNEAL	62.1	60.5	62.1	61.6	57.1	62.7	59.7	59.8	53.8	60.0	56.9
REEDER	63.5	61.6	63.1	62.7	59.1	63.3	60.0	60.8	56.8	61.7	59.3
OUTLOOK	61.6	60.0	61.1	60.9	54.5	62.1	59.1	58.5	52.1	60.6	56.4
CHOTEAU	63.5	60.1	62.5	62.0	59.8	63.2	59.5	60.8	54.8	61.8	58.3
VIDA	62.6	60.4	62.2	61.7	58.8	62.5	59.2	60.2	54.9	60.6	57.8
HANK	62.2	60.1	60.5	60.9	55.9	63.1	58.1	59.0	53.0	59.9	56.5
CONAN	62.6	60.4	61.9	61.7	59.6	62.7	60.4	60.9	55.3	59.8	57.6
CORBIN	63.3	60.8	62.5	62.2	57.8	64.5	59.5	60.6	54.9	62.1	58.5
VOLT	63.9	62.1	63.2	63.0	60.6	65.2	63.0	62.9	53.6	63.3	58.5
ONEAL	62.9	62.2	63.4	62.8	58.5	63.4	62.2	61.4	55.0	61.1	58.1
JEDD	64.2	61.8	63.0	63.0	61.2	63.7	59.3	61.4	56.3	62.6	59.5
FREYR	63.5	60.6	62.8	62.3	58.4	63.4	60.5	60.8	53.7	62.1	57.9
KELBY	63.6	59.7	62.6	62.0	61.8	63.5	59.6	61.6	57.0	63.0	60.0
KUNTZ	62.9	60.9	62.3	62.1	59.5	63.6	60.7	61.2	53.4	62.5	58.0
AVERAGE	63.0	60.8	62.4	62.1	58.8	63.4	60.1	60.7	54.8	61.7	58.2



## WB-Gunnison

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T.W.

ID	OVERALL MEAN	STA. YEARS	RANK
WB-Gunnison	60.6	25	4
FORTUNA	60.1	25	8
MCNEAL	59.4	25	13
REEDER	60.6	25	5
OUTLOOK	58.9	25	15
CHOTEAU	59.9	25	12
VIDA	59.3	25	14
HANK	58.4	25	16
CONAN	60.1	25	9
CORBIN	60.0	25	10
VOLT	61.4	25	1
ONEAL	59.9	25	11
JEDD	60.7	25	3
FREYR	60.4	25	6
KELBY	60.9	25	2
KUNTZ	60.2	25	7
AVERAGE	60.1	25	0
C.V.	0.98		
F-VALUE (ID)	16.07**		
LSD (.05)	0.6		

## WB-Gunnison

Table 3. Heading Date from 1/1

ID	BOZ IRR				HAVRE				SID DRY			
	2007	2009	2010	AVE	2007	2009	2010	AVE	2007	2009	2010	AVE
WB-Gunnison	178.0	189.0		183.5	174.9	176.5	179.6	177.0	170.2	170.3	179.2	173.2
FORTUNA	181.0	190.0		185.5	174.1	177.3	180.6	177.3	172.2	172.7	178.4	174.4
MCNEAL	182.0	193.0		187.5	176.9	180.0	180.3	179.1	174.0	174.0	179.9	176.0
REEDER	181.0	193.0		187.0	177.3	177.2	179.6	178.0	171.6	172.0	178.0	173.9
OUTLOOK	183.0	194.0		188.5	178.5	180.3	181.7	180.2	174.8	174.7	180.3	176.6
CHOTEAU	180.0	190.0		185.0	177.7	177.1	179.3	178.1	171.4	170.7	179.1	173.7
VIDA	181.0	192.0		186.5	178.2	178.3	181.1	179.2	173.2	173.1	178.7	175.0
HANK	179.0	188.0		183.5	173.1	177.7	179.9	176.9	169.6	170.0	176.8	172.1
CONAN	180.0	190.0		185.0	175.6	178.4	179.6	177.9	171.7	172.3	177.1	173.7
CORBIN	179.0	189.0		184.0	173.7	176.7	179.2	176.5	169.8	170.0	178.2	172.7
VOLT	185.0	196.0		190.5	179.0	179.7	181.0	179.9	175.9	173.0	179.4	176.1
ONEAL	183.0	192.0		187.5	176.5	178.8	181.0	178.8	172.1	172.7	178.9	174.6
JEDD	179.0	189.0		184.0	174.1	177.4	179.3	176.9	169.7	169.3	176.1	171.7
FREYR	180.0	189.0		184.5	176.3	177.5	180.1	177.9	171.7	171.0	178.2	173.6
KELBY	178.0	188.0		183.0	173.9	176.0	178.7	176.2	169.2	169.3	177.1	171.9
KUNTZ	181.0	190.0		185.5	177.8	178.8	180.8	179.1	171.8	172.6	179.4	174.6
AVERAGE	180.6	190.8		185.7	176.1	178.0	180.1	178.1	171.8	171.7	178.4	174.0

