

Table: Seedling response of AVT lines against the pathotypes of *Puccinia graminis* f. sp. *tritici* (wheat black rust) during 2021-22 at ICAR-IIWBR, RS, Shimla

S. No.	Variety/line	Pathotype																				Sr-gene	
		11	11A	15-1	21	21A-2	24A	34-1	40A	40-1	40-2	40-3	42B	117A	117A-1	117-1	117-2	117-3	117-6	122	184		295
1.	VL2041	R	NG	R	R	R	R	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	<i>Sr 30+5+11+</i>
2.	VL2043	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	<i>R</i>
3.	VL2044	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	<i>Sr30+11+</i>
4.	HD3402	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	MR	R	R	R	<i>Sr9b+11+</i>
5.	HPW481	R	NG	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	<i>R</i>
6.	HPW487	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	<i>Sr31+</i>
7.	HPW488	R	R	R	R	R	R	R	R	R	S	MS	R	R	R	R	MR	R	R	R	R	R	<i>Sr8a+9b+7b+</i>
8.	HS692	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	<i>Sr31+2+</i>
9.	HS693	MS	R	R	R	R	R	R	S	R	S	MS	R	R	R	R	R	R	MR	R	R	R	<i>Sr9b+11+7b+</i>
10.	HS694	S	R	R	R	R	MR	R	MS	R	R	S	R	R	R	R	R	R	R	R	R	R	<i>Sr11+7b+</i>
11.	UP3114	R	R	S	R	R	R	R	MR	R	R	MR	R	R	R	R	R	R	MS	R	R	R	<i>Sr8a+9b+7b+</i>
12.	VL3028	S	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	R	<i>Sr30+5+11+</i>
13.	VL3029	R	R	R	R	R	R	R	R	R	S	MS	R	R	R	R	R	R	R	R	R	R	<i>Sr8a+5+9e+</i>
14.	VL3030	R	R	R	R	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	R	R	R	<i>Sr30+8a+2+</i>
15.	HPW483	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	<i>Sr31+</i>
16.	HPW484	S	R	R	R	R	R	NG	R	R	R	MS	R	R	R	R	R	R	R	R	R	R	<i>Sr30+5+11+</i>
17.	HPW485	R	R	S	R	R	R	R	R	R	MR	MS	R	R	R	R	R	R	R	R	R	R	<i>Sr8a+9b+7b+2+</i>
18.	HPW486	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	MR	R	R	R	<i>Sr31+</i>
19.	HS688	R	R	R	R	R	R	R	R	R	S	S	R	R	R	R	R	R	R	R	R	R	<i>Sr8a+9b+</i>
20.	HS689	MS	R	R	R	R	R	R	R	R	S	S	R	R	R	R	R	R	R	R	R	R	<i>Sr5+9b+7b+</i>
21.	HS690	S	R	R	R	R	R	R	S	S	R	S	R	R	R	R	R	R	R	R	MS	R	<i>Sr5+9b+11+</i>
22.	HS691	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	<i>Sr2+R</i>
23.	SKW362	S	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	MR	R	R	R	<i>Sr30+11+</i>
24.	UP3113	S	R	R	R	R	R	R	R	R	R	S	MR	R	R	R	R	R	MS	R	R	R	<i>Sr13+11+7b+2+</i>
25.	VL2047	R	R	R	R	R	R	R	R	R	R	S	R	R	NG	R	R	R	MS	R	R	R	<i>Sr13+11+9e+</i>
26.	VL2048	R	R	S	R	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	R	R	R	<i>Sr30+8a+5+</i>
27.	VL2049	R	R	S	R	R	R	R	R	R	R	S	R	R	R	R	R	R	MR	R	R	R	<i>Sr30+8a+5+</i>
28.	VL2050	R	R	S	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	MS	R	R	R	<i>Sr9e+7b+</i>
29.	HS507(C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	<i>Sr31+5+</i>
30.	HS562(C)	S	R	S	R	R	R	R	S	R	S	S	R	R	R	R	R	R	R	R	R	R	<i>Sr8a+9b+11+</i>
31.	HS490(C)	S	MR	R	R	MR	R	R	R	R	S	R	R	R	R	R	MR	R	R	R	R	R	<i>Sr8a+9b+</i>
32.	HPW349(C)	S	R	MR	R	R	R	R	R	R	S	S	MR	R	R	R	R	R	MR	R	R	R	<i>Sr7b+2+</i>
33.	VL907(C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	<i>Sr31+2+</i>

