

Improved Performance of *SiDREB2*-SNAP Marker in Foxtail Millet by Optimum Primer Concentration, PCR Cycle, and DNA Polymerase Specificity

Supplementary data

Table 1

Quantification of Genotypic Outcomes from the SiDREB2-based SNAP Marker Using a Primer Concentration of 2.5 μ M and 25 Cycles

Amplicon size (bp)	Genotype											
	I-5		B-4		#143		#160		#259		#303	
	A	G	A	G	A	G	A	G	A	G	A	G
KAPA 2G												
>2,000	0	0	0	0	0	0	79	0	77	0	0	0
2,000	0	0	0	0	0	0	97	0	98	0	0	0
300	124	0	0	133	156	163	149	0	148	0	130	0
MyTaq HS												
2,000	0	0	0	0	0	0	97	0	97	0	0	0
300	116	99	0	123	169	167	150	110	155	112	132	103

Table 2

Quantification of a 300 bp Amplicon from the SiDREB2-based SNAP Marker Using a Primer Concentration of 1.25 μ M and 25 Cycles

DNA polymerase type	Genotype											
	I-5		B-4		#143		#160		#259		#303	
	A	G	A	G	A	G	A	G	A	G	A	G
KAPA 2G	125	0	0	129	167	162	150	0	141	0	128	0
MyTaq HS	116	99	0	122	169	170	151	110	155	111	133	103

Table 3

Quantification of a 300 bp SiDREB2-based SNAP Amplicon at 2.5 μ M Primer Concentration Under 25 and 30 PCR Cycles

PCR cycle number	Genotype											
	I-5		B-4		#143		#160		#259		#303	
	A	G	A	G	A	G	A	G	A	G	A	G
KAPA 2G Cycles 25x	125	0	0	129	167	162	150	0	141	0	128	0
KAPA 2G Cycles 30x	168	141	142	168	175	180	184	164	176	158	168	153

Table 4*The SiDREB2-genotype of 83 F5 Pedigree Lines Using the Optimized PCR Protocol*

Line code	Pedigree number	SiDREB2 genotype
C1.6	I6B4-7-292-249-3.3-3.6	A/A
C1.7	I6B4-7-292-249-3.3-3.7	A/A
C1.10	I6B4-7-292-249-3.3-3.10	A/A
C2.2	I6B4-7-292-253-3.11-3.2	A/A
C2.3	I6B4-7-292-253-3.11-3.3	A/A
C2.4	I6B4-7-292-253-3.11-3.4	A/A
C3.4	I6B4-7-281-263-3.6-3.4	A/A
C3.9	I6B4-7-281-263-3.6-3.9	A/A
C3.10	I6B4-7-281-263-3.6-3.10	A/A
C4.3	I6B4-7-281-273-3.12-3.3	A/A
C4.5	I6B4-7-281-273-3.12-3.5	A/A
C4.6	I6B4-7-281-273-3.12-3.6	A/A
C5.1	I6B4-7-370-44-3.13-3.1	A/A
C5.2	I6B4-7-370-44-3.13-3.2	A/A
C5.4	I6B4-7-370-44-3.13-3.4	A/A
C6.1	I6B4-7-370-49-3.10-3.1	A/A
C6.4	I6B4-7-370-49-3.10-3.4	A/A
C6.6	I6B4-7-370-49-3.10-3.6	A/A
C7.8	I6B4-7-370-52-3.7-3.8	A/A
C7.9	I6B4-7-370-52-3.7-3.9	A/A
C7.10	I6B4-7-370-52-3.7-3.10	A/A
C8.1	I6B4-7-360-201-3.10-3.1	A/A
C8.7	I6B4-7-360-201-3.10-3.7	A/A
C8.9	I6B4-7-360-201-3.10-3.9	A/A
C9.1	I6B4-7-360-213-3.2-3.1	A/A
C9.5	I6B4-7-360-213-3.2-3.5	A/A
C9.9	I6B4-7-360-213-3.2-3.9	A/A
C10.1	I6B4-7-360-208-3.11-3.1	A/A
C10.2	I6B4-7-360-208-3.11-3.2	A/A
C10.6	I6B4-7-360-208-3.11-3.6	A/A
C11.3	I6B4-7-357-175-3.19-3.3	A/G
C11.4	I6B4-7-357-175-3.19-3.4	A/G
C11.10	I6B4-7-357-175-3.19-3.10	A/G
C12.2	I6B4-7-357-171-3.11-3.2	A/A
C12.3	I6B4-7-357-171-3.11-3.3	A/A
C12.6	I6B4-7-357-171-3.11-3.6	A/A
C13.2	I6B4-7-357-182-3.1-3.2	A/A
C13.4	I6B4-7-357-182-3.1-3.4	A/A
C13.10	I6B4-7-357-182-3.1-3.10	A/A
C14.1	I6B4-7-375-164-3.17-3.1	A/A

