Table 2: Seedling response, *Sr* genes in AVT I and II against the pathotypes of *Puccinia graminis tritici* (wheat stem/black rust) during 2019-20 at ICAR-IIWBR, RS, Flowerdale, Shimla

S. No.	Variety/Line	Pathotypes																					*Sr* genes/resistance
		11	11A	15-1	21	21A-2	24A	34-1	40A	40-1	40-2	40-3	42B	117	117A-1	117-1	117-2	117-6	117-3	122	184	295	
1	HS 507 (C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+5+*
2	HS 562 (C)	MS	R	R	R	S	R	R	MR	S	S	MS	R	R	R	R	R	R	R	MS	R	R	*Sr8a+9b+2+*
3	HPW 349 (C)	R	R	R	R	S	R	R	MR	MR	R	S	R	R	R	R	R	S	R	MR	R	R	*Sr7b+2+*
4	HS 668	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+*
5	VL 907 (C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+2+*
6	VL 2036	MR	R	R	R	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	MR	R	R	*Sr30+5+*
7	HS 681	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+5+*
8	VL 3022	MR	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	R	*Sr31+*
9	HS 680	R	R	R	R	MR	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	*Sr31+*
10	VL 3023	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+*
11	HPW 474	MS	R	R	R	MS	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	*Sr30+5+*
12	UP 3069	R	MR	R	R	S	R	R	MR	MR	R	MS	R	R	R	R	R	MR	R	R	R	R	*Sr7b+*
13	HPW 473	MS	NG	MS	R	S	R	R	S	S	S	S	MR	MR	MR	R	S	S	MS	R	S	MS	*Sr7b+*
14	VL 892 (C)	R	R	R	R	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	R	R	R	*Sr30+11+*
15	VL 3024	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+5+*
16	HS 490 (C)	S	S	R	R	R	R	R	R	R	R	R	R	R	R	R	R	MS	R	R	R	R	*Sr28+9b+*
17	HS 679	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+5+*
18	DBW88 (C)	S	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	MS	R	R	*Sr11+2+*
19	DBW187(I) (C)	S	R	R	R	R	R	R	R	R	R	S	MR	R	R	R	R	R	R	R	R	R	*Sr5+11+*
20	HD2967 (C)	R	R	S	R	MR	R	R	R	R	R	S	R	R	R	R	R	S	R	R	R	R	*Sr8a+11+2*
21	WH1105 (C)	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	*Sr11+2+*
22	DBW222(I) (C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+*
23	HD3086 (C)	S	S	S	R	S	R	R	S	R	R	S	R	R	R	R	R	R	R	S	R	S	*Sr7b+2+*
24	PBW840M	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+5+*
25	PBW803	S	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	MS	R	R	*Sr30+5+*
26	PBW550 (C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+2+*
27	HD3334	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+5+*
28	HD3059 (C)	S	R	R	R	R	R	R	R	MS	R	MS	R	R	R	MR	R	R	R	R	R	R	*Sr11+2+*
29	HD3332	S	S	MR	R	MS	R	R	MS	R	MS	S	R	MR	R	R	R	S	R	R	R	R	*Sr13+7b+*
30	DBW173 (C)	MR	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+*
