

Small Grain Quick Facts: Hard Red Spring Wheat

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Full 2024 yield trial dataset located at this link: [SPRING WHEAT-Performance-Evaluation 2024.pdf \(montana.edu\)](https://montana.edu/SPRING_WHEAT-Performance-Evaluation_2024.pdf)

General Variety Descriptions: Descriptions are based on performance in multi-year/location yield trials that were grown using [recommended conventional wheat farming practices](#). Actual variety performance may vary, depending on local growing conditions and farming methods. All varieties listed are PVP protected.

DAGMAR (MAES release, 2019): Moderately sawfly resistant, high yielding, high protein, good test weight, early maturing hard red spring wheat variety. Dagmar has performed well in diverse dryland growing environments and has excellent end-use quality. Susceptible to plant available aluminum in low pH soil.

DUCLAIR (MAES release, 2011): Early maturing hard red spring wheat variety that has slightly better sawfly resistance than Dagmar and has good yield potential. Grain protein content is above average and end-use quality is excellent. Tolerant of plant available aluminum in low pH soils. Difficult to thresh.

MT CARLSON (MAES release, 2023): Overall, one of the top yielding hard red spring wheat varieties in dryland growing environments, especially in drought conditions. Early maturing variety with grain protein content slightly higher than Vida, good test weight and better end-use quality than Vida. Sawfly resistance similar to sometimes more susceptible than Vida, depending on growing conditions, and not as resistant as Dagmar. Tolerant of plant available aluminum in low pH soils. Susceptible to scab (fusarium head blight).

MT DUTTON (MAES release, 2023): One of the top yielding hard red spring wheat varieties in Montana’s dryland growing environments. MT Dutton is a medium maturity variety with grain protein content that is higher than MT Carlson but slightly lower than Dagmar and Lanning. Test weight ranges from being similar – slightly lower than MT Carlson and Vida. Moderate resistance to scab (fusarium head blight). Moderately susceptible to sawfly. End-use quality is similar to Vida.

MT UBET (MAES release, 2024): High yielding variety adapted to Montana dryland growing environments. It has done especially well in the Sidney, MT yield trials. Has good grain protein content and good test weight. MT UBET has high falling numbers, good gluten strength compared to Reeder and Vida and has an upright plant architecture. MT UBET is susceptible to wheat stem sawfly.

VIDA (MAES release, 2005): High yielding, good test weight, medium-late maturing hard red spring wheat variety for Montana’s dryland growing environments. Vida has good drought tolerance and moderate sawfly resistance; however, Vida’s sawfly resistance is not as good as Dagmar or Duclair. Grain protein content and end-use quality are average. Vida does not have tolerance to plant available aluminum in low pH soils.

Table 1. Agronomic performance for selected varieties in the advanced spring wheat nursery, 2021-2024.

VARIETY	BOZEMAN, CONRAD, FORT BENTON, HAVRE, HINGHAM, HUNTLEY, MOCCASIN, SIDNEY-DRY, WILLISTON, BOZEMAN-IRRI, KALISPELL, SIDNEY-IRRI						BOZEMAN
	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	PLANT HEIGHT (IN)	HEADING (JULIAN DAYS)	HEADING DATE	STEM SOLIDNESS (5-25)
<i>N=LOC*YEARS</i>	44	45	46	44	26	26	4
MT CARLSON	63.9	60.1	14.1	28.8	177	26-Jun	17.9
MT DUTTON	63.4	59.5	14.3	29.3	178	27-Jun	11.2
DAGMAR	62.9	60.7	14.7	29.9	175	24-Jun	18.4
MT UBET	62.4	60.1	14.3	28.7	177	26-Jun	12.7
LCS ASCENT	62.3	61.3	13.8	29.0	175	24-Jun	6.8
VIDA	61.1	59.8	14.0	29.7	178	27-Jun	13.0
ROCKER	61.0	60.8	14.3	29.3	179	28-Jun	10.6
NS PRESSER CLP	60.1	59.0	14.0	30.9	180	29-Jun	7.5
LANNING	59.1	59.7	14.9	28.4	176	25-Jun	8.1
SY LONGMIRE	58.5	60.6	14.6	28.1	177	26-Jun	20.9
SY ROCKFORD	58.4	59.1	14.2	29.1	179	28-Jun	7.9
DUCLAIR	58.2	59.1	14.5	29.4	176	25-Jun	19.9
REEDER	57.4	60.2	14.6	30.4	178	27-Jun	7.7
WB 9879 CLP	57.0	59.7	14.7	28.5	178	27-Jun	22.4
AP GUNSMOKE	56.9	59.9	15.2	28.0	177	26-Jun	7.9
WB GUNNISON	56.5	60.4	13.9	27.7	178	27-Jun	11.4
AP SMITH	55.6	60.2	14.9	26.2	179	28-Jun	10.1
McNEAL	55.4	59.2	14.6	30.4	179	28-Jun	8.0
SY INGMAR	55.3	60.6	14.9	27.8	178	27-Jun	9.0
AAC CCONCORD	52.8	59.4	14.8	33.4	179	28-Jun	20.8
LSD (0.05)	2.7	0.5	0.3	0.7	0.6	-	1.9

