

Supplementary Tables

Table 1. List of rice genotypes included in the study

G1	Mapillai samba	G51	Karthi samba	G101	IG 8(EC 729601- 121651)
G2	CK 275	G52	IG 27(IC 0590934- 121255)	G102	IG 37(EC 728715- 117678)
G3	Senkar	G53	Aarkadu kichili	G103	IG 44(EC 728762- 117729)
G4	Murugankar	G54	ARB 65	G104	Sasyasree
G5	CHIR 6	G55	Matta kuruvai	G105	IG 46(IC 471826- 117647)
G6	CHIR 5	G56	Karuthakar	G106	IG 60(EC 728730- 117695)
G7	Kudai vazhai	G57	IG 66 (EC 729047- 120985)	G107	IG 58(EC 728725- 117689)
G8	CHIR 8	G58	CB-07-701-252	G108	Chinna aduku nel
G9	Kuruvai kalanjiyam	G59	Thooyamalli	G109	RH2-SM-2-23
G10	Vellai chithiraikar	G60	RPHP 93	G110	IG 14(IC 517381- 121422)
G11	Jothi	G61	RPHP 104	G111	IG 32(EC 728838- 117823)
G12	Palkachaka	G62	IR 83294-66-2-2-3-2	G112	RPHP 47
G13	Chivapu chithiraikar	G63	IG 23(EC 729391- 121419)	G113	IG 48(EC 729203- 121195)
G14	CHIR 11	G64	IG 49(EC 729102- 121052)	G114	IG 12(EC 729626- 121681)
G15	Kalvalai	G65	RP-BIO-226	G115	Karungan
G16	IR 36	G66	IG 5(EC 729642- 121698)	G116	Sembala
G17	Sorna kuruvai	G67	IG 31(EC 728844- 117829)	G117	IG 72(EC 728650- 117587)
G18	Rascadam	G68	IG 7(EC 729598- 121648)	G118	Panamarasamba
G19	Chinthamani	G69	RPHP 52	G119	IR 64
G20	Thogai samba	G70	Varakkal	G120	Mikuruvai
G21	Malayalathan samba	G71	Mattaikar	G121	Thillainayagam
G22	RPHP 125	G72	IG 53(EC 728752- 117719)	G122	ARB 64
G23	CK 143	G73	IG 6(EC 729592- 121642)	G123	RPHP 140
G24	Kattikar	G74	Katta samba	G124	Haladichudi
G25	Shenmolagai	G75	RH2-SM-1-2-1	G125	IG 24(EC 728751- 117718)
G26	Kaatu ponni	G76	Red sirumani	G126	RPHP 42
G27	Godavari samba	G77	Vadivel	G127	IG 25(EC 729728- 121785)
G28	Earapalli samba	G78	Norungan	G128	IG 73(EC 728627- 117527)
G29	RPHP 129	G79	IG 35(EC 728858- 117843)	G129	IG 51(EC 728772- 117742)
G30	Mangam samba	G80	IG 45(EC 728768- 117736)	G130	Vellai kudaivazhai
G31	RPHP 105	G81	RPHP 159	G131	Kodai
G32	IG 4 (EC 729639- 121695)	G82	IG 43(EC 728788- 117759)	G132	IG 52(EC 728756- 117723)
G33	Kalarkar	G83	RPHP 27	G133	ARB 59
G34	Sornavari	G84	IG 65(EC 729024- 120958)	G134	RPHP 163
G35	RPHP 134	G85	Ponmani samba	G135	IG 18(EC 728892- 117880)
G36	IR 68144-2B-2-2-3-1-127	G86	Thattan samba	G136	RPHP 36
G37	PTB 19	G87	IG 74(EC 728622- 117517)	G137	IG 28(EC 728920- 117914)
G38	IG 67(EC 729050- 120988)	G88	Kaliyan samba	G138	Vadakathi samba
G39	RPHP 59	G89	IG 2(EC 729808-121874)	G139	RPHP 80
G40	RPHP 103	G90	IG 29(EC 728925- 117920)	G140	IG 41(EC 728800- 117776)
G41	Kodaikuluthan	G91	Kallimadayan	G141	IG 26(IC 0590943- 121899)
G42	RPHP 68	G92	IG 10(EC 729686- 121743)	G142	IG 15(EC 728910- 117901)
G43	Rama kuruvaikar	G93	IG 75(EC 728587- 117420)	G143	Nootri pathu
G44	Purple puttu	G94	IG 38(EC 728742 - 117707)	G144	Rpbio
G45	IG 71(EC 728651- 117588)	G95	IG 39(EC 728779- 117750)	G145	Kasalath
G46	IG 56 (EC 728700- 117658)	G96	RPHP 90		
G47	Jeevan samba	G97	IG 33(EC 728938- 117935)		
G48	RPHP 106	G98	IG 42(EC 728798- 117774)		
G49	IG 63(EC 728711- 117674)	G99	IG 9(EC 729682- 121739)		
G50	RPHP 48	G100	RPHP 161		

Table 2. Weather data

Weather data during growing period for the year 2019-20										
Month	Rain (mm)	Rainy days	T max (°C)	T min (°C)	RH max (%)	RH min (%)	Wind (m/s)	SS (hr/d)	ET (mm/day)	SR (cal/cm ² /d)
September	57.30	9.00	30.88	23.39	84.43	64.97	7.68	5.31	5.29	317.42
October	246.90	13.00	30.72	22.73	86.61	61.81	4.79	6.02	4.92	302.27
November	167.10	9.00	29.66	22.23	86.67	59.63	5.15	6.35	4.66	337.94
December	36.00	5.00	27.85	21.23	86.13	61.65	5.85	3.95	4.08	279.84
January	0.00	0.00	30.79	20.41	86.00	45.65	5.69	7.74	5.00	378.34
Weather data during growing period for the year 2020-21										
September	140.50	10.00	30.32	23.12	83.73	63.07	7.63	4.90	5.29	295.67
October	36.00	4.00	30.85	23.55	82.52	52.84	5.95	6.35	5.50	326.57
November	57.10	9.00	29.12	21.54	88.77	62.37	4.94	5.55	5.22	323.10
December	32.00	2.00	21.73	20.07	85.16	58.48	5.56	4.43	4.55	285.49
January	141.5	11	27.61	21.15	82.18	53.42	5.21	4.63	5.64	298.87