Line code	Pedigree number	SiDREB2 genotype
C14.5	I6B4-7-375-164-3.17-3.5	A/A
C14.6	I6B4-7-375-164-3.17-3.6	A/A
C15.1	I6B4-7-375-163-3.7-3.1	A/A
C15.3	I6B4-7-375-163-3.7-3.3	A/A
C15.7	I6B4-7-375-163-3.7-3.7	A/A
C16.4	I6B4-7-375-158-3.11-3.4	A/A
C16.6	I6B4-7-375-158-3.11-3.6	A/A
C16.10	I6B4-7-375-158-3.11-3.10	A/A
C17.2	I6B4-7-271-157-3.2-3.2	A/A
C17.5	I6B4-7-271-157-3.2-3.5	A/A
C18.1	I6B4-7-271-155-3.16-3.1	A/A
C18.2	I6B4-7-271-155-3.16-3.2	A/A
C18.8	I6B4-7-271-155-3.16-3.8	A/A
C19.2	I6B4-7-271-141-3.17-3.2	A/A
C19.3	I6B4-7-271-141-3.17-3.3	A/A
C19.6	I6B4-7-271-141-3.17-3.6	A/A
C20.5	I6B4-7-271-154-3.14-3.5	A/A
C20.6	I6B4-7-271-154-3.14-3.6	A/A
C20.9	I6B4-7-271-154-3.14-3.9	A/A
C21.3	I6B4-7-209-132-3.10-3.3	A/A
C21.5	I6B4-7-209-132-3.10-3.5	A/A
C21.6	I6B4-7-209-132-3.10-3.6	A/A
C22.5	I6B4-7-209-131-3.1-3.5	A/A
C22.8	I6B4-7-209-131-3.1-3.8	A/A
C22.9	I6B4-7-209-131-3.1-3.9	A/A
C23.1	I6B4-7-209-130-3.4-3.1	A/A
C23.7	I6B4-7-209-130-3.4-3.7	A/A
C23.10	I6B4-7-209-130-3.4-3.10	A/A
C24.1	I6B4-7-209-315-3.17-3.1	A/A
C24.2	I6B4-7-209-315-3.17-3.2	A/A
C24.6	I6B4-7-209-315-3.17-3.6	A/A
C25.5	I6B4-7-240-325-3.3-3.5	A/A
C25.8	I6B4-7-240-325-3.3-3.8	A/A
C25.10	I6B4-7-240-325-3.3-3.10	A/A
C26.4	I6B4-7-240-326-3.10-3.4	A/A
C26.7	I6B4-7-240-326-3.10-3.7	A/A
C26.9	I6B4-7-240-326-3.10-3.9	A/A
C28.3	I6B4-7-224-2-3.7-3.3	A/A
C28.4	I6B4-7-224-2-3.7-3.4	A/A
C28.6	I6B4-7-224-2-3.7-3.6	A/A
C30.2	I6B4-7-224-3-3.13-3.2	A/A
C30.7	I6B4-7-224-3-3.13-3.7	A/A
C30.10	I6B4-7-224-3-3.13-3.10	A/A

Figure 1

Electrophoretic Visualization of SiDREB2-based SNAP Marker Genotyping Across 83 F5 Pedigree Lines with Optimized PCR Protocol







