Table 2: Seedling response of AVT lines against the pathotypes of *Puccinia graminis* f. sp. *tritici* (wheat black rust) during 2023-24 at ICAR-IIWBR, RS, Shimla

S. No.	Variety/line	Pathotype																							*Sr*-genes
		11	11A	15- 1	21	21-1	21A-2	24A	34- 1	40-A	40-1	40-2	40-3	42B	117A	117A-1	117-1	117-2	117-3	117-4	117-6	122	184	295	
1	HD3086(C)	S	S	S	R	R	R	R	R	MS	R	S	MS	R	R	R	R	R	MR	R	R	S	R	S	*Sr7b+2+*
2	HI1668	R	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	MR	R	*#Sr30+2+*
3	HD3494	R	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	MR	R	R	R	MR	R	*Sr13+11+*
4	DBW417	MS	S	MR	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	MR	R	R	*Sr9b+13+*
5	DBW88 (C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	*Sr11+2+*
6	PBW957	R	R	R	R	MS	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	MR	R	R	*Sr9b+13+11+*
7	DBW222(C)	S	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	*#*
8	DBW477	S	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-
9	HD3471	MS	R	R	MR	R	R	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	R	R	R	*Sr13+7b+*
10	PBW916	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*R*
11	DBW386	MS	R	S	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	S	R	R	*#Sr9b+13+11+*
12	PBW826(C)	R	R	S	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	S	R	R	*Sr30+8a+2+*
13	DBW476	MR	R	R	R	MR	R	R	R	R	R	MR	R	R	R	R	R	R	MR	R	R	R	MR	R	*Sr13+7b+*
14	HD2967	R	R	MS	R	R	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	R	R	MR	R	*Sr8a+11+2+*
15	PBW725	R	R	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	S	R	R	*Sr11+7b+*
16	HD3386(I)(C)	MR	R	MR	R	S	R	R	R	R	R	MR	S	R	R	R	R	R	R	R	R	R	R	R	*Sr30+5+2+*
17	PBW958	R	R	R	R	MR	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	R	MR	R	R	*Sr13+7b+*
18	HD3455	R	R	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	R	R	*Sr13+7b+*
19	HD3059(C)	S	R	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	MR	R	R	R	R	R	*Sr11+2+*
20	JKW261(C)	S	S	S	R	MS	R	R	R	R	R	S	S	R	R	R	R	R	MR	R	R	S	R	R	*Sr11+*
21	NW8071	MR	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-
22	DBW173(C)	S	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	NG	R	R	R	R	*Sr31+5+2+*
23	WH1324	MR	R	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	MS	R	*Sr13+11+*
24	DBW422	R	R	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	R	R	*Sr9b+13+11+*
25	RAJ4581	S	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	MR	R	*Sr13+11+*
26	HD3428	S	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-
27	HD3495	R	R	S	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	MR	R	R	R	R	R	*Sr9e+13+*
28	PBW771(C)	R	R	MR	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+2+*
29	PBW921	MR	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	MR	MR	R	R	MR	R	*Sr9e+11+*
30	PBW644(C)	R	R	R	R	MS	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	R	R	R	R	*Sr11+2+*
31	HI1653(C)	MS	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	R	*Sr7b+*
32	PBW927	MR	R	R	R	R	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	R	MR	R	R	*Sr13+7b+*
33	HD3369	R	R	R	R	R	R	MR	R	R	R	R	MS	MS	MR	R	MS	S	R	MR	R	S	R	MS	*Sr13+*
34	HD3468	S	R	R	R	R	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	MR	MS	R	S	*Sr11+7b+*
35	NIAW3170(C)	R	R	MR	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	R	*Sr8a+2+*
36	WH1326	MS	R	R	R	R	R	R	R	R	R	R	R	R	R	NG	R	NG	R	R	R	R	R	R	-
37	DBW296	R	R	MR	R	R	R	R	R	R	R	R	R	MS	MR	R	R	MS	MR	MR	R	MS	R	R	*Sr13+7b+*
38	JKW304	S	R	S	R	R	R	R	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	*Sr13+7b+*
39	WH1402(I)(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*
40	PBW908	S	R	R	R	MS	R	R	R	R	MR	R	S	R	R	R	R	R	R	R	MR	MS	S	R	*Sr13+11+7b+*
41	HP1978	R	R	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	R	R	*R*

