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**MEMORANDUM**

**FROM:** Traci Hoogland, Greg Lutgen and Jamie Sherman, SpringBarley  
**DATE:** January 4, 2022  
**RE:** Release of MT Cowgirl (MT16F02902) spring forage barley

**Pedigree:** LAVINA/CDC COWBOY

**Recommendation:** Public, protected                      **Name:** MT Cowgirl (MT16F02902)

**Selection history:**

MT16F02902 is a spring, 2-row, hulled, hooded barley developed for forage barley production in Montana. MT16F02902 has a tall, erect growth habit, lax head type, rough awns, white aleurone and long rachilla hairs. MT16F02902 is an F4 derived selection from Lavina by CDC Cowboy cross. ‘Lavina’ (MT981397), one of the top barley forage producers in the state, is a two rowed hooded spring barley and is a cross between ‘Haybet’ and ‘Baronesse’. ‘Haybet’ (P.I.533600), developed by USDA-ARS and the Montana Experiment Station. CDC Cowboy is a dual-purpose feed forage line with awns and produces well across environments in the Great Plains. MT16F02902 was advanced by single seed descent from the F1 thru F4 generations. It was increased from a F4 plant to produce seed for preliminary yield testing in 2016. MT16F02902 was tested for agronomic and forage traits beginning in 2017.

**Agronomic performance and characteristics:**

Table 1 compares MT16F02902 to control varieties Haymaker, Hays and Lavina. Across all environments, MT16F02902 was equal to or better than controls for forage yield and grain yield. MT16F02902 is taller than the controls, which likely supports forage yields. When MT16F02902 is compared to commonly grown lines it tends to head earlier and mature later such that it has a longer grainfill. The extended grainfill likely increases plump seed and might extend harvest flexibility. Seed size stability under dryland conditions could be important to seed production stability. MT16F02902 is not significantly different in percent grain protein and tends to have better quality with lower ADF and NDF although not significant.

**Table 1: Comparison of MT16F02902 with Varietal Controls**

TRAIT	CONTROL VARIETY	MT16F02902 MEAN	Control MEAN	MT16F02902/CONTROL (%)	NUMBER OF OBSERVATIONS
FORAGE YIELD (TONS/ACRE)	Haymaker	3.81	3.53	107.7	12
	Hays	3.72	3.41	109.0*	21
	Lavina	3.72	3.59	103.7	22
GRAIN YIELD (BUSHEL/ACRE)	Haymaker	99.68	96.85	102.9	4
	Hays	87.94	91.97	95.6	13
	Lavina	87.94	89.05	98.7	13
HEADING DATE JULIAN	Haymaker	179.84	180.69	99.5*	10
	Hays	181.15	182.93	99.0***	19
	Lavina	181.83	181.71	100.1	23
MATURITY DATE JULIAN	Haymaker	201.48	200.56	100.5	5
	Hays	207.64	208.37	99.7	9
	Lavina	207.18	205.59	100.8**	10
HEIGHT (CM)	Haymaker	73.49	69.8	105.3**	12
	Hays	76.19	68.07	111.9***	21
	Lavina	73.79	69.25	106.6***	30
GRAIN PROTEIN (%)	Haymaker	12.74	13.2	96.5	6
	Hays	12.52	12.49	100.2	11
	Lavina	13.63	13.62	100.0	16
ADF	Haymaker	31.98	33.19	96.4	11
	Hays	34.07	33.61	101.4	19
	Lavina	33.92	33.98	99.8	20
NDF	Haymaker	57.72	59.67	96.7	11
	Hays	57.52	57.78	99.5	19
	Lavina	57.53	58.13	99.0	20
Plumps (% 6/64)	Haymaker	84.9	72.1	117.8	1
	Hays	84.9	80.6	105.3	1
	Lavina	64.6	58.27	110.9*	7

Difference indicated by Ttest at \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

## Summary:

MT16F02902 is well-suited for production across all forage barley growing regions of Montana.

### Agronomic Strengths

- High performing forage line
- Taller plant height
- Longer grain fill period
- Higher percentage of plump seed

### Quality Strengths

- Potential improvement of forage quality with lower NDF and ADF

### **MSU Barley Breeding Program:**

Jamie Sherman, PI

**MSU Breeding Staff** – Greg Lutgen, Traci Hoogland, Joe Jensen, Jessica Williams, and Trevor Palone.

With special thanks to Ron Ramsfield.

**MSU Malt Quality Laboratory** - Hannah Turner, Sarah Olivo

### **Data Provided By:**

MAES Research Centers Current and Former Staff/Faculty:

**SARC** - Ken Kephart, Kent McVay, Qasim Khan, Valerie Smith

**NARC** - Darin Boss, Peggy Lamb

**WTARC** – Justin Vetch, John Miller

**CARC** - Patrick Carr, Jed Eberly, David Wichman

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**WARC**- Zach Miller, Kyrstan Hubbel, Marty Knox

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