

Supplementary files

1. **Supplementary Table 1.** Details of 381 lines used in the present study

S.No	IC/EC/GID	Local Name	Origin	Type	S.No	IC/EC/GID	Local Name	Origin	Type
1	IC104538	CH-2-1	India	NBPGR core	192	IC531059	WL 5512	India	NBPG R core
2	IC111672	A-544	India	NBPGR core	193	IC531062	WL 5630	India	NBPG R core
3	IC111687	A-578	India	NBPGR core	194	IC531124	WL 7314	India	NBPG R core
4	IC111691	A-585	India	NBPGR core	195	8499370		India	NBPG R core
5	IC111693	A-592	India	NBPGR core	196	IC531183	WG 3285	India	NBPG R core
6	IC111717	HP-1272	India	NBPGR core	197	IC531201	W604	India	NBPG R core
7	IC111947	UP-241	India	NBPGR core	198	IC531219	W1030	India	NBPG R core
8	IC116276	PBN51	India	NBPGR core	199	IC531220	W1048	India	NBPG R core
9	IC118722	VDV/4/104	India	NBPGR core	200	IC551228	W1236	India	NBPG R core
10	IC128168	HD2204	India	NBPGR core	201	IC531236	ML.183402	India	NBPG R core
11	IC128177	HD2380	India	NBPGR core	202	IC531275	ML 193874	India	NBPG R core
12	IC128187	H11077	India	NBPGR core	203	IC531307	W 2125	India	NBPG R core
13	IC128211	K65	India	NBPGR core	204	IC531364	W 2527	India	NBPG R core
14	IC128215	K8027	India	NBPGR core	205	IC531377	W 3207	India	NBPG R core

15	IC128283	LGM-72	India	NBPGR core	206	IC531380	W 3455	India	NBPG R core
16	IC128339	LGM-239	India	NBPGR core	207	IC531489	W 579	India	NBPG R core
17	IC128388	S-305	India	NBPGR core	208	IC531505	W 6202	India	NBPG R core
18	IC128409	WC-423	India	NBPGR core	209	IC531529	W 6623	India	NBPG R core
19	IC128411	WC-425	India	NBPGR core	210	IC531820	CRAN BROOK	India	NBPG R core
20	IC128416	WC-445	India	NBPGR core	211	IC531920	HD-1742	India	NBPG R core
21	IC128438	WC1073CB	India	NBPGR core	212	IC532014	KATYIL	India	NBPG R core
22	IC1285512	IC49437	India	NBPGR core	213	IC532019	KOH/NOOP-83	India	NBPG R core
23	IC128640	KA90168	India	NBPGR core	214	IC532662	UP-2296	India	NBPG R core
24	IC128666	PBW222	India	NBPGR core	215	IC532672	UP-2377	India	NBPG R core
25	IC128685	RAJ3520	India	NBPGR core	216	IC532674	UP-2388	India	NBPG R core
26	IC138384	GL-27	India	NBPGR core	217	8499452	8499452	India	NBPG R core
27	IC138387	GL-42	India	NBPGR core	218	IC532871	WIC-442	India	NBPG R core
28	IC138419	Kenphed30	India	NBPGR core	219	IC533544	PI-322250	India	NBPG R core

29	IC252349	APAN-1905	India	NBPGR core	220	IC533926	CITR-7296	India	NBPG R core
30	IC252369	BL-1835	India	NBPGR core	221	IC533822	CITR-7282-A	India	NBPG R core
31	IC252387	BL-1945	India	NBPGR core	222	IC533844	CITR-5426	India	NBPG R core
32	IC252409	BW36	India	NBPGR core	223	IC533809	CITR-4904	India	NBPG R core
33	IC252540	FULIGIMOSU M	India	NBPGR core	224	IC533797	CITR-4968	India	NBPG R core
34	IC252660	HP1529	India	NBPGR core	225	IC533776	BWDYDVGP-16	India	NBPG R core
35		EPC/2019- 20/62	India	NBPGR core	226	IC533754	B 26 C-4	India	NBPG R core
36	IC252783	K-8553	India	NBPGR core	227	IC533733		India	NBPG R core
37	IC252784	K-8804	India	NBPGR core	228	IC533725		India	NBPG R core
38	IC252785	K-8905	India	NBPGR core	229	IC533638		India	NBPG R core
39	IC252792	K-9325	India	NBPGR core	230	IC534300	PI-776206	India	NBPG R core
40	IC252797	K-9405	India	NBPGR core	231	IC534286	176194	India	NBPG R core
41	IC252801	K-9451	India	NBPGR core	232	IC534198	PI-166001	India	NBPG R core
42	IC252805	K-9507	India	NBPGR core	233	IC534115	PI-164408	India	NBPG R core