42	HD3447	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	MR	R	*R*
43	PBW915	MR	R	R	R	MR	R	R	R	S	R	R	S	R	R	R	R	R	MR	R	R	R	R	R	*Sr13+11+*
44	HD3388(I) (C)	R	MR	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	R	R	*Sr13+7b+*
45	UP3124	MR	R	R	R	MS	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	R	R	R	R	*Sr30+5+*
46	KRL2106	MR	MR	R	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	MR	R	R	*Sr9b+13+7b+*
47	HD3249 (C)	MS	R	R	R	S	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	R	*Sr11+2+*
48	PBW913	MS	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	R	*Sr13+11+*
49	HD3467	S	R	R	R	MR	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	MR	MS	R	R	*Sr11+7b+*
50	BCW29	R	R	MS	R	R	R	R	R	R	R	R	MS	R	R	R	R	MR	R	R	MS	R	R	R	*Sr13+7b+*
51	UP3123	S	S	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	MS	R	R	R	*Sr9b+13+*
52	HI1563 (C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+R*
53	DBW107(C)	S	S	MR	S	MR	S	MR	R	R	MS	S	MS	R	R	R	MR	MR	MR	R	R	R	R	R	*#*
54	PBW833(C)	S	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	R	*Sr7b+2+*
55	WH1323	MR	R	R	R	R	R	R	R	R	R	NG	MS	R	R	R	R	R	R	R	R	R	NG	R	*Sr30+5+*
56	HD3118(C)	R	R	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	R	R	*Sr9b+11+*
57	HI1621(C)	MR	R	S	R	R	R	R	R	R	R	MR	S	R	R	R	R	R	R	R	R	R	R	R	*Sr28+*
58	HD3171 (C)	MS	R	R	R	R	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	R	R	R	R	*Sr11+7b+2+*
59	HD3460	MR	R	MS	R	R	R	R	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	MR	*Sr13+*
60	HD3293 (C)	S	S	MR	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	MR	S	*Sr13+2+*
61	HI1612 (C)	S	S	MS	R	R	R	R	R	R	R	MS	S	R	R	R	R	R	R	R	MS	MR	R	MS	*Sr7b+2+*
62	K1317(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*
63	VL2041 (C)	R	R	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	R	R	*Sr30+5+11+*
64	HPW349 (C)	MS	R	S	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	S	R	R	*Sr7b+2+*
65	VL2059	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+R*
66	HS562 (C)	MS	R	MS	R	R	R	R	R	R	R	S	S	R	R	R	R	R	R	R	R	MS	MR	R	*Sr8a+9b+11+*
67	VL907 (C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+2+*
68	MACS6837	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*R*
69	MACS4125(d)	R	R	R	R	R	R	S	R	R	R	R	R	R	S	MR	S	R	S	S	R	R	S	R	*Sr11+*
70	MACS4135(d)	R	R	R	R	R	R	S	R	R	R	R	R	R	S	MS	S	R	S	S	MR	R	S	R	*Sr11+*
71	HI1669	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+R*
72	HI1683	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+R*
73	HI1684	R	R	R	R	R	R	R	R	R	NG	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+R*
74	HI8848(d)	R	R	MR	R	R	R	S	R	R	R	R	R	R	MR	R	MS	S	MR	R	R	R	S	R	*Sr7b+2+*
75	HI8849(d)	R	R	MR	R	R	R	S	R	R	R	R	R	R	S	S	S	S	S	S	S	R	S	R	*Sr7b+*
76	HI8850(d)	R	R	R	R	R	R	S	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	MS	R	*Sr7b+*
77	GW554	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+R*
78	GW555	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+R*
79	MP3570	R	R	S	R	R	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	R	MS	R	R	*Sr9b+13+2+*
80	MPO1395	R	R	R	R	R	R	S	R	R	R	R	R	R	S	MS	S	S	S	MS	R	MR	S	R	*Sr9e+2+*
81	GW322	S	R	R	R	S	R	R	R	R	R	R	MR	R	MR	R	MR	R	MR	MR	R	MS	R	MS	*Sr11+2+*
82	MACS6768	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+2+*
83	HI1650	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+*
84	GW547(I)	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+2+R*
85	HI8737(d)	R	R	R	R	R	R	S	R	R	R	R	MR	S	S	R	S	R	MS	MR	R	MR	S	R	*Sr9e+2+*
86	HI8713(d)	R	R	R	R	R	R	R	R	R	R	R	R	R	MS	R	MS	MR	MR	MR	R	R	S	R	*Sr9e+2+*
87	HI1674	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+R*
88	HI1687	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+R*
89	WSM138	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+R*
90	MACS6830	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+R*
91	DBW425	MR	S	MR	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	R	*Sr5+9b+13+*

