

Small Grain Quick Facts: Hard Red Spring Wheat

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Full 2023 yield trial dataset located at this link: [SPRING WHEAT-Performance-Evaluation 2023.pdf \(montana.edu\)](https://montana.edu/SPRING_WHEAT-Performance-Evaluation_2023.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): Moderate 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. Good resistance to tan spot. 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.

LANNING (MAES release, 2016): Early maturing, high protein hard red spring wheat variety with good end-use quality. Good yield potential in Eastern Montana dryland growing environments. Tolerant of plant available aluminum in low pH soils. Susceptible to sawfly.

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 Vida in most growing environments, but not as good 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, especially in higher rainfall conditions. 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 foliar disease and scab (fusarium head blight). Partially tolerant of plant available aluminum in low pH soils. Moderately susceptible to sawfly. End-use quality is similar to Vida.

MT SIDNEY (MAES release, 2021): High yielding, early maturing hard red spring wheat variety best suited for Eastern Montana dryland growing environments. MT Sidney has scab (fusarium head blight) resistance that is slightly better than MT Dutton. Grain protein content is higher than Vida, but lower than Dagmar and MT Dutton. Test weight is similar to Dagmar and MT Carlson. MT Sidney is susceptible to sawfly and does not have tolerance to plant available aluminum in low pH soils. End-use quality is similar to Vida.

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, 2020-2023.

VARIETY	BOZEMAN, HUNTLEY, MOCCASIN, FORT BENTON, HAVRE, SIDNEY-DRY, CONRAD, WILLISTON, HINGHAM, KALISPELL, BOZEMAN-IRRI, SIDNEY-IRRI						BOZEMAN
	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	PLANT HEIGHT (IN)	HEADING (JULIAN DAYS)	HEADING DATE	STEM SOLIDNESS (5-25)
N=LOC*YEARS	41	40	41	41	29	29	4
MT DUTTON	66.3	59.5	14.9	29.9	175	24-Jun	11.9
MT CARLSON	65.6	60.2	14.6	29.2	174	23-Jun	19.4
DAGMAR	65.3	60.8	15.3	30.7	173	22-Jun	18.6
VIDA	64.5	59.7	14.5	30.3	176	25-Jun	13.3
NS PRESSER CLP	62.8	58.7	14.8	31.5	178	27-Jun	7.7
MT SIDNEY	62.3	60.6	14.7	29.9	173	22-Jun	9.5
SY ROCKFORD	62.0	59.1	14.7	29.5	177	26-Jun	8.3
WB 9719	61.6	62.1	14.6	28.2	176	25-Jun	6.8
LANNING	61.5	59.7	15.4	28.6	173	22-Jun	8.0
MS RANCHERO	60.9	60.0	14.4	31.0	174	23-Jun	7.9
DUCLAIR	60.5	59.1	14.8	30.0	173	22-Jun	19.9
SY LONGMIRE	60.3	60.6	15.2	28.7	175	24-Jun	20.4
REEDER	60.0	60.3	15.0	30.9	175	24-Jun	7.5
CHOTEAU	60.0	59.6	15.0	29.4	175	24-Jun	22.2
WB 9879 CLP	59.5	60.0	15.2	29.1	175	24-Jun	22.7
SY 611 CL2	59.3	60.4	15.0	27.2	174	23-Jun	9.5
McNEAL	57.8	59.2	15.1	31.1	177	26-Jun	7.8
WB GUNNISON	57.3	60.5	14.3	28.1	175	24-Jun	12.0
SY INGMAR	57.2	60.3	15.5	28.6	176	25-Jun	9.3
CORBIN	55.7	60.2	15.0	29.5	173	22-Jun	13.2
LSD (0.05)	2.9	0.6	0.3	0.8	0.6	-	1.7

Table 2. Grain yield (bu/ac) for selected varieties in advanced spring wheat nursery across Montana (12 environments), 2020-2023.

