

2016 WSU Variety Testing Hard Winter Wheat Trial, Moses Lake

LCS Azimut 154 58.7 11.9 35 127 17 133 139 131 LCS Evina 154 62.0 13.2 44 134 25 142 147 Norwest 553 150 61.5 12.4 36 130 0 136 128 128 Mandala 149 62.6 12.3 44 132 0 135 149 148 148 62.1 11.6 42 130 62 135 149 148 148 62.1 11.6 42 130 62 135 149 148 148 62.1 11.6 42 130 62 135 149 148 148 61.7 11.6 42 130 62 135 149 148 142 140 130 62 135 149 148 142 150 131 149 148 142 130 62 135 149 148 142 130 142 132 142 142 142 142 142 <td< th=""><th></th><th colspan="6">2016</th><th>2 Year</th><th>3 Year</th><th>5 Year</th></td<>		2016						2 Year	3 Year	5 Year
RELEASED VARIETIES LCS Jet (NSA10-7208) 184 61.6 11.7 37 129 0 166 165 LCS Azimut 154 58.7 11.9 35 127 17 133 139 131 LCS Evina 154 62.0 13.2 44 134 25 142 147 Norwest 553 150 61.5 12.4 36 130 0 136 128 128 Mandala 149 62.6 12.3 44 132 0 WB-Arrowhead 148 62.1 11.6 42 130 62 135 149 LCS Aymeric 146 57.9 11.0 38 130 52 SY Touchstone (04PN028B-3) 143 61.7 12.5 37 130 17 LCS Colonia 142 57.9 11.9 40 133 0 128 132 Rebelde 134 62.0 14.0 36 128 0 Whetstone 116 61.4 12.6 42 127 75 120 135 Whetstone 116 61.4 12.6 42 127 75 120 135 WB 4059CLP 99 60.8 11.9 38 125 67 Rimrock 82 57.1 11.0 42 129 72 90 122 EXPERIMENTAL LINES OR2110664 156 61.1 12.1 42 130 0 NSA10-2196 154 59.4 12.0 36 127 58 146 OR2110679 147 60.5 12.2 41 131 0 WA 8248 146 62.8 12.4 41 127 52 HE181/3 146 61.0 11.4 45 133 27 OR2120276H 146 61.7 11.7 41 129 52 WA 8249 128 62.0 13.1 40 128 77 IDO 1101 118 60.0 12.1 39 130 88 116 132 LCV. W 7 1 3 5 1 8 8 8 LSD (0.05) 14 0.9 0.5 3 1 1 8 8 8 LSD (0.05) 14 0.9 0.5 3 1 1 30 12 11 8 Average 139 60.8 12.1 40 129 38 130 130 139 130 Highest 184 62.8 12.4 40 129 38 130 130 139 130	Variety Name	YIELD	TEST WT	PROTEIN	PLANT	HEAD	LODGING	AVERAGE	AVERAGE	AVERAGE
LCS Jet (NSA10-7208) 184 61.6 11.7 37 129 0 166 165 LCS Azimut 154 58.7 11.9 35 127 17 133 139 131 LCS Evina 154 62.0 13.2 44 134 25 142 147 Norwest 553 150 61.5 12.4 36 130 0 136 128 128 Mandala 149 62.6 12.3 44 132 0 148 128 128 MB-Arrowhead 148 62.1 11.6 42 130 62 135 149 149 148 148 141 11.0 38 130 52 135 149 149 148 148 141 141 130 62 135 149 148 149 148 149 148 149 148 149 148 149 148 149 149 148 140	Hard White Italicized	(BU/A)	(LBS/BU)	(%)	HT	DATE	(%)	(BU/A)	(BU/A)	(BU/A)
LCS Azimut	RELEASED VARIETIES									
