

2017 Fusarium Head Blight Screening Nursery Results

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Overview

The misted nursery is a tool used to assess variety response to Fusarium head blight (FHB). The most significant losses due to FHB occur when flowering heads are infected with spores of the FHB pathogen, resulting in yield loss and probable elevation in vomitoxin (DON). Flowering occurs at different times in different varieties. Consequently, varieties may not be at a highly susceptible stage in development when environmental conditions favoring FHB infections occur (Figure 1). In addition, some seasons, conditions for FHB may not be favorable, resulting in little FHB and DON. The misted nursery helps to avoid these issues by prolonging the conditions that may be favorable for FHB infection, reducing the chance that varieties will escape infection due to sub-optimal environmental conditions and promoting disease development. In addition, because many companies provide ratings based only on their own standards, the misted nursery allows for head to head comparison of FHB responses across seed sources. The misted nursery data presented here should be used, in combination with data from the Virginia Tech Misted Wheat Nursery, to help guide growers in selecting high-yielding wheat varieties with moderate resistance to FHB and in particular, DON. In the table below, varieties in with a green coloration reduced DON >40% relative to the MS control Shirley and P25R40. As DON levels and resistance can vary slightly due to environmental conditions, use these data in addition to the 2016 misted nursery data from MD, as well as other regional misted nursery data from Virginia Tech, to reduce DON and FHB related issues by selecting high yielding, moderately resistant wheat varieties.

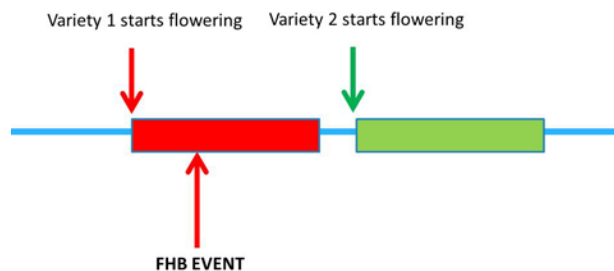


Figure 1. Varieties of wheat can vary significantly in maturity and flowering date. If natural conditions were used to assess FHB response, some varieties may escape disease, appearing to be moderately resistant, because they were not at the appropriate developmental stage when the FHB outbreak occurred. In addition, if conditions were not favorable for FHB during the growing season, little to no FHB may be observed.

Table 1. DON, and index (overall amount of plot with symptoms) for the 2016 wheat misted nursery trial located in Beltsville, MD. **Green = reduced DON by >40% compared to MS/S standard, Shirley and P25R40. Yellow = 40-39% reduction compared to Shirley. Red = similar to Shirley.**

Variety	Index	DON (ppm)
MAS816	15.39	0.77
15MDX6	9.14	1.00
MAS#61	2.22	2.43
MDX17	8.95	2.84
MAS#67	4.14	3.01
VA11W-108PA	7.12	3.58
LCS3204	2.60	3.60
9750	3.37	3.64
OAKES	3.44	3.76
14MW117	1.10	3.84
MBX14-S-210	1.75	3.91
VA13W-38	2.75	4.15
MBX17-P-275	2.44	4.34
USG3197	3.62	4.35
FSX871	3.50	4.38
LCS4601	5.64	4.45
USG3228	2.56	4.47
9772	2.77	4.51
FS860	2.93	4.53
SY007	4.90	4.71
MAS#65	6.68	5.14
MDX1	3.80	5.16
15MDX5	3.88	5.20
SYVIPER	5.30	5.21
WX17782	2.27	5.27
USG3549	2.12	5.44
SY547	3.65	5.59
ARW1611	1.97	5.87
MBX17-M-245	6.20	6.03
ARW1514	4.93	6.04
MBX16-B-203	4.50	6.16
FSX872	9.65	6.17
MAS#6	2.60	6.23
ARW1575	10.83	6.30
USG3404	4.71	6.54
MAS716	0.89	6.73
USG3458	21.19	6.83

VA11W-279	8.11	6.97
WX16722	4.68	7.06
USG3536	1.65	7.31
MAYHEM	7.75	7.32
9701	3.36	7.34
MAS316	1.48	7.40
USG3201	2.69	7.43
MAS#35	8.56	7.52
MAS#69	3.82	7.95
ARW1610	4.17	8.19
HILLARD	4.67	8.21
MAS#42	2.70	8.36
MDX2	0.87	8.55
L11550	2.94	8.55
SY100	2.12	8.60
MAS116	1.48	9.65
MAS#7	13.65	10.81
FILL P25R25	1.11	10.84
USG3895	3.22	10.92
SRW9415	6.79	10.98
25R25	0.68	11.11
VA12W-72	4.97	11.83
15MDX11	3.19	12.02
SRW9606	2.70	12.65
VA12W-68	7.96	13.28
MW133	8.39	14.33
USG3316	5.21	15.07
SHIRLEY	10.27	16.01
MDX18	5.79	16.40
25R40	10.37	18.91
SS8415	27.61	25.89
MDX4	5.11	26.61

Discussion

Growers should use this misted nursery data as a tool for selecting wheat varieties, but should understand that multiple sources of misted nursery results will provide more confidence in variety response. Growers should compare these responses with those available from other misted nurseries, which can be located at the scabsmart variety webpage: http://scabsmart.org/soft_red_winter_wheat_southern_region. Ultimately, continued use of a misted nursery in our region will allow for multi-year assessment of varieties.

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