T- Temperature; RH- Relative humidity; SS- Sunshine; ET- Evapotranspiration; SR Solar radiation

Table 3. Mean performance of genotypes for P uptake traits, YRT and SPY across the four different environments

	RL (cm)	SL (cm)	DW(g)	PH (cm)	PL (cm)	FL (cm)	NPT (no.)	GPP(no.)	HSW (g)	SPY(g)
G1	20.70	62.23	7.67	117.08	24.00	36.13	10.88	151.25	2.56	20.17
G2	20.04	70.13	8.32	107.19	28.19	30.71	11.94	150.13	1.94	22.72
G3	20.74	71.83	7.77	112.38	19.38	24.25	13.21	98.13	2.89	12.85
G4	24.48	70.20	9.32	112.00	21.99	27.04	11.63	109.75	3.00	11.78
G5	19.43	66.74	7.19	113.63	21.13	27.75	15.13	114.13	2.95	16.64
G6	18.49	76.63	7.00	101.63	19.00	27.13	13.50	132.88	1.73	13.01
G7	17.56	72.55	8.19	117.88	21.88	28.75	11.50	81.75	3.17	15.40
G8	19.04	60.65	5.58	93.13	22.85	23.25	14.63	117.00	2.16	15.53
G9	18.00	70.00	3.87	119.50	21.75	30.50	9.63	112.25	1.61	6.33
G10	15.06	68.31	5.41	118.00	23.50	31.63	12.48	119.75	2.62	19.55
G11	20.59	69.33	8.64	123.38	19.63	32.50	19.70	96.50	2.61	19.04
G12	21.84	73.19	6.41	113.50	21.88	27.50	14.70	131.00	2.20	15.42
G13	18.81	69.83	4.74	105.63	24.75	24.75	12.61	100.38	3.02	15.61
G14	16.59	63.01	6.90	99.00	19.93	27.73	12.80	136.38	1.94	20.22
G15	19.64	75.40	6.75	112.63	21.75	29.63	11.29	120.88	2.58	16.29
G16	17.18	67.95	7.91	112.13	22.00	24.75	11.08	105.88	2.57	12.63
G17	25.50	81.81	10.20	117.70	22.70	33.30	10.24	105.38	2.57	12.97
G18	17.06	60.56	4.51	114.00	22.13	33.50	11.33	124.88	1.29	13.01
G19	18.85	67.55	8.14	109.88	22.25	29.00	11.33	121.50	1.84	15.08
G20	18.16	62.69	6.10	104.46	29.23	30.78	12.93	129.13	1.77	19.13
G21	18.34	59.69	6.87	107.00	25.83	21.50	10.86	130.38	2.50	15.70
G22	18.31	56.70	5.56	86.00	21.30	26.19	12.78	113.88	2.33	15.80
G23	19.19	57.94	6.20	85.38	20.13	23.75	13.25	159.13	2.07	15.01
G24	17.25	74.06	7.11	120.00	21.38	31.00	14.11	130.50	2.09	16.66
G25	18.88	67.88	7.72	108.75	16.75	22.00	14.14	122.63	2.71	14.30
G26	18.29	69.21	6.45	109.63	20.81	27.68	11.94	105.88	3.13	16.93
G27	18.20	69.69	8.96	113.38	22.25	29.09	13.23	129.63	2.24	19.56
G28	21.10	68.75	7.00	118.75	19.75	26.00	14.06	137.75	2.32	16.70