Table 2. Grain yield (bu/ac) for selected varieties in advanced spring wheat nursery across Montana (12 environments), 2021-2024.

VARIETY	Bozeman Dryland	Conrad Dryland	Fort Benton Dryland	Havre Dryland	Hingham Dryland	Huntley Dryland	Moccasin Dryland	Sidney Dryland	Williston Dryland	Bozeman Irrigated	Kalispell High Rainfall	Sidney Irrigated	Dry Locs. (9)	All Locs. (12)
N=LOC*YEARS	3	3	4	4	4	4	4	4	4	2	4	4	34	44
MT CARLSON	95.5	<u>49.6</u>	48.5	44.5	36.0	<u>73.6</u>	33.1	68.6	50.9	122.3	<u>107.6</u>	95.2	<u>55.6</u>	<u>63.9</u>
MT DUTTON	95.4	45.0	47.6	44.0	37.1	72.7	31.9	70.0	54.1	124.0	101.3	97.9	55.3	63.4
DAGMAR	91.2	47.6	45.7	<u>45.8</u>	33.5	72.5	<u>36.1</u>	68.7	51.9	119.4	100.9	98.5	54.8	62.9
MT UBET	<u>96.1</u>	44.1	48.1	42.7	36.6	70.2	35.3	<u>70.9</u>	47.8	119.5	94.3	<u>100.0</u>	54.6	62.4
LCS ASCENT	95.2	45.4	42.1	43.7	34.7	68.2	33.6	68.4	<u>54.5</u>	<u>128.5</u>	100.4	99.0	54.0	62.3
VIDA	89.8	42.1	48.9	43.6	<u>37.8</u>	71.4	33.8	67.4	48.3	114.2	92.8	96.2	53.7	61.1
ROCKER	92.1	44.8	<u>49.2</u>	43.4	33.7	70.8	31.5	64.8	48.9	114.2	92.9	98.9	53.2	61.0
NS PRESSER CLP	85.8	45.5	46.1	40.4	35.4	67.5	32.4	66.9	48.5	104.2	96.6	95.5	52.1	60.1
LANNING	88.3	43.1	45.3	41.4	31.4	68.0	31.8	66.9	49.8	111.8	90.7	93.3	51.8	59.1
SY LONGMIRE	85.3	42.4	45.1	38.2	32.6	70.4	24.6	60.6	49.4	114.5	96.8	98.5	49.8	58.5
SY ROCKFORD	91.9	42.7	37.6	43.6	28.9	68.4	31.6	65.2	49.0	118.8	91.2	92.6	51.0	58.4
DUCLAIR	90.2	40.2	45.1	39.5	34.3	69.0	31.1	57.0	44.8	117.9	95.5	93.7	50.1	58.2
REEDER	86.5	42.3	40.9	39.6	34.0	63.4	29.4	63.2	45.2	104.4	92.6	94.3	49.4	57.4
WB 9879 CLP	85.0	43.2	43.5	40.4	33.1	66.2	28.4	59.6	42.9	114.2	91.6	92.6	49.1	57.0
AP GUNSMOKE	84.4	40.4	39.8	40.0	28.4	65.9	27.2	64.8	45.8	114.4	91.1	98.3	48.5	56.9
WB GUNNISON	80.2	45.0	45.8	43.7	37.5	60.6	28.0	56.8	43.2	109.4	97.0	83.6	49.0	56.5
AP SMITH	83.5	38.3	38.2	38.4	28.5	65.2	27.0	62.4	43.7	108.3	94.1	92.7	47.2	55.6
McNEAL	75.8	37.8	40.8	38.9	35.5	64.3	31.7	61.6	44.9	96.9	85.8	92.1	47.9	55.4
SY INGMAR	82.8	38.8	38.6	40.2	31.4	62.8	26.1	59.6	48.9	107.4	88.5	90.7	47.7	55.3
AAC CONCORD	76.6	40.0	41.9	36.6	35.6	55.6	29.5	55.8	42.1	98.8	85.1	81.8	46.0	52.8
LSD (0.05)	7.8	6.0	4.6	5.3	4.4	7.7	5.2	3.9	7.6	11.6	9.8	6.5	2.7	2.7