LCS Evina 154 62.0 13.2 44 134 25 142 147 Norwest 553 150 61.5 12.4 36 130 0 136 128 128 Mandala 149 62.6 12.3 44 132 0 WB-Arrowhead 148 62.1 11.6 42 130 62 135 149 LCS Aymeric 146 57.9 11.0 38 130 52 SY Touchstone (04PN028B-3) 143 61.7 12.5 37 130 17 LCS Colonia 142 57.9 11.9 40 133 0 128 132 Rebelde 134 62.0 14.0 36 128 0 Keldin 126 61.8 11.4 41 129 58 122 142 Esperia 117 59.2 12.4 38 126 83 Whetstone 116 61.4 12.6 42 127 75 120 135 WB 4059CLP 99 60.8 11.9 38 125 67 Rimrock 82 57.1 11.0 42 129 72 90 122 EXPERIMENTAL LINES OR2110664 154 59.4 12.0 36 127 58 146 OR2110679 147 60.5 12.2 41 131 0 WA 8248 146 62.8 12.4 41 127 52 WA 8248 146 62.8 12.4 41 127 52 OR212061CH 146 61.7 11.7 41 129 52 OR212061CH 146 61.7 11.7 41 129 52 OR212061CH 146 61.7 11.7 41 129 52 OR2120012R 145 60.9 12.6 39 12.7 42 WA 8249 128 62.0 13.1 40 128 77 IDO1101 118 60.0 12.1 39 130 88 116 132 C.V. % 7 1 3 5 5 1 8 8 8 8 8	LCS Jet (NSA10-7208)	184	61.6	11.7	37	129	0	166	165	
Norwest 553 150 61.5 12.4 36 130 0 136 128 128 Mandala 149 62.6 12.3 44 132 0	LCS Azimut	154	58.7	11.9	35	127	17	133	139	131
Mandala 149 62.6 12.3 44 132 0 WB-Arrowhead 148 62.1 11.6 42 130 62 135 149 LCS Aymeric 146 57.9 11.0 38 130 52 SY Touchstone (04PN028B-3) 143 61.7 12.5 37 130 17 LCS Colonia 142 57.9 11.9 40 133 0 128 132 Rebelde 134 62.0 14.0 36 128 0 128 132 Keldin 126 61.8 11.4 41 129 58 122 142 Esperia 117 59.2 12.4 38 126 83 120 135 Whetstone 116 61.4 12.6 42 127 75 120 135 WB 4059CLP 99 60.8 11.9 38 125 67 67 Rimrock	LCS Evina	154	62.0	13.2	44	134	25	142	147	
WB-Arrowhead 148 62.1 11.6 42 130 62 135 149 LCS Aymeric 146 57.9 11.0 38 130 52 SY Touchstone (04PN028B-3) 143 61.7 12.5 37 130 17 LCS Colonia 142 57.9 11.9 40 133 0 128 132 Rebelde 134 62.0 14.0 36 128 0 128 132 Keldin 126 61.8 11.4 41 129 58 122 142 Esperia 117 59.2 12.4 38 126 83 122 142 Whetstone 116 61.4 12.6 42 127 75 120 135 WB 4059CLP 99 60.8 11.9 38 125 67 Rimrock 82 57.1 11.0 42 129 72 90 122 <t< th=""><th>Norwest 553</th><th>150</th><th>61.5</th><th>12.4</th><th>36</th><th>130</th><th>0</th><th>136</th><th>128</th><th>128</th></t<>	Norwest 553	150	61.5	12.4	36	130	0	136	128	128
LCS Aymeric 146 57.9 11.0 38 130 52 SY Touchstone (04PN028B-3) 143 61.7 12.5 37 130 17 LCS Colonia 142 57.9 11.9 40 133 0 128 132 Rebelde 134 62.0 14.0 36 128 0 Keldin 126 61.8 11.4 41 129 58 122 142 Esperia 117 59.2 12.4 38 126 83 Whetstone 116 61.4 12.6 42 127 75 120 135 WB 4059CLP 99 60.8 11.9 38 125 67 120 135 Rimrock 82 57.1 11.0 42 129 72 90 122 EXPERIMENTAL LINES 120 36 127 58 146 46 61.1 12.1 42 130 0 NSA10-2196 154 59.4 12.0 36 127 58 <	Mandala	149	62.6	12.3	44	132	0			
SY Touchstone (04PN028B-3) 143 61.7 12.5 37 130 17 LCS Colonia 142 57.9 11.9 40 133 0 128 132 Rebelde 134 62.0 14.0 36 128 0 Keldin 126 61.8 11.4 41 129 58 122 142 Esperia 117 59.2 12.4 38 126 83 Whetstone 116 61.4 12.6 42 127 75 120 135 WB 4059CLP 99 60.8 11.9 38 125 67 Rimrock 82 57.1 11.0 42 129 72 90 122 EXPERIMENTAL LINES OR2110664 156 61.1 12.1 42 130 0 NSA10-2196 154 59.4 12.0 36 127 58 146 OR2110679 147 60.5 12.2 41 131 0 WA 8248 146 62.8 