43	IC252844	KNEPAL-22	India	NBPGR core	234	IC534047	PI143783-A	India	NBPG R core
44	IC252876	PBN-215	India	NBPGR core	235	IC534046	PI-143782	India	NBPG R core
45	IC252887	PBW-358	India	NBPGR core	236	IC534036	PI-126807	India	NBPG R core
46	IC252918	RAJ3461	India	NBPGR core	237	IC534034	PI-126805	India	NBPG R core
47	IC252948	UP2358	India	NBPGR core	238	IC534598	PI-260876	India	NBPG R core
48	IC252974	VL-791	India	NBPGR core	239	IC534579	PI-217638	India	NBPG R core
49	IC252977	VW-53	India	NBPGR core	240	IC534494	PI-182089	India	NBPG R core
50	IC253002	WH-597	India	NBPGR core	241	IC534467		India	NBPG R core
51	IC253012	WHEATON	India	NBPGR core	242	IC534431		India	NBPG R core
52	IC258208	Ghaoon	India	NBPGR core	243	IC534421		India	NBPG R core
53	IC258214	Ghaoon	India	NBPGR core	244	IC534407		India	NBPG R core
54	IC260887	Mundarigaun	India	NBPGR core	245	IC534378		India	NBPG R core
55	IC260935	Gahun	India	NBPGR core	246	IC534375		India	NBPG R core
56	IC279878	Kanak	India	NBPGR core	247	IC534364		India	NBPG R core

57	IC279882		India	NBPGR	248	IC534342	India	NBPG
				core				R core
58	IC28620		India	NBPGR	249	IC534338	India	NBPG
				core				R core
59	IC28844		India	NBPGR	250	IC534895	India	NBPG
				core				R core
60	IC28927		India	NBPGR	251	IC534675	India	NBPG
				core				R core
61	IC28934		India	NBPGR	252	IC534664	India	NBPG
				core				R core
62	IC290211	K8706	India	NBPGR	253	IC5348951	India	NBPG
				core				R core
63	IC290213	K8806	India	NBPGR	254	IC534950	India	NBPG
				core				R core
64	IC29049	Raj 49	India	NBPGR	255	IC534949	India	NBPG
				core				R core
65	IC296529	Giant	India	NBPGR	256	IC534946	India	NBPG
				core				R core
66	IC31979	T-2,C- 70Kathia	India	NBPGR	257	IC534943	India	NBPG
				core				R core
67	IC321954	NSC seed	India	NBPGR	258	IC534941	India	NBPG
				core				R core
68	IC321956	Hyb.r	India	NBPGR	259	IC534930	India	NBPG
				core				R core
69	IC328489	Ghoon	India	NBPGR	260	IC534926	India	NBPG
				core				R core
70	IC329509	Gehun	India	NBPGR	261	IC534921	India	NBPG
				core				R core

71	IC333151	Gehun	India	NBPGR core	262	IC534898	India	NBPG R core
72	IC335533	HUW533	India	NBPGR core	263	IC535202	India	NBPG R core
73	IC335679		India	NBPGR core	264	IC535069	India	NBPG R core
74	IC335683		India	NBPGR core	265	IC534992	India	NBPG R core
75	IC335684		India	NBPGR core	266	IC534991	India	NBPG R core
76	IC335687		India	NBPGR core	267	IC534989	India	NBPG R core
77	IC335693		India	NBPGR core	268	IC534956	India	NBPG R core
78	IC335716		India	NBPGR core	269	IC534954	India	NBPG R core
79	IC335719		India	NBPGR core	270	IC534953	India	NBPG R core
80	IC335738	HRWSN 10- 259	India	NBPGR core	271	Chirya	India	NBPG R core
81	IC8498518		India	NBPGR core	272	IC534952	India	NBPG R core
82	IC336648		India	NBPGR core	273	IC535350	India	NBPG R core
83	IC336751	Gaihun	India	NBPGR core	274	IC535348	India	NBPG R core
84	IC345589	Ghaon E2001	India	NBPGR core	275	IC535335	India	NBPG R core

85	IC347884	Gehun	India	NBPGR core	276	IC535325	India	NBPG R core
86	IC35031		India	NBPGR core	277	IC535310	India	NBPG R core
87	IC35076		India	NBPGR core	278	IC525240	India	NBPG R core
88	IC35122	Barsi	India	NBPGR core	279	IC535238	India	NBPG R core
89	IC35138		India	NBPGR core	280	IC535217	India	NBPG R core
90	IC351655		India	NBPGR core	281	IC535552	India	NBPG R core
91	IC369878	Gehun DPY- 301	India	NBPGR core	282	IC535509	India	NBPG R core
92	IC848767		India	NBPGR core	283	IC535498	India	NBPG R core
93	IC384533	Hasia Gehun	India	NBPGR core	284	IC535483	India	NBPG R core
94	IC384533	Safed Mundi	India	NBPGR core	285	IC535470	India	NBPG R core
95	IC384536	Kariya Sukra	India	NBPGR core	286	IC535427	India	NBPG R core
96	IC393128	CW-2816	India	NBPGR core	287	IC535402	India	NBPG R core
97	IC393880	WH-291	India	NBPGR core	288	IC535396	India	NBPG R core
98	IC393884	WH-711	India	NBPGR core	289	IC535394	India	NBPG R core

