Project Title: 2020 Preliminary Yield Trial Spring Forage Barley

Objective: To evaluate the performance of selected barley varieties in northwestern Montana

Personnel: J.A. Torrion, Amanda Shine, Eeusha Nafi, Jamie Sherman, Greg Lutgen

Summary:

Forty-five barley varieties/lines were planted in spring, and managed under rainfed conditions (Table 1). A total of 11.2 inches of rainfall was received during the growing period (April-Aug.).

On average, the barley forage yield was 6.3 t/A, and ranging from 9.6 t/A for MT19_F05_03 to 3.9 t/A for MT19_F01_02. Acid detergent fiber (ADF) averaged 33.5%, ranging from 39.3% for MT18F00309 to 27.3% for MT19_F05_03. On the other hand, MT18F00309 had the highest neutral detergent fiber (NDF) at 62.4% and MT19_F07_05 had the lowest NDF at 41% with an average at 54.3%.

Grain yield averaged 102.5 bu/A, ranging from 134.7 bu/A for Hays to 74.3 bu/A for MT19_F07_02 (Table 2). Average grain protein content was 10.3%; MT19_F06_03 had the highest protein content at 12.5% while MT19_F02_02 had the lowest protein content at 8.7%. Grain test weight (TWT) averaged 46.4 lbs/bu, ranging from 50.9 lbs/bu for Hays to 39.2 lbs/bu for MT19_F06_05. Lodging among the varieties averaged at 7.2%, while 79% of the lodging was recorded for MT19_F04_04.

Table 1. Management information

Seeding date:	4/21/2020	Field:	P2
Julian date:	112	Harvest date:	Forage: 7/13, Grain: 8/17
Seeding rate:	n/a	Julian dates:	195, 230
Previous crop:	Winter wheat	Soil type:	Creston silt loam
Herbicide:	6/1: Cleansweep M & Axial	Tillage:	Conventional
Insecticide:	None	Soil residual nutrient (NO_3^-, P, K lb/A):	Fall, 2019: 122-20-376
Fungicide:	None	Nutrient fertilizer applied (N, P_2O_5, K_2O lb/A):	4/8/20: 84-10-35 (10 S)

Table 2. Agronomic performance of the forage barley entries

Entries	Forage yield (tons/A)	ADF (%)	NDF (%)	Grain yield (bu/A)	Lodging (%)	Test weight (lbs/bu)	Grain protein (%)
MT19_F05_03	9.6	27.3	44.9	105.2	0	47.5	10
MT19_F03_05	9.2	32.6	53.8	109.3	1	46.5	9.5
MT19_F06_02	9.1	33.7	55.6	94.7	0	45.4	10.2
MT19_F04_03	8.6	31.6	50.9	101.5	3	49.4	9.8
MT19_F07_04	8.1	30.3	46.7	102.3	3	46.2	10.2
MT19_F03_04	7.5	37.7	61.7	123.7	6	47.2	10.6
MT19_F06_01	7.4	31.9	52.9	83.5	3	41.1	10.9
MT18F00309	7.4	39.3	62.4	82	43	46.7	10.5
MT19_F03_02	7.3	34.3	56.9	101.8	1	47.6	9.2
MT19_F03_06	7	34	55	97.7	3	47.2	8.8
Lavina	6.9	36	58.9	114.7	3	50.1	10.1
MT19_F03_01	6.9	34.6	57.7	112.3	24	46.1	10.6
MT19_F04_02	6.8	29.3	46.5	102.4	0	45.9	9.9
MT18F00508	6.8	31.3	50.2	91.8	0	40.8	10.5
MT19_F05_04	6.7	31.8	52.3	106.2	3	47.1	8.8
MT19_F03_03	6.4	33	54.4	107	1	46.1	10.3
MT19_F07_03	6.4	34.5	57.8	97.9	3	42.9	10.9
MT19_F02_03	6.4	35.9	56.3	97.3	10	45.2	11.1
MT19_F01_05	6.4	34.6	55.2	87.7	3	47.8	10.1
MT19_F07_02	6.4	31.3	49.8	74.3	1	48.7	12.2
Hays	6.3	36.4	60.1	134.7	7	50.9	9.9
MT19_F04_04	6.3	31.9	51.3	109.6	79	47.4	10.5
MT17F02406	6.3	31.8	51.5	109	0	49.3	8.8
MT18F00803	6.2	31.5	50.8	118.5	15	46.2	10.5
MT19_F04_05	6.2	31.7	51.8	93.6	0	48.5	10
MT19_F01_01	6.1	32.3	52.2	113.2	1	48.4	10.5
Haybet	6	37.2	61.8	92.2	40	49.9	11.2
MT19_F06_05	5.9	34	57.5	98.7	3	39.2	11
MT19_F04_01	5.7	32.4	51.5	109.2	1	47.7	10.3
MT19_F01_03	5.7	36.9	58.5	101.9	1	47.5	10.4

MT19_F07_01	5.6	32.5	50.9	100.7	1	46.1	11.2
MT19_F06_04	5.4	28.8	47.1	101.4	3	45.6	9.3
MT18F00811	5.4	32.2	52.3	75.8	3	42.2	11.8
MT19_F05_01	5.3	32.7	53	116.7	0	47.8	9.4
MT19_F02_01	5.3	32.9	52.5	112.3	1	45.8	9.6
MT19_F06_03	5.2	33	54.6	85	1	42.7	12.5
MT18F00310	5	37.3	59.4	122.3	3	48.1	9
MT19_F05_05	4.9	36.6	60.6	128	1	46.9	8.7
MT19_F01_04	4.9	35.9	56.4	114.7	3	47.6	11
MT18F00509	4.8	34.5	56.9	88.1	1	41.1	11.2
MT19_F02_02	4.5	34.6	56	99.9	15	46.6	8.7
MT19_F05_02	4.5	34.5	57	94	53	48.2	10.5
MT19_F07_05	4.5	27.9	41.1	83.8	3	46.7	10.1
MT19_F02_04	4.4	36.4	59.1	94.2	1	44.5	10.5
MT19_F01_02	3.9	36.2	58.3	120.1	6	47.4	11.7
Mean	6.3	33.5	54.3	102.5	7	46.4	10.3
CV	32.2	20.6	21.0	22.1	347.9	20.1	22.4
LSD	3.5	12.0	19.9	39.5	43.5	16.3	4.0

ADF = Acid detergent fiber, NDF = neutral detergent fiber