31	WH1021 (C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+5+2+*
32	PBW811	R	MR	MS	R	MR	R	R	R	R	S	MS	R	R	R	R	R	S	R	MR	R	R	*Sr9b+11+*
33	DBW291	S	R	R	R	R	R	R	S	MR	R	S	R	R	R	R	R	R	R	S	R	S	*Sr5+11+7b+*
34	WH1264	S	MR	R	R	R	R	R	MR	R	R	MS	R	R	R	R	R	R	R	R	R	R	*Sr7b+*
35	PBW812	S	R	R	R	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	R	R	R	*Sr30+11+*
36	JKW261	S	S	MR	R	S	R	R	MS	R	S	S	MR	MR	R	R	R	S	R	R	R	MS	*Sr13+7b+*

37	DBW290	R	R	S	R	S	R	R	MR	R	S	S	R	R	R	R	R	S	R	R	MS	R	*Sr13+9b+*
38	PBW771(I) (C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+*
39	PBW813	R	R	R	R	R	R	R	MS	R	R	MR	R	R	R	R	R	R	R	R	R	R	*Sr8a+11+*
40	HD3331#WB	R	R	S	R	MS	R	R	MR	R	R	S	S	R	R	R	R	R	R	R	MS	R	*Sr13+7b+*
41	HD3298*	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	*Sr30+*
42	WH1124 (C)	S	S	S	R	S	R	R	R	MR	S	S	R	R	R	R	R	S	R	S	R	MR	*Sr7b+2+*
43	UP3033	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+5+*
44	HUW838#WB	R	R	R	R	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	R	R	R	*Sr5+8a+11+*
45	HD3043 (C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	MR	*Sr31+2+*
46	PBW644 (C)	MR	R	R	R	R	R	R	MS	R	R	S	R	R	R	R	R	R	R	MR	R	MR	*Sr11+2+*
47	DBW296	R	R	S	R	MS	R	R	MR	R	R	S	MR	R	MR	S	MS	MS	R	MR	R	R	*Sr13+7b+*
48	HI1628(I) (C)	R	R	R	R	MS	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	R	*Sr2*+R
49	WH1080 (C)	R	R	MS	R	MR	R	R	MS	R	R	S	R	R	R	R	R	R	R	R	R	R	*Sr9e+2+*
50	JAUW672	S	S	MR	R	R	R	R	R	R	R	R	R	R	R	R	R	MR	MR	R	R	R	*Sr9b+13*
51	WH1142 (C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+2+*
52	NIAW3170(I) (C)	R	R	S	R	MR	R	R	MR	R	R	MS	R	R	R	R	R	R	R	R	R	R	*Sr8a+2+*
53	PBW804	R	R	MS	R	S	R	R	MR	R	R	S	R	MR	MR	R	MR	MS	R	R	R	R	*Sr13+7b+*
54	DBW187 (C)	S	R	R	R	R	R	R	R	R	R	MS	R	MR	R	R	R	R	R	R	R	R	*Sr5+11+*
55	K1006 (C)	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	MR	R	R	R	R	R	R	*Sr8a+9b+11+*
56	DBW39 (C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+2+*
57	HD3249(I) (C)	S	R	R	R	R	R	R	R	R	R	S	MR	MR	R	R	R	R	MR	MR	R	R	*Sr11+2+*
58	HD2733 (C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+2+*
59	HD3171 (C)	MS	R	R	R	R	MR	R	R	R	R	MS	R	R	R	R	R	R	R	R	R	R	*Sr11+7b+2+*
60	HD2888 (C)	S	R	R	R	R	R	R	R	MR	R	S	R	R	R	R	R	MR	R	R	R	R	-*
61	HD3293*	S	R	R	R	S	R	R	R	R	R	MS	R	R	R	R	R	MR	R	R	R	R	*Sr13+*
62	K1317 (C)	R	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	R	*Sr31+2+*
63	HI1612 (C)	S	MR	MS	R	S	MR	R	MR	R	S	S	R	MS	MS	MS	R	MS	MR	MR	R	MR	*Sr7b+2+*
64	DBW252(I) (C)	MR	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	*Sr8a+5+11+2+*
65	WHD964(d)	R	R	S	R	S	R	R	R	S	S	S	R	R	S	S	S	S	S	R	S	R	*Sr7b+*