99	IC393885	Sonak		India	NBPGR	290	IC535351		India	NBPG
					core					R core
100	IC393930	Toe		India	NBPGR	291	IC535702		India	NBPG
					core					R core
101	IC394806			India	NBPGR	292	IC535693		India	NBPG
					core					R core
102	IC395455	KLM	3B	India	NBPGR	293	IC535601		India	NBPG
		Mltant			core					R core
103	IC396617	NKD-3121		India	NBPGR	294	IC535565		India	NBPG
					core					R core
104	IC396619	NKD-3123		India	NBPGR	295	IC536082		India	NBPG
					core					R core
105	IC397868	YS/RC-54		India	NBPGR	296	IC536075		India	NBPG
					core					R core
106	IC415880	HS-365		India	NBPGR	297	IC536048		India	NBPG
					core					R core
107	IC415882	HW502		India	NBPGR	298	8499503		India	NBPG
					core					R core
108	IC415931	TCLW-6		India	NBPGR	299	IC535704		India	NBPG
					core					R core
109	IC415939	HL6186		India	NBPGR	300	IC536316		India	NBPG
					core					R core
110	IC415963	W-4640		India	NBPGR	301	IC536311		India	NBPG
					core					R core
111	IC415993	W-6563		India	NBPGR	302	IC536265	UP-262	India	NBPG
					core					R core
112	IC416013	W-7464		India	NBPGR	303	IC536139	WL 4559	India	NBPG
					core					R core

113	IC416022	W-7505	India	NBPGR core	304	IC536123	ML 448	India	NBPG R core
114	IC416026	W-7518	India	NBPGR core	305	IC536113	WL 3925	India	NBPG R core
115	IC416053	W-7858	India	NBPGR core	306	IC536111	WL 3892	India	NBPG R core
116	IC416061	W-7997	India	NBPGR core	307	IC536524	HI-1170	India	NBPG R core
117	IC416063	W-8011	India	NBPGR core	308	IC536488	HD 2379	India	NBPG R core
118	IC416065	W-8033	India	NBPGR core	309	IC536447	HI-1173	India	NBPG R core
119	IC416079	W-8096	India	NBPGR core	310	IC536398	BA 0229	India	NBPG R core
120	IC416111	W-8645	India	NBPGR core	311	IC536348	HS-236	India	NBPG R core
121	IC416119	W-8718	India	NBPGR core	312	8499542	8499542	India	NBPG R core
122	IC416125	W-9106	India	NBPGR core	313	IC536338	NC 66520	India	NBPG R core
123	IC416125	W-9306	India	NBPGR core	314	IC536323	NC 60219	India	NBPG R core
124	IC416144	W-9371	India	NBPGR core	315	IC536321	NC 59610	India	NBPG R core
125	IC416146	W-9390	India	NBPGR core	316		Sonalika	India	NBPG R core
126	IC416159	W-9622	India	NBPGR core	317	IC539399	HOW-470	India	NBPG R core

127	IC416209	N065122	India	NBPGR core	318	IC539370	GW 2878	India	NBPG R core
128	IC416320	D1033	India	NBPGR core	319	IC539334	BHACHAW	India	NBPG R core
129	IC416380	PBW.236/PA U945	India	NBPGR core	320	IC539321	VL-852	India	NBPG R core
130	IC416385	PBW248	India	NBPGR core	321	IC539317	TADIA-4	India	NBPG R core
131	IC416408		India	NBPGR core	322	IC539316	TADIA-3	India	NBPG R core
132	IC8948956		India	NBPGR core	323	IC539314	TADIA-1	India	NBPG R core
133	IC426359	SN-72	India	NBPGR core	324	IC539313	TADIA- GENEPOOL	India	NBPG R core
134	IC42740	VL-822	India	NBPGR core	325	IC539305	98(67)S.P.WH EAT	India	NBPG R core
135	IC436069	HW 2042	India	NBPGR core	326	IC539531		India	NBPG R core
136	IC436077	HW 2084	India	NBPGR core	327	IC539486		India	NBPG R core
137	IC439622	MACS-6145	India	NBPGR core	328	IC539456		India	NBPG R core
138	IC443685	SK-216	India	NBPGR core	329	IC539445		India	NBPG R core
139	IC443717	A-6-24	India	NBPGR core	330	IC539427		India	NBPG R core
140	IC443728	HD 2824	India	NBPGR core	331	IC539415		India	NBPG R core