## WB-Gunnison

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Heading  
Date

ID	SID IRR				KALISPELL				MOCCASIN			
	2007	2009	2010	AVE	2007	2009	2010	AVE	2007	2009	2010	AVE
WB-Gunnison	174.8	174.4	179.6	176.3	168.9	183.9	181.1	178.0	174.7	181.3	184.9	180.3
FORTUNA	176.5	176.9	179.6	177.7	171.8	183.6	181.8	179.1	177.3	182.2	184.4	181.3
MCNEAL	178.1	178.4	181.0	179.2	174.5	185.1	184.0	181.2	179.0	183.8	184.9	182.6
REEDER	175.6	175.1	179.3	176.7	171.0	185.0	180.4	178.8	177.7	183.2	184.8	181.9
OUTLOOK	177.2	178.4	181.6	179.0	174.9	185.2	184.1	181.4	179.2	184.6	186.4	183.4
CHOTEAU	174.7	175.1	179.0	176.3	171.3	182.6	181.2	178.4	176.4	181.4	184.3	180.7
VIDA	176.0	175.9	179.7	177.2	172.5	183.5	181.2	179.1	178.4	183.5	186.4	182.7
HANK	175.2	174.9	179.4	176.5	169.2	181.1	180.4	176.9	175.6	181.6	183.1	180.1
CONAN	175.0	176.0	179.7	176.9	172.3	183.6	181.0	178.9	176.3	182.1	184.3	180.9
CORBIN	174.2	174.7	178.7	175.9	169.8	182.8	180.5	177.7	176.3	181.4	184.0	180.6
VOLT	180.9	179.4	185.0	181.8	174.9	189.7	182.3	182.3	179.9	182.3	187.0	183.1
ONEAL	176.2	177.0	180.3	177.8	173.3	185.0	182.8	180.4	178.2	183.2	184.3	181.9
JEDD	173.9	174.6	178.4	175.6	168.6	181.1	180.3	176.7	175.0	180.8	184.0	179.9
FREYR	175.4	175.8	179.3	176.8	171.1	183.8	180.5	178.5	177.4	182.0	184.0	181.1
KELBY	175.3	174.4	177.4	175.7	168.3	182.2	179.3	176.6	174.0	180.8	183.3	179.4
KUNTZ	175.6	177.5	178.7	177.2	173.9	184.9	181.5	180.1	176.4	182.6	185.0	181.3
AVERAGE	175.9	176.1	179.8	177.3	171.7	183.9	181.4	179.0	177.0	182.3	184.7	181.3

## WB-Gunnison

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ID	HUNTLEY DRY				CONRAD DRY				BOZ DRY		
	2007	2009	2010	AVE	2007	2009	2010	AVE	2007	2009	AVE
WB-Gunnison	158.0	166.6	169.1	164.6	176.0	179.0	184.0	179.7	180.0	189.0	184.5
FORTUNA	159.3	167.7	169.6	165.5	178.0	179.0	187.0	181.3	182.0	190.0	186.0
MCNEAL	162.4	169.7	171.4	167.8	179.0	180.0	187.0	182.0	182.0	193.0	187.5
REEDER	159.6	168.6	170.0	166.1	179.0	179.0	182.0	180.0	181.0	194.0	187.5
OUTLOOK	162.4	171.3	172.3	168.6	180.0	181.0	185.0	182.0	183.0	193.0	188.0
CHOTEAU	160.4	169.0	171.1	166.8	179.0	179.0	185.0	181.0	180.0	191.0	185.5
VIDA	160.3	169.4	169.7	166.5	180.0	180.0	186.0	182.0	182.0	192.0	187.0
HANK	158.6	168.3	168.7	165.2	176.0	179.0	182.0	179.0	179.0	189.0	184.0
CONAN	159.0	168.3	169.6	165.6	179.0	180.0	184.0	181.0	180.0	191.0	185.5
CORBIN	159.3	167.0	168.8	165.0	177.0	178.0	181.0	178.7	179.0	191.0	185.0
VOLT	160.0	168.7	170.4	166.4	181.0	180.0	187.0	182.7	185.0	196.0	190.5
ONEAL	160.4	169.4	171.1	166.9	179.0	180.0	187.0	182.0	182.0	192.0	187.0
JEDD	158.3	167.7	168.5	164.8	177.0	179.0	182.0	179.3	178.0	189.0	183.5
FREYR	160.0	168.6	170.3	166.3	177.0	179.0	185.0	180.3	181.0	190.0	185.5
KELBY	156.6	167.3	168.0	164.0	176.0	178.0	181.0	178.3	178.0	188.0	183.0
KUNTZ	160.7	170.4	169.8	167.0	178.0	179.0	184.0	180.3	181.0	191.0	186.0
AVERAGE	159.7	168.6	169.9	166.1	178.2	179.3	184.3	180.6	180.8	191.2	186.0

## WB-Gunnison

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Heading  
Date

ID	OVERALL	STA.	RANK
	MEAN	YEARS	
WB-Gunnison	176.9	25	12
FORTUNA	178.1	25	8
MCNEAL	179.7	25	3
REEDER	178.2	25	7
OUTLOOK	180.3	25	2
CHOTEAU	177.8	25	9
VIDA	178.9	25	5
HANK	176.6	25	14
CONAN	177.8	25	10
CORBIN	176.8	25	13
VOLT	180.7	25	1
ONEAL	179.1	25	4
JEDD	176.4	25	15
FREYR	177.8	25	11
KELBY	175.9	25	16
KUNTZ	178.5	25	6
AVERAGE	178.1	25	0
C.V.	0.35		
F-VALUE (ID)	46.3**		
LSD (.05)	0.6		

## WB-Gunnison

Table 4. Plant Height (inches)

