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Appendices

Appendix 3.1 A binary data matrix representing independent loci amplified from different wheat, rye and tritisecale genotypes with molecular techniques RAPDs, AFLPs and SSRs.

	(18) EcoRI-AAG & MseI-CAG																		(20) EcoRI-AGC & MseI-CTC												(30) EcoRI-ACA & MseI-CTC												(6) XGWM 122						(6) XGWM 337						
	OPA19 (27)									OPB13 (25)									OPG13 (16)																																				
Palmiet	00001000001000000101001000000000001010001001110100100001110100100010000011011111100110101001111111111111000110111110111110110111101111100000																																																						
Tugela	000010111011000100011110000000000010000100111010010000010101010011001001101101110011011111111111111000110111110111110110111101111101111																																																						
Molopo	0000100000110000000100100000000000110110100111011100010001010010011000001101111110010101011100000000110001101111111111110010111110111110111011011																																																						
SA 1684/*5Tugela	0000000000000000001001000000000001101101001110100100110011010110011000001101111111011101101110110111110001111111101111101101111011110111																																																						
SA 463/*4 Gamtoos	000000001011000001010010001000000001000001000110100100000010001101010010011000111100110111011111101111110001101111101111101111101101010																																																						
Betta	000000001011000001010010001000000001001101000110100100110111100110011000001100011110011011110111111011110100010111111111101111101111011011																																																						
Palmiet*4/SA463	00001000101100000001001000000000010111010001101001001101110111000101100110101111001101011111111011101000111111110111110111110111101111																																																						
SA2199/Letaba	000010001011000000010010000000000110110100011010010011011101011000100000110001111001101110111111101111100011111111011111011111000111																																																						
Molopo*4/SA1684	000010001011000000010010000011000011011000001101001000001010101100010000011000111100111111111111111101110100011111111111101101111101111																																																						
Kiewiet	011110111111111111010101011100000000110001110010001000001100010100010000110000000000101010101111011100110100110011010100001110110100000000000																																																						
Rye	01010111111111111101010101100000000110001110010001000001100010100010000110000000000101010101111011100110100110011010100001110110100000000000																																																						
SST65	0101011101100010011011000000011000110110100011010010011111101001000100000111011110011011010100000010110010001101101101111101101111011110111																																																						
SST86	0000100010110000000100000000001100011011010001101001001111110100100110000011101111001111101111110111110111101000110111110111101111																																																						
SST825	0000100010110000000100100000000001101101000110100100110011010010011000001110111110110111011101111010001011111101111101111101000001111																																																						
Inia	00001000101100000001001000000100001101101000110101000100110111010110011000001100011110011111111111111111101000111111110111110010111010000011010																																																						
Corwa	000000001011000000010010000000000110110100011010010000001000110001000001110000110011111101111101111010001101111101110110111101111011010																																																						
SA1684	000101111011000100110110000000000110110100001010010000011011010001001000100110001011100110111011110110111100011011111001111101111101000000011																																																						
SA2199	000001111011000100110110000000100001101101000010100100110111011100110000011000111100111111111111111111010001111101101111110000000010																																																						
Thatcher	110101101110001000101100001111000110110000000000111111101001000100011100100111001101111111111111110111110001011111111111011111011111011011																																																						
RL6081	1100011011100001000100000001111100011011000000000011111110000100010000000110011111101111110111101000101111111111111111011111110111110111																																																						
VPM1	1101011011100000001000000011110001101100000100000111011101001000100100111010111001101110111011101110111011110001011101111111011111001111011011																																																						

Appendix 4.1 The phenotypic reaction of 35 BC₂F₂ plants of a Karee and RL6081 cross, based on a 0 – 4 infection type scale (Roelfs, 1988).

Pot	Plant	Infection type	Classification
1	1	3 ⁺⁺	Susceptible
1	2	3 ⁺⁺	Susceptible
1	3	3 ⁺⁺	Susceptible
1	4	3 ⁺⁺	Susceptible
2	1	3 ⁺⁺	Susceptible
2	2	3 ⁺⁺	Susceptible
2	3	2 ^{cn}	Resistant
2	4	3 ⁺⁺	Susceptible
3	3	2 ^{cn}	Resistant
3	4	3 ⁺⁺	Susceptible
4	1	3 ⁺⁺	Susceptible
4	2	3 ⁺⁺	Susceptible
4	3	3 ⁺⁺	Susceptible
4	4	3 ⁺⁺	Susceptible
5	1	3 ⁺⁺	Susceptible
5	2	1-2 ^{cn}	Resistant
5	3	3 ⁺⁺	Susceptible
5	4	3 ⁺⁺	Susceptible
6	1	3 ⁺⁺	Susceptible
6	2	3 ⁺⁺	Susceptible
6	3	3 ⁺⁺	Susceptible
6	4	3 ⁺⁺	Susceptible
7	1	3 ⁺⁺	Susceptible
7	2	2	Resistant
7	4	+2 ^{cn}	Resistant
8	1	3 ⁺⁺	Susceptible
8	2	3 ⁺⁺	Susceptible
8	3	3 ⁺⁺	Susceptible
9	1	3 ⁺⁺	Susceptible
9	2	3 ⁺⁺	Susceptible
9	3	3 ⁺⁺	Susceptible
9	4	3 ⁺⁺	Susceptible
10	1	3 ⁺⁺	Susceptible
10	2	3 ⁺⁺	Susceptible
10	3	3 ⁺⁺	Susceptible
Total	35		
Susceptible	30		
Resistant	5		

Appendix 4.2 Results obtained with RAPD primers used to screen resistant and susceptible BC₂F₂ DNA bulks for markers linked to gene *Lr37*.

