Division of Extension
University of Wisconsin-Madison

2020 Malting Barley Variety Trial

A major factor in yield performance of barley is variety selection. With malting barley, varieties need to be accepted by the American Malting Barley Association to be considered a malting variety. Malt is the principal ingredient used in brewing and a major source of fermentable sugars. Malt also provides amino acids needed by the yeast, protein for beer foam, and compounds that contribute to beer flavor and color. Varieties differ in quality and a measurement is the conversion of endosperm starch into fermentable sugars.

Not only do varieties have different yields in different environments but yield relative to other varieties also may vary depending on the environment. This yield difference is defined as a genotype by environment interaction. Understanding how genotypes perform in different environments is important for selecting a variety that will perform best in your environment.

Eight spring malting barley varieties were tested in Buffalo and Chippewa Counties in 2020. The main purpose of the trial is to determine if malting barley can be economically produced for the brewing industry. The primary factors measured are yield and protein. Protein levels are currently being tested.

The research was conducted using a randomized complete block design. Each variety was planted in a small plot measuring 4 feet x 10 feet and replicated four times. Standard deviations were impacted by yield differences within each replication. Individual replication data is available upon request.

Buffalo County results indicate no significant statistical difference in yield with all eight varieties. Yield performance was observed in the data between varieties even though they are not statistically different.

The Chippewa County location observed three different standards of deviation in performance of the eight varieties. When data was combined between the two counties for all eight varieties, yield performance was statistically different at three standard deviations.

The tables below show yield performance of varieties in the trial by individual county and combined.

Thank you to University of Minnesota, North Dakota State University, Lima Grains and KWS for providing seed for the trial.

Trial Details

Planting Date:

Buffalo Site: April 21, 2020
Chippewa Site: April 15, 2020

Plot Layout:
All plots were four feet by ten feet and included four replications in a randomized complete block design.

Fertility:
Phosphorus, Potassium, and Lime were supplied according to soil test data. Nitrogen applied at 30 lbs/acre equivalent

Soil Type:
Buffalo Site: Seaton Silt Loam
Chippewa Site: Scott Lake Sandy Loam

Herbicide:
Chippewa County
Affinity Broadspec @ 1 oz/acre
Buffalo County
Huskie @ 12 oz./acre

Fungicide:
Approach: 12.0 oz/acre
Miravis Ace: 13.7 oz/acre

Harvested:
Buffalo Site: July 30, 2020
Chippewa: August 4, 2020

Growing Season Summary:
Buffalo Site: Hot and wet the last week in May, otherwise cool and wet the rest of the season.
Chippewa Site: Cooler temperatures early in season. Heavy rains in June, drier at the end of July.

Cooperators:
Chippewa County
Triple T Farms, Chippewa Falls, WI
DS Farms, Alma, WI
American Malting Barley Association
Rahr Malting

2020 Malting Barley Variety Trial
Buffalo and Chippewa County

Variety	Buffalo County Percent Moisture	Buffalo County Yield Bushels/Acre	Chippewa County Percent Moisture	Chippewa County Yield Bushels/Acre
Explorer	12.53b	114.70a	14.23cd	64.08a
Full Pint	12.63b	97.45a	13.73cd	56.56ab
DH120285	12.53b	97.36a	14.30cd	75.47a
S2M177	13.33a	86.16a	16.48b	29.52bc
Cornell - CU31	13.05ab	99.99a	13.33d	65.47a
S2M182	12.63b	95.78a	14.98c	70.63a
S2M179	12.75ab	86.33a	17.10ab	22.42c
S2M180	13.28a	96.60a	17.73a	30.94bc
LSD (P=.05)	0.573	36.96	1.178	26.56
Standard Deviation	0.390	25.07	0.801	18.06
CV	3.04	25.88	5.26	34.79

*Means followed by same letter do not significantly differ (P=.05)

Combined Buffalo and Chippewa County Results

Variety	Percent Moisture	Yield Bushels/Acre
Explorer	13.38b	88.92a
Full Pint	13.18b	77.01abc
DH120285	13.41b	86.41ab
S2M177	14.90a	57.85c
Cornell - CU31	13.19b	82.74ab
S2M182	13.80b	83.21ab
S2M179	14.93a	54.41c
S2M180	15.50a	63.78bc
LSD (P=.05)	1.000	22.31
Standard Deviation	0.989	22.07
CV	7.05	29.72

*Means followed by same letter do not significantly differ (P=.05)

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