G29	17.60	67.13	6.56	112.63	25.13	24.50	14.38	155.13	2.11	21.00
G30	18.94	69.94	7.20	106.50	22.63	25.50	16.54	137.00	2.05	18.56
G31	18.15	66.00	5.50	113.25	17.15	23.50	8.50	109.00	2.76	14.48
G32	18.31	77.00	7.07	125.25	20.00	29.75	10.05	106.75	2.66	14.32
G33	20.08	65.68	6.74	124.75	22.88	33.88	15.41	125.00	2.42	16.12
G34	17.50	67.00	7.84	103.75	18.88	29.38	13.09	104.00	3.16	12.21
G35	19.73	68.88	7.06	115.50	22.25	34.00	15.99	114.50	2.00	18.90
G36	14.50	51.35	6.71	62.38	14.88	20.00	13.63	105.63	2.11	11.14
G37	17.21	71.59	9.61	92.25	17.88	27.00	14.38	106.13	2.35	14.28
G38	17.34	72.49	8.42	96.50	15.13	20.75	12.75	90.25	2.45	12.50
G39	17.66	65.13	4.39	93.11	20.35	26.74	11.63	115.75	2.85	16.31
G40	19.56	69.58	7.49	125.75	24.38	30.38	11.13	89.38	2.78	23.54
G41	16.99	63.70	4.74	102.88	23.04	22.45	11.50	112.13	2.82	11.65
G42	16.46	65.09	5.51	102.63	21.75	26.29	13.25	113.25	2.61	13.13
G43	21.39	65.91	7.11	113.19	24.08	29.84	11.63	88.88	3.27	16.00
G44	17.69	82.50	6.78	119.50	22.88	29.75	10.50	139.50	2.42	14.31
G45	17.94	67.63	7.72	104.13	21.89	21.63	13.00	94.63	2.42	9.98
G46	19.43	63.63	6.04	93.63	22.38	24.50	13.13	83.63	2.74	7.21
G47	20.91	79.28	9.73	138.00	21.00	33.75	13.88	137.63	2.28	21.24
G48	17.75	66.38	5.48	119.63	23.25	31.14	10.38	98.50	3.04	12.49
G49	18.95	60.98	5.68	96.63	20.75	23.13	8.13	124.13	2.30	10.15
G50	18.43	59.94	6.43	107.00	24.25	29.63	15.13	98.13	2.28	26.54
G51	18.43	68.36	7.01	111.75	22.38	25.63	10.00	130.75	2.54	16.94
G52	17.59	74.99	5.26	101.13	21.36	22.60	10.45	87.00	1.96	14.92
G53	19.00	68.50	7.18	121.13	20.71	26.75	13.88	121.75	2.33	16.21
G54	20.41	50.09	5.63	94.75	24.73	25.15	12.63	120.25	2.39	15.47
G55	20.94	64.73	6.94	100.25	19.13	24.88	13.13	120.38	2.67	15.11
G56	20.75	71.25	6.01	104.38	18.50	27.88	9.75	88.50	3.23	11.38
G57	18.44	57.50	5.44	84.63	21.13	23.63	13.00	102.38	2.45	13.43
G58	16.56	54.44	6.59	83.13	19.13	24.25	10.00	103.75	2.67	12.61
G59	16.67	71.05	7.35	114.63	22.49	26.30	14.88	106.38	1.77	14.64
G60	18.40	62.76	4.89	106.88	24.26	26.00	13.25	104.63	2.54	16.26
G61	17.29	61.14	6.49	101.75	25.19	25.50	9.88	88.13	2.27	9.74
G62	16.75	50.86	8.26	81.94	30.50	32.30	18.25	104.75	2.34	18.54
G63	13.31	73.75	7.64	134.88	27.31	32.56	10.63	120.75	3.01	17.44
G64	20.40	64.69	6.30	113.13	20.50	24.75	9.75	134.38	2.46	20.21
G65	15.88	59.80	6.98	89.00	20.28	26.30	11.50	114.63	2.01	15.73
G66	20.75	58.00	3.93	112.13	22.35	31.08	15.34	133.13	2.66	14.25
G67	19.19	64.25	7.73	89.63	21.35	28.63	12.25	126.75	2.82	11.94
G68	21.76	77.61	8.08	107.84	25.55	35.00	8.69	144.00	2.41	15.55
G69	19.58	67.44	6.26	94.88	23.24	24.88	15.00	96.50	2.23	10.14
G70	17.49	74.28	9.08	125.50	21.68	34.54	13.00	116.25	2.65	12.37
G71	15.38	67.89	6.16	100.50	24.16	22.25	11.63	84.00	2.42	9.88
G72	19.25	65.28	5.20	100.75	24.00	25.63	14.13	67.50	2.42	8.72
G73	14.70	70.59	5.17	97.38	25.64	25.63	13.75	89.88	1.73	10.38
G74	23.53	90.70	9.58	113.00	21.88	29.38	12.25	110.88	2.47	18.12
G75	25.23	60.05	5.91	124.56	24.63	41.65	10.63	109.75	2.59	13.03
G76	18.31	61.81	5.49	103.88	20.13	26.50	16.00	112.75	2.12	11.93
G77	15.60	60.00	7.30	114.88	23.65	28.48	12.75	151.25	2.19	11.30
G78	17.46	61.58	4.25	105.75	21.55	25.65	12.38	77.88	3.04	11.80
G79	16.54	62.94	6.38	108.25	21.50	27.70	11.63	110.63	2.32	12.53
G80	17.78	65.18	4.44	117.13	23.41	24.75	12.00	98.75	2.63	16.87
G81	18.89	65.84	3.94	113.75	20.60	21.38	10.38	115.88	1.21	14.17
G82	15.03	56.36	4.71	113.25	19.63	23.60	11.75	89.00	1.98	13.45
G83	19.30	73.38	9.50	111.50	20.16	31.19	15.00	125.13	2.53	21.17
G84	18.95	74.75	8.70	117.00	21.13	29.88	12.88	96.88	2.29	10.53
G85	18.71	57.31	7.29	120.50	20.79	30.99	20.63	102.75	2.67	24.95

