

ERRATUM

In Tropical Plant Pathology vol. 35, no. 3, in the Article Yamanaka et al., **Development of classification criteria for resistance to soybean rust and differences in virulence among Japanese and Brazilian rust populations**, Tables 1 and 2, and Figure 4, contain misprints and incorrect information. Correct versions are printed here. The Editor apologizes for any inconvenience caused to readers.

Standard varieties Soybean rust populations	<i>Rpp1</i>				<i>Rpp2</i>		<i>Rpp3</i>	<i>Rpp4</i>	<i>Rpp5</i>	(unknown)			
	1. PI200492	2. Tainung 4	3. PI587880A	4. PI587886	5. PI230970	6. PI417125	7. PI462312	8. PI459025	9. Shiranui	10. PI416764	11. PI587905	12. TK5	13. Wayne
Japanese rust population (JRP)	HR	HR	I	SR	S	SR	HR	R	HR	HR	HR	S	S
Brazilian rust Population 1 (BRP-1)	S	S	S	S	R	R	S	R	R	(Mix)	S	S	S
Brazilian rust Population 2 (BRP-2)	S	S	S	S	S	S	SR	SR	SR	SR	(Mix)	S	S

I	Immunity	HR	Highly resistant	R	Resistant	SR	Slightly resistant	S	Susceptible	(Mix)	2 types of lesions mixed
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FIGURE 4 - Phenotypes of resistance against Japanese and Brazilian rust populations in 13 standard varieties. 1-9: Varieties having one of known resistance genes, 10 and 11: Varieties having identified their resistance but not identified their genes yet, 12 and 13: Susceptible standard varieties.

TABLE 1 - Soybean genotypes used in this study. All 63 were used initially to test the Japanese rust population, and entries 1 to 13 were also used to test the Brazilian rust populations

