

# University of Manitoba FHB Risk Model – Barley, Durum, Spring Wheat, Winter Wheat

**Project duration:** September 2018 – August 2019

**Objectives:** To increase understanding of resulting Fusarium Head Blight (FHB) infection for spring and winter wheat, barley and durum based on the current model.

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## Results

Grain samples were sent for Fusarium specific analysis, but no report for these results has yet been generated. PCDF will post a link when this report is available. Average yields for the crops tested are shown in Table 1. The quality ratings for the crops are not included here.

Table 1: Average yields for cereals tested

Crop	Yield (bu/ac)
Winter wheat	76
Spring wheat	72
Barley	94
Durum	61

## Background

Farmers need improved decision-making tools in order to assess the local risk of Fusarium Head Blight (FHB). Better tools would improve judgement on whether or not to use fungicide and how to time application. The project recognizes that the current model for predicting the presence of FHB is insufficient and is gathering data across the province for different treatment plans using both known fusarium resistant and fusarium susceptible varieties.

This project design centred on learning more about how spore density in the air at specific times of plant maturation affected FHB infection. The specific window of interest is during flowering and up to five days before flowering.

**Entries:** 3 varieties for each winter wheat, spring wheat and barley; 1 variety for durum

**Seeding:** Winter Wheat seeded Sept 20 2018;  
Barley, Spring Wheat and Durum seeded May 17

**Harvest:** Sept 6, 2019

**Varieties:** Winter Wheat: Moats, AAC Gateway and Emerson  
Spring Wheat: AAC Elie; AAC Brandon and Muchmore  
Barley: CDC Copeland; AAC Connect; and AAC Synergy  
Durum: Strongfield

## Data collected Date collected

**Plant Counts:** Three leaf stage (and spring emergence for winter wheat)

**Plant Staging:** Weekly staging beginning at late booting through late flowering

**Spore Collection:** Beginning just before winter wheat flowering spanning five weeks and covering all cereals flowering

FHB sampling & rating: 18-21 days after flowering – Enumeration of FHB afflicted kernels per head in a given sample size of fifty heads per plot

Heights: Aug 5  
 Yield: Sept 6  
 Moisture: Sept 6

Grain samples sent away to analyze for grading, fusarium species assessment, and mycotoxin analysis

**Agronomic info**

Previous year's crop: Cereals cover crop  
 Soil Type: Erickson Loam Clay  
 Landscape: Rolling with trees to the east  
 Seedbed preparation: Tilled once and then harrowed

Table 2: Spring 2019 Soil Test

	Available	Needed for Barley	Needed for Wheat	Needed for Durum
N	4.5 lb/ac	100 lb/ac	185 lb/ac	185 lb/ac
P	54.6 lb/ac	10 lb/ac	10 lb/ac	10 lb/ac
K	57.3 lb/ac	-	57.3 lb/ac	-
S	9.7 lb/ac	-	-	-

Table 3: Winter Wheat Added Fertilizer

Blend	Blend (lbs/ac)	Actual lbs N	Actual lbs P	Actual lbs K
46-0-0	397.6	186.9	-	-
11-52-0-0	19.2	2.11	10	-
0-0-60	95.5	-	-	57.3
Total	-	189	10	57.3

*N and K side banded; P banded with seed*

Table 4: Spring Wheat and Durum Added Fertilizer

Blend	Blend (actual lbs/ac)	Actual lbs N	Actual lbs P
46-0-0	397.6	186.9	-
11-52-0-0	19.2	2.11	10
Total		189.0	10

*N side banded; P banded with seed*

Table 5: Barley Added Fertilizer

Blend	Blend (actual lbs/ac)	Actual lbs N	Actual lbs P
46-0-0	212.8	97.89	-
11-52-0-0	19.2	2.11	10
Total	-	100.0	10

*N side banded; P banded with seed*

Table 6: Herbicide Application

Crop stage	Date	Product	Rate
Pre-emerge	Sept 14	RoundUp	0.67 L/ac
	May 14	Heat	28.4 g/ac
		Glyphosate	0.64 L/ac
In-crop	June 12	Prestige	0.8 L/ac
		Curtail M	0.5 L/ac
		Puma	0.413 L/ac