12.4 41 127 52 HE181/3 146 61.0 11.4 45 133 27 OR2120276H 146 61.7 11.7 41 12.9 52 OR2120276H 146 61.7 11.7 41 12.9 52 OR2120012R 145 60.9 12.6 39 12.7 42 WA 8249 128 62.0 13.1 40 128 77 IDO1101 118 60.0 12.1 39 130 88 116 132 C.V. % 7 1 3 5 1 8 8 8 8 LSD (0.05) 14 0.9 0.5 3 1 3 30 12 11 8 Average 139 60.8 12.1 40 129 38 130 139 130 Highest 184 62.8 14.0 45 134 88 166 165 131	WB-Arrowhead	148	62.1	11.6	42	130	62	135	149	
LCS Colonia 142 57.9 11.9 40 133 0 128 132 Rebelde 134 62.0 14.0 36 128 0 Keldin 126 61.8 11.4 41 129 58 122 142 Esperia 117 59.2 12.4 38 126 83 Whetstone 116 61.4 12.6 42 127 75 120 135 WB 4059CLP 99 60.8 11.9 38 125 67 7 Rimrock 82 57.1 11.0 42 129 72 90 122 EXPERIMENTAL LINES OR2110664 156 61.1 12.1 42 130 0 NSA10-2196 154 59.4 12.0 36 127 58 146 OR2110079 147 60.5 12.2 41 131 0 131 0 <th>LCS Aymeric</th> <th>146</th> <th>57.9</th> <th>11.0</th> <th>38</th> <th>130</th> <th>52</th> <th></th> <th></th> <th></th>	LCS Aymeric	146	57.9	11.0	38	130	52			
Rebelde 134 62.0 14.0 36 128 0 Keldin 126 61.8 11.4 41 129 58 122 142 Esperia 117 59.2 12.4 38 126 83 Whetstone 116 61.4 12.6 42 127 75 120 135 WB 4059CLP 99 60.8 11.9 38 125 67 Rimrock 82 57.1 11.0 42 129 72 90 122 EXPERIMENTAL LINES OR2110664 156 61.1 12.1 42 130 0 NSA10-2196 154 59.4 12.0 36 127 58 146 OR2110679 147 60.5 12.2 41 131 0 WA 8248 146 61.0 11.4 45 133 27 OR21200276H 146 61.7 11.7 41	SY Touchstone (04PN028B-3)	143	61.7	12.5	37	130	17			
Keldin 126 61.8 11.4 41 129 58 122 142 Esperia 117 59.2 12.4 38 126 83 Whetstone 116 61.4 12.6 42 127 75 120 135 WB 4059CLP 99 60.8 11.9 38 125 67 120 135 Rimrock 82 57.1 11.0 42 129 72 90 122 EXPERIMENTAL LINES OR2110664 156 61.1 12.1 42 130 0 NSA10-2196 154 59.4 12.0 36 127 58 146 OR2110679 147 60.5 12.2 41 131 0 146 61.0 11.4 45 133 27 13 146 61.0 11.4 45 133 27 14 14 129 52 14 14 129 52 <th>LCS Colonia</th> <th>142</th> <th>57.9</th> <th>11.9</th> <th>40</th> <th>133</th> <th>0</th> <th>128</th> <th>132</th> <th></th>	LCS Colonia	142	57.9	11.9	40	133	0	128	132	
The first black	Rebelde	134	62.0	14.0	36	128	0			
Whetstone 116 61.4 12.6 42 127 75 120 135 WB 4059CLP 99 60.8 11.9 38 125 67 Rimrock 82 57.1 11.0 42 129 72 90 122 EXPERIMENTAL LINES OR2110664 156 61.1 12.1 42 130 0 NSA10-2196 154 59.4 12.0 36 127 58 146 OR2110679 147 60.5 12.2 41 131 0 146 62.8 12.4 41 127 52 148 146 61.0 11.4 45 133 27 27 28 4 146 61.7 11.7 41 129 52 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Keldin	126	61.8	11.4	41	129	58	122	142	
WB 4059CLP 99 60.8 11.9 38 125 67 Rimrock 82 57.1 11.0 42 129 72 90 122 EXPERIMENTAL LINES OR2110664 156 61.1 12.1 42 130 0 NSA10-2196 154 59.4 12.0 36 127 58 146 OR2110679 147 60.5 12.2 41 131 0 146 0 147 60.5 12.2 41 131 0 146 0 147 60.5 12.2 41 131 0 146 0 144 41 127 52 148	Esperia	117	59.2	12.4	38	126	83			