Entry	Genotype	Characteristics	Source ⁴	Reference
1	PI200492 (Komata)	Standard variety (SV) having <i>Rpp1</i>	EMBRAPA	Hartwing and Bromfield, 1983
2	Tainung 4	SV having <i>Rpp1</i>	EMBRAPA	Yamaoka et al., 2002
3	PI587880A (Huang Dou)	SV having <i>Rpp1</i>	EMBRAPA	Ray et al., 2009
4	PI587886 (Bai Dou)	SV having <i>Rpp1</i>	EMBRAPA	Ray et al., 2009
5	PI230970 (No.3)	SV having <i>Rpp2</i>	EMBRAPA	Hartwing and Bromfield, 1983
6	PI417125 (Kyushu 31)	SV having <i>Rpp2</i> ¹	EMBRAPA	Nogueira et al., 2008
7	PI462312 (Ankur)	SV having <i>Rpp3</i>	EMBRAPA	Hartwing and Bromfield, 1983
8	PI459025 (Bing Nan)	SV having <i>Rpp4</i>	EMBRAPA	Hartwing, 1986
9	Shiranui	SV having <i>Rpp5</i> ²	EMBRAPA	Garcia et al., 2008
10	PI416764 (Akasaya)	SV	EMBRAPA	Arias et al., 2008
11	PI587905 (Xiao Huang Dou)	SV	EMBRAPA	Miles et al., 2006
12	TK5	SV of susceptible control	EMBRAPA	Yamaoka et al., 2002
13	Wayne	SV of susceptible control	EMBRAPA	Yamaoka et al., 2002
14	PI459025A	Resistant variety putatively having <i>Rpp4</i>	EMBRAPA	Pierozzi et al., 2008
15	PI594767A	Resistant variety	EMBRAPA	Miles et al., 2006
16	GC00002-100	Resistant variety developed by AVRDC	AVRDC	AVRDC, 1989
17	GC00138-29	Resistant variety developed by AVRDC	AVRDC	AVRDC, 1989
18	GC60020-8-7-7-18	Resistant variety developed by AVRDC	AVRDC	AVRDC, 1989
19	GC84040-16-1	Resistant variety developed by AVRDC	AVRDC	AVRDC, 1992
20	GC84051-9-1	Resistant variety developed by AVRDC	AVRDC	AVRDC, 1992
21	GC84058-21-4	Resistant variety developed by AVRDC	AVRDC	AVRDC, 1992
22	GC85037-2-3-5-1	Resistant variety developed by AVRDC	AVRDC	Yorinori, 2008
23	GC85039-1-2-1-1	Resistant variety developed by AVRDC	AVRDC	-
24	GC86004-9	Resistant variety developed by AVRDC	AVRDC	AVRDC, 1992
25	SS86045-23-2	Resistant variety developed by AVRDC	AVRDC	AVRDC, 1992
26	GC87012-10-B-5	Resistant variety developed by AVRDC	AVRDC	AVRDC, 1992
27	GC87016-11-B-2	Resistant variety developed by AVRDC	AVRDC	AVRDC, 1992
28	SRE-B-15C	Resistant variety developed by AVRDC	AVRDC	AVRDC, 1989
29	SRE-D-11C	Resistant variety developed by AVRDC	AVRDC	Oloka et al., 2008
30	Xiao Jing Huang	Resistant variety screened from genetic resources	JAAS	Yamanaka et al., 2007a, 2008
31	Niu Mao Huang	Resistant variety screened from genetic resources	JAAS	Yamanaka et al., 2007a, 2008
32	Qin Dou	Resistant variety screened from genetic resources	JAAS	Yamanaka et al., 2007a, 2008
33	Da Bai Qi	Resistant variety screened from genetic resources	JAAS	Yamanaka et al., 2007a, 2008
34	6611	Resistant variety screened from genetic resources	JAAS	Yamanaka et al., 2007a, 2008
35	Himedaizu	Resistant variety screened from genetic resources	JIRCAS	Yamanaka et al., 2007a, 2008
36	Lu Pi Dou	Resistant variety screened from genetic resources	JAAS	Yamanaka et al., 2007a, 2008
37	Hei Dou	Resistant variety screened from genetic resources	JAAS	Yamanaka et al., 2007a, 2008
38	Da Li Zi	Resistant variety screened from genetic resources	JAAS	Yamanaka et al., 2007a, 2008
39	Hougyokoku	Resistant variety	NICS	-
40	Sachiyutaka	Resistant variety	NICS	-
41	FT2	Resistant variety putatively having <i>Rpp3</i> ³	EMBRAPA	Yamanaka et al., 2007b
42	Davis	Susceptible variety	EMBRAPA	Yamanaka et al., 2007b
43	Kinoshita	Resistant variety having <i>Rpp5</i> ⁴	EMBRAPA	Garcia et al., 2008
44	Abura	Resistant variety	EMBRAPA	Laperuta et al., 2008
45	RI75	Susceptible variety	EMBRAPA	-
46	BR01-17996	Breeding line resistant to soybean rust	EMBRAPA	-
47	BR01-18437	Resistant line having single recessive major gene	EMBRAPA	Pierozzi et al., 2008
48	BRSMS-Bacri	Resistant variety putatively having <i>Rpp3</i> ³	EMBRAPA	Kato and Yorinori, 2008
49	EMBRAPA48	Susceptible variety	EMBRAPA	Ribeiro et al., 2008
50	Misuzudaizu	Susceptible variety	Chiba Univ.	Yamanaka et al., 2001
51	Moshidou Gong 503	Susceptible variety	Chiba Univ.	Yamanaka et al., 2001
52	BRS184	Susceptible variety	EMBRAPA	Yamanaka et al., 2008
53	BRS231	Tolerant variety	EMBRAPA	Yamanaka et al., 2008
54	BB17	Recombinant Inbred Line from BRS184 X BRS231	EMBRAPA	Yamanaka et al., 2008
55	BB18	Recombinant Inbred Line from BRS184 X BRS231	EMBRAPA	Yamanaka et al., 2008
56	BB19	Recombinant Inbred Line from BRS184 X BRS231	EMBRAPA	Yamanaka et al., 2008
57	BB20	Recombinant Inbred Line from BRS184 X BRS231	EMBRAPA	Yamanaka et al., 2008
58	BB21	Recombinant Inbred Line from BRS184 X BRS231	EMBRAPA	Yamanaka et al., 2008
59	BB22	Recombinant Inbred Line from BRS184 X BRS231	EMBRAPA	Yamanaka et al., 2008
60	BB25	Recombinant Inbred Line from BRS184 X BRS231	EMBRAPA	Yamanaka et al., 2008
61	BB26	Recombinant Inbred Line from BRS184 X BRS231	EMBRAPA	Yamanaka et al., 2008
62	BB28	Recombinant Inbred Line from BRS184 X BRS231	EMBRAPA	Yamanaka et al., 2008
63	BB29	Recombinant Inbred Line from BRS184 X BRS231	EMBRAPA	Yamanaka et al., 2008