ID	BOZ IRR				HAVRE				SID DRY			
	2007	2009	2010	AVE	2007	2009	2010	AVE	2007	2009	2010	AVE
<b>WB-Gunnison</b>	<b>32.1</b>			<b>32.1</b>	<b>25.7</b>	<b>25.3</b>	<b>30.9</b>	<b>27.3</b>	<b>29.8</b>	<b>21.3</b>	<b>23.9</b>	<b>25.0</b>
FORTUNA	40.6			40.6	29.1	30.1	40.0	33.0	37.6	24.0	30.5	30.7
MCNEAL	34.0			34.0	25.9	24.7	33.6	28.0	31.8	22.0	25.1	26.3
REEDER	33.6			33.6	27.1	25.8	33.5	28.8	31.2	19.8	22.5	24.5
OUTLOOK	34.2			34.2	26.4	25.5	34.8	28.9	32.4	23.1	25.4	27.0
CHOTEAU	33.2			33.2	24.2	24.4	31.6	26.7	31.0	20.8	24.6	25.5
VIDA	34.6			34.6	26.5	26.4	30.7	27.9	32.5	21.1	25.6	26.4
HANK	31.3			31.3	24.4	24.7	30.8	26.6	27.0	21.2	23.6	23.9
CONAN	32.0			32.0	24.3	26.2	32.5	27.7	29.7	21.9	22.5	24.7
CORBIN	33.5			33.5	27.3	25.8	32.5	28.6	30.1	21.5	24.5	25.4
VOLT	32.5			32.5	25.8	25.6	29.5	27.0	30.0	20.1	22.4	24.1
ONEAL	33.2			33.2	24.1	26.0	32.1	27.4	30.0	22.4	25.8	26.1
JEDD	28.5			28.5	22.7	22.0	26.9	23.9	26.8	19.5	22.1	22.8
FREYR	34.6			34.6	27.6	28.3	33.7	29.9	33.2	23.6	27.6	28.1
KELBY	30.2			30.2	23.2	25.6	29.6	26.1	28.5	20.3	22.9	23.9
KUNTZ	30.2			30.2	25.4	24.8	31.0	27.0	31.1	21.1	24.2	25.5
AVERAGE	33.0			33.0	25.6	25.7	32.1	27.8	30.8	21.5	24.6	25.6

## WB-Gunnison

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Plant Ht.

ID	SID IRR				KALISPELL				MOCCASIN			
	2007	2009	2010	AVE	2007	2009	2010	AVE	2007	2009	2010	AVE
WB-Gunnison	31.4	30.4	28.7	30.2	31.5	30.1	36.5	32.7	36.9	24.1	29.4	30.1
FORTUNA	39.3	37.9	34.0	37.1	39.3	40.1	45.1	41.5	40.0	29.3	37.5	35.6
MCNEAL	34.7	34.5	31.2	33.5	32.2	30.8	41.1	34.7	36.2	27.3	32.6	32.0
REEDER	33.3	33.4	30.9	32.6	32.6	33.7	39.4	35.2	35.4	25.3	32.6	31.1
OUTLOOK	32.3	34.2	32.6	33.0	32.3	32.4	39.2	34.7	35.2	24.3	31.2	30.2
CHOTEAU	28.6	30.8	30.8	30.1	30.6	30.6	36.2	32.5	33.7	21.3	31.4	28.8
VIDA	34.7	30.3	30.8	31.9	31.7	32.1	38.7	34.2	37.0	23.7	31.3	30.7
HANK	29.5	28.2	28.4	28.7	30.5	29.9	35.2	31.9	35.3	23.6	30.2	29.7
CONAN	30.9	29.1	28.7	29.6	29.5	30.6	36.8	32.3	34.1	24.6	30.1	29.6
CORBIN	29.0	30.3	29.3	29.5	32.1	31.9	37.5	33.9	35.2	21.5	31.5	29.4
VOLT	31.7	29.7	31.1	30.8	31.7	31.7	36.2	33.2	34.5	24.4	31.0	29.9
ONEAL	34.8	31.8	30.1	32.2	31.3	31.9	36.8	33.3	35.5	25.0	33.4	31.3
JEDD	24.9	26.0	23.9	24.9	29.0	25.9	30.8	28.6	31.5	19.9	26.7	26.0
FREYR	30.3	31.9	31.4	31.2	33.6	33.4	39.2	35.4	36.2	26.4	34.5	32.4
KELBY	26.2	27.5	27.3	27.0	30.0	28.7	33.2	30.7	30.5	22.1	31.5	28.0
KUNTZ	28.3	28.1	29.8	28.7	29.3	29.1	34.1	30.8	32.9	25.1	29.0	29.0
AVERAGE	31.3	30.9	29.9	30.7	31.7	31.4	37.3	33.5	35.0	24.2	31.5	30.2

## WB-Gunnison

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Plant Ht.

ID	HUNTLEY DRY				CONRAD DRY				BOZ DRY			
	2007	2009	2010	AVE	2007	2009	2010	AVE	2007	2009	2010	AVE
WB-Gunnison	32.1	33.1	35.6	33.6	26.0	29.0	33.7	29.6	29.3	30.0	32.2	30.5
FORTUNA	42.5	40.5	42.7	41.9	34.0	35.0	43.3	37.4	38.7	35.9	38.6	37.8
MCNEAL	34.6	32.9	39.8	35.8	28.0	31.0	38.0	32.3	31.1	30.1	33.1	31.4
REEDER	35.4	34.5	40.2	36.7	25.0	29.0	37.8	30.6	32.6	32.3	31.2	32.0
OUTLOOK	35.3	34.1	38.5	36.0	26.0	30.0	38.7	31.6	30.6	31.7	33.4	31.9
CHOTEAU	32.9	31.4	37.0	33.7	25.0	27.0	35.3	29.1	30.5	29.0	32.4	30.6
VIDA	36.2	34.2	39.9	36.8	27.0	33.0	37.8	32.6	31.6	31.0	31.8	31.5
HANK	32.2	31.9	35.0	33.0	27.0	28.0	34.6	29.9	31.2	28.1	30.7	30.0
CONAN	32.6	31.5	36.9	33.6	25.0	28.0	33.6	28.9	29.5	29.4	31.5	30.2
CORBIN	34.3	33.4	38.5	35.4	29.0	27.0	35.8	30.6	31.6	30.5	32.6	31.6
VOLT	30.8	32.3	36.6	33.2	25.0	27.0	33.3	28.4	31.0	30.9	32.5	31.5
ONEAL	34.6	33.0	36.5	34.7	26.0	30.0	36.9	31.0	32.1	30.5	33.6	32.1
JEDD	29.2	28.2	33.1	30.2	24.0	24.0	31.0	26.3	27.1	25.7	28.0	27.0
FREYR	36.4	35.6	41.1	37.7	30.0	30.0	37.6	32.5	32.6	32.1	33.9	32.9
KELBY	30.3	31.4	36.1	32.6	25.0	25.0	32.7	27.6	29.8	27.0	29.9	28.9
KUNTZ	32.1	32.0	37.5	33.9	27.0	26.0	33.7	28.9	30.1	28.4	30.0	29.5
AVERAGE	33.8	33.1	37.8	34.9	26.8	28.7	35.9	30.5	31.2	30.1	32.2	31.2



## WB-Gunnison

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Plant Ht.