Rimrock S2 57.1 11.0 42 129 72 90 122	Whetstone	116	61.4	12.6	42	127	75	120	135	
EXPERIMENTAL LINES OR2110664 156 61.1 12.1 42 130 0 NSA10-2196 154 59.4 12.0 36 127 58 146 OR2110679 147 60.5 12.2 41 131 0 WA 8248 146 62.8 12.4 41 127 52 HE181/3 146 61.0 11.4 45 133 27 OR2120276H 146 61.7 11.7 41 129 52 OR2120012R 145 60.9 12.6 39 127 42 WA 8249 128 62.0 13.1 40 128 77 IDO1101 118 60.0 12.1 39 130 88 116 132 C.V. % 7 1 3 5 1 8 8 8 LSD (0.05) 14 0.9 0.5 3 1 30 12 11 8 Average 139 60.8 12.1	WB 4059CLP	99	60.8	11.9	38	125	67			
OR2110664 156 61.1 12.1 42 130 0 NSA10-2196 154 59.4 12.0 36 127 58 146 OR2110679 147 60.5 12.2 41 131 0 WA 8248 146 62.8 12.4 41 127 52 HE181/3 146 61.0 11.4 45 133 27 OR2120276H 146 61.7 11.7 41 129 52 OR2120012R 145 60.9 12.6 39 127 42 WA 8249 128 62.0 13.1 40 128 77 IDO1101 118 60.0 12.1 39 130 88 116 132 C.V. % 7 1 3 5 1 8 8 8 LSD (0.05) 14 0.9 0.5 3 1 30 12 11 8 Average 139 60.8 12.1 40 129 38 130	Rimrock	82	57.1	11.0	42	129	72	90	122	
NSA10-2196 OR2110679 147 60.5 12.2 41 131 0 WA 8248 146 62.8 12.4 41 127 52 HE181/3 0R2120276H 146 61.0 11.4 45 133 27 OR2120276H 145 60.9 12.6 39 127 42 WA 8249 128 62.0 13.1 40 128 77 IDO1101 118 60.0 12.1 39 130 88 116 132 C.V. % 7 1 3 5 1 8 8 8 8 8 LSD (0.05) 14 0.9 0.5 3 1 30 12 11 8 Average 139 60.8 12.1 40 129 38 130 139 130 Highest 184 62.8 14.0 45 134 88 166 165 131	EXPERIMENTAL LINES									
OR2110679 147 60.5 12.2 41 131 0 WA 8248 146 62.8 12.4 41 127 52 HE181/3 146 61.0 11.4 45 133 27 OR2120276H 146 61.7 11.7 41 129 52 OR2120012R 145 60.9 12.6 39 127 42 WA 8249 128 62.0 13.1 40 128 77 IDO1101 118 60.0 12.1 39 130 88 116 132 C.V. % 7 1 3 5 1 8 8 8 LSD (0.05) 14 0.9 0.5 3 1 30 12 11 8 Average 139 60.8 12.1 40 129 38 130 139 130 Highest 184 62.8 14.0 45 134 88 166 165 131	OR2110664	156	61.1	12.1	42	130	0			
WA 8248 146 62.8 12.4 41 127 52 HE181/3 146 61.0 11.4 45 133 27 OR2120276H 146 61.7 11.7 41 129 52 OR2120012R 145 60.9 12.6 39 127 42 WA 8249 128 62.0 13.1 40 128 77 IDO1101 118 60.0 12.1 39 130 88 116 132 C.V. % 7 1 3 5 1 8 8 8 LSD (0.05) 14 0.9 0.5 3 1 30 12 11 8 Average 139 60.8 12.1 40 129 38 130 139 130 Highest 184 62.8 14.0 45 134 88 166 165 131	NSA10-2196	154	59.4	12.0	36	127	58	146		
HE181/3 OR2120276H 146 61.7 11.7 41 129 52 OR2120012R 145 60.9 12.6 39 127 42 WA 8249 128 62.0 13.1 40 128 77 ID01101 118 60.0 12.1 39 130 88 116 132 C.V. % 7 1 3 5 1 8 8 8 8 LSD (0.05) 14 0.9 0.5 3 1 30 12 11 8 Average 139 60.8 12.1 40 129 38 130 139 130 Highest 184 62.8 14.0 45 134 88 166 165 131	OR2110679	147	60.5	12.2	41	131	0			
