

**Appendix 1** Description of wheat eSSR primer sets and loci

Locus <sup>a</sup>	Left primer	Right primer	EST accession	SSR Motif	A. tem. <sup>b</sup>	Fragment size (bp) <sup>c</sup>	Chromosome location
<i>Xcwem1a</i>	CCGTCGTCAGTTCAAATGG	TCCAGGAATGGGTTTACTGC	BF200929	(CAG)5	50	97	1DL
<i>Xcwem1b*</i>	CCGTCGTCAGTTCAAATGG	TCCAGGAATGGGTTTACTGC	BF200929	(CAG)5	50	100	1BL
<i>Xcwem1c</i>	CCGTCGTCAGTTCAAATGG	TCCAGGAATGGGTTTACTGC	BF200929	(CAG)5	50	134	1AL, 1DL
<i>Xcwem1d</i>	CCGTCGTCAGTTCAAATGG	TCCAGGAATGGGTTTACTGC	BF200929	(CAG)5	50	140	1BL
<i>Xcwem1e</i>	CCGTCGTCAGTTCAAATGG	TCCAGGAATGGGTTTACTGC	BF200929	(CAG)5	50	141	1AL, 1BL
<i>Xcwem1f</i>	CCGTCGTCAGTTCAAATGG	TCCAGGAATGGGTTTACTGC	BF200929	(CAG)5	50	142	1BL, 1DL
<i>Xcwem1g*</i>	CCGTCGTCAGTTCAAATGG	TCCAGGAATGGGTTTACTGC	BF200929	(CAG)5	50	147	1BL
<i>Xcwem2a</i>	GGAAGAACAAGGGCAATGG	CGGCACCCTGATGTCCTC	BE489966	(GGC)5- (CGG)8- (GCG)5- (GCG)5	50	280	3BL
<i>Xcwem2b</i>	GGAAGAACAAGGGCAATGG	CGGCACCCTGATGTCCTC	BE489966	(GGC)5- (CGG)8- (GCG)5- (GCG)5	50	330	3DL
<i>Xcwem2c</i>	GGAAGAACAAGGGCAATGG	CGGCACCCTGATGTCCTC	BE489966	(GGC)5- (CGG)8- (GCG)5- (GCG)5	50	400	2AS
<i>Xcwem2d</i>	GGAAGAACAAGGGCAATGG	CGGCACCCTGATGTCCTC	BE489966	(GGC)5- (CGG)8- (GCG)5- (GCG)5	50	650	1AL
<i>Xcwem3a</i>	GATCTGTGACCGAGGCAGA	GCTGTGGAGGTCCAAAATGT	BG607867	(AC)7	55	77	1AS

<i>Xcwem3b</i>	GATCTGTGACCGAGGCAGA	GCTGTGGAGGTCCAAAATGT	BG607867 (AC)7	55	150	3BS
<i>Xcwem3c</i>	GATCTGTGACCGAGGCAGA	GCTGTGGAGGTCCAAAATGT	BG607867 (AC)7	55	180	6DS
<i>Xcwem3d</i>	GATCTGTGACCGAGGCAGA	GCTGTGGAGGTCCAAAATGT	BG607867 (AC)7	55	210	5DL
<i>Xcwem3e</i>	GATCTGTGACCGAGGCAGA	GCTGTGGAGGTCCAAAATGT	BG607867 (AC)7	55	260	1DL
<i>Xcwem3f</i>	GATCTGTGACCGAGGCAGA	GCTGTGGAGGTCCAAAATGT	BG607867 (AC)7	55	350	6BL
<i>Xcwem3g</i>	GATCTGTGACCGAGGCAGA	GCTGTGGAGGTCCAAAATGT	BG607867 (AC)7	55	440	3BL
<i>Xcwem3h</i>	GATCTGTGACCGAGGCAGA	GCTGTGGAGGTCCAAAATGT	BG607867 (AC)7	55	540	3AL
<i>Xcwem3i</i>	GATCTGTGACCGAGGCAGA	GCTGTGGAGGTCCAAAATGT	BG607867 (AC)7	55	900	6DL
<i>Xcwem4a</i>	CTACCCGCCGCAGCTCTAC	GGTTCTTGAAGTCGGTGGTG	BE499690 (GCA)5	50	177	3BS
<i>Xcwem4b</i>	CTACCCGCCGCAGCTCTAC	GGTTCTTGAAGTCGGTGGTG	BE499690 (GCA)5	50	203	1AL
<i>Xcwem4c</i>	CTACCCGCCGCAGCTCTAC	GGTTCTTGAAGTCGGTGGTG	BE499690 (GCA)5	50	222	2AL
<i>Xcwem4d</i>	CTACCCGCCGCAGCTCTAC	GGTTCTTGAAGTCGGTGGTG	BE499690 (GCA)5	50	350	3BS