92	GW556	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+R*
93	HD2932	R	R	R	R	MR	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	R	R	*Sr11+*
94	MP4010	MR	R	R	R	S	R	R	R	R	MR	R	MS	R	R	R	R	R	R	R	R	MS	R	MER	-
95	HI1634	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+*
96	CG1029	R	R	R	NG	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+2+R*
97	DBW441M	R	R	R	R	R	R	R	R	R	MR	MR	R	R	R	R	R	R	R	R	R	R	R	R	*Sr8b+7b+2+*
98	DBW428	MR	R	R	R	R	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	R	MR	R	R	*Sr9b+13+11+*
99	DBW432	S	S	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	R	R	*Sr9b+13+11+*
100	UAS3029	R	R	S	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	R	R	*Sr9b+13+11+*
101	UAS484(d)	R	R	MS	R	R	R	S	R	R	R	R	MS	R	MR	R	S	MS	MR	S	MR	R	MS	R	*Sr7b+2+*
102	NIAW4267	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+R*
103	HI8851(d)	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	MR	R	*Sr13+7b+*
104	HI8852(d)	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	MS	MR	R	MS	R	MS	R	*Sr13+7b+2+*
105	MACS4131(d)	R	R	R	R	R	MR	S	R	R	R	R	R	S	S	R	S	MS	S	S	S	R	S	R	*Sr7b+*
106	MPO1398(d)	R	R	S	R	R	R	S	MR	R	R	R	S	R	S	R	S	MR	MS	MR	R	R	S	R	*Sr7b+2+*
107	DBW110	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*R*
108	CG1036	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr7b+2+*
109	HI1655	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	*Sr2+R*
110	HI8627(d)	R	R	R	R	R	R	MR	R	R	R	R	R	R	MR	R	MS	R	MR	R	MR	R	S	R	*Sr13+11+7b+*
111	HI8823(d)	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr11+2+*
112	DBW359(I)	MS	R	R	R	R	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	MS	R	MR	R	*Sr9b+7b+2+*
113	CG1040(I)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*R*
114	MACS6842	MS	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-
115	MACS6844	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*R*
116	NIAW4364	R	R	MR	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-
117	PBW891	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*R*
118	DBW443	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*R*
119	DDW62(d)	R	R	MS	R	R	R	S	R	R	R	R	S	R	S	MR	S	MR	S	MR	MR	R	MS	R	*Sr9e+2+*
120	AKAW5100	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+2+*
121	WH1306	R	R	NG	R	R	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	R	R	R	R	*Sr30+5+2+*
122	NWS2222	R	R	R	R	R	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	R	R	R	R	*Sr30+5+*
123	UAS3026	S	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	MR	R	MR	R	*Sr13+11+7b+*
124	CG1045	MS	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	R	*Sr30+2+*
125	MPO1395(d)	R	R	R	R	R	R	S	MR	R	R	R	R	R	R	MS	S	S	S	MS	S	R	S	R	*Sr9e+2+*
126	MACS6222	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+2+ R*
127	MP1378(I)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+*
128	MACS3949(d)	R	R	S	MR	R	R	S	R	MR	R	R	R	R	S	R	S	S	MR	S	R	R	MS	R	*Sr7b+2+*
129	DBW426	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*R*
130	MACS6829	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+R*
131	NIAW4114	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+R*
132	NIAW4120	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+R*
133	NIAW4432	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+R*
134	UAS3027	R	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	R	*Sr30+5+2+*
135	LOK79	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+R*
136	RAJ4083 (C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr11+2+*
137	HD3090 (C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+*
138	HI1633 (C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+2+*
139	CG1047	S	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-
140	GW1368(d)	S	S	S	R	MR	MS	R	R	S	S	S	MS	MS	R	R	S	MR	S	S	R	S	MS	S	-
141	HI1605	MS	R	R	R	MR	R	R	R	S	R	R	R	R	R	R	R	R	R	R	R	MS	R	MR	*Sr5+11+*

142	NIAW3170	R	R	S	R	R	R	R	R	R	R	R	MR	MR	R	R	R	R	R	R	R	R	R	R	*Sr8a+2+*
143	UAS446(d)	R	R	MR	R	R	R	S	R	MR	R	R	MR	R	S	MR	S	MS	MS	MS	MR	R	S	MR	*Sr11+2+*
144	NIDW1149(d)	R	R	R	R	R	R	MR	R	MS	R	R	R	MS	MS	R	MR	MR	MR	R	R	MR	S	R	*Sr11+2+*
145	HI1665(I)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr2+R*
146	UAS478(d)(I)	R	R	S	R	R	R	S	R	R	R	S	MR	R	S	MR	S	MS	MR	S	S	R	S	R	*Sr7b+2+*

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