

Table 1  
2018 Virulence - *Puccinia triticina* in USA

Race	Virulence combination (ineffective Lr genes)	Southeast		NY		WI		TX-OK		KS-NE		MN, ND, SD		WA		Total	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
LBDSG	1,17,B,10,14a,28	0	0	0	0	0	0	0	0	0	0	0	0	1	50	1	0.4
LNBJJ	1,9,24,10,14a,28,39	1	2.8	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4
LNPSD	1,9,24,3ka,17,30,B,10,14a,39	0	0	0	0	0	0	0	0	1	2.1	0	0	0	0	1	0.4
MBDSD	1,3,17,B,10,14a,39	0	0	0	0	0	0	6	10	1	2.1	15	18.1	0	0	22	9.2
MBDSG	1,3,17,B,10,14a,28	0	0	0	0	0	0	0	0	0	0	0	0	1	50	1	0.4
MBNSD	1,3,3ka,17,B,10,14a,39	0	0	0	0	0	0	1	1.7	0	0	0	0	0	0	1	0.4
MBTNB	1,3,3ka,11,17,30,B,14a	17	47.2	0	0	4	66.7	1	1.7	1	2.1	0	0	0	0	23	9.7
MBTSB	1,3,3ka,11,17,30,B,10,14a	0	0	0	0	0	0	1	1.7	0	0	0	0	0	0	1	0.4
MCTNB	1,3,26,3ka,11,17,30,B,14a	5	13.9	0	0	0	0	2	3.3	0	0	0	0	0	0	7	2.9
MFPSB	1,3,24,26,3ka,17,30,B,10,14a	0	0	0	0	0	0	2	3.3	0	0	0	0	0	0	2	0.8
MFPSD	1,3,24,26,3ka,17,30,B,10,14a,39	0	0	0	0	0	0	1	1.7	1	2.1	0	0	0	0	2	0.8
MFSSB	1,3,24,26,3ka,11,17,B,10,14a	1	2.8	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4
MGPIB	1,3,16,3ka,17,30,10,14a	0	0	0	0	0	0	1	1.7	0	0	0	0	0	0	1	0.4
MGPSB	1,3,16,3ka,17,30,B,10,14a	0	0	0	0	0	0	0	0	0	0	1	1.2	0	0	1	0.4
MJBJG	1,3,16,24,10,14a,28	0	0	0	0	0	0	0	0	0	0	2	2.4	0	0	2	0.8
MJDSD	1,3,16,24,17,B,10,14a,39	0	0	0	0	0	0	0	0	1	2.1	0	0	0	0	1	0.4
MLPSD	1,3,9,3ka,17,30,B,10,14a,39	0	0	0	0	0	0	5	8.3	1	2.1	5	6	0	0	11	4.6
MMPSD	1,3,9,26,3ka,17,30,B,10,14a,39	0	0	0	0	0	0	6	10	1	2.1	0	0	0	0	7	2.9
MNPSD	1,3,9,24,3ka,17,30,B,10,14a,39	4	11.1	0	0	1	16.7	19	31.7	27	57.4	33	39.8	0	0	84	35.3
MPDSD	1,3,9,24,26,17,B,10,14a,39	0	0	0	0	0	0	0	0	1	2.1	0	0	0	0	1	0.4
MPPSD	1,3,9,24,26,3ka,17,30,B,10,14a,39	6	16.7	0	0	1	16.7	10	16.7	11	23.4	10	12	0	0	38	16
PBDGJ	1,2c,3,17,10,28,39	0	0	0	0	0	0	0	0	0	0	1	1.2	0	0	1	0.4
PBDQJ	1,2c,3,17,B,10,28,39	0	0	0	0	0	0	3	5	0	0	1	1.2	0	0	4	1.7
TBBGS	1,2a,2c,3,10,21,28,39	0	0	0	0	0	0	0	0	0	0	9	10.8	0	0	9	3.8
TBRKG	1,2a,2c,3,3ka,11,30,10,14a,18,28	0	0	0	0	0	0	1	1.7	0	0	0	0	0	0	1	0.4
TBTNB	1,2a,2c,3,3ka,11,17,30,B,14a	2	5.6	0	0	0	0	0	0	0	0	0	0	0	0	2	0.8
TCRKG	1,2a,2c,3,26,3ka,11,30,10,14a,18,28	0	0	0	0	0	0	1	1.7	0	0	0	0	0	0	1	0.4
TCTBB	1,2a,2c,3,26,3ka,11,17,30	0	0	3	75	0	0	0	0	0	0	0	0	0	0	3	1.3
TFBJQ	1,2a,2c,3,24,26,10,14a,21,28	0	0	0	0	0	0	0	0	0	0	3	3.6	0	0	3	1.3
TFBJS	1,2a,2c,3,24,26,10,14a,21,28,39	0	0	0	0	0	0	0	0	0	0	1	1.2	0	0	1	0.4
TFTSB	1,2a,2c,3,24,26,3ka,11,17,30,B,10,14a	0	0	1	25	0	0	0	0	0	0	0	0	0	0	1	0.4
TNBJJ	1,2a,2c,3,9,24,10,14a,28,39	0	0	0	0	0	0	0	0	1	2.1	2	2.4	0	0	3	1.3
Total		36		4		6		60		47		83		2		238	