

MTWF7\_19-7 is on track to be our first winter forage barley release. While the name is still a work in progress, it has consistently ranked in the top three for biomass production across seven years of data (Fig. 1). MTWF7\_19-7 has also shown increased grain yield (Fig. 2) and winter survival (Fig. 3) compared to other high biomass lines. Our target release date is winter 2027, with foundation seed available for sale in fall 2027.



2022 to 2024		Biomass (tons/ac)				
Variety		Bozeman	Kalispell	Havre	Sheridon	All Locations
Loc Years		3	2	1	1	7
MTWF7_19-7		7.22	6.96	4.67	3.17	6.2
MTWF6(F2)_50-2		6.9	6.17	5.38	3.25	5.95
MTWF6(F2)_50-11		6.26	6.92	5.8	3.24	5.95
Saturn		6.47	5.41	3.49	2.05	5.01
Winter Wheat		8.72	7.16	8.01	4.12	7.31

Figure 1. Biomass data for our top 3 winter forage barley lines, along with Saturn as a grain yield check, and forage winter wheat for comparison.

Figure 2. Grain yields for all five lines. While MTWF7\_19-7 doesn't yield as much as Saturn, a winter feed barley, it is still the highest yielder of our top biomass producers.

2023 to 2024		Yield (bu/a)			
Variety		Bozeman	Kalispell	Havre	All Locations
Loc Years		2	2	1	5
MTWF7_19-7		82.1	82.4	79.8	81.4
MTWF6(F2)_50-2		61.9	70.8	89.5	74.1
MTWF6(F2)_50-11		59.3	44.0	68.7	57.3
Saturn		150.7	137.0	103.1	130.3
Winter Wheat		91.7	156.3	99.3	115.8

2023 to 2024		Winter survival (%)				
Variety		Bozeman	Kalispell	Havre	Sheridon	All Locations
Loc Years		1	2	1	1	5
MTWF7_19-7		83	74	70	73	75
MTWF6(F2)_50-2		80	64	73	71	72
MTWF6(F2)_50-11		90	68	65	64	72
Saturn		90	76	71	74	78
Winter Wheat		100	70	72	64	76

Figure 3. Variation in winter survival has been limited to either total survival or total loss of a line. Two of the Bozeman locations saw 100% survival across all tested lines, so the data isn't included in this table.

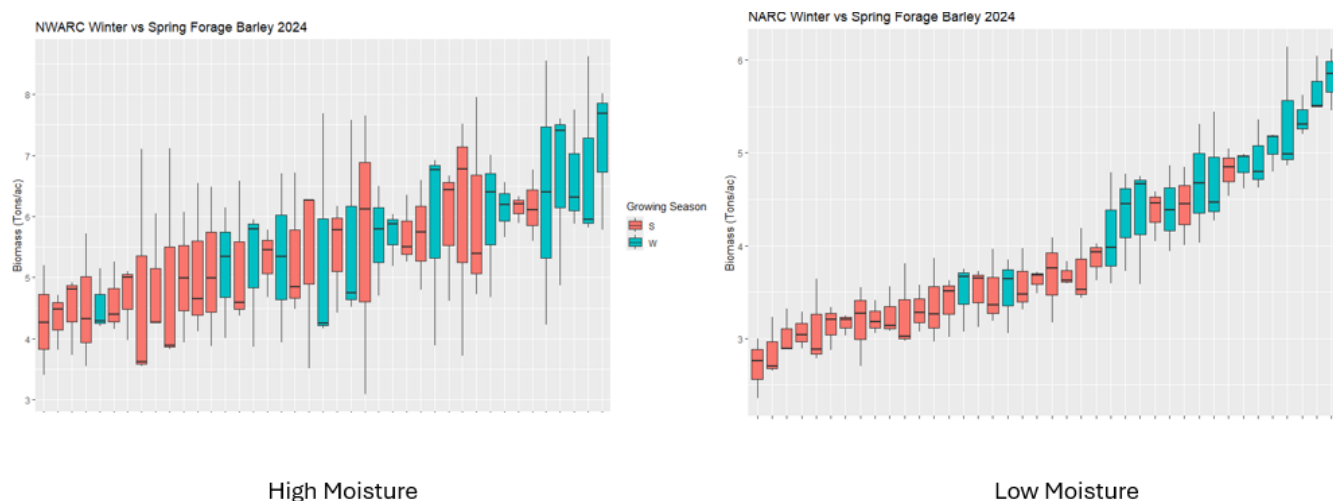


Figure 4. Comparing forage biomass in Winter (blue) vs Spring (red) barley. In lower moisture environments, the winter types see a greater increase in biomass vs the spring types.

Bozeman Malt Feed PYT 2024

ID	Yield	Plumps	Protein	S. Protein	S/T	FAN
MTWF6(F4)_87-185	84.7	93.74	10.4	4.8	45.98%	213
MTWF4(F1)20_62	109.1	94.64	8.6	3.8	44.34%	181
MTWF6(F4)_30-3	130.1	94.14	9.4	4.4	46.91%	191
MTWF4(F1)20_74	133.7	96.63	9.1	3.3	36.34%	151
MTWF4(F1)20_13	136.6	97.08	9.0	3.8	42.36%	177
MTWF4(F1)20_59	162.6	97.80	13.4	4.4	32.88%	182
Charles	113.6	94.06	12.1	4.3	35.50%	208
AMBA guidelines		>90	≤12.8	4.8-5.6	38-47%	140-210+

Bozeman Malt Feed PYT 2024

ID	Extract (CG db)	B-Glucan	AA	DP
MTWF6(F4)_87-185	80.1	120	83	150
MTWF4(F1)20_62	80.4	86	91	162
MTWF6(F4)_30-3	80.6	63	84	135
MTWF4(F1)20_74	80.7	76	76	129
MTWF4(F1)20_13	80.6	103	76	149
MTWF4(F1)20_59	77.5	96	61	216
Charles	82.9	50	103	152
AMBA guidelines	>80 (on FG)	<100	40-70+	110-150+

Figure 5. I've pulled out six lines that have the potential to be malt lines from last year's PYT. MTWF4(F1)20\_59 is in the interstate while the rest are in the EYT. More testing in more environments is needed, but this is an exciting first step for a malt barley line adapted for Montana.