

TBJDG	1,2a,2c,3,11,17,14a,28	0	0	2	3.6	0	0	0	0	0	0	0	0	0	0	2	0.3	
TBRJG	1,2a,2c,3,3ka,11,30,10,14a,28	0	0	0	0	2	3.6	0	0	0	0	0	0	0	0	2	0.3	
TBRKG	1,2a,2c,3,3ka,11,30,10,14a,18,28	25	11	12	21.8	9	16.1	0	0	2	2	1	1.1	0	0	49	6.7	
TCBJG	1,2a,2c,3,26,10,14a,28	2	0.9	0	0	0	0	4	2	0	0	0	0	0	0	6	0.8	
TCDSB	1,2a,2c,3,26,17,B,10,14a	9	3.9	2	3.6	1	1.8	1	0.5	0	0	0	0	0	0	13	1.8	
TCRKG	1,2a,2c,3,26,3ka,11,30,10,14a,18,28	69	30.3	8	14.5	2	5	44.6	14	7.1	6	6.1	0	0	0	122	16.7	
TCSBB	1,2a,2c,3,26,3ka,11,17	2	0.9	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	
TDBGG	1,2a,2c,3,24,10,28	0	0	0	0	0	0	0	0	0	0	7	7.5	0	0	7	1	
TDBGH	1,2a,2c,3,24,10,28,42	15	6.6	3	5.5	6	10.7	59	29.9	3	1	31.3	34	36.6	0	0	148	20.3
TDBJG	1,2a,2c,3,24,10,14a,28	0	0	0	0	0	0	0	0	5	5.1	6	6.5	0	0	11	1.5	
TDBJH	1,2a,2c,3,24,10,14a,28,42	10	4.4	2	3.6	0	0	29	14.7	0	0	11	11.8	0	0	52	7.1	
TDRKG	1,2a,2c,3,24,3ka,11,30,10,14a,18,28	0	0	0	0	4	7.1	0	0	0	0	0	0	0	0	4	0.5	
TFBDB	1,2a,2c,3,24,26,14a	1	0.4	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	
TFBGG	1,2a,2c,3,24,26,10,28	0	0	0	0	0	0	0	0	0	0	3	3.2	0	0	3	0.4	
TFBGH	1,2a,2c,3,24,26,10,28,42	1	0.4	0	0	0	0	2	1	2	2	0	0	0	0	5	0.7	
TFBJH	1,2a,2c,3,24,26,10,14a,28,42	1	0.4	0	0	0	0	17	8.6	3	3	3	3.2	0	0	24	3.3	
TFDSB	1,2a,2c,3,24,26,17,B,10,14a	2	0.9	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	
TFRJG	1,2a,2c,3,24,26,3ka,11,30,10,14a,28	4	1.8	0	0	0	0	0	0	0	0	0	0	0	0	4	0.5	
TJBGH	1,2a,2c,3,16,24,10,28,42	0	0	0	0	0	0	6	3	7	7.1	0	0	0	0	13	1.8	
TJBHJ	1,2a,2c,3,16,24,10,14a,28,42	0	0	0	0	0	0	3	1.5	3	3	4	4.3	0	0	10	1.4	
TJDSC	1,2a,2c,3,16,24,17,B,10,14a,42	0	0	0	0	0	0	2	1	1	1	0	0	0	0	3	0.4	
TLBFJ	1,2a,2c,3,9,14a,18,28,41	0	0	0	0	0	0	2	1	2	2	0	0	0	0	4	0.5	
TLBJJ	1,2a,2c,3,9,10,14a,28,41	0	0	0	0	0	0	1	0.5	0	0	0	0	0	0	1	0.1	
TLGJG	1,2a,2c,3,9,11,10,14a,28	0	0	0	0	0	0	0	0	0	0	2	2.2	0	0	2	0.3	
TLMJD	1,2a,2c,3,9,3ka,30,10,14a,41	0	0	2	3.6	0	0	0	0	0	0	0	0	0	0	2	0.3	
TNBJJ	1,2a,2c,3,9,24,10,14a,28,41	0	0	0	0	0	0	2	1	0	0	0	0	0	0	2	0.3	
TNRJF	1,2a,2c,3,9,24,3ka,11,30,10,14a,41,42	0	0	0	0	0	0	2	1	0	0	0	0	0	0	2	0.3	
TNRJJ	1,2a,2c,3,9,24,3ka,11,30,10,14a,28,41	2	0.9	2	3.6	0	0	0	0	0	0	0	0	0	0	4	0.5	
Total		228		55	5	6		197	9	9		93	2		730			

