

2020 Malting Barley Fungicide Application Study

A major factor in growing quality malting barley is limiting barley to the exposure of plant diseases. These plant diseases can injure both vegetative and reproductive (flowering) parts of the plant.

Managing leaf diseases in malting barley is important for plant health and grain yield. Protection of the flag leaf is critical to grain yield. Numerous leaf diseases such as scald, Barley Yellow Dwarf, powdery mildew, and several rusts can affect barley limiting grain production. Fungicide applications can be one way to limit and protect barley from foliar diseases.

Fusarium head blight (scab) is a major disease of malting barley. Fusarium head blight infects the barley plant during the flowering stage resulting in damage to the kernels and reduced yield. Fusarium can also lead to mycotoxin development especially, deoxynivalenol (DON) which makes barley unusable in the malting and brewing industry.

The 2020 Malting Barley Fungicide Application Study was designed to determine impact of fungicide applications on malting barley yield. The study was conducted at two locations in Buffalo and Chippewa Counties. Five treatments were part of the study including no treatment, seed treatment (Tebustar ST), seed treatment plus foliar treatment (Approach), seed treatment plus foliar treatment plus anthesis treatment (Prosaro and Miravis Ace).

Three different varieties were planted to evaluate fungicide impact on yield including Full Pint, DH120285, and Explorer. Due to seed limitation, Explorer was not evaluated with all treatments. Research plots at each location were 4 feet x 10 feet and replicated four times in a randomized complete block. Individual replication data is available upon request of the authors. Variation in field conditions at the Chippewa County site within individual replications resulted in high standard deviation and no significant difference of applications.

Data presented in the tables indicate application of a fungicide as a foliar application or at anthesis increased yield compared to no treatment. Some of the yield increases were not significant between fungicide treatments although a yield difference was observed.

Thanks to our collaborating partners.



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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 replication in a randomized complete block design.

Fertility:

Phosphorus, Potassium, and Lime were supplied according to soil test data. Thirty pounds of Nitrogen was supplied at planting. Previous crop was soybeans.

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

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

Buffalo County Malting Barley Fungicide Application Trial			
Variety	Treatment	Percent Moisture	Yield Bushels/Acre
Full Pint	NT	12.93a	70.84de
Full Pint	ST	12.85a	75.85cd
Full Pint	ST+LD	12.63a	76.26cd
Full Pint	ST+LD+PR	12.78a	81.33c
Full Pint	ST+LD+MIR	12.80a	91.16b
DH120285	NT	12.70a	63.67ef
DH120285	ST	12.75a	60.97f
DH120285	ST+LD	12.45a	68.64def
DH120285	ST+LD+PR	12.58a	80.27c
DH120285	ST+LD+MIR	12.70a	79.96c
Explorer	NT	12.65a	96.35b
Explorer	ST+LD+PR	12.83a	108.03a
Explorer	ST+LD+MIR	12.73a	113.25a
<i>LSD (P=.05)</i>		0.351	7.60
<i>Standard Deviation</i>		0.246	5.32
<i>CV</i>		1.93	6.48

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)
 NT= No Treatment; ST=Tebustar ST @ 1 oz./cwt; LD=Approach @ 12.0 oz./acre
 PR=Prosaro @ 8.0 oz./acre; MIR=Miravis Ace @ 13.7 oz./acre

Chippewa County Malting Barley Fungicide Application Trial			
Variety	Treatment	Percent Moisture	Yield Bushels/Acre
Full Pint	NT	15.38a	55.19a
Full Pint	ST	16.50a	65.22a
Full Pint	ST+LD	15.63a	68.04a
Full Pint	ST+LD+PR	14.65a	59.51a
Full Pint	ST+LD+MIR	14.98a	84.15a
DH120285	NT	14.65a	66.63a
DH120285	ST	15.03a	36.55a
DH120285	ST+LD	14.88a	55.83a
DH120285	ST+LD+PR	14.93a	99.66a
DH120285	ST+LD+MIR	14.75a	63.33a
Explorer	NT	14.90a	33.04a
Explorer	ST+LD+PR	14.78a	45.38a
<i>LSD (P=.05)</i>		1.729	38.89
<i>Standard Deviation</i>		1.197	26.94
<i>CV</i>		7.94	44.13

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)
 NT= No Treatment; ST=Tebustar ST @ 1 oz./cwt; LD=Approach @ 12.0 oz./acre
 PR=Prosaro @ 8.0 oz./acre; MIR=Miravis Ace @ 13.7 oz./acre

Explorer - Secobra Research
 Full Pint and DH120285 - Oregon State University

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