Table 3. Milling and baking quality for selected varieties in the advanced spring wheat nursery, 2020-2023.

VARIETY	WHOLE GRAIN		FLOUR ANALYSIS		MIXOGRAPH			BAKE	
	PROTEIN (%)	HARDNESS (%)	YIELD (%)	PROTEIN (%)	TOLERANCE	TIME (MIN.)	ABSORP. (%)	TIME (MIN.)	LOAF VOLUME (CC)
N=LOC*YEARS	12	12	12	12	12	12	12	12	12
CHOTEAU	14.4	72.2	70.4	13.4	2.1	3.5	67.4	7.2	1,133
CORBIN	14.4	68.9	70.4	13.2	2.1	5.8	67.6	13.0	1,025
DAGMAR	14.7	74.3	70.2	13.4	3.2	4.0	68.4	8.2	1,107
DUCLAIR	14.3	67.9	69.8	13.2	3.3	4.5	67.7	10.0	1,140
LANNING	<u>14.8</u>	72.4	70.1	13.8	2.8	4.1	68.7	9.4	1,152
McNEAL	14.6	84.8	68.4	13.4	3.8	7.1	<u>70.4</u>	14.7	1,168
MS RANCHERO	14.0	83.3	68.6	12.6	3.2	4.0	67.4	8.0	1,060
MT CARLSON	14.0	66.6	68.8	13.2	2.8	3.6	67.7	8.2	1,105
MT DUTTON	14.4	79.0	70.7	13.0	2.1	2.7	67.0	5.1	1,103
MT SIDNEY	14.2	77.3	70.8	13.2	1.8	4.2	66.8	10.5	1,101
NS PRESSER CLP	14.7	69.0	71.2	13.4	1.9	4.0	66.7	9.4	1,075
REEDER	14.6	73.9	68.9	13.5	1.9	3.2	66.7	6.3	1,109
SY 611 CL2	14.6	<u>87.9</u>	68.0	13.2	2.6	3.3	68.9	6.6	1,038
SY INGMAR	<u>14.8</u>	79.0	70.9	<u>14.0</u>	3.4	5.7	69.8	13.8	1,171
SY LONGMIRE	14.6	77.9	70.2	13.5	3.7	5.2	69.1	11.0	<u>1,177</u>
SY ROCKFORD	14.0	73.2	70.6	12.9	2.9	4.2	67.6	8.8	1,082
VIDA	13.9	78.8	<u>71.9</u>	12.7	1.5	3.4	67.0	7.5	1,113
WB 9719	14.1	76.7	70.3	13.2	3.8	5.2	68.3	11.9	1,042
WB 9879 CLP	14.7	68.9	68.7	13.6	2.0	2.3	65.6	3.7	1,033
WB GUNNISON	13.8	76.7	68.1	12.5	3.8	<u>7.4</u>	67.3	<u>15.3</u>	1,118
LSD (0.05)	0.5	3.7	0.8	0.4	0.6	0.8	1.7	2.0	54