ID	OVERALL MEAN	STA. YEARS	RANK
WB- Gunnison	29.94	25	9
FORTUNA	37.02	25	1
MCNEAL	31.84	25	3
REEDER	31.51	25	6
OUTLOOK	31.75	25	4
CHOTEAU	29.77	25	11
VIDA	31.61	25	5
HANK	29.29	25	13
CONAN	29.66	25	12
CORBIN	30.65	25	8
VOLT	29.88	25	10
ONEAL	31.08	25	7
JEDD	26.29	25	16
FREYR	32.59	25	2
KELBY	28.19	25	15
KUNTZ	29.21	25	14
AVERAGE	30.64		25
C.V.	2.4		
F-VALUE (ID)	90.08**		
LSD (.05)	0.69		

## WB-Gunnison

Table 5. Protein %

ID	BOZ IRR			HAVRE				SID DRY			
	2007	2009	AVE	2007	2009	2010	AVE	2007	2009	2010	AVE
WB-Gunnison	15.4	14.5	15.0	16.3	14.3	11.4	14.0	12.7	14.4	10.7	12.6
FORTUNA	15.5	14.6	15.1	15.6	14.8	13.0	14.5	12.7	14.4	11.4	12.8
MCNEAL	15.7	13.9	14.8	17.3	15.0	12.6	15.0	12.9	14.1	11.0	12.7
REEDER	15.8	14.8	15.3	16.9	14.6	12.7	14.7	12.6	13.9	12.2	12.9
OUTLOOK	14.9	14.5	14.7	16.4	14.9	12.7	14.7	11.8	13.7	11.6	12.4
CHOTEAU	16.2	15.3	15.8	16.9	15.4	13.0	15.1	12.6	15.0	11.7	13.1
VIDA	16.0	14.3	15.2	16.5	14.2	11.5	14.1	11.9	14.2	11.2	12.4
HANK	15.4	13.9	14.7	16.7	14.6	12.9	14.7	11.2	13.6	10.7	11.8
CONAN	15.7	14.7	15.2	16.6	14.9	12.1	14.5	12.6	14.1	11.6	12.8
CORBIN	16.2	14.3	15.3	16.5	14.6	12.5	14.5	11.5	15.0	10.9	12.5
VOLT	14.7	13.8	14.3	17.0	14.2	11.5	14.2	11.6	13.8	10.2	11.9
ONEAL	15.5	14.8	15.2	17.6	14.6	12.3	14.8	11.8	12.8	10.5	11.7
JEDD	14.9	14.1	14.5	16.3	15.0	12.1	14.5	11.5	12.8	10.7	11.7
FREYR	14.9	15.0	15.0	16.3	14.4	13.2	14.6	12.3	13.3	12.5	12.7
KELBY	16.1	14.9	15.5	16.6	15.0	14.0	15.2	13.5	13.8	13.4	13.6
KUNTZ	14.3	13.9	14.1	16.3	14.2	12.0	14.2	12.2	13.5	11.7	12.5
AVERAGE	15.5	14.5	15.0	16.6	14.7	12.5	14.6	12.2	13.9	11.4	12.5

## WB-Gunnison

Protein%												
ID	SID IRR				KALISPELL				MOCCASIN			
	2007	2009	2010	AVE	2007	2009	2010	AVE	2007	2009	2010	AVE
WB-Gunnison	14.9	14.4	13.4	14.2	15.9	14.4	14.2	14.8	12.9	15.5	13.0	13.8
FORTUNA	16.0	15.1	14.4	15.2	16.0	14.5	14.4	15.0	12.9	15.2	12.1	13.4
MCNEAL	15.9	14.8	13.6	14.8	16.5	14.6	15.2	15.4	11.9	15.7	12.2	13.3
REEDER	15.4	15.7	14.5	15.2	16.4	14.2	15.2	15.3	12.9	16.3	12.6	13.9
OUTLOOK	14.5	15.1	14.1	14.6	16.7	15.0	15.2	15.6	11.6	15.8	12.1	13.2
CHOTEAU	16.2	15.6	14.9	15.6	17.1	14.2	15.0	15.4	12.7	16.9	11.5	13.7
VIDA	15.3	14.1	15.0	14.8	15.6	14.2	15.0	14.9	11.5	15.8	11.5	12.9
HANK	15.6	14.2	14.1	14.6	17.0	13.7	13.7	14.8	12.7	16.7	11.8	13.7
CONAN	14.8	14.9	14.6	14.8	16.8	15.3	14.4	15.5	12.8	15.7	11.5	13.3
CORBIN	14.8	14.0	13.8	14.2	17.0	14.3	14.2	15.2	13.7	17.9	11.3	14.3
VOLT	14.2	13.5	14.2	14.0	15.0	13.4	13.5	14.0	11.5	15.1	12.4	13.0
ONEAL	15.6	13.0	14.8	14.5	17.3	14.1	14.8	15.4	11.8	16.6	13.2	13.9
JEDD	15.7	13.9	14.4	14.7	15.9	14.0	13.7	14.5	11.3	17.2	12.3	13.6
FREYR	15.2	15.0	13.8	14.7	16.0	14.5	14.7	15.1	12.1	16.1	12.9	13.7
KELBY	16.8	15.4	15.1	15.8	17.0	14.9	15.1	15.7	12.6	16.3	12.0	13.6
KUNTZ	15.1	13.9	14.0	14.3	15.8	13.5	14.5	14.6	11.1	14.6	11.7	12.5
AVERAGE	15.4	14.5	14.3	14.7	16.4	14.3	14.6	15.1	12.3	16.1	12.1	13.5

