

2017 Wheat on Farm Fusarium Head Blight Variety Project

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Overview

This season the University of Delaware Cooperative Extension worked with growers throughout the state to conduct on farm trials comparing newer high yielding wheat varieties with moderate Fusarium head blight (FHB) resistance to varieties normally used by the grower. In addition to allowing growers to see first-hand the benefit of variety selection in FHB management, it also allowed participants the ability to assess yield potential and performance of these new varieties, even if FHB was low or absent. One of the most frequent complaints of older moderately resistant (MR) varieties was that yield potential in the absence of FHB was poor. This study allowed growers to test and see first-hand the potential performance of newer MR varieties in Delaware growing conditions.

Seed was provided to the grower and each grower planted the varieties as strips, alternating with their own variety, or split fields. Seed was selected based off of the 2016 University of Maryland and Virginia Tech Misted Nursery results. This method allowed growers to compare varieties without issues related to between field comparisons (i.e. different planting dates, soil types, moisture, etc). Fields were rated for Fusarium head blight (FHB) two weeks after flowering by randomly sampling 100 heads per field and rating for incidence (% of heads with any FHB) and severity (number of florets on an infected spike with FHB). When grain was ripe, 200 heads were randomly sampled within each field, hand threshed, and sent to the UMN Mycotoxin Lab for assessment of DON. Below are the results of the 2017 study.

Grower	Field	Variety Reaction	Index	Incidence (%)	Severity (%)	DON
a	1	MS/MR Grower	1.76	4	44	1.8
a	2	MR New	0.00	0	0	0
b	3	MR New	0.30	4	7.6	0.09
b	4	MR	0.46	6	7.6	0
c	5	MR New	0.23	3	7.6	2.0
c	6	MS Grower	4.96	31	16	4.5
d	7	MR New sprayed	0.00	0	0	0.20
d	8	MR New unsprayed	0.08	1	7.6	0.20
d	9	MS/MR Grower sprayed	0.08	1	7.6	0.86
d	10	MS/MR Grower unsprayed	0.30	4	7.6	0.74
e	11	MR Grower	0.08	1	7.6	0.60
e	12	MR New	0.08	1	7.6	0.32
Summary	Index	Incidence	Sev	DON		
Old	1.51	9.2	5.4	1.58		
New	0.11	1.42	16.6	0.48		

Summary

This season was not favorable for severe FHB epidemics, although some fields (i.e. grower c) did have levels of DON that could have resulted in dockage at the elevator. Overall, new varieties showed an improved impact on visual symptoms of FHB, and the overall amount of bleached kernels was reduced in the newer MR varieties when compared to the older MS or MR varieties (lower index, incidence, and severity). In addition, the new varieties contained less DON when compared to the older MS/MR varieties.