^a Lines tested were Thatcher lines with genes *Lr1*, *Lr2a*, *Lr2c*, *Lr3a*, *Lr9*, *Lr16*, *Lr24*, *Lr26*, *Lr3ka*, *Lr11*, *Lr17*, *Lr30*, *LrB*, *Lr10*, *Lr14a*, *Lr18*, *Lr21*, *Lr28*, and winter wheat lines with genes *Lr41*, and *Lr42*.

^b States of AL, AR, FL, GA, LA, MS, SC

^c States of NY, PA, VA

^d States of IL, IN, KY, MO, OH, WI

^e States of OK, TX

^f States of KS, NE

^g States of MN, ND, SD

^h State of WA

Table 2. Number and frequency (%) of isolates of *Puccinia triticina* in the United States in 2008 virulent to 20 lines of wheat with single resistance genes for leaf rust resistance.

Resistance gene	Area 1 ^a		Area 2 ^b		Area 3 ^c		Area 4 ^d		Area 5 ^e		Area 6 ^f		Area 8 ^g		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Lr1	224	98.2	55	100	56	100	197	100	99	100	93	100	2	100	726	99.5
Lr2a	145	63.6	33	60	47	83.9	144	73.1	64	64.6	71	76.3	0	0	504	69
Lr2c	146	64	33	60	47	83.9	144	73.1	64	64.6	71	76.3	0	0	505	69.2
Lr3	225	98.7	55	100	56	100	197	100	99	100	93	100	2	100	727	99.6
Lr9	7	3.1	4	7.3	0	0	45	22.8	26	26.3	22	23.7	0	0	104	14.2
Lr16	0	0	0	0	0	0	11	5.6	11	11.1	4	4.3	0	0	26	3.6
Lr24	72	31.6	20	36.4	12	21.4	135	68.5	59	59.6	70	75.3	0	0	368	50.4
Lr26	153	67.1	29	52.7	33	58.9	53	26.9	22	22.2	8	8.6	2	100	300	41.1
Lr3ka	155	68	28	50.9	43	76.8	37	18.8	16	16.2	3	3.2	0	0	282	38.6
Lr11	122	53.5	42	76.4	46	82.1	16	8.1	9	9.1	3	3.2	0	0	238	32.6
Lr17	77	33.8	12	21.8	4	7.1	56	28.4	37	37.4	22	23.7	0	0	208	28.5
Lr30	151	66.2	28	50.9	43	76.8	31	15.7	16	16.2	3	3.2	0	0	272	37.3
LrB	75	32.9	10	18.2	4	7.1	56	28.4	35	35.4	22	23.7	0	0	202	27.7
Lr10	221	96.9	53	96.4	56	100	195	99	97	98	93	100	2	100	717	98.2
Lr14a	208	91.2	52	94.5	50	89.3	130	66	57	57.6	49	52.7	0	0	546	74.8
Lr18	107	46.9	20	36.4	38	67.9	16	8.1	11	11.1	1	1.1	0	0	193	26.4
Lr21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lr28	146	64	43	78.2	52	92.9	139	70.6	64	64.6	71	76.3	2	100	517	70.8
Lr41	6	2.6	4	7.3	0	0	45	22.8	26	26.3	20	21.5	0	0	101	13.8
Lr42	58	25.4	13	23.6	8	14.3	133	67.5	56	56.6	54	58.1	0	0	322	44.1
Total	228		55		56		197		99		93		2		730	

^b States of AL, AR, FL, GA, LA, MS, SC

^c States of NY, PA, VA

^d States of IL, IN, KY, OH, WI

^e States of OK, TX

^f States of KS, NE

^g States of MN, ND, SD

^h State of WA