## WB-Gunnison

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Protein%

ID	HUNTLEY DRY				CONRAD DRY				BOZ DRY		
	2007	2009	2010	AVE	2007	2009	2010	AVE	2007	2009	AVE
WB-Gunnison	10.9	13.6	10.6	11.7	14.5	13.7	13.2	13.8	16.9	13.8	15.4
FORTUNA	10.3	12.5	11.7	11.5	15.1	14.2	14.7	14.7	16.9	14.1	15.5
MCNEAL	10.4	12.8	10.6	11.3	15.3	13.8	13.4	14.2	17.3	13.8	15.6
REEDER	10.6	13.5	10.9	11.7	15.1	14.4	13.9	14.5	16.3	14.4	15.4
OUTLOOK	10.2	12.8	10.5	11.2	15.8	13.5	13.8	14.4	16.7	13.5	15.1
CHOTEAU	10.3	13.4	11.6	11.8	15.2	14.6	13.6	14.5	17.1	14.3	15.7
VIDA	9.4	10.9	10.4	10.2	14.9	13.7	13.6	14.1	16.2	13.6	14.9
HANK	9.8	12.3	10.7	10.9	15.9	13.3	13.5	14.2	17.5	13.7	15.6
CONAN	11.3	13.8	12.1	12.4	15.2	13.9	13.8	14.3	17.4	14.3	15.9
CORBIN	9.6	13.0	10.5	11.0	15.6	13.8	13.3	14.2	17.5	13.2	15.4
VOLT	10.3	12.9	10.8	11.3	15.1	13.0	13.5	13.9	18.7	13.0	15.9
ONEAL	9.1	11.7	9.9	10.2	15.1	13.4	12.9	13.8	16.9	14.1	15.5
JEDD	9.8	12.9	10.5	11.1	14.0	13.8	13.0	13.6	16.2	13.4	14.8
FREYR	10.0	12.6	11.2	11.3	15.5	15.0	14.4	15.0	16.4	14.0	15.2
KELBY	12.2	16.0	12.6	13.6	15.2	16.3	14.7	15.4	16.7	15.4	16.1
KUNTZ	9.8	12.5	10.8	11.0	14.8	13.6	13.6	14.0	16.1	13.1	14.6
AVERAGE	10.3	13.0	11.0	11.4	15.1	14.0	13.7	14.3	16.9	13.9	15.4

## WB-Gunnison

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Protein%

ID	OVERALL	STA.	RANK
	MEAN	YEARS	
WB-Gunnison	13.8	25	10
FORTUNA	14.1	25	5
MCNEAL	14.0	25	7
REEDER	14.2	25	3
OUTLOOK	13.9	25	9
CHOTEAU	14.4	25	2
VIDA	13.6	25	13
HANK	13.8	25	11
CONAN	14.2	25	4
CORBIN	14.0	25	8
VOLT	13.5	25	15
ONEAL	13.8	25	12
JEDD	13.6	25	14
FREYR	14.1	25	6
KELBY	14.9	25	1
KUNTZ	13.5	25	16
AVERAGE	14.0	25	0
C.V.	2.6		
F-VALUE (ID)	8.67**		
LSD (.05)	0.3		

# WB-Gunnison

Table 6.

**2010 Advanced Spring Wheat Yield Trial Mill & Bake**  
**Location: Means Across Locations: Havre, Sidney, Moccasin & Huntley**

Whole Grain Analysis			Flour Analysis				Mixograph Analysis			Bake Analysis								
Identity	Pedigree	Class	Wheat Protein, % (12% m.b.)	Single Kernel Hardness	Flour Protein, % (14% m.b.)	Flour Yield, %	Flour Ash, %	Wheat Ash, %	Mixograph Type	Mixing Tolerance	Mixing Time, min	Mix Water Absorption, %	Bake Mixing Time, min	Bake Water Absorption, %	Loaf Volume	Crumb Grain Score	PPO score	
BZ902-413R	WB-Gunnison	HRS	11.2	79	64.8	9.8	0.44	1.62			4.5	7.7	62.7	10.8	74.5	935	6.8	0.884
CI 13596	FORTUNA	HRS	12.9	69	68.3	11.3	0.42	1.62			4.0	4.1	62.8	5.0	73.0	985	7.8	0.522
PI574642	MCNEAL	HRS	12.0	81	66.2	10.6	0.43	1.68			5.0	7.3	64.2	10.8	76.6	1023	8.0	0.757
ND 695	REEDER	HRS	12.5	71	66.6	10.9	0.41	1.59			3.8	4.9	63.2	6.1	73.0	986	7.3	0.838
PI632252	OUTLOOK	HRS	12.3	86	66.2	10.7	0.44	1.64			4.5	5.6	63.1	6.7	73.2	1011	7.8	0.478
PI633974	CHOTEAU	HRS	12.6	65	66.5	11.1	0.41	1.56			3.8	4.2	63.4	5.1	73.3	1035	7.8	0.492
PI642366	VIDA	HRS	12.0	71	67.9	10.5	0.42	1.54			4.3	5.4	62.9	6.4	73.2	990	7.5	0.590
BZ992322	HANK	HRS	12.2	69	66.1	10.5	0.42	1.65			4.5	6.9	63.6	10.0	74.4	1040	7.3	0.257
BZ992588	CONAN	HRS	12.6	69	64.6	10.7	0.43	1.75			4.0	6.5	63.5	8.9	74.7	1050	7.5	0.679
BZ996434	CORBIN	HRS	11.8	66	66.7	10.1	0.42	1.68			4.0	6.2	62.1	8.4	72.7	921	7.3	0.624
ACS52610	VOLT	HRS	11.7	76	65.1	10.1	0.44	1.74			5.3	7.1	62.9	11.2	74.6	896	7.3	0.521
BZ999592	ONEAL	HRS	11.7	78	65.9	10.0	0.42	1.65			4.5	6.8	62.6	10.7	75.5	995	7.0	0.644
BZ9M1044	JEDD	HRS	12.1	76	66.4	10.6	0.43	1.61			4.5	5.7	64.4	9.3	75.0	985	7.5	0.678
AGRIPRO3	FREYR	HRS	12.6	76	66.9	10.8	0.44	1.61			4.8	4.8	63.8	6.4	73.4	986	7.5	0.811
AGRIPRO6	KELBY	HRS	13.4	65	64.3	11.6	0.44	1.62			3.8	5.4	65.6	7.5	75.1	1040	7.5	0.954
AGRIPRO7	KUNTZ	HRS	12.2	74	67.0	10.7	0.42	1.61			5.0	5.7	64.2	8.7	74.5	1015	7.5	0.547
			11.2	58.3	63.3	9.8	0.4	1.5	0.0	3.0	3.6	61.6	4.2	71.8	896.3	6.0	0.3	
			13.4	86.2	68.9	11.6	0.5	1.7	0.0	5.3	7.7	65.6	13.7	77.6	1052.5	8.0	1.0	
			12.2	71.4	66.2	10.7	0.4	1.6	0.0	4.1	5.5	63.8	7.8	74.2	986.7	7.3	0.6	