Table: Seedling response of AVT lines against the pathotypes of *Puccinia triticina* (wheat brown rust) during 2021-22 at ICAR-IIWBR, RS, Shimla

S. No.	Variety/line	Pathotype																				Lr-gene				
		I1	I2-2	I2-3	I2-5	I2-7	I6-1	77	77-1	77-2	77-5	77-7	77-8	77-9	77-10	77A-1	104-1	104-2	104-4	106	107-1		108-1	162A	162-1	
1	VL2041	R	R	R	S	S	R	S	S	S	S	R	R	S	NG	S	NG	S	S	R	R	R	R	S	Lr13+	
2	VL2043	R	R	R	R	MS	R	R	MS	MS	S	R	MS	S	S	S	R	R	S	R	R	R	R	NG	Lr13+	
3	VL2044	R	R	R	S	S	R	S	R	S	S	R	R	S	S	S	S	S	R	R	R	R	R	MS	Lr13+3+	
4	HD3402	R	S	R	S	S	R	S	S	S	S	S	R	S	S	S	S	S	R	R	S	R	R	S	Lr13+	
5	HPW481	R	NG	R	S	MR	R	S	S	S	S	R	MS	S	S	S	S	S	R	R	R	R	R	MS	Lr13+3+	
6	HPW487	R	R	R	R	R	R	R	R	R	S	S	R	R	R	R	R	S	S	R	R	R	R	R	Lr26+23+1+	
7	HPW488	R	R	R	S	S	R	S	S	S	S	S	R	S	S	S	S	S	R	R	R	R	R	R	Lr13+3+	
8	HS692	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Lr26+R	
9	HS693	R	S	S	S	S	R	R	R	S	S	S	R	S	S	MR	S	S	S	R	R	R	R	S	Lr13+	
10	HS694	R	R	R	R	S	R	S	S	S	S	R	R	S	S	S	MS	R	R	R	R	R	R	R	Lr13+3+	
11	UP3114	R	S	R	S	S	R	S	S	S	S	S	S	S	S	S	S	S	R	R	R	R	R	R	Lr3+	
12	VL3028	R	R	R	R	R	R	R	S	R	S	R	R	MS	S	S	R	R	R	NG	R	R	R	R	Lr13+1+	
13	VL3029	R	R	R	R	R	R	S	S	S	S	S	R	S	S	S	R	R	MS	R	R	R	MS	R	Lr13+	
14	VL3030	R	R	R	R	R	R	MS	S	R	S	R	R	S	MS	S	R	R	R	R	R	R	R	R	Lr13+1+	
15	HPW483	NG	R	R	R	S	R	R	S	R	S	S	R	MS	R	R	NG	S	R	R	R	R	R	R	Lr26+10+	
16	HPW484	R	R	R	R	R	R	MS	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	R	R	Lr13+1+	
17	HPW485	R	R	R	S	S	R	R	S	S	S	R	S	S	R	MS	S	S	S	R	R	R	R	R	Lr13+	
18	HPW486	R	R	R	R	S	R	R	S	R	S	S	R	R	R	R	R	R	MS	R	R	R	R	R	Lr26+10+	
19	HS688	R	R	R	R	S	R	R	R	S	S	MS	R	S	S	R	R	R	R	R	R	R	R	R	Lr23+10+	
20	HS689	R	R	R	R	R	R	S	S	S	S	MS	R	S	S	S	R	MS	S	R	R	R	R	R	Lr13+1+	
21	HS690	R	S	S	S	S	MS	S	S	S	S	S	R	S	S	M	S	S	S	R	R	R	MS	S	-	
22	HS691	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Lr13+1+
23	SKW362	R	R	R	R	R	R	MS	S	MS	S	MS	R	S	S	S	R	R	R	R	R	R	R	R	Lr13+1+	
24	UP3113	R	R	R	R	R	R	R	S	R	S	R	NG	S	R	R	R	R	MS	R	R	R	R	R	Lr13+1+	
25	VL2047	R	R	R	R	MS	R	R	S	R	MR	R	NG	MS	R	R	R	R	R	R	R	R	R	NG	Lr13+10+	
26	VL2048	R	R	R	R	S	R	R	S	MS	S	R	MS	S	MS	MS	R	MS	S	R	R	R	R	R	Lr13+10+	
27	VL2049	R	R	R	R	R	R	S	S	S	S	MS	MS	S	S	S	R	R	R	R	R	R	R	R	Lr13+1+	
28	VL2050	R	R	S	R	S	R	S	MS	R	S	R	R	S	S	MS	NG	MS	S	R	R	R	MS	S	Lr13+10+	
29	HS507(C)	R	R	R	R	R	R	R	S	R	S	MS	R	R	R	R	R	MS	S	R	R	R	R	R	Lr26+1+	
30	HS562(C)	R	R	R	R	S	R	R	R	S	S	S	R	S	S	R	S	S	R	R	R	R	R	R	Lr23+10+3+	
31	HS490(C)	R	R	R	R	R	R	R	R	S	S	R	R	S	S	R	R	S	S	R	R	R	R	R	Lr23+	
32	HPW349(C)	R	R	R	MS	S	R	MS	S	S	S	S	R	S	S	R	S	S	S	R	R	R	R	R	Lr13+10+	
33	VL907(C)	R	R	R	R	S	R	R	S	R	S	R	R	R	R	R	R	MS	S	R	R	R	R	S	Lr26+10+	
34	VL892(C)	R	R	R	R	S	R	R	S	S	S	S	R	S	S	R	R	MS	M	R	R	R	R	R	Lr13+10+	
35	DBW377	R	R	R	R	R	R	R	R	R	R	R	R	MS	MS	R	R	R	R	R	R	R	R	R	Lr23+1+	
36	PBW870	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Lr23+1+
37	DBW372	R	R	R	R	MS	R	R	S	MS	R	R	R	S	S	R	R	MR	R	R	R	R	R	R	Lr23+1+	
38	DBW318	R	S	R	S	S	R	S	S	S	S	R	R	S	S	R	R	S	S	R	R	R	R	R	Lr23+	
39	DBW327(C)	R	R	R	R	R	R	R	R	R	S	S	R	S	MS	R	R	R	S	R	R	R	R	R	Lr23+1+	