<i>Xcwem4e</i>	CTACCCGCCGCAGCTCTAC	GGTTCTTGAAGTCGGTGGTG	BE499690 (GCA)5	50	435	1AL
<i>Xcwem4f</i>	CTACCCGCCGCAGCTCTAC	GGTTCTTGAAGTCGGTGGTG	BE499690 (GCA)5	50	520	2AL
<i>Xcwem5a</i>	CTCCCTCTGCCCCTCTTG	CAGCTCGCCTGTATCCATCT	BG274942 (AGC)6	55	126	1DL
<i>Xcwem5b</i>	CTCCCTCTGCCCCTCTTG	CAGCTCGCCTGTATCCATCT	BG274942 (AGC)6	55	165	2BL
<i>Xcwem5c</i>	CTCCCTCTGCCCCTCTTG	CAGCTCGCCTGTATCCATCT	BG274942 (AGC)6	55	230	2BS
<i>Xcwem5d</i>	CTCCCTCTGCCCCTCTTG	CAGCTCGCCTGTATCCATCT	BG274942 (AGC)6	55	290	2DL
<i>Xcwem5e</i>	CTCCCTCTGCCCCTCTTG	CAGCTCGCCTGTATCCATCT	BG274942 (AGC)6	55	310	2AL
<i>Xcwem5f</i>	CTCCCTCTGCCCCTCTTG	CAGCTCGCCTGTATCCATCT	BG274942 (AGC)6	55	350	2AL, 2DL
<i>Xcwem5g</i>	CTCCCTCTGCCCCTCTTG	CAGCTCGCCTGTATCCATCT	BG274942 (AGC)6	55	725	3AL
<i>Xcwem5h</i>	CTCCCTCTGCCCCTCTTG	CAGCTCGCCTGTATCCATCT	BG274942 (AGC)6	55	800	4AL
<i>Xcwem5i</i>	CTCCCTCTGCCCCTCTTG	CAGCTCGCCTGTATCCATCT	BG274942 (AGC)6	55	1000	6AS
<i>Xcwem6a</i>	CCTGCTCTGCCATTACTTGG	TGCACCTCCATCTCCTTCTT	BF483588 (AG)12	55	145	1DS
<i>Xcwem6b</i>	CCTGCTCTGCCATTACTTGG	TGCACCTCCATCTCCTTCTT	BF483588 (AG)12	55	150	1AS
<i>Xcwem6c</i>	CCTGCTCTGCCATTACTTGG	TGCACCTCCATCTCCTTCTT	BF483588 (AG)12	55	165	1BS
<i>Xcwem7a</i>	ACGGCGTGTTGAGTTTTTCT	CAACTGCAACAACAAAACAGT	BE500104 (T)10	55	100	6BL
<i>Xcwem7b</i>	ACGGCGTGTTGAGTTTTTCT	CAACTGCAACAACAAAACAGT	BE500104 (T)10	55	104	6DL
<i>Xcwem7c</i>	ACGGCGTGTTGAGTTTTTCT	CAACTGCAACAACAAAACAGT	BE500104 (T)10	55	106	6BL
<i>Xcwem7d</i>	ACGGCGTGTTGAGTTTTTCT	CAACTGCAACAACAAAACAGT	BE500104 (T)10	55	108	6DL
<i>Xcwem7e*</i>	ACGGCGTGTTGAGTTTTTCT	CAACTGCAACAACAAAACAGT	BE500104 (T)10	55	110	6AL
<i>Xcwem7f</i>	ACGGCGTGTTGAGTTTTTCT	CAACTGCAACAACAAAACAGT	BE500104 (T)10	55	328	1BS
<i>Xcwem7g</i>	ACGGCGTGTTGAGTTTTTCT	CAACTGCAACAACAAAACAGT	BE500104 (T)10	55	452	6DS
<i>Xcwem8a</i>	TGTGCTTCAAGCCTCAAGTG	GCTCGCACTCGAGTACACTG	BE443007 (TAC)5	55	131	2AL

<i>Xcwem8b</i>	TGTGCTTCAAGCCTCAAGTG	GCTCGCACTCGAGTACACTG	BE443007	(TAC)5	55	132	1DS
<i>Xcwem8c</i>	TGTGCTTCAAGCCTCAAGTG	GCTCGCACTCGAGTACACTG	BE443007	(TAC)5	55	135	7BL
<i>Xcwem8d</i>	TGTGCTTCAAGCCTCAAGTG	GCTCGCACTCGAGTACACTG	BE443007	(TAC)5	55	140	7AL
<i>Xcwem8e</i>	TGTGCTTCAAGCCTCAAGTG	GCTCGCACTCGAGTACACTG	BE443007	(TAC)5	55	147	3BS
<i>Xcwem9a</i>	CACCATCACCGAGATCCAA	GGAGCTCCTCCACCTTGTC	BE494877	(CAGG)5	55	78	1BS