G86	18.18	70.71	6.05	115.00	21.34	32.54	11.88	117.75	2.38	20.55
G87	18.18	67.88	7.35	105.50	21.95	24.25	13.25	108.25	2.48	13.30
G88	19.81	80.75	5.30	105.13	19.50	23.38	11.00	91.88	2.49	8.25
G89	17.13	60.94	7.57	94.63	20.25	27.63	11.25	179.75	2.36	15.05
G90	17.58	61.33	4.16	92.76	21.23	23.39	11.60	146.75	2.09	8.01
G91	19.29	61.19	4.38	89.76	20.63	23.63	13.51	90.38	2.65	15.11
G92	17.56	68.30	4.09	105.63	20.13	27.50	11.53	109.00	2.22	10.30
G93	18.59	60.18	6.80	111.13	24.00	29.13	11.00	136.38	2.08	15.74
G94	18.66	66.68	6.70	129.14	26.73	25.38	12.44	121.63	2.26	14.33
G95	16.59	64.15	5.78	124.00	20.38	26.38	14.25	108.88	2.36	24.94
G96	18.84	68.74	6.41	91.25	16.38	19.38	8.25	102.88	2.24	12.13
G97	15.34	70.66	4.73	103.50	17.41	23.88	13.53	102.50	2.52	17.59
G98	17.90	70.98	4.40	107.13	25.25	22.60	15.00	108.00	1.62	13.73
G99	16.24	62.44	5.25	101.48	21.75	25.50	17.25	107.13	2.65	17.39
G100	17.49	66.25	4.82	101.63	24.63	26.63	12.88	117.13	2.47	19.83
G101	18.28	70.69	6.62	118.61	22.84	28.00	11.00	99.50	2.34	16.96
G102	18.75	66.78	7.88	100.40	20.18	23.40	11.40	110.50	2.40	11.98
G103	17.51	66.91	5.02	109.25	21.03	27.00	11.50	77.50	2.50	10.68
G104	18.33	58.93	6.19	75.29	16.71	25.45	11.98	105.25	2.45	11.92
G105	16.85	67.96	6.94	114.34	21.66	33.75	8.00	135.88	2.23	8.47
G106	19.11	68.66	5.65	131.75	25.50	29.00	10.38	121.63	2.78	13.85
G107	20.61	64.33	9.16	118.98	22.60	27.45	11.39	110.75	2.32	12.05
G108	19.13	88.88	6.74	118.63	23.75	33.00	12.63	173.50	2.40	16.30
G109	17.28	63.23	5.68	95.25	19.25	28.55	10.63	113.25	2.16	11.93
G110	19.53	76.24	7.22	118.80	22.91	36.06	14.65	96.63	2.60	14.18
G111	18.50	56.34	7.77	107.88	22.19	26.38	12.13	78.00	2.29	16.58
G112	17.45	84.81	7.70	97.88	21.88	30.43	15.90	122.75	2.36	12.38
G113	20.24	73.30	9.14	112.13	19.50	26.38	13.63	104.25	2.52	8.88
G114	21.54	71.64	7.09	133.18	24.26	28.95	16.34	91.25	2.57	16.80
G115	16.30	69.69	10.44	108.06	22.25	28.75	10.50	98.38	2.86	14.36
G116	20.86	72.14	7.65	114.88	22.50	33.13	11.13	115.25	2.65	15.28
G117	19.38	63.88	7.61	131.13	21.29	31.16	17.30	157.50	2.05	15.65
G118	20.38	56.61	7.72	111.00	22.00	25.13	14.25	95.25	2.71	18.17
G119	13.40	46.38	4.16	82.25	22.94	19.25	12.25	88.50	2.25	11.06
G120	19.88	61.00	5.54	116.50	21.50	29.63	11.75	136.88	2.54	18.44
G121	17.51	68.19	5.77	117.00	25.14	26.16	17.50	107.13	2.31	20.60
G122	20.21	61.06	4.66	126.50	22.16	24.13	12.88	117.75	2.12	17.87
G123	21.13	70.40	6.52	110.00	20.25	28.25	10.50	112.75	2.84	10.57
G124	19.80	61.84	6.43	98.75	20.26	29.73	9.88	118.13	2.30	11.97
G125	18.59	63.60	9.12	94.63	21.85	29.76	12.88	164.50	2.00	20.46
G126	18.43	61.48	7.08	109.38	23.38	27.63	9.50	109.13	2.17	13.73
G127	22.40	62.75	8.06	104.50	20.25	28.25	11.63	112.00	2.46	14.13
G128	19.69	58.38	6.14	99.50	20.05	24.58	15.35	111.38	2.41	14.94
G129	18.88	68.65	9.17	104.63	21.63	30.88	17.50	118.63	1.97	14.08
G130	20.03	80.49	9.33	114.13	20.50	29.13	12.13	128.38	3.16	11.80
G131	19.34	66.15	8.63	109.13	21.55	26.75	11.13	102.50	2.22	10.84
G132	20.71	61.59	8.87	108.13	21.65	24.00	14.25	136.75	1.99	16.80
G133	19.36	58.73	6.20	106.86	25.18	24.44	13.59	67.13	2.15	19.16
G134	21.31	65.19	9.10	105.38	18.25	26.75	14.75	126.00	2.03	19.53
G135	21.19	75.00	6.33	133.25	24.63	32.63	13.00	178.50	1.94	18.48
G136	19.28	56.13	5.46	81.13	19.38	19.38	11.50	113.00	2.19	13.42
G137	21.94	63.88	7.32	108.13	24.63	30.00	12.13	112.25	2.31	13.87
G138	22.00	60.81	10.23	110.63	20.75	31.50	14.13	124.38	2.40	17.91
G139	20.44	66.75	9.47	97.30	19.30	23.71	15.33	140.50	2.35	17.38
G140	19.16	57.25	6.26	98.63	21.29	23.23	10.63	115.75	2.48	18.37
G141	19.19	60.75	7.42	102.88	20.38	28.99	11.25	113.00	2.16	15.06
G142	15.50	63.25	4.81	96.13	20.20	24.95	15.88	103.25	2.65	12.18

G143	20.06	67.38	6.81	118.75	25.13	21.88	10.50	144.00	2.63	15.52
G144	18.19	51.13	5.44	68.41	17.03	16.39	12.59	123.63	2.37	13.92
G145	17.38	79.38	6.63	110.13	21.88	29.50	12.25	133.13	2.42	13.24
Mean ±SE	18.73± 0.134	66.48± 0.403	6.76± 0.070	107.62± 0.491	27.33± 0.179	21.82± 0.110	12.67± 0.137	114.89± 0.691	2.40± 0.011	14.96± 0.181
Max	25.50	90.70	10.44	138.00	30.50	41.65	20.63	179.75	3.27	26.54
Min	13.31	46.38	3.87	62.38	14.88	16.39	8.00	67.13	1.21	6.33
CV(%)	18.51	20.67	15.34	15.55	17.27	20.36	17.01	20.05	16.50	19.39

Data represent mean values ± SE and the range is given as maximum and minimum values.

RL- root length; SL-shoot length; DW- single plant dry weight; PH plant height; NPT- number of productive tillers; FL- flag leaf length; PL- panicle length; GPP- number of grains per panicle; HSW- hundred seed weight; SPY- single plant grain yield

Table 4. Genotypic mean for DW and SPY recorded by 145 genotypes in the four different environments