132	KRL210(C)	R	R	R	R	S	R	R	S	S	S	S	R	S	S	MR	R	S	R	R	R	R	R	S	Lr23+	
133	RAJ4565	R	R	R	R	R	R	R	R	R	R	S	R	S	MR	R	R	R	R	R	R	R	R	R	R	-
134	HD3438	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
135	HD3439	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
136	CG1029(C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Lr24+R
137	HD3407*	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
138	HI1634(C)	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Lr26+R
139	MP3336(C)	R	S	S	MR	S	MX	R	MS	S	S	S	R	S	MS	S	S	S	S	R	MR	R	R	MR	Lr13+	
140	HI8498(C)	MR	R	MR	MR	S	S	R	R	R	R	R	R	R	MS	R	R	MS	R	MS	R	R	R	R	MS	Lr23+
141	HI8759(C)	S	MR	R	S	S	S	R	R	R	R	R	R	R	MR	R	R	S	S	S	R	R	R	R	R	-
142	HI8846	MR	R	R	MR	S	S	NG	R	R	R	R	R	R	S	R	R	R	R	R	NG	R	R	R	MS	-
143	HI8847	MR	R	MR	MS	S	S	R	R	R	R	R	R	R	R	R	R	MS	R	R	R	R	R	R	MS	-
144	HD2733(C)	R	R	S	S	S	R	R	S	R	S	R	R	S	R	R	R	S	S	R	R	R	R	S	Lr26+34+	
145	HD3411*	R	S	S	S	S	R	S	S	S	S	S	S	S	S	R	MX	S	S	R	R	S	MR	S	Lr13+	
146	HD3440	R	R	R	MR	R	R	R	S	R	MR	R	S	MS	R	R	R	R	R	R	R	R	R	NG	R	-
147	HD3406*	R	R	R	MR	R	R	R	R	R	MR	R	R	S	S	R	R	R	R	R	R	R	R	R	R	Lr23+10+1+
148	HD3436	R	MS	MR	S	S	R	MX	R	S	S	R	R	S	S	R	S	S	S	R	R	R	MR	MR	Lr23+	
149	HD3437	R	R	R	R	S	R	R	S	MS	S	R	R	S	S	R	R	S	S	R	R	R	R	S	Lr13+10+	
150	PBW175(C)	R	R	R	R	R	R	S	R	R	S	S	R	S	S	R	MS	S	S	R	R	MR	R	R	Lr23+34+	
151	PBW677(C)	R	R	R	R	R	R	R	S	S	S	S	R	S	MS	R	R	R	S	R	R	R	R	R	Lr23+1+	
152	PBW901	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
153	PBW902	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R