¹PI417125 has been confirmed to have *Rpp2* by allelism testing with PI230970 (Nogueira et al. 2008); ²Kinoshita and Shiranui have a single resistance gene, which is mapped as *Rpp5* (Garcia et al. 2008); ³FT2 and BRSMS-Bacri putatively have the same resistance gene, *Rpp3*, located in linkage group C2 (Monteros et al. 2006; Arias et al. 2008); ⁴EMBRAPA: Brazilian Agricultural Research Corporation, AVRDC: Asian Vegetable Research and Development Center, JAAS: Jilin Academy of Agricultural Sciences, JIRCAS: Japan International Research center for Agricultural Sciences, NICS: National Institute of Crop Science.

TABLE 2 - Phenotypes of the five resistance characters against the Japanese rust population in 63 soybean genotypes. List arrangement is determined by the values of the 5 resistance characters in the following order: first: sporulation level (SL); second: number of uredinia (NoU); third: frequency of lesions with uredinia (%LU); fourth: frequency of open uredinia (%OU); fifth: lesion color (LC). All values are rounded off to the first decimal place

Entry	Genotype	LC	%LU ¹	NoU ²	%OU ³	SL ⁴	Resistance classification ⁵
3	PI587880A	—	—	—	—	—	Immune
29	SRE-D-11C	1.0	0.0%	0.0	0.0%	0.0	Highly resistant (almost immune)
11	PI587905	2.3	0.0%	0.0	0.0%	0.0	Highly resistant (almost immune)
9	Shiranui	2.6	0.0%	0.0	0.0%	0.0	Highly resistant (almost immune)
15	PI594767A	1.3	0.0%	0.0	0.0%	0.0	Highly resistant
39	Hougyoku	1.5	0.0%	0.0	0.0%	0.0	Highly resistant
43	Kinoshita	1.5	0.0%	0.0	0.0%	0.0	Highly resistant
22	GC85037-2-3-5-1	1.9	0.0%	0.0	0.0%	0.0	Highly resistant
10	PI416764	1.9	0.0%	0.0	0.0%	0.0	Highly resistant
2	Tainung 4	2.1	0.0%	0.0	0.0%	0.0	Highly resistant
1	PI200492	2.8	0.0%	0.0	0.0%	0.0	Highly resistant
17	GC00138-29	1.9	1.7%	0.0	0.0%	0.0	Resistant
16	GC00002-100	1.9	1.9%	0.1	0.0%	0.0	Resistant
44	Abura	1.2	7.1%	0.1	0.0%	0.0	Resistant
21	GC84058-21-4	2.7	13.9%	0.1	0.0%	0.0	Resistant
48	BRSMS-Bacri	1.1	12.5%	0.8	0.0%	0.0	Resistant
18	GC60020-8-7-7-18	1.4	13.2%	0.2	7.1%	0.0	Resistant
46	BR01-17996	1.0	4.3%	0.0	0.0%	0.0	Resistant
41	FT2	1.3	37.8%	0.4	28.9%	0.1	Resistant
8	PI459025	4.5	36.7%	0.6	0.0%	0.3	Resistant
14	PI459025A	1.9	40.0%	0.6	0.0%	0.4	Resistant
7	PI462312	2.0	63.3%	0.9	57.1%	0.7	Resistant
30	Xiao Jing Huang	3.5	100.0%	1.9	36.7%	1.0	Slightly resistant
6	PI417125	1.2	100.0%	2.1	67.7%	1.6	Slightly resistant
57	BB20	4.0	96.0%	1.4	97.6%	1.8	Slightly resistant
4	PI587886	1.5	100.0%	1.9	69.0%	1.9	Slightly resistant
38	Da Li Zi	3.3	100.0%	2.0	48.3%	2.0	Slightly resistant
56	BB19	3.6	90.0%	2.1	95.2%	2.2	Susceptible
54	BB17	3.5	100.0%	1.5	100.0%	2.3	Slightly resistant
63	BB29	3.7	93.3%	1.6	81.6%	2.3	Slightly resistant
36	Lu Pi Dou	2.0	82.4%	2.9	81.5%	2.3	Susceptible
58	BB21	3.9	93.3%	2.3	91.4%	2.4	Susceptible