	DW (g/plant)				SPY(g/plant)			
	E1	E2	E3	E4	E1	E2	E3	E4
G1	7.79	7.76	7.88	7.25	17.33	14.85	30.70	17.80
G2	8.81	7.78	8.25	8.43	8.70	11.27	37.25	33.65
G3	6.15	6.82	9.87	8.24	12.94	11.71	14.76	12.00
G4	8.13	6.74	8.55	13.85	12.85	12.99	12.85	8.45
G5	7.20	7.04	6.64	7.86	17.90	19.13	15.45	14.09
G6	7.22	8.37	7.39	5.04	13.36	10.75	13.89	14.05
G7	9.17	6.66	10.43	6.53	12.14	17.49	10.83	21.12
G8	5.65	7.37	4.20	5.12	7.14	29.69	11.25	14.05
G9	3.20	4.86	3.55	3.86	5.70	7.95	6.80	6.95
G10	4.96	6.45	4.70	5.55	17.57	14.62	26.70	19.29
G11	8.27	7.40	9.26	9.63	16.09	10.12	25.80	24.15
G12	9.10	7.55	4.80	4.20	7.70	6.65	19.88	27.45
G13	3.99	8.08	3.60	3.30	12.35	10.23	22.05	17.80
G14	8.98	8.46	4.64	5.53	11.33	23.63	23.85	22.07
G15	6.90	6.21	7.25	6.65	20.57	6.59	17.50	20.48
G16	8.97	8.66	5.81	8.22	11.25	12.82	11.45	15.00
G17	9.07	9.15	11.22	11.35	8.95	11.84	15.30	15.80
G18	5.53	3.50	5.23	3.80	4.13	7.82	11.60	28.50
G19	7.48	7.67	9.18	8.25	14.67	12.60	14.75	18.30
G20	5.15	7.46	7.05	4.75	13.37	14.90	23.85	24.40
G21	5.86	8.86	6.15	6.60	14.77	20.53	15.60	11.90
G22	8.43	4.61	4.44	4.75	17.31	13.13	14.05	18.70
G23	5.88	5.96	5.35	7.60	9.27	14.03	16.35	20.40
G24	8.42	8.09	5.75	6.20	16.03	14.76	22.30	13.55
G25	7.00	7.43	9.61	6.85	6.11	16.94	11.91	22.25
G26	5.33	7.71	4.11	8.65	8.30	19.25	15.95	24.20
G27	10.03	10.25	9.10	6.47	23.66	21.43	18.90	14.25
G28	9.09	7.92	6.38	4.63	17.68	10.01	26.30	12.80
G29	7.72	8.33	4.75	5.44	26.82	17.50	22.89	16.78
G30	10.88	7.27	5.69	4.96	25.66	11.24	20.30	17.05
G31	5.90	5.10	5.90	5.10	14.50	14.47	14.50	14.47
G32	9.50	7.94	6.50	4.33	19.96	12.13	11.50	13.70
G33	8.85	7.49	5.17	5.45	13.57	9.71	21.85	19.35
G34	8.70	8.05	8.45	6.15	11.07	11.23	13.78	12.77
G35	7.85	7.60	6.65	6.14	15.95	17.18	18.89	23.61
G36	10.62	7.93	4.60	3.70	6.38	6.59	12.65	18.95
G37	9.34	10.47	11.12	7.54	12.76	14.31	17.30	12.75

G38	10.56	11.01	5.60	6.50	15.04	10.54	10.47	13.97
G39	4.74	3.14	5.00	4.70	14.05	14.97	21.80	14.42
G40	9.64	8.12	5.88	6.32	14.90	14.72	25.30	39.26
G41	4.07	6.08	4.40	4.40	11.26	9.60	13.33	12.40
G42	4.82	7.29	6.05	3.86	10.26	8.67	16.34	17.24
G43	7.06	7.62	7.25	6.53	12.81	24.71	12.92	13.56
G44	4.85	8.04	7.14	7.10	9.14	19.66	14.45	14.00
G45	9.75	7.89	6.70	6.55	12.19	9.92	10.24	7.59
G46	8.66	8.54	3.08	3.87	6.70	4.11	8.70	9.35
G47	11.50	11.19	8.83	7.42	28.69	22.07	18.60	15.60
G48	4.70	6.33	7.40	3.49	12.84	12.06	12.02	13.07
G49	7.06	4.23	5.75	5.68	6.02	9.29	11.97	13.33
G50	10.45	9.06	3.40	2.80	25.69	20.80	11.45	48.25
G51	11.60	9.19	3.24	4.02	20.73	13.82	20.00	13.20
G52	5.18	7.02	4.25	4.60	4.68	11.05	22.70	21.25
G53	6.49	8.87	6.15	7.20	4.96	5.38	24.70	29.80
G54	5.80	5.20	6.30	5.20	14.15	16.53	15.15	16.06
G55	7.95	9.33	5.65	4.85	17.02	9.76	18.70	14.95
G56	8.09	5.80	5.50	4.65	11.45	8.28	13.45	12.35
G57	7.57	6.83	3.42	3.95	12.40	13.33	12.49	15.50
G58	7.41	9.13	4.80	5.03	10.50	11.35	11.35	17.26
G59	8.43	9.77	4.53	6.68	14.67	13.95	15.30	14.65
G60	5.83	5.03	4.15	4.56	11.53	22.68	14.51	16.35
G61	9.98	7.93	4.08	4.00	7.84	7.38	8.30	15.45
G62	11.22	8.60	4.61	8.60	18.90	17.85	18.90	18.50
G63	10.87	9.29	6.56	3.84	11.05	15.53	20.75	22.45
G64	8.17	6.89	4.49	5.64	12.38	12.05	19.42	37.00
G65	10.50	8.05	4.41	4.97	19.47	11.77	13.21	18.47
G66	3.98	3.96	3.83	3.96	12.60	16.30	11.60	16.50
G67	9.66	9.40	6.90	4.97	13.41	12.89	9.31	12.15
G68	9.28	8.19	7.82	7.03	19.13	12.67	16.65	13.75
G69	8.16	9.77	3.45	3.69	5.25	5.58	15.50	14.25
G70	13.55	11.55	6.30	4.94	9.22	11.29	16.02	12.95
G71	7.07	10.48	3.90	3.20	9.40	15.21	6.68	8.23
G72	6.10	6.03	4.50	4.17	7.70	7.36	6.75	13.09
G73	5.40	6.16	4.49	4.64	5.60	9.64	12.06	14.23
G74	12.67	11.50	7.65	6.50	24.38	11.64	23.77	12.70
G75	5.48	6.13	5.88	6.13	13.80	13.55	13.20	11.55
G76	5.55	4.95	5.54	5.91	11.10	6.80	14.60	15.22
G77	6.85	7.37	7.80	7.18	5.12	8.02	15.80	16.25
G78	3.90	3.91	4.60	4.60	10.25	11.68	12.40	12.85
G79	6.89	7.67	6.19	4.79	10.08	14.45	13.40	12.20
G80	4.66	6.13	3.50	3.48	17.24	18.75	16.69	14.80
G81	2.74	3.90	5.30	3.83	11.06	14.81	17.03	13.80
G82	4.75	4.99	3.75	5.35	11.42	8.73	14.57	19.10
G83	11.41	12.15	6.80	7.66	20.41	24.25	18.17	21.85
G84	9.75	9.25	7.83	7.96	10.22	12.35	9.61	9.94
G85	7.57	8.98	6.21	6.40	15.01	14.76	41.75	28.30
G86	7.99	8.90	3.55	3.76	15.19	11.27	27.78	27.95
G87	8.65	11.72	4.35	4.68	12.70	12.97	14.23	13.30
G88	6.79	5.14	4.27	5.00	7.49	8.86	8.75	7.90
G89	8.87	9.03	5.39	6.98	13.75	12.12	17.35	16.99
G90	4.15	6.71	2.30	3.47	5.40	11.85	8.21	6.59
G91	4.60	4.34	3.80	4.77	12.70	15.63	14.25	17.85
G92	4.20	3.77	4.55	3.84	5.92	6.57	13.47	15.24
G93	8.50	12.14	3.20	3.35	11.42	13.90	18.40	19.25
G94	6.60	6.75	6.75	6.72	13.81	12.05	14.75	16.71

