Project Title: 2022 Forage Barley EYT

Objective: To evaluate the agronomic performance of experimental forage barley lines grown in northwestern Montana.

Personnel: Clint Beiermann, Jamie Sherman, Jessica Pavelka**,** Gregory Lutgen

Summary:

Thirty-six developmental barley lines were planted on April 29th, 2022 and harvested on August 19th, 2022 (Table 1). They were managed under rainfed conditions and received 8.1 inches of rainfall throughout the growing period (Apr-Aug).

Average yield for the study was 83.66 bu/A, with the highest yield at 103.1 bu/A for MT20_F109_08 to the lowest at 58.2 bu/A for MT20_F108_12. The highest ADF content was 40.76% for MT20_F098_01 while the lowest was 34.38% for MT20_F097_07. The average NDF content across the trial was 63.08% with MT20_F098_01 being the highest at 66.79% and MT20_F097_07 the lowest at 59.46%. The average dry matter was 90.77%, the highest at 91.16% for MT20_F098_03 and the lowest at 90.45% for MT20_F110_07.

Table 1. Management information

Seeding date:	4/29/2022	**Field Location:**	Y5
Julian date:	119	**Harvest date:**	8/19/2022
Seeding rate:	NA	**Julian date:**	231
Previous crop:	Spring Wheat	**Soil type:**	Silty Clay Loam
Herbicide:	CleansweepM 1pt/A + Axial Bold 15oz/A	**Tillage:**	Conventional
Insecticide:	None	**Soil residual nutrient (NO_3^{-1}, P, K lb/A):**	108-10-248
Fungicide:	None	**Nutrient fertilizer applied (N, P_2O_5, K_20 lb/A):**	50-40-50

Table 2. Agronomic performance of barley

Variety/Line	HD (julian)	HT (cm)	DM Forage Biomass (tons/A)	ADF (%)	NDF (%)	TWT (lb/bu)	DM (%)	YLD (bu/A)
MT20_F109_08	**187**	95.7	5.27	37.7	63.7	49.2	90.6	**103.1**
MT20_F108_13	**187**	90.6	4.71	37.7	63.1	50.0	**90.9**	**101.9**
MT20_F110_17	185	**103.2**	5.783	37.2	63.0	**52.1**	90.6	**101.7**
Hays	**187**	90.3	4.76	36.9	62.4	49.5	90.6	**98.5**
MT20_F097_07	**187**	65.9	4.35	34.4	59.5	46.3	90.6	**96.7**
MT20_F109_22	**186**	89.2	4.8	38.0	63.2	48.7	**90.8**	**96.1**
MT20_F098_01	185	99.7	5.48	**40.8**	**66.8**	46.7	**91.1**	**94.8**
MT20_F109_04	**186**	**100.7**	4.797	37.6	63.4	49.1	90.6	**94.8**
Haymaker	**187**	98.2	4.717	37.9	62.7	49.4	90.7	**92.2**
MT20_F098_05	**186**	96.6	5.23	**38.9**	**64.6**	49.1	**91.0**	**91.6**
MT20_F109_10	186	**102.0**	5.27	37.0	62.4	49.3	90.6	**88.4**
MT20_F099_02	**187**	96.4	4.01	36.0	61.3	49.9	90.5	**88.3**
MT20_F110_10	**186**	**104.0**	4.763	37.9	63.4	50.7	90.7	**88.3**
MT20_F099_05	186	94.1	4.307	38.1	63.5	50.6	**91.0**	**88.1**
MT20_F098_03	186	85.9	4.11	37.5	63.5	47.3	**91.2**	**85.8**
MT20_F098_08	**186**	84.5	4.43	38.7	**64.2**	48.5	**90.8**	**85.6**
MT20_F110_04	**187**	88.2	4.79	37.2	63.3	49.6	**90.8**	**85.5**
MT20_F097_01	**187**	98.6	4.763	37.5	63.3	49.5	90.7	84.0
MT20_F098_24	**186**	92.8	4.567	37.2	62.1	48.4	90.6	83.9
MT20_F097_20	185	**104.8**	3.91	38.0	63.1	49.2	90.7	83.8
MT20_F098_28	**187**	82.6	4.06	37.8	**64.0**	47.6	**90.8**	82.4
MT20_F099_10	**187**	82.6	3.893	38.5	**64.1**	48.0	**91.0**	81.6
MT20_F109_18	**186**	97.0	4.15	37.2	62.0	47.6	90.7	81.5
MT20_F099_14	186	95.8	4.8	**38.8**	**65.3**	49.6	**91.1**	79.5
MT20_F111_10	**187**	**103.4**	4.457	37.7	63.0	48.5	**90.8**	79.2
MT20_F110_12	**186**	93.4	5.397	35.9	59.6	48.4	90.6	78.8
MT20_F110_07	**187**	97.1	4.73	36.6	60.8	49.7	90.5	78.5
MT Cowgirl	185	**103.1**	4.937	38.7	63.9	47.4	**90.9**	77.5
MT20_F110_19	**186**	96.7	5.043	37.8	62.9	47.6	90.7	73.9
MT20_F111_15	186	98.9	5.46	37.7	63.1	47.2	**90.9**	72.0
MT20_F111_21	**186**	**109.2**	5.433	36.9	61.4	49.5	90.7	71.8
MT20_F099_04	**186**	98.7	5.193	**39.0**	**65.4**	48.7	**90.9**	71.4
Lavina	**186**	87.6	4.433	38.1	**65.3**	47.5	**90.8**	69.5
MT20_F111_25	186	**109.1**	5.82	**39.3**	**64.7**	46.7	**90.9**	63.7
MT20_F108_24	182	98.2	4.443	37.9	61.5	42.7	**90.8**	59.2
MT20_F108_12	183	**104.1**	5.047	36.8	61.6	43.5	90.6	58.2
Mean	**186**	**95.53**	4.781	**37.69**	**63.08**	**48.43**	**90.77**	**83.66**
LSD(0.05)	**0.93**	**9.04**	1.02	**1.96**	**2.84**	**1.01**	**0.41**	**18.77**
C.V.	**0.30**	**5.79**	13.108	**3.18**	**2.76**	**1.29**	**0.27**	**13.71**

Bold = top performer, **Bolding** denotes equal value to highest or earliest value within a column based on LSD(0.05)

HD = heading date, HT = height, LOD = lodging, YLD = yield, TWT = test weight, ADF = acid detergent fiber, NDF = neutral detergent fiber, DM = dry matter