# WB-Gunnison

Table 7.

**2009 Advanced Spring Wheat Yield Trial Mill & Bake**  
**Location: Means Across Locations: Bozeman, Havre, Sidney, Moccasin**

			Whole Grain Analysis			Flour Analysis			Mixograph Analysis			Bake Analysis					
Identity	Variety	Class	Wheat Protein, % (12%mb.)	Single Kernel Hardness	Flour Protein, % (14%mb.)	Flour Yield, %	Flour Ash, %	Wheat Ash, %	Mixograph Type	Mixing Tolerance	Mixing Time, min	Mixing Time, min	Bake Water Absorption, %	Bake Water Absorption, %	Loaf Volume	Crumb Grain Score	
			BZ902413R	WB-Gunnison	HRS	14.7	69.1	64.6	12.8	0.42	1.54			4.3	7.4	67.7	10.6
CI	Fortuna	HRS	14.8	61.7	70.7	13.8	0.44	1.52			2.8	3.1	66.0	4.5	75.2	1100	7.3
PI574642	MCNEAL	HRS	14.7	79.4	67.3	13.7	0.46	1.57			4.8	7.2	69.1	10.6	79.7	1231	8.0
ND	Reeder	HRS	14.9	66.6	68.4	13.9	0.41	1.44			2.8	3.5	66.6	4.7	76.3	1150	7.3
PI632252	OUTLOOK	HRS	14.7	81.2	69.0	14.0	0.44	1.51			3.5	4.1	67.7	5.1	77.0	1199	6.5
PI633974	CHOTEAU	HRS	15.6	60.6	67.8	14.8	0.43	1.51			3.8	3.6	68.6	4.6	77.4	1201	7.0
PI642366	VIDA	HRS	14.6	68.9	71.4	13.7	0.42	1.42			2.3	3.6	68.0	5.1	76.0	1205	7.3
BZ992322	HANK	HRS	14.7	61.0	68.4	13.7	0.43	1.54			3.5	5.8	67.4	8.8	76.9	1146	7.8
BZ992588	CONAN	HRS	14.9	66.7	66.5	13.5	0.44	1.62			4.5	5.2	67.8	7.6	78.1	1185	8.0
BZ996434	CORBIN	HRS	15.1	62.2	69.5	14.0	0.44	1.58			3.5	5.0	68.3	10.4	78.2	1095	7.5
ACS52610	VOLT	HRS	14.2	78.6	69.1	13.2	0.45	1.49			5.5	7.4	68.9	18.2	81.7	1080	8.3
BZ999592	ONEAL	HRS	14.7	79.6	69.5	13.8	0.44	1.51			5.5	7.3	67.3	12.4	78.8	1268	7.8
BZ9M1044	JEDD	HRS	14.6	75.5	68.6	13.9	0.46	1.59			4.5	4.9	68.3	7.9	78.1	1160	7.5
AGRIPRO3	FREYR	HRS	14.7	69.4	70.0	13.7	0.45	1.49			3.8	4.2	67.9	7.1	77.7	1156	8.0
AGRIPRO6	KELBY	HRS	15.0	67.7	67.2	14.0	0.47	1.52			4.0	3.8	68.2	5.8	77.9	1146	7.8
AGRIPRO7	KUNTZ	HRS	14.0	75.4	69.6	13.2	0.45	1.53			5.0	5.0	67.3	8.6	77.9	1109	7.5
			<b>14.0</b>	<b>61</b>	<b>66.5</b>	<b>13.2</b>	<b>0.41</b>	<b>1.42</b>			<b>2.3</b>	<b>3.1</b>	<b>66.0</b>	<b>4.5</b>	<b>75.2</b>	<b>1080</b>	<b>6.5</b>
			<b>15.6</b>	<b>81</b>	<b>71.4</b>	<b>14.8</b>	<b>0.47</b>	<b>1.62</b>			<b>5.5</b>	<b>7.4</b>	<b>69.1</b>	<b>18.2</b>	<b>81.7</b>	<b>1268</b>	<b>8.3</b>
			<b>14.7</b>	<b>70</b>	<b>68.9</b>	<b>13.8</b>	<b>0.44</b>	<b>1.52</b>			<b>4.0</b>	<b>4.9</b>	<b>67.8</b>	<b>8.1</b>	<b>77.8</b>	<b>1162</b>	<b>7.6</b>