<i>Xcwem9b</i>	CACCATCACCGAGATCCAA	GGAGCTCCTCCACCTTGTC	BE494877	(CAGG)5	55	115	1BS
<i>Xcwem9c*</i>	CACCATCACCGAGATCCAA	GGAGCTCCTCCACCTTGTC	BE494877	(CAGG)5	55	125	3AL
<i>Xcwem9d</i>	CACCATCACCGAGATCCAA	GGAGCTCCTCCACCTTGTC	BE494877	(CAGG)5	55	146	3AL
<i>Xcwem9e</i>	CACCATCACCGAGATCCAA	GGAGCTCCTCCACCTTGTC	BE494877	(CAGG)5	55	168	3BL
<i>Xcwem9f</i>	CACCATCACCGAGATCCAA	GGAGCTCCTCCACCTTGTC	BE494877	(CAGG)5	55	189	1DL
<i>Xcwem9g</i>	CACCATCACCGAGATCCAA	GGAGCTCCTCCACCTTGTC	BE494877	(CAGG)5	55	190	1AS
<i>Xcwem9h</i>	CACCATCACCGAGATCCAA	GGAGCTCCTCCACCTTGTC	BE494877	(CAGG)5	55	205	1DL
<i>Xcwem9i*</i>	CACCATCACCGAGATCCAA	GGAGCTCCTCCACCTTGTC	BE494877	(CAGG)5	55	210	3AL
<i>Xcwem9j*</i>	CACCATCACCGAGATCCAA	GGAGCTCCTCCACCTTGTC	BE494877	(CAGG)5	55	243	6BS
<i>Xcwem9k</i>	CACCATCACCGAGATCCAA	GGAGCTCCTCCACCTTGTC	BE494877	(CAGG)5	55	273	1AL
<i>Xcwem9l</i>	CACCATCACCGAGATCCAA	GGAGCTCCTCCACCTTGTC	BE494877	(CAGG)5	55	278	4DL
<i>Xcwem9m</i>	CACCATCACCGAGATCCAA	GGAGCTCCTCCACCTTGTC	BE494877	(CAGG)5	55	288	3BL
<i>Xcwem9n</i>	CACCATCACCGAGATCCAA	GGAGCTCCTCCACCTTGTC	BE494877	(CAGG)5	55	310	5AL
<i>Xcwem9o</i>	CACCATCACCGAGATCCAA	GGAGCTCCTCCACCTTGTC	BE494877	(CAGG)5	55	320	2AL
<i>Xcwem9p*</i>	CACCATCACCGAGATCCAA	GGAGCTCCTCCACCTTGTC	BE494877	(CAGG)5	55	345	5AL
<i>Xcwem9q</i>	CACCATCACCGAGATCCAA	GGAGCTCCTCCACCTTGTC	BE494877	(CAGG)5	55	390	5DL
<i>Xcwem9r</i>	CACCATCACCGAGATCCAA	GGAGCTCCTCCACCTTGTC	BE494877	(CAGG)5	55	700	6DS
<i>Xcwem9s</i>	CACCATCACCGAGATCCAA	GGAGCTCCTCCACCTTGTC	BE494877	(CAGG)5	55	1000	6DS
<i>Xcwem10</i>	GAACATTTTTGCGTCCTGTG	TGGTGATCCAGAAGCCATT	BF483804	(A)11	50	68	1DS
<i>Xcwem11a*</i>	CAGAGCAACCAGATGTTGGA	TGCACGTAGTAGTAGGCACCTC	BG314086	(ACT)5	60	140	4AL
<i>Xcwem11b</i>	CAGAGCAACCAGATGTTGGA	TGCACGTAGTAGTAGGCACCTC	BG314086	(ACT)5	60	290	7BL
<i>Xcwem11c</i>	CAGAGCAACCAGATGTTGGA	TGCACGTAGTAGTAGGCACCTC	BG314086	(ACT)5	60	300	1DS
<i>Xcwem11d</i>	CAGAGCAACCAGATGTTGGA	TGCACGTAGTAGTAGGCACCTC	BG314086	(ACT)5	60	555	1BS
<i>Xcwem11e</i>	CAGAGCAACCAGATGTTGGA	TGCACGTAGTAGTAGGCACCTC	BG314086	(ACT)5	60	605	2DL
<i>Xcwem11f</i>	CAGAGCAACCAGATGTTGGA	TGCACGTAGTAGTAGGCACCTC	BG314086	(ACT)5	60	740	2AS
<i>Xcwem11g</i>	CAGAGCAACCAGATGTTGGA	TGCACGTAGTAGTAGGCACCTC	BG314086	(ACT)5	60	745	4BS