G95	8.06	8.06	3.50	3.52	16.02	17.58	31.90	34.28
G96	7.32	8.92	5.10	4.30	10.76	12.50	13.18	12.08
G97	5.40	5.45	4.25	3.81	23.65	23.55	11.33	11.85
G98	4.98	5.59	4.15	2.90	14.35	17.08	11.25	12.25
G99	5.06	8.84	4.25	2.84	12.87	19.61	14.75	22.35
G100	5.10	6.75	4.30	3.14	22.45	23.80	18.50	14.55
G101	8.66	5.86	5.90	6.07	17.39	8.59	28.62	13.24
G102	8.65	12.76	4.00	6.12	8.94	10.19	14.34	14.47
G103	4.94	5.69	4.60	4.85	11.58	13.08	7.88	10.18
G104	6.08	4.13	6.65	7.89	8.65	7.32	10.86	20.85
G105	7.99	7.99	5.54	6.24	5.50	3.26	8.75	16.35
G106	6.50	7.05	4.35	4.70	13.42	13.86	10.83	17.28
G107	10.28	9.44	7.58	9.32	9.00	9.02	17.30	12.90
G108	5.64	7.86	5.61	7.86	14.18	19.41	14.68	16.91
G109	5.41	10.85	3.60	2.87	11.46	11.32	11.95	13.00
G110	10.29	7.21	4.70	6.70	12.28	13.73	15.30	15.43
G111	9.46	11.24	4.50	5.87	12.82	12.85	18.75	21.89
G112	9.23	9.95	6.49	5.14	12.67	12.40	11.55	12.90
G113	12.96	14.50	4.91	4.21	7.44	8.34	13.05	6.70
G114	8.75	7.11	5.62	6.88	12.43	17.25	16.10	21.43
G115	10.78	13.32	8.87	8.80	8.35	8.86	13.45	26.79
G116	6.96	9.01	7.50	7.15	20.35	12.10	15.27	13.41
G117	9.50	5.50	7.26	8.17	14.25	15.98	15.05	17.30
G118	7.37	8.42	7.35	7.75	19.72	17.47	17.37	18.12
G119	3.88	4.44	3.88	4.44	7.50	14.63	7.50	14.63
G120	8.37	6.55	3.28	3.98	17.36	15.34	21.75	19.30
G121	5.28	7.16	5.80	4.85	18.88	15.78	19.68	28.06
G122	4.04	6.87	4.35	3.39	9.52	13.77	22.45	25.73
G123	7.71	7.23	5.55	5.59	7.98	8.24	11.85	14.20
G124	8.83	8.80	3.35	4.73	11.65	11.30	11.00	13.95
G125	11.90	12.95	5.60	6.04	9.74	14.31	23.40	34.40
G126	7.96	11.06	4.50	4.80	10.31	13.88	16.30	14.46
G127	11.08	8.91	5.50	6.75	10.76	9.28	19.06	17.42
G128	5.66	7.65	5.55	5.70	13.60	12.07	14.80	19.30
G129	13.15	13.09	5.73	4.70	7.26	6.00	26.32	16.75
G130	10.44	13.17	7.05	6.65	10.67	4.10	18.30	14.15
G131	8.31	11.69	7.75	6.75	6.43	6.23	15.50	15.20
G132	9.15	9.01	8.62	8.71	18.12	9.97	15.65	23.48
G133	6.63	6.56	5.65	5.97	15.10	17.01	17.35	27.20
G134	12.25	8.35	9.19	6.63	16.99	12.46	32.42	16.27
G135	7.95	7.32	5.13	4.94	14.99	15.00	18.00	25.95
G136	4.98	6.88	5.15	4.85	14.00	12.71	12.50	14.48
G137	6.10	7.00	8.35	7.83	11.72	9.11	20.75	13.90
G138	11.48	14.15	8.51	6.80	14.06	15.67	15.70	26.23
G139	11.16	12.25	6.56	7.90	16.93	11.97	20.18	20.45
G140	8.01	4.89	7.43	4.72	19.39	14.45	20.90	18.75
G141	6.85	6.85	8.45	7.55	9.10	9.43	16.91	24.81
G142	3.42	7.68	4.30	3.85	9.18	8.94	15.10	15.50
G143	8.08	7.65	5.25	6.25	16.84	15.48	12.44	17.32
G144	6.08	5.67	5.30	4.72	16.16	12.92	14.60	12.00
G145	6.55	6.62	6.70	6.67	15.40	11.05	13.95	12.55
Mean	7.66	7.88	5.80	5.70	13.02	13.03	16.39	17.42
Max	13.55	14.5	11.22	13.85	28.69	29.69	41.75	48.25
Min	2.74	3.14	2.3	2.8	4.13	3.26	6.68	6.59
CV(%)	15.59	19.14	21.25	21.31	17.74	15.11	16.08	17.42

Table 5. Stability parameters for DW and SPY for the four environments under study