# WB-Gunnison

**Table 8. Sawfly cutting data.**  
2010 ADVANCED SPRING WHEAT NURSERY, HAVRE

\*\*\*\*\* LATTICE ADJUSTED VARIETY MEANS \*\*\*\*\*

VARIETY	STAND	HEADING	PLANTHT	YIELD	MOISTUR	TESTWT	SAWFLY
	%	DATE	INCHES	BU/AC	%	LB/BU	% CUT
	ADJMNS	ADJMNS	RCBMNS	ADJMNS	ADJMNS	ADJMNS	ADJMNS
BZ92413R WB-GUNNISON	93.50	179.58	30.92	62.76	12.14	59.29	2.99
PI642366 VIDA	90.11	181.10	30.68	59.30	12.05	57.47	8.36
BZ999592 ONEAL	93.01	181.03	32.07	59.23	12.10	58.99	10.90
BZ93461W CONAN/AGAWAM	79.13	178.93	30.58	56.95	12.03	57.27	29.89
BZ992322 HANK	80.55	179.87	30.80	56.23	12.46	55.84	32.16
PI632252 OUTLOOK	95.91	181.70	34.78	56.23	11.98	56.83	26.59
ND 695 REEDER	94.29	179.64	33.48	55.23	11.83	58.03	29.60
PI633974 CHOTEAU	95.65	179.29	31.64	54.77	12.60	56.46	29.44
IMICHT79 CHOTEAU*3/CHOTEAU/IMI8134	94.25	179.66	31.36	54.00	12.07	56.81	18.34
AGRIPR10 BRENNAN	96.12	178.02	31.68	53.31	12.44	58.03	19.48
BZ996434 CORBIN	95.46	179.20	32.52	52.76	11.86	57.09	13.48
BZ9M1044 JEDD	72.45	179.26	26.94	52.55	12.42	57.45	21.89
AGRIPRO8 AP604 CL	97.19	177.90	33.50	52.27	12.05	58.02	23.44
NDSW0449 MOTT	93.20	180.48	33.49	51.54	11.99	56.29	10.33
BZ992588 CONAN	95.04	179.55	32.52	51.09	11.47	58.33	12.20
AGRIPRO9 JENNA	91.97	182.31	30.04	49.55	11.26	55.62	26.62
ACS52610 VOLT	95.03	181.01	29.49	49.02	11.60	57.90	61.45
PI574642 MCNEAL	94.35	180.29	33.57	48.83	12.52	57.55	26.91
CI 13596 FORTUNA	81.75	180.61	39.95	48.72	12.04	57.76	22.36
BZ92413W CONAN/AGAWAM	79.32	178.97	31.65	48.40	11.81	58.61	14.86
AGRIPRO6 KELBY	85.35	178.69	29.62	47.31	12.08	58.17	25.25
AGRIPR13 AGRIPRO SY605 CL	95.15	177.69	34.70	47.20	12.26	59.36	22.48
AGRIPRO3 FREYR	89.42	180.08	33.69	46.19	11.73	57.44	53.25
AGRIPRO7 KUNTZ	82.85	180.79	30.97	44.40	11.72	56.56	56.03
AGRIPR11 CHOTEAU/3*NORPRO	92.32	181.49	30.77	43.78	12.17	56.88	38.05
CI 10003 THATCHER	88.75	182.92	42.28	40.68	11.44	56.04	29.66

\*\*\*\*\* STATISTICAL TABLE \*\*\*\*\*

	STAND	HEADING	PLANTHT	YIELD	MOISTUR	TESTWT	SAWFLY
	%	DATE	INCHES	BU/AC	%	LB/BU	% CUT
REPLICATION SUM OF SQUARES	16.03	.07	32.88	833.76	.17	12.36	10305.12
TREATMENT SUM OF SQUARES	5841.21	294.00	971.61	3988.05	34.02	271.22	28000.12
TREATMENT DEGREES OF FREEDOM	63.00	63.00	63.00	63.00	63.00	63.00	63.00
ADJUSTED BLOCK SUM OF SQUARES	1242.11	17.77	.00	1063.66	24.91	31.61	3227.27
ADJUSTED BLOCK MEAN SQUARES	59.15	.85	.00	50.65	1.19	1.51	153.68
INTRA-BLOCK ERROR SUM OF SQUARES	3950.14	56.16	.00	2061.14	36.93	29.09	7866.94



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INTRA-BLOCK ERROR MEAN SQUARE	37.62	.53	.00	19.63	.35	.28	74.92
ERROR MEAN SQUARE (RCB)	.00	.00	2.44	.00	.00	.00	.00
ERROR DEGREES OF FREEDOM	105.00	105.00	126.00	105.00	105.00	105.00	105.00
ADJUSTED TREATMENT MEAN SQUARE	86.62	4.39	15.42	59.27	.36	3.48	392.05
COEFFICIENT OF VARIATION	6.64	.41	4.83	8.28	4.98	.92	36.47
F RATIO FOR TREATMENTS	2.30	8.20	6.32	3.02	1.04	12.58	5.23
TOTAL SUM OF SQUARES	11049.48	367.99	1312.15	7946.62	96.03	344.28	49399.45
LSD(.05) 2 MEANS IN SAME BLOCK	10.15	1.21	2.52	7.44	1.00	.89	14.46
LSD(.05) 2 MEANS DIFFERENT BLOCKS	10.26	1.22	.00	7.57	1.02	.92	14.67
EFFICIENCY OF DESIGN REL TO RCB	1.03	1.03	.00	1.15	1.25	1.53	1.08