* Different seed lot to that of previous cropping season, - Gene not postulated, R resistant to all pathotypes

128.	KRL19(C)	S	S	S	S	S	R	S	S	MS	MS	MS	S	S	S	R	-
129.	KRL2006	S	S	S	S	S	S	S	S	S	R	S	MS	R	MR	R	-
130.	UAS310	S	S	S	MS	S	MS	S	R	R	R	S	S	R	MS	S	-
131.	KRL2021	S	S	S	R	MS	R	R	R	R	R	R	R	R	R	R	Yr2+
132.	KRL210(C)	S	S	S	R	S	S	S	R	R	R	S	MS	R	R	S	Yr2+
133.	RAJ4565	S	S	S	S	S	S	S	S	MS	MS	S	S	S	S	R	-
134.	HD3438	S	S	S	S	S	R	S	S	S	S	S	MS	R	R	MS	-
135.	HD3439	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
136.	CG1029(C)	S	S	S	S	S	R	S	S	S	R	S	S	R	R	S	Yr2+
137.	HD3407*	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
138.	HI1634(C)	S	S	S	S	S	R	R	R	R	R	R	R	R	R	R	Yr9+
139.	MP3336(C)	S	S	S	S	S	MS	S	MS	R	R	MS	MS	R	R	MS	Yr2+
140.	HI8498(C)	S	S	S	R	MR	S	S	R	R	R	R	NG	MS	S	R	-
141.	HI8759(C)	S	S	S	MS	S	MS	S	R	R	R	R	MR	MS	S	R	-
142.	HI8846	S	MS	MS	MS	R	S	MS	R	R	R	R	R	MS	S	R	-
143.	HI8847	S	S	MS	R	MS	R	MS	R	R	R	R	MR	MS	MS	R	-
144.	HD2733(C)	S	S	S	MS	S	R	R	R	R	R	R	R	R	R	R	Yr9+18+
145.	HD3411*	S	S	S	R	S	R	S	R	MS	R	S	R	R	R	R	Yr2+
146.	HD3440	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
147.	HD3406*	R	MR	S	R	R	R	S	R	R	R	R	R	R	R	R	Yr2+
148.	HD3436	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
149.	HD3437	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
150.	PBW175(C)	S	S	S	R	S	R	S	R	R	R	S	MR	R	R	S	Yr2+18+
151.	PBW677(C)	S	S	S	R	S	R	R	R	R	R	R	R	R	R	R	Yr2+
152.	PBW901	S	S	S	R	MR	R	R	R	R	R	S	R	R	R	R	Yr2+
153.	PBW902	R	S	S	R	R	R	S	R	R	R	R	R	R	R	R	Yr2+

* Different seed lot to that of previous cropping season, - Gene not postulated, *R* resistant to all pathotypes