	DW						SPY				
	ASV	rASV	mean	rY	YSI		ASV	rASV	mean	rY	YSI
G27	0.2	10	8.96	17	27	G14	0.28	10	20.22	12	22
G84	0.3	16	8.70	19	35	G120	0.39	15	18.44	26	41
G107	0.44	25	9.16	12	37	G35	0.44	20	18.90	22	42
G16	0.18	8	7.91	29	37	G140	0.52	31	18.37	27	58
G47	0.71	43	9.73	4	47	G139	0.48	28	17.38	35	63
G45	0.38	20	7.72	36	56	G19	0.2	5	15.08	68	73
G68	0.52	30	8.08	27	57	G89	0.19	4	15.05	70	74
G134	0.74	46	9.10	15	61	G93	0.45	21	15.74	54	75
G85	0.21	11	7.29	50	61	G114	0.57	36	16.80	41	77
G37	0.85	58	9.61	5	63	G121	0.89	70	20.60	9	79
G24	0.17	7	7.11	56	63	G15	0.55	32	16.29	48	80
G115	0.88	63	10.44	1	64	G22	0.48	27	15.80	53	80
G34	0.6	36	7.84	31	67	G94	0.19	3	14.33	77	80
G89	0.44	24	7.57	43	67	G62	0.76	57	18.54	24	81
G105	0.06	1	6.94	66	67	G132	0.6	41	16.80	40	81
G143	0.13	2	6.81	69	71	G128	0.29	12	14.94	72	84
G131	0.78	51	8.63	21	72	G10	0.97	76	19.55	17	93
G40	0.51	29	7.49	44	73	G117	0.58	39	15.65	57	96
G6	0.29	14	7.00	63	77	G91	0.5	30	15.11	66	96
G114	0.43	22	7.09	57	79	G110	0.34	13	14.18	83	96
G35	0.43	23	7.06	60	83	G65	0.61	42	15.73	55	97
G62	0.86	60	8.26	24	84	G126	0.24	7	13.73	90	97
G123	0.16	4	6.52	81	85	G99	0.86	66	17.39	34	100
G132	0.97	70	8.87	18	88	G39	0.76	55	16.31	46	101
G79	0.16	5	6.38	88	93	G135	0.99	77	18.48	25	102
G53	0.67	40	7.18	54	94	G118	0.95	75	18.17	28	103
G116	0.83	56	7.65	40	96	G133	1.07	85	19.16	19	104
G28	0.6	35	7.00	62	97	G63	0.91	71	17.44	33	104
G67	0.93	68	7.73	34	102	G111	0.79	60	16.58	45	105
G110	0.79	53	7.22	51	104	G81	0.46	22	14.17	84	106
G33	0.54	31	6.74	74	105	G17	0.24	6	12.97	101	107
G118	0.98	72	7.72	35	107	G83	1.27	103	21.17	7	110
G127	1.12	80	8.06	28	108	G54	0.75	51	15.47	62	113
G135	0.36	19	6.33	89	108	G55	0.71	48	15.11	67	115
G64	0.35	18	6.30	90	108	G102	0.17	2	11.98	114	116
G139	1.49	101	9.47	8	109	G20	1.21	99	19.13	20	119
G106	0.16	3	5.65	107	110	G138	1.11	89	17.91	30	119
G83	1.52	104	9.50	7	111	G59	0.7	45	14.64	74	119
G32	0.78	52	7.07	59	111	G6	0.44	19	13.01	100	119
G29	0.56	32	6.56	80	112	G30	1.18	97	18.56	23	120
G112	1.06	75	7.70	38	113	G70	0.29	11	12.37	109	120
G21	0.73	45	6.87	68	113	G24	1.04	82	16.66	43	125
G59	0.93	67	7.35	47	114	G23	0.75	54	15.01	71	125
G2	1.28	92	8.32	23	115	G29	1.67	118	21.00	8	126
G1	1.08	77	7.67	39	116	G57	0.56	33	13.43	93	126
G43	0.93	66	7.11	55	121	G1	1.45	113	20.17	14	127
G74	1.76	116	9.58	6	122	G58	0.47	23	12.61	104	127
G8	0.27	13	5.58	109	122	G108	1.03	81	16.30	47	128
G55	0.88	61	6.94	65	126	G34	0.44	18	12.21	110	128
G101	0.76	50	6.62	78	128	G37	0.75	53	14.28	81	134
G56	0.48	27	6.01	101	128	G33	1.07	84	16.12	51	135
G138	1.99	127	10.23	2	129	G142	0.47	24	12.18	111	135

