

**Reaction of winter wheat cultivars and breeding lines to Cephalosporium stripe in Washington, 2019.**

Forty-two winter wheat cultivars and breeding lines were sown at the Palouse Conservation Field Station in Pullman, WA on 11 Sep 18; Eltan was included as a tolerant control and Stephens as a highly susceptible control. Seed was sown with a head-row seeder in two-row plots, 2.0 ft wide by 3.0 ft long, with a 12-in. spacing between rows in a field managed in a 3-yr, chickpea (*Cicer arietinum* L.), fallow, winter wheat rotation. The experimental design was a randomized complete block with each entry replicated three times. Prior to planting, seed was treated with CruiserMaxx Cereals and Cruiser 5FS, 5.0 and 1.0 fl oz/100 lb seed, respectively. On 11 Oct 2018, dry oat kernels colonized by a four-isolate mixture of *Cephalosporium gramineum* were broadcast on the soil surface at the rate of 174 lb/A. Cephalosporium stripe disease incidence and severity were evaluated from mid-June to July 2019 by destructively sampling one foot of row when most plants were between watery ripe to mid-milk (Zadoks growth stages 71 to 75). Disease incidence and severity were determined by evaluating individual stems for extent of symptom development using a 0 to 5 scale, where 5 = symptoms detected on the peduncle or a dead head, 4 = symptoms detected in the flag leaf, 3, 2, or 1 = symptoms detected on the respective leaves below the flag leaf, and 0 = no visual symptoms. Disease severity is the weighted mean of all evaluated stems and incidence is the percentage of stems with symptoms. Disease index is calculated by multiplying disease incidence by disease severity and dividing by five and ranges from 0 to 100. Data were subjected to analysis of variance using Proc GLM of SAS v9.4 (SAS Institute, Cary, NC) and means separated with Fisher's protected LSD (P=0.05).

Cephalosporium stripe disease pressure was mild to moderate based on the reaction of Stephens (disease index = 35.4), the highly susceptible control. Although conditions during autumn and winter 2018-19 were favorable for development of Cephalosporium stripe, late-winter snow cover beginning in February that lasted to the end of March delayed crop development and likely resulted in less severe disease than long-term averages in these plots. Disease incidence, severity and index ranged from 19.6 to 53.4%, 1.3 to 3.3, and 6.5 to 35.4, respectively. Disease incidence did not differ significantly among entries, but disease severity and index were significantly different. Disease indexes for UI Magic CL+ and Norwest Duet rated them numerically less, but not significantly different than Eltan, the tolerant control; both were significantly less than Stephens. Thirty-six entries had disease indexes that were statistically similar to Eltan (6.5 to 26.1).

Entry	Disease incidence <sup>z</sup> %	Disease severity <sup>y</sup> 0 to 4	Disease index <sup>x</sup> 0 to 100
UI Magic CL+	19.6	1.7	6.5
Norwest Duet (LOR-092)	42.8	1.3	11.8
<b>Eltan - Control</b>	<b>47.0</b>	<b>1.3</b>	<b>12.9</b>
LCS Artdeco	23.0	3.0	13.6
Pritchett (4J0713366C)	46.0	1.4	13.6
LWW14-72916	38.5	1.9	14.5
Norwest Tandem	35.7	2.1	14.7
WA 8268 - Scorpio	36.7	2.0	14.7
SY Ovation	43.8	1.8	15.2
Dyna-Gro Impact	48.2	1.6	15.4
LCS Jet	41.4	1.8	15.9
WB1532	47.7	1.6	15.9
SY Raptor (SY 46#16)	36.1	2.3	16.2
WA 8275 CL+	41.2	2.1	16.4
LCS Drive (LWW12-7105)	34.7	2.4	17.1
UI Castle CL+	50.9	1.7	17.1
WA 8271 - Devote	52.1	1.7	17.8
SY Assure	34.9	2.9	18.1
WB1376CLP	46.9	2.0	18.1
SY Banks (SY 09PN005#25)	47.4	2.0	19.2
Resilience CL+ (WA 8187)	52.7	1.8	19.6
Madsen	56.8	1.8	20.1
WB4303	42.9	2.2	19.9
Puma	36.4	2.7	20.1
Otto	65.5	1.5	20.4
ARSDH08X117-83C	56.4	1.8	20.5

PNW Hailey	63.5	1.6	20.6
LCS Aymeric	41.7	2.6	20.9
ARS-Castella (ARS20060123-31C)	51.9	2.0	21.0
Jasper	56.5	1.9	21.2
SY Touchstone	52.7	2.0	21.9
WB1783	48.0	2.4	22.4
ARS-Crescent	58.3	2.0	23.3
ARS09X492-6CBW	67.8	1.7	23.8
LCS Rocket (NSA10-2196)	38.7	3.1	23.9
SY Command (SY 04PN066-7)	66.1	1.9	24.6
SY Candor (09PN008#72)	65.9	2.0	26.1
SY Clearstone CL2	62.8	2.4	29.6
Purl (WA 8234)	59.2	2.5	30.4
M-Press	66.9	2.4	32.5
WB1604	69.6	2.3	32.9
<b>Stephens - Control</b>	<b>53.4</b>	<b>3.3</b>	<b>35.4</b>
LSD <sup>w</sup> (5%)	<b>27.4</b>	<b>0.7</b>	<b>13.3</b>
<i>P</i> > <i>F</i>	0.0551	<0.0001	0.0338

<sup>z</sup> Samples, consisting of one ft of row, were removed from each plot on mid-June to July 2018, transported to the farm building, and stored at 39°F until they were rated for percentage of infected stems and disease severity, as reflected by the presence of symptoms and extent of colonization determined by visual inspection of each stem. Disease incidence is the percentage of stems with symptoms in the uppermost four leaves.

<sup>y</sup> Disease severity was determined by rating individual stems for symptom severity using a 0 to 5 scale where 5 = symptoms detected on the peduncle or a dead head, 4 = symptoms detected in the flag leaf, 3, 2, or 1 = symptoms detected on the respective leaves below the flag leaf, and 0 = no visual symptoms. No disease severity ratings of 5 were given in this trial.

<sup>x</sup> Disease index, which ranges from 0 to 100, was calculated by multiplying disease incidence by disease severity and dividing by five.

<sup>w</sup> Fisher's protected ( $P = 0.05$ ) least significant difference (LSD) was used to compare treatment means. Means are based on three replicates.