Table 9. Stripe rust Data

2010 ADVANCED SPRING WHEAT NURSERY, KALISPELL

\*\*\*\*\* LATTICE ADJUSTED VARIETY MEANS \*\*\*\*\*

VARIETY	HEADING	PLANT	HT	STRIPE	SEPTOR	GREEN	FLD	GING	MOIST	TUE	YIELD	TEST	TWT
	DATE	INCHES	RUST (%)	AREA (%)	AREA (%)	AREA (%)	(%)	(%)	(BU/AC)	(LB/BU)			
	ADJMNS	RCBMNS	ADJMNS	ADJMNS	ADJMNS	RCBMNS	RCBMNS	ADJMNS	ADJMNS				
ACS52610 VOLT	182.27	36.22	.60	7.51	91.62	.00	14.10	113.60	60.73				
AGRIPRO9 JENNA	183.94	36.22	15.08	13.73	79.83	.00	14.40	105.84	58.28				
BZ93461W CONAN/AGAWAM	180.02	36.88	1.86	46.74	51.49	.00	14.37	104.77	59.34				
ND 695 REEDER	180.44	39.37	11.35	11.34	86.76	.00	14.17	103.19	60.33				
PI642366 VIDA	181.22	38.71	13.52	8.17	83.28	.00	14.13	99.23	59.41				
AGRIPR10 BRENNAN	179.74	32.28	1.39	14.73	86.69	.00	14.10	99.03	59.24				
AGRIPRO6 KELBY	179.27	33.20	4.82	13.94	81.80	.00	13.83	98.41	59.37				
AGRIPRO8 AP604 CL	180.19	38.98	95.12	-1.40	5.15	.00	14.30	97.82	59.42				
AGRIPRO3 FREYR	180.48	39.24	4.10	8.26	88.28	.00	14.53	96.17	59.78				
PI633974 CHOTEAU	181.22	36.22	1.26	5.22	89.83	.00	13.87	94.99	58.94				
BZ996434 CORBIN	180.50	37.53	32.81	25.88	53.41	25.00	14.97	94.99	59.29				
AGRIPRO7 KUNTZ	181.46	34.12	4.88	6.15	85.05	.00	14.27	94.31	59.50				
AGRIPR13 AGRIPRO SY605 CL	178.49	40.68	27.16	15.28	63.31	.00	14.43	90.46	60.59				
PI632252 OUTLOOK	184.05	39.24	3.08	6.82	90.77	.00	13.70	89.01	58.03				
BZ992322 HANK	180.41	35.17	90.09	3.49	6.71	.00	13.47	88.91	56.15				
CI 13596 FORTUNA	181.76	45.14	1.15	25.67	66.59	3.33	14.13	86.27	59.10				
IMICHT79 CHOTEAU*3/CHOTEAU/IMI8134	182.07	35.56	3.81	5.77	91.59	.00	14.23	86.26	58.41				
PI574642 MCNEAL	184.04	41.08	17.73	5.92	81.79	.00	14.03	84.20	59.52				
<b>BZ92413R WB-GUNNISON</b>	<b>181.12</b>	<b>36.48</b>	<b>7.51</b>	<b>19.22</b>	<b>73.43</b>	<b>.00</b>	<b>14.80</b>	<b>83.83</b>	<b>60.06</b>				
NDSW0449 MOTT	186.17	42.65	63.75	16.43	24.85	.00	14.07	83.60	58.86				
BZ992588 CONAN	180.95	36.75	47.84	12.28	50.06	.00	14.23	77.20	59.38				
BZ92413W CONAN/AGAWAM	180.28	35.70	10.76	20.28	51.61	.00	14.77	75.75	59.66				
BZ9M1044 JEDD	180.34	30.84	89.61	17.90	8.31	.00	13.70	71.13	57.24				
BZ999592 ONEAL	182.76	36.75	84.69	10.43	11.74	.00	14.60	70.59	57.87				
CI 10003 THATCHER	186.29	49.61	50.39	17.40	39.95	6.67	13.80	64.36	58.43				

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MT 0941 HANK/MT0336 184.65 35.83 66.39 22.77 25.14 .00 13.87 64.34 55.72

\*\*\*\*\* STATISTICAL TABLE \*\*\*\*\*

	HEADING DATE	PLANTHT INCHES	STRIPE RUST(%)	SEPTORI (%)	GREENLF AREA(%)	LODGING (%)	MOISTUE (%)	YIELD (BU/AC)	TESTWT (LB/BU)
REPLICATION SUM OF SQUARES	36.29	54.21	100.04	1188.54	306.14	117.97	.38	9694.41	.68
TREATMENT SUM OF SQUARES	592.50	1575.13	201908.60	15598.83	177155.20	2113.41	21.75	27480.29	366.35
TREATMENT DEGREES OF FREEDOM	63.00	63.00	63.00	63.00	63.00	63.00	63.00	63.00	63.00
ADJUSTED BLOCK SUM OF SQUARES	22.44	.00	2109.60	2228.65	2285.96	.00	.00	2536.27	6.17
ADJUSTED BLOCK MEAN SQUARES	1.07	.00	100.46	106.13	108.86	.00	.00	120.77	.29
INTRA-BLOCK ERROR SUM OF SQUARES	63.27	.00	7892.96	5149.49	10903.28	.00	.00	3658.63	16.73
INTRA-BLOCK ERROR MEAN SQUARE	.60	.00	75.17	49.04	103.84	.00	.00	34.84	.16
ERROR MEAN SQUARE (RCB)	.00	1.72	.00	.00	.00	34.12	.13	.00	.00
ERROR DEGREES OF FREEDOM	105.00	126.00	105.00	105.00	105.00	126.00	126.00	105.00	105.00
ADJUSTED TREATMENT MEAN SQUARE	8.68	25.00	3137.59	242.04	2797.48	33.55	.35	395.71	5.43
COEFFICIENT OF VARIATION	.43	3.49	29.27	49.16	17.35	830.71	2.53	6.58	.68
F RATIO FOR TREATMENTS	14.40	14.57	41.74	4.94	26.94	.98	2.69	11.36	34.07
TOTAL SUM OF SQUARES	714.50	1845.55	212011.20	24165.50	190650.50	6530.08	38.32	43369.60	389.93
LSD(.05) 2 MEANS IN SAME BLOCK	1.29	2.12	14.26	11.71	16.55	9.44	.58	9.97	.66
LSD(.05) 2 MEANS DIFFERENT BLOCKS	1.31	.00	14.36	11.90	16.57	.00	.00	10.17	.67
EFFICIENCY OF DESIGN REL TO RCB	1.05	.00	1.01	1.10	1.00	.00	.00	1.26	1.06