OR2120276H 146 61.7 11.7 41 129 52 OR2120012R 145 60.9 12.6 39 127 42 WA 8249 128 62.0 13.1 40 128 77 IDO1101 118 60.0 12.1 39 130 88 116 132 C.V. % 7 1 3 5 1 8 8 8 LSD (0.05) 14 0.9 0.5 3 1 30 12 11 8 Average 139 60.8 12.1 40 129 38 130 139 130 Highest 184 62.8 14.0 45 134 88 166 165 131	WA 8248	146	62.8	12.4	41	127	52			
OR2120012R 145 60.9 12.6 39 127 42 WA 8249 128 62.0 13.1 40 128 77 IDO1101 118 60.0 12.1 39 130 88 116 132 C.V. % 7 1 3 5 1 8 8 8 LSD (0.05) 14 0.9 0.5 3 1 30 12 11 8 Average 139 60.8 12.1 40 129 38 130 139 130 Highest 184 62.8 14.0 45 134 88 166 165 131	HE181/3	146	61.0	11.4	45	133	27			
WA 8249 128 62.0 13.1 40 128 77 IDO1101 118 60.0 12.1 39 130 88 116 132 C.V. % 7 1 3 5 1 8 8 8 LSD (0.05) 14 0.9 0.5 3 1 30 12 11 8 Average 139 60.8 12.1 40 129 38 130 139 130 Highest 184 62.8 14.0 45 134 88 166 165 131	OR2120276H	146	61.7	11.7	41	129	52			
IDO1101 118 60.0 12.1 39 130 88 116 132 C.V. % 7 1 3 5 1 8 8 8 LSD (0.05) 14 0.9 0.5 3 1 30 12 11 8 Average 139 60.8 12.1 40 129 38 130 139 130 Highest 184 62.8 14.0 45 134 88 166 165 131	OR2120012R	145	60.9	12.6	39	127	42			
C.V. % 7 1 3 5 1 8 8 8 LSD (0.05) 14 0.9 0.5 3 1 30 12 11 8 Average 139 60.8 12.1 40 129 38 130 139 130 Highest 184 62.8 14.0 45 134 88 166 165 131	WA 8249	128	62.0	13.1	40	128	77			
LSD (0.05) 14 0.9 0.5 3 1 30 12 11 8 Average 139 60.8 12.1 40 129 38 130 139 130 Highest 184 62.8 14.0 45 134 88 166 165 131	IDO1101	118	60.0	12.1	39	130	88	116	132	
Average 139 60.8 12.1 40 129 38 130 139 130 Highest 184 62.8 14.0 45 134 88 166 165 131	C.V. %	7	1	3	5	1	-	8	8	8
Highest 184 62.8 14.0 45 134 88 166 165 131	LSD (0.05)	14	0.9	0.5	3	1	30	12	11	8
•	Average	139	60.8	12.1	40	129	38	130	139	130
Lowest 82 57.1 11.0 35 125 0 90 122 128	Highest	184	62.8	14.0	45	134	88	166	165	131
	Lowest	82	57.1	11.0	35	125	0	90	122	128

Agronomic Information

Planting Date:	10/7/2015		
Harvest Date:	8/4/2016		
Seeding Rate (lbs/acre):	95		
Previous Crop:	Potatoes		
Spring soil test:			
N (lb/ac) 4-ft sample	e 237		
P (ppm-bicarb) 2-ft sample	e 27		
S (lb/ac) 2-ft sample	e 44		
pH (top 6 inches	5.09		

Trial Notes:

- **1.** The Moses Lake irrigated nursery was located about 10 miles southeast of Moses Lake, WA. All yield, test weight, and protein values within the 5% LSD range of the highest value are shown in bold.
- **2.** An extra 130# N was applied to the hard trial in the spring, after the soil sample was taken.
- **3.** This trial received only one fungicide application. Stripe rust levels were very high and limited the yield of susceptible varieties.
- **4.** The irrigated trials contain a unique set of entries, some of which are not found in the rainfed trials.

Cooperator: G. Burkholder

Herbicide:

Huskie & Tilt were applied at herbicide timing.