

TCJDB	1,2a,2c,3,26,11,17,14a	1	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2
TCQJG	1,2a,2c,3,26,3ka,11,10,14a,28	1	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2
TCRKG	1,2a,2c,3,26,3ka,11,30,10,14a,18,28	70	42.7	4	6.7	17	56.7	5	3	1	1.5	2	2.6	0	0	0	0	99	16.8	
TCTJG	1,2a,2c,3,26,3ka,11,17,30,10,14a,28	2	1.2	2	3.3	0	0	0	0	0	0	0	0	0	0	0	0	4	0.7	
TDBGB	1,2a,2c,3,24,10	0	0	0	0	0	0	2	1.2	0	0	0	0	0	0	0	0	2	0.3	
TDBGG	1,2a,2c,3,24,10,28	4	2.4	0	0	0	0	43	25.4	9	13.2	29	37.2	0	0	0	0	85	14.4	
TDBJG	1,2a,2c,3,24,10,14a,28	8	4.9	2	3.3	2	6.7	7	4.1	3	4.4	0	0	0	0	0	0	22	3.7	
TDRKG	1,2a,2c,3,24,3ka,11,30,10,14a,18,28	0	0	0	0	0	0	4	2.4	0	0	0	0	0	0	0	0	4	0.7	
TFBGG	1,2a,2c,3,24,26,10,28	0	0	0	0	0	0	4	2.4	0	0	1	1.3	0	0	0	0	5	0.8	
TFBJG	1,2a,2c,3,24,26,10,14a,28	3	1.8	0	0	0	0	0	0	2	2.9	0	0	0	0	0	0	5	0.8	
TJBGG	1,2a,2c,3,16,24,10,28	0	0	0	0	0	0	2	1.2	2	2.9	2	2.6	0	0	0	0	6	1	
TNRJJ	1,2a,2c,3,9,24,3ka,11,30,10,14a,28,41	0	0	0	0	0	0	3	1.8	0	0	0	0	0	0	0	0	3	0.5	
Total		164		60		30		169		68		78		12		10		591		

^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 gene *Lr41*.

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

^c States of MD, NY, PA, VA

^d States of IL, MI, WI

^e States of OK, TX

^f States of KS, NE

^g States of MN, ND, SD

^h States of AZ, CA

ⁱ States of ID, WA

Table 2. Number and frequency (%) of isolates of *Puccinia triticina* in the United States in 2009 virulent to 19 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 7 ^g		Area 8 ^h		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
<i>Lr1</i>	164	100	58	96.7	30	100	167	98.8	68	100	78	100	8	66.7	10	100	583	98.6
<i>Lr2a</i>	102	62.2	10	16.7	19	63.3	72	42.6	20	29.4	36	46.2	0	0	0	0	259	43.8
<i>Lr2c</i>	102	62.2	14	23.3	19	63.3	74	43.8	20	29.4	36	46.2	0	0	5	50.0	270	45.7
<i>Lr3</i>	164	100	58	96.7	30	100	168	99.4	68	100	78	100	8	66.7	10	100	584	98.8
<i>Lr9</i>	12	7.3	2	3.3	1	3.3	83	49.1	38	55.9	35	44.9	1	8.3	2	20.0	174	29.4
<i>Lr16</i>	0	0	0	0	0	0	2	1.2	2	2.9	2	2.6	0	0	0	0	6	1.0
<i>Lr24</i>	21	12.8	26	43.3	6	20.0	74	43.8	22	32.4	37	47.4	0	0	0	0	186	31.5
<i>Lr26</i>	123	75.0	40	66.7	27	90.0	26	15.4	13	19.1	10	12.8	5	41.7	0	0	244	41.3
<i>Lr3ka</i>	117	71.3	28	46.7	27	90.0	25	14.8	11	16.2	9	11.5	0	0	1	10.0	218	36.9
<i>Lr11</i>	109	66.5	22	36.7	23	76.7	18	10.7	3	4.4	4	5.1	0	0	3	30.0	182	30.8
<i>Lr17</i>	63	38.4	23	38.3	11	36.7	94	55.6	48	70.6	42	53.8	8	66.7	2	20.0	291	49.2
<i>Lr30</i>	116	70.7	28	46.7	27	90.0	25	14.8	11	16.2	9	11.5	0	0	1	10.0	217	36.7
<i>LrB</i>	60	36.6	21	35.0	11	36.7	94	55.6	48	70.6	42	53.8	12	100	2	20.0	290	49.1
<i>Lr10</i>	161	98.2	58	96.7	30	100	167	98.8	68	100	78	100	12	100	10	100	584	98.8
<i>Lr14a</i>	160	97.6	56	93.3	30	100	117	69.2	57	83.8	46	59.0	8	66.7	5	50.0	479	81.0
<i>Lr18</i>	81	49.4	10	16.7	17	56.7	10	5.9	1	1.5	2	2.6	0	0	6	60.0	127	21.5
<i>Lr21</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lr28</i>	103	62.8	41	68.3	19	63.3	73	43.2	20	29.4	36	46.2	0	0	8	80.0	300	50.8
<i>Lr41</i>	12	7.3	2	3.3	1	3.3	83	49.1	38	55.9	35	44.9	1	8.3	2	20.0	174	29.4
Total	164		60		30		169		68		78		12		10		591	

^a States of AL, AR, GA, LA, MS, NC, SC

^b States of MD, NY, PA, VA

^c States of IL, MI, WI

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