Primers	loci	Primers	Loci	Primers	Loci	Primers	Loci	Primers	Loci	Primers	Loci	Primers	Loci
OPE01	10	OPH13	0	OPJ07	0	OPL07	10	OPN08	0	OPO20	11	OPR02	14
OPE02	17	OPH14	0	OPK01	7	OPL08	0	OPN09	9	OPQ02	9	OPR05	1
OPE03	15	OPH15	7	OPK02	8	OPL09	0	OPN10	5	OPQ03	12	OPR06	17
OPE04	11	OPH16	8	OPK03	7	OPL10	0	OPN11	5	OPQ04	10	OPR07	18
OPE07	9	OPH17	8	OPK04	9	OPL11	9	OPN12	7	OPQ05	7	OPR08	18
OPF14	10	OPH18	10	OPK05	6	OPL12	11	OPN13	0	OPQ06	12	OPR09	21
OPG13	16	OPH19	10	OPK11	6	OPL13	0	OPN14	10	OPQ07	12	OPR10	8
OPH01	13	OPH20	12	OPK12	9	OPL14	13	OPN15	10	OPQ08	11	OPR11	14
OPH02	12	OPI01	4	OPK13	1	OPL15	11	OPN20	8	OPQ09	6	OPR12	7
OPH03	9	OPI02	9	OPK14	8	OPM11	1	OPO10	13	OPQ10	8	OPR13	14
OPH04	7	OPI03	8	OPK15	8	OPM12	10	OPO11	9	OPQ11	10	OPR14	1
OPH05	7	OPI04	2	OPK16	12	OPM14	0	OPO12	6	OPQ12	11	OPR16	26
OPH06	9	OPI05	0	OPK17	7	OPN01	0	OPO13	8	OPQ13	16	OPR17	2
OPH07	12	OPI06	10	OPK18	1	OPN02	11	OPO14	0	OPQ14	11	OPS01	4
OPH08	8	OPI07	4	OPK19	12	OPN03	6	OPO15	8	OPQ15	15	OPS02	0
OPH09	6	OPI08	0	OPK20	6	OPN04	19	OPO16	15	OPQ16	12	OPS03	18
OPH10	0	OPI09	8	OPL04	5	OPN05	14	OPO17	0	OPQ18	10	OPS04	10
OPH11	8	OPI10	12	OPL05	7	OPN06	8	OPO18	3	OPQ20	10	OPS05	3
OPH12	14	OPJ06	0	OPL06	0	OPN07	4	OPO19	9	OPR01	9		
Total primers		132											
Total loci		1074											
Average loci per primer		8.132											

Appendix 4.3 Results obtained with AFLP primers used to screen resistant and susceptible BC₂F₂ DNA bulks for markers linked to gene *Lr37*.

Primers	Loci	Primers	Loci
EcoRI-ACC x MseI-CTC	82	EcoRI-ACA x MseI-CTG	50
EcoRI-ACT x MseI-AGC	90	EcoRI-ACG x MseI-CTT	44
EcoRI-ACT x MseI-ACG	60	EcoRI-ACGx MseI-CTC	46
EcoRI-ACC x MseI-AGC	65	EcoRI-AGC x MseI-CTC	14
EcoRI-ACC x MseI-ACG	45	EcoRI-ACA x MseI-CAT	47
EcoRI-ACC x MseI-CTT	25	EcoRI-ACA x MseI-CTT	53
EcoRI-ACG x MseI-CAG	40	EcoRI-ACA x MseI-CAG	44
EcoRI-ACG x MseI-ACG	90	EcoRI-ACA x MseI-CAC	56
EcoRI-AAG x MseI-CAG	60	EcoRI-AGC x MseI-CTG	36
EcoRI-AAG x MseI-CAT	60	EcoRI-AGC x MseI-CAG	0
EcoRI-AAG x MseI-CTC	70	EcoRI-AGC x MseI-CAT	112
EcoRI-AAG x MseI-CTT	65	EcoRI-ACT x MseI-CTG	25
EcoRI-ACT x MseI-CTT	55	EcoRI-ACG x MseI-CTG	100
EcoRI-ACT x MseI-CTC	60	EcoRI-ACC x MseI-CAC	15
EcoRI-AGCx MseI-CAC	64	EcoRI-AAC x MseI-CTG	9
EcoRI-AGC x MseI-CTT	57	EcoRI-AAC x MseI-CAG	65
		EcoRI-AAC x MseI-CAT	57
Total primers	33		
Loci	1761		
Average loci per primer pair	53.363		