G38	1.62	108	8.42	22	130	G26	1.2	98	16.93	38	136
G130	1.87	122	9.33	9	131	G95	2.52	134	24.94	3	137
G72	0.19	9	5.20	123	132	G31	0.81	62	14.48	75	137
G128	0.62	38	6.14	97	135	G11	1.65	117	19.04	21	138
G30	1.15	84	7.20	52	136	G13	1.02	80	15.61	58	138
G14	0.95	69	6.90	67	136	G56	0.37	14	11.38	124	138
G17	2.5	135	10.20	3	138	G143	0.99	78	15.52	61	139
G52	0.33	17	5.26	121	138	G82	0.7	47	13.45	92	139
G7	1.69	114	8.19	25	139	G87	0.66	44	13.30	95	139
G133	0.75	48	6.20	93	141	G41	0.4	16	11.65	123	139
G100	0.3	15	4.82	127	142	G123	0.27	9	10.57	130	139
G98	0.16	6	4.40	136	142	G86	2.18	130	20.55	10	140
G58	0.88	64	6.59	79	143	G47	2.57	135	21.24	6	141
G5	1.29	93	7.19	53	146	G16	0.57	38	12.63	103	141
G121	0.69	42	5.77	104	146	G49	0.26	8	10.15	134	142
G77	1.42	98	7.30	49	147	G134	1.88	125	19.53	18	143
G80	0.22	12	4.44	135	147	G136	0.73	49	13.42	94	143
G19	1.88	123	8.14	26	149	G42	0.7	46	13.13	97	143
G73	0.47	26	5.17	124	150	G50	3.29	143	26.54	1	144
G42	0.63	39	5.51	112	151	G85	3.23	142	24.95	2	144
G11	2.2	132	8.64	20	152	G76	0.48	26	11.93	118	144
G96	0.91	65	6.41	87	152	G40	3.22	141	23.54	4	145
G97	0.38	21	4.73	131	152	G27	2.17	129	19.56	16	145
G125	2.76	139	9.12	14	153	G46	0.14	1	7.21	144	145
G117	1.64	111	7.61	42	153	G51	1.42	109	16.94	37	146
G4	3.51	144	9.32	10	154	G80	1.32	107	16.87	39	146
G129	3.5	143	9.17	11	154	G78	0.47	25	11.80	121	146
G25	1.8	117	7.72	37	154	G100	2.26	132	19.83	15	147
G63	1.68	113	7.64	41	154	G106	0.77	58	13.85	89	147
G88	0.58	34	5.30	120	154	G125	2.99	138	20.46	11	149
G70	2.89	141	9.08	16	157	G124	0.56	34	11.97	115	149
G22	0.75	47	5.56	110	157	G73	0.41	17	10.38	132	149
G136	0.67	41	5.46	116	157	G2	4.24	145	22.72	5	150
G113	4.3	145	9.14	13	158	G74	1.81	122	18.12	29	151
G111	1.93	126	7.77	33	159	G122	1.78	120	17.87	31	151
G108	1.19	86	6.74	73	159	G60	1.26	102	16.26	49	151
G144	0.71	44	5.44	117	161	G7	1.09	87	15.40	64	151
G122	0.51	28	4.66	133	161	G64	3.15	139	20.21	13	152
G12	1.07	76	6.41	86	162	G109	0.56	35	11.93	117	152
G60	0.62	37	4.89	126	163	G68	1.14	94	15.55	59	153
G102	2.37	134	7.88	30	164	G44	0.94	74	14.31	79	153
G26	1.12	81	6.45	83	164	G127	0.87	68	14.13	85	153
G94	1.24	89	6.70	76	165	G107	0.58	40	12.05	113	153
G145	1.27	91	6.63	77	168	G3	0.75	52	12.85	102	154
G3	2.72	137	7.77	32	169	G66	0.93	73	14.25	82	155
G141	1.89	124	7.42	45	169	G79	0.75	50	12.53	105	155
G65	1.53	105	6.98	64	169	G96	0.65	43	12.13	112	155
G20	0.98	71	6.10	98	169	G28	1.58	114	16.70	42	156
G15	1.47	100	6.75	72	172	G101	1.86	124	16.96	36	160
G90	0.56	33	4.16	141	174	G5	1.60	116	16.64	44	160
G142	0.75	49	4.81	128	177	G137	0.92	72	13.87	88	160
G44	1.61	107	6.78	71	178	G48	0.76	56	12.49	107	163
G10	0.85	59	5.41	119	178	G145	0.89	69	13.24	96	165
G87	2.31	133	7.35	46	179	G38	0.82	63	12.50	106	169
G137	2.1	131	7.32	48	179	G72	0.49	29	8.72	140	169
G126	1.85	121	7.08	58	179	G116	1.3	105	15.28	65	170
G140	1.23	88	6.26	92	180	G97	3.21	140	17.59	32	172

G57	0.88	62	5.44	118	180	G112	0.83	65	12.38	108	173
G103	0.84	57	5.02	125	182	G21	1.71	119	15.70	56	175
G13	0.82	55	4.74	129	184	G61	0.57	37	9.74	138	175
G41	0.81	54	4.74	130	184	G43	2.01	127	16.00	52	179
G120	1.08	78	5.54	111	189	G144	1.18	96	13.92	87	183
G36	1.84	119	6.71	75	194	G25	1.32	106	14.30	80	186
G124	1.63	110	6.43	85	195	G32	1.42	110	14.32	78	188
G75	1.31	94	5.91	102	196	G75	1.13	92	13.03	98	190
G61	1.71	115	6.49	82	197	G141	1.81	123	15.06	69	192
G48	1.15	83	5.48	115	198	G8	2.26	133	15.53	60	193
G23	1.54	106	6.20	94	200	G53	3.77	144	16.21	50	194
G51	2.79	140	7.01	61	201	G12	2.74	136	15.42	63	199
G31	1.24	90	5.50	113	203	G52	1.97	126	14.92	73	199
G99	1.13	82	5.25	122	204	G92	0.87	67	10.30	133	200
G95	1.5	102	5.78	103	205	G113	0.83	64	8.88	139	203
G49	1.44	99	5.68	106	205	G88	0.81	61	8.25	142	203
G54	1.38	97	5.63	108	205	G115	2.11	128	14.36	76	204
G82	1.01	74	4.71	132	206	G9	0.79	59	6.33	145	204
G86	1.67	112	6.05	99	211	G98	1.6	115	13.73	91	206
G93	3.15	142	6.80	70	212	G131	1.01	79	10.84	128	207
G76	1.51	103	5.49	114	217	G119	1.06	83	11.06	127	210
G91	1.11	79	4.38	138	217	G77	1.09	88	11.30	125	213
G9	1.00	73	3.87	145	218	G130	1.16	95	11.80	120	215
G69	2.06	128	6.26	91	219	G67	1.23	100	11.94	116	216
G46	1.84	120	6.04	100	220	G129	2.23	131	14.08	86	217
G50	2.73	138	6.43	84	222	G104	1.25	101	11.92	119	220
G71	2.08	129	6.16	96	225	G84	1.11	90	10.53	131	221
G119	1.19	87	4.16	140	227	G69	1.09	86	10.14	135	221
G18	1.33	95	4.51	134	229	G36	1.30	104	11.14	126	230
G66	1.17	85	3.93	144	229	G4	1.44	112	11.78	122	234
G104	2.59	136	6.19	95	231	G105	1.13	93	8.47	141	234
G109	2.08	130	5.68	105	235	G90	1.12	91	8.01	143	234
G92	1.35	96	4.09	142	238	G18	2.83	137	13.01	99	236
G78	1.62	109	4.25	139	248	G103	1.44	111	10.68	129	240
G39	1.83	118	4.39	137	255	G45	1.34	108	9.98	136	244
G81	1.92	125	3.94	143	268	G71	1.8	121	9.88	137	258

ASV- AMMI stability value; rASV is the rank of the ASV; YSI- yield stability index; rY- represents the rank of the mean of genotypes across environments