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)
<i>N=LOC*YEARS</i>	4	2	4	4	3	4	4	4	3	2	3	4	32	41
MT DUTTON	98.1	51.3	48.1	48.2	39.5	74.8	38.1	60.0	45.0	124.0	101.1	96.9	61.2	66.3
MT CARLSON	96.4	58.6	50.2	45.1	37.7	75.2	39.4	59.6	42.5	122.3	108.6	93.0	61.0	65.6
DAGMAR	93.2	54.6	45.0	48.7	34.6	73.9	40.7	60.0	41.4	119.4	98.9	95.5	60.3	65.3
VIDA	92.6	47.7	48.3	44.9	38.9	74.8	38.2	59.0	42.4	114.2	91.1	93.9	59.6	64.5
NS PRESSER CLP	89.2	51.3	47.3	40.1	35.6	74.4	36.8	60.2	43.8	104.2	95.3	91.7	58.0	62.8
MT SIDNEY	90.0	50.3	43.8	40.8	33.6	73.9	36.1	56.8	39.7	119.5	106.4	94.4	56.9	62.3
SY ROCKFORD	95.1	52.2	37.8	44.5	29.4	72.4	36.2	54.9	40.5	118.8	92.7	93.1	56.8	62.0
WB 9719	92.6	50.4	46.9	41.6	35.2	67.8	31.5	55.5	38.5	111.1	96.7	95.4	56.0	61.6
LANNING	89.9	50.7	45.9	42.6	32.2	67.3	36.9	56.5	40.1	111.8	90.2	91.7	56.5	61.5
MS RANCHERO	90.4	49.3	43.3	39.6	36.5	68.9	36.0	52.7	35.0	94.7	97.1	95.2	55.2	60.9
DUCLAIR	90.2	45.2	47.2	41.6	34.4	71.5	34.7	48.8	37.5	117.9	96.2	89.2	55.7	60.5
SY LONGMIRE	84.2	49.1	46.6	41.0	33.9	72.5	30.0	52.0	39.8	114.5	96.4	95.5	54.4	60.3
REEDER	86.6	48.9	42.7	42.1	35.5	66.8	34.2	55.3	36.6	104.4	91.0	92.3	54.6	60.0
CHOTEAU	87.4	44.0	47.0	42.6	32.3	70.3	32.3	52.2	38.4	117.1	94.8	88.2	55.3	60.0
WB 9879 CLP	85.3	48.4	46.7	43.2	34.7	68.7	33.3	51.3	35.4	114.2	88.9	88.3	54.8	59.5
SY 611 CL2	82.7	48.4	39.3	39.5	33.7	69.0	33.7	55.3	39.9	108.7	97.4	95.5	53.3	59.3
McNEAL	77.5	42.7	42.8	40.6	36.1	69.3	36.1	51.9	40.9	96.9	85.7	86.5	53.0	57.8
WB GUNNISON	81.0	51.9	44.9	45.4	39.6	64.5	33.2	49.3	38.7	109.4	96.9	82.7	53.1	57.3
SY INGMAR	85.4	44.5	37.5	40.1	32.8	64.7	30.3	52.5	40.1	107.4	87.8	89.7	51.8	57.2
CORBIN	81.1	52.3	42.4	40.8	36.6	64.0	31.9	47.6	36.6	99.8	94.5	82.3	51.3	55.7
LSD (0.05)	6.6	8.2	5.1	4.8	5.3	7.6	5.0	4.0	6.8	15.1	13.0	7.1	3.1	2.9

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)
<i>N=LOC*YEARS</i>	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	14.8	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	70.4	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	87.9	68.0	13.2	2.6	3.3	68.9	6.6	1,038
SY INGMAR	14.8	79.0	70.9	14.0	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	1,177
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	71.9	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	7.4	67.3	15.3	1,118
LSD (0.05)	0.5	3.7	0.8	0.4	0.6	0.8	1.7	2.0	54