66	DDW48(d)Q*	R	R	R	R	R	R	R	MR	R	R	R	S	MR	S	S	S	S	S	MS	R	MS	*Sr7b+2+*
67	MACS6222 (C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24*+R
68	MACS3949(d) (C)	R	R	MR	R	R	R	R	S	S	R	MR	R	R	S	S	MS	S	S	R	MR	R	*Sr7b+2+*
69	HI8818(d)	R	R	R	R	R	MR	R	R	R	R	R	R	R	S	MR	R	S	R	R	MS	R	*Sr11+7b+*
70	UAS428(d) (C)	R	R	R	R	R	S	R	S	MS	R	MR	R	R	S	S	S	S	MS	R	S	R	*Sr7b+*
71	DDW49(d)Q*	R	R	S	R	MS	MS	R	S	S	S	S	R	R	S	S	S	S	S	R	S	R	*Sr7b+2+*
72	GW322 (C)	S	R	R	R	R	MR	R	S	R	R	MR	R	R	R	S	R	R	S	MR	R	MS	*Sr11+2+*
73	GW519	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+*
74	HI1646	S	R	R	R	R	R	R	MS	MR	R	MR	R	R	R	R	R	R	R	R	R	R	*Sr5+8a+11+*
75	HD3090 (C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+2+*
76	RAJ4083 (C)	R	R	R	R	R	R	R	MS	MR	R	S	R	R	R	R	R	R	R	R	R	R	*Sr11+*
77	UAS3008	S	R	R	R	R	R	R	MR	R	R	MS	R	R	R	R	R	R	R	R	R	R	*Sr5+11+*
78	MACS6749	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+*
79	HD2932 (C)	R	R	R	R	R	R	R	MR	R	R	MS	R	R	R	R	R	R	R	R	R	R	*Sr11+*

80	HI1641	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
81	HI1642	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
82	HI1633*	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+*
83	MACS6752	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
84	NIDW 1149(d)*	R	R	R	R	R	R	R	MR	S	R	MR	S	R	MS	MS	R	MS	R	MR	R	MS	*Sr11+2+*
85	UAS446(d) (C)	R	R	R	R	R	MR	R	MS	S	R	R	R	R	MS	MS	S	S	MS	R	MR	R	*Sr11+2+*
86	HI 1605 (C)	MS	R	R	R	MR	R	R	S	R	R	S	R	R	R	R	MS	R	R	R	R	R	*Sr11+*
87	MACS 4087(d)	R	R	R	R	R	R	R	MR	S	R	R	MR	S	MR	MS	R	MS	R	MS	MS	S	*Sr11+7b+*
88	MP 1358	S	R	R	R	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	R	MR	S	*Sr11+*
89	AKDW 2997-16(d) (C)	S	S	MR	MR	MR	R	R	S	S	S	S	S	MR	S	S	R	S	MR	MS	S	MS	*Sr7b+2+*
90	HI8805(d)(I) (C)	R	R	R	R	R	MS	R	R	S	R	R	R	R	S	R	R	S	R	R	MR	R	*Sr13+11+2+*
91	UAS 472(d)	R	R	R	R	R	MR	R	R	S	R	MR	S	R	S	S	MR	S	MR	R	S	R	*Sr11+2+*
92	MPO 1357(d)[Q]	R	R	R	R	R	MS	R	MS	MS	R	R	R	R	R	S	S	MS	R	R	MR	R	*Sr11+7b+*
93	NIAW3170(I) (C)	R	R	R	R	MR	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	R	*Sr8a+2+*
94	MACS5055	R	S	R	R	R	MR	R	MR	S	R	R	S	MR	R	R	S	S	R	R	R	R	*Sr13+7b+*
95	MACS6222 (aest.) (C)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+* R
96	DDK1029 (C)	R	S	R	R	R	MR	R	R	MS	R	R	MR	MS	R	MR	MR	S	R	MR	MS	R	*Sr11+2+*
97	MACS5054	R	S	R	R	R	MS	R	R	R	R	R	MR	S	MR	MS	MS	S	MR	MR	MS	MS	*Sr11+7b+*
98	DDK1058	R	MS	R	R	R	MR	R	R	R	R	R	R	MS	MR	MR	R	S	R	R	MR	R	*Sr11+7b+*
99	HW1098 (C)	MR	R	R	R	R	R	R	R	R	R	R	R	S	MS	MR	MR	S	R	R	MS	MR	*Sr11+2+*
100	DDK1059	R	S	R	R	R	S	R	R	MS	R	R	S	S	MS	R	R	S	R	R	MR	MS	*Sr7b+*