13	Wayne	2.9	100.0%	2.5	84.2%	2.4	Susceptible
62	BB28	3.8	100.0%	3.0	84.9%	2.4	Susceptible
20	GC84051-9-1	2.8	98.3%	2.3	90.7%	2.5	Susceptible
61	BB26	4.2	100.0%	2.4	83.6%	2.5	Susceptible
26	GC87012-10-B-5	3.4	100.0%	3.0	84.0%	2.5	Susceptible
59	BB22	4.1	100.0%	3.5	91.3%	2.6	Susceptible
60	BB25	4.0	96.7%	2.6	91.0%	2.6	Susceptible
40	Sachiyutaka	1.7	88.2%	2.9	95.9%	2.6	Susceptible
23	GC85039-1-2-1-1	2.5	96.7%	2.5	93.3%	2.7	Susceptible
47	BR01-18437	1.1	100.0%	2.4	85.6%	2.7	Susceptible
27	GC87016-11-B-2	2.1	100.0%	3.2	90.1%	2.7	Susceptible
24	GC86004-9	3.1	100.0%	2.1	75.0%	2.7	Susceptible
19	GC84040-16-1	2.5	94.8%	2.5	66.4%	2.7	Slightly resistant
28	SRE-B-15C	2.0	100.0%	2.9	91.1%	2.8	Susceptible
50	Misuzudaizu	2.9	100.0%	3.2	85.1%	2.8	Susceptible
53	BRS231	2.4	100.0%	4.2	84.9%	3.0	Susceptible
25	SS86045-23-2	3.2	100.0%	4.4	86.4%	3.0	Susceptible
37	Hei Dou	2.7	98.3%	3.9	80.8%	3.0	Susceptible
42	Davis	2.9	100.0%	4.0	90.2%	3.0	Susceptible
45	RI75	3.8	100.0%	3.9	92.1%	3.0	Susceptible
35	Himedaizu	3.9	93.3%	2.1	70.6%	3.0	Susceptible
5	PI230970	1.3	100.0%	2.2	84.8%	3.0	Susceptible
33	Da Bai Qi	4.7	100.0%	2.5	89.0%	3.0	Susceptible
32	Qin Dou	4.1	100.0%	3.2	91.6%	3.0	Susceptible
55	BB18	4.7	100.0%	3.2	90.7%	3.0	Susceptible
34	6611	4.5	100.0%	3.3	97.9%	3.0	Susceptible
31	Niu Mao Huang	3.2	100.0%	3.5	74.2%	3.0	Susceptible
49	EMBRAPA48	2.2	100.0%	3.7	90.3%	3.0	Susceptible
12	TK5	1.6	100.0%	4.0	78.3%	3.0	Susceptible
52	BRS184	2.4	100.0%	4.8	97.8%	3.0	Susceptible
51	Moshidou Gong 503	2.9	100.0%	5.1	87.0%	3.0	Susceptible

¹The values $0.0 \leq x < 70.0$ and $70.0 \leq x \leq 100.0$ are respectively classified as indicating resistance (shading) and susceptibility for %LU; ² The values $0.0 \leq x < 2.0$ and $2.0 \leq x$ are respectively classified as indicating resistance (shading) and susceptibility for NoU; ³ The values $0.0 \leq x < 70.0$ and $70.0 \leq x \leq 100.0$ are respectively classified as indicating resistance (shading) and susceptibility for %OU; ⁴ The values $0.0 \leq x < 2.0$ and $2.0 \leq x \leq 3.0$ are respectively classified as indicating resistance (shading) and susceptibility for SL; ⁵ Final classification of resistance was determined by the following criteria: “Immune”: having no lesions; “Highly resistant”: having lesions showing the resistant phenotype in four characters and with no uredinia; “Resistant”: having lesions showing resistant phenotype in four characters and with uredinia; “Slightly resistant”: having lesions showing resistant phenotype in any of four resistance characters, “Susceptible”: having lesions showing susceptible phenotype in all four resistance characters. “Almost immune” means that the genotypes showed imperfect formation of lesions that might have been caused by very strong resistance (shown in Figure. 3).