141	IC443737	HW 1085	India	NBPGR core	332	IC539414	India	NBPG R core
142	IC443750	K-9266	India	NBPGR core	333	IC539410	India	NBPG R core
143	IC443759	NP-809	India	NBPGR core	334	8499608	India	NBPG R core
144	IC443767	RS 31-1	India	NBPGR core	335	IC542012	India	NBPG R core
145	IC445297		India	NBPGR core	336	IC540908	India	NBPG R core
146	IC445336		India	NBPGR core	337	IC542068	India	NBPG R core
147	IC445407		India	NBPGR core	338	IC543373	India	NBPG R core
148	IC445413		India	NBPGR core	339	IC543372	India	NBPG R core
149	IC445439		India	NBPGR core	340	IC336751	India	NBPG R core
150	IC445494		India	NBPGR core	341	IC543280	India	NBPG R core
151	IC445525		India	NBPGR core	342	IC547635	India	NBPG R core
152	IC445527		India	NBPGR core	343	IC549499	India	NBPG R core
153	IC447520	BIJ-38	India	NBPGR core	344	IC549472	India	NBPG R core
154	IC469480	VHC BD-55	India	NBPGR core	345	IC549471	India	NBPG R core

155	IC469485	VHC BD 67	India	NBPGR core	346	IC549462	India	NBPG R core
156	IC469748	DARL/PK 2206	India	NBPGR core	347	IC553131	India	NBPG R core
157	IC470134	COW 1	India	NBPGR core	348	IC553097	India	NBPG R core
158	IC47336		India	NBPGR core	349	IC582709	India	NBPG R core
159	IC47528		India	NBPGR core	350	IC574475	India	NBPG R core
160	IC47550		India	NBPGR core	351	IC573902	India	NBPG R core
161	IC47797		India	NBPGR core	352	IC573850	India	NBPG R core
162	IC47800		India	NBPGR core	353	IC572928	India	NBPG R core
163	IC524288		India	NBPGR core	354	IC566635	India	NBPG R core
164	IC524297	HW2010	India	NBPGR core	355	IC566034	India	NBPG R core
165	IC527448	H11531	India	NBPGR core	356	IC73595	India	NBPG R core
166	IC528888	VWFW-122	India	NBPGR core	357	IC73199	India	NBPG R core
167	IC528964	VWFW-2090	India	NBPGR core	358	IC586830	India	NBPG R core
168	IC529202	VWFW-2145	India	NBPGR core	359	IC585637	India	NBPG R core

169	IC529219	VWFW-2162	India	NBPGR core	360	IC583384	India	NBPG R core
170	IC529222	VWFW-381	India	NBPGR core	361	IC583383	India	NBPG R core
171	IC529245	VWFW-1453	India	NBPGR core	362	IC582907	India	NBPG R core
172	IC529272	VWFW-2107	India	NBPGR core	363	IC582727	India	NBPG R core
173	IC529410	VWFW-1768	India	NBPGR core	364	IC582710	India	NBPG R core
174	IC529469	VWFW-1093	India	NBPGR core	365	IC534929	India	NBPG R core
175	IC529501	VWFW-2237	India	NBPGR core	366	IC574388	India	NBPG R core
176	IC529512	VWFW-2248	India	NBPGR core	367	8499697	India	NBPG R core
177	IC529512	VWFW-2256	India	NBPGR core	368	IC78766	India	NBPG R core
178	IC529626	VWFW-648	India	NBPGR core	369	IC78729	India	NBPG R core
179		PBW 343	India	NBPGR core	370	IC78727	India	NBPG R core
180		PBW 343	India	NBPGR core	371	IC78703	India	NBPG R core
181	IC529919	VWFW-1943	India	NBPGR core	372	IC75242	India	NBPG R core
182	IC529971	VWFW-1976	India	NBPGR core	373	IC35715	India	NBPG R core

183	8499157		India	NBPGR core	374	IC542645	India	NBPG R core
184	IC530047	VWFW-2362	India	NBPGR core	375	IC290186	India	NBPG R core
185	IC530066	VWFW-969	India	NBPGR core	376	IC542764(A)	India	NBPG R core
186	IC530075	VWFW-1563	India	NBPGR core	377	IC29020	India	NBPG R core
187	IC530077	VWFW-2024	India	NBPGR core	378	IC28872	India	NBPG R core
188	IC531006	WL-3101	India	NBPGR core	379	IC26729	India	NBPG R core
189	IC531010	WL 3290	India	NBPGR core	380	IC28526	India	NBPG R core
190	IC531037	WL 4626	India	NBPGR core	381	IC535257	India	NBPG R core
191	IC531054	WL 5336	India	NBPGR core				

2. Supplementary Fig. 1. Graph of variables.