101	DBW327	MS	S	S	R	MR	R	R	R	R	R	S	R	R	R	R	R	MR	R	R	R	R	*Sr13+5+*
102	HD3086 (C)	S	S	S	R	S	R	R	S	R	R	S	R	R	R	R	R	R	R	S	R	S	*Sr7b+2+*
103	DBW332	MR	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		R	R	R	R
104	DBW303*	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
105	HD2967 (C)	MR	R	MR	R	MR	R	R	R	R	R	S	R	R	R	R	R	S	R	R	R	R	*Sr8a+11+2+*
106	DBW187*	S	R	R	R	R	R	R	R	R	R	MS	R	R	R	R	R	R	R	R	R	S	*Sr5+11+*
107	DBW329	MS	R	R	R	R	R	R	R	R	R	S	R	R	MS	R	R	R	R	R	R	R	*Sr9b+11+*
108	WH1252	R	R	R	R	R	R	R	R	R	R	S	R	MS	R	MR	R	S	R	R	R	R	*Sr9e+7b+*
109	HD3378	S	R	R	MR	R	R	MS	MR	R	R	S	R	MR	R	R	R	MS	R	MR	MR	R	*Sr7b+11+*
110	WH1270*	R	R	R	R	R	R	R	R	R	S	S	R	R	R	R	R	S	R	R	R	MR	*Sr13+*
111	DBW333	MR	R	R	R	R	R	R	R	R	R	S	R	S	R	R	R	R	R	R	R	R	*Sr28+11+*
112	DBW330	MR	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr28+11+*
113	DBW328	MS	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	*Sr5+11+*
114	DBW331	R	R	S	R	R	R	R	R	R	R	S	R	R	R	R	R	S	R	R	R	R	*Sr9e+*
115	TAW155	MR	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	*Sr30+5+*
116	HI1636	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+*
117	MP1361	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	*Sr28+*
118	MACS6747	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+*
119	HD3377[B]	S	R	R	R	MR	R	R	S	R	MS	S	R	R	R	R	R	S	R	S	R	MR	*Sr7b+*

120	HI1637	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+*
121	RAJ4541[B]	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+*
122	GW513	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+*
123	GW322	S	R	R	R	R	R	R	R	R	R	S	R	R	R	MR	R	R	R	MS	R	R	*Sr11+2+*
124	HI1544	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+2+*R
125	HI1634[Q*]	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr31+*
126	HD2932	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr11+*
127	MP3336	S	R	R	R	R	R	R	R	R	S	MR	R	MR	R	S	R	R	MR	MR	R	MS	*Sr11+2+*
128	HD2864	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+*
129	CG1029*	R	R	R	R	R	R	R	R	R	R	R	MR	R	R	R	R	R	R	R	R	R	*Sr24+*
130	MPO1357(d)	R	R	R	R	R	MR	R	R	R	R	MR	MR	R	R	MS	MS	MS	MR	R	R	R	*Sr11+7b+*
131	HI8627(d)	R	R	R	R	R	MS	R	R	MR	R	MR	R	R	MS	MS	S	MR	MR	R	MR	R	*Sr9e+2+*
132	UAS466(d)(I)	R	R	S	R	R	MS	R	MS	R	R	MR	MR	R	S	S	S	S	S	R	R	R	*Sr11+2+*
133	UAS472(d)	R	R	R	R	R	S	R	MR	R	R	MR	MR	R	S	S	S	S	S	R	MS	R	*Sr11+2+*
134	DBW110	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
135	MP3288	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	*Sr24+2+*R
136	HI 8823(d)	R	R	R	R	R	MR	R	R	R	R	MR	R	R	S	MR	S	S	MR	R	S	R	*Sr11+*
137	DDW47(d)(I)	R	R	MS	R	R	MS	R	R	S	R	MR	R	R	S	S	MR	S	S	R	R	R	*Sr11+7b+2+*