<i>Xcwem11h</i>	CAGAGCAACCAGATGTTGGA	TGCACGTAGTAGTAGGCACCTC	BG314086	(ACT)5	60	750	2DS
<i>Xcwem12a</i>	CAGCAACCATTACCACCACA	GCGAAAATGATGGTTGTTGA	BE424439	(ACA)5	60	100	1DS
<i>Xcwem12b</i>	CAGCAACCATTACCACCACA	GCGAAAATGATGGTTGTTGA	BE424439	(ACA)5	60	140	1AS

<i>Xcwem12c</i>	CAGCAACCATTACCACCACA	GCGAAAATGATGGTTGTTGA	BE424439	(ACA)5	60	153	1BS
<i>Xcwem13a*</i>	GGTGCAGAACTCATGTGGAA	GTTTCGGAGAACCGACTGAAG	BE399363	(GCT)5	55	100	5DL
<i>Xcwem13b</i>	GGTGCAGAACTCATGTGGAA	GTTTCGGAGAACCGACTGAAG	BE399363	(GCT)5	55	115	5AL
<i>Xcwem14a</i>	GGCGTTCGGACGTTATATGT	GACATCCGAGCAGCTAAACC	BE636802	(CTT)6	55	110	2AS
<i>Xcwem14b</i>	GGCGTTCGGACGTTATATGT	GACATCCGAGCAGCTAAACC	BE636802	(CTT)6	55	125	2BS
<i>Xcwem14c</i>	GGCGTTCGGACGTTATATGT	GACATCCGAGCAGCTAAACC	BE636802	(CTT)6	55	130	2DS
<i>Xcwem14d*</i>	GGCGTTCGGACGTTATATGT	GACATCCGAGCAGCTAAACC	BE636802	(CTT)6	55	133	2BS, 2DS
<i>Xcwem14e</i>	GGCGTTCGGACGTTATATGT	GACATCCGAGCAGCTAAACC	BE636802	(CTT)6	55	138	2AS, 2DS
<i>Xcwem15a</i>	AGAGGAAGCCATCCAATCTG	TCTTACCCTCCCTCGAGTCC	BF146045	(CAG)5	60	110	2BL
<i>Xcwem15b</i>	AGAGGAAGCCATCCAATCTG	TCTTACCCTCCCTCGAGTCC	BF146045	(CAG)5	60	120	2DL
<i>Xcwem15c</i>	AGAGGAAGCCATCCAATCTG	TCTTACCCTCCCTCGAGTCC	BF146045	(CAG)5	60	130	2AL
<i>Xcwem15d</i>	AGAGGAAGCCATCCAATCTG	TCTTACCCTCCCTCGAGTCC	BF146045	(CAG)5	60	320	1DL
<i>Xcwem16a</i>	CCGCCGCCTCCTCTACTC	GACGTTTCGGCGCATAGA	BE442746	(CGC)5	55	130	2BS
<i>Xcwem16b</i>	CCGCCGCCTCCTCTACTC	GACGTTTCGGCGCATAGA	BE442746	(CGC)5	55	140	2DS
<i>Xcwem16c</i>	CCGCCGCCTCCTCTACTC	GACGTTTCGGCGCATAGA	BE442746	(CGC)5	55	150	2AS
<i>Xcwem16d</i>	CCGCCGCCTCCTCTACTC	GACGTTTCGGCGCATAGA	BE442746	(CGC)5	55	280	3DS
<i>Xcwem17a</i>	GCGATGACTTCGGACAGG	AAGAGCACCGTCTTGGTCTG	BE495462	(GCG)6	55	80	6BS
<i>Xcwem17b</i>	GCGATGACTTCGGACAGG	AAGAGCACCGTCTTGGTCTG	BE495462	(GCG)6	55	82	6DS
<i>Xcwem17c</i>	GCGATGACTTCGGACAGG	AAGAGCACCGTCTTGGTCTG	BE495462	(GCG)6	55	113	3DS
<i>Xcwem17d</i>	GCGATGACTTCGGACAGG	AAGAGCACCGTCTTGGTCTG	BE495462	(GCG)6	55	181	3DS
<i>Xcwem17e</i>	GCGATGACTTCGGACAGG	AAGAGCACCGTCTTGGTCTG	BE495462	(GCG)6	55	210	2DL
<i>Xcwem17f</i>	GCGATGACTTCGGACAGG	AAGAGCACCGTCTTGGTCTG	BE495462	(GCG)6	55	253	4AL
<i>Xcwem17g</i>	GCGATGACTTCGGACAGG	AAGAGCACCGTCTTGGTCTG	BE495462	(GCG)6	55	283	5DL
<i>Xcwem17h</i>	GCGATGACTTCGGACAGG	AAGAGCACCGTCTTGGTCTG	BE495462	(GCG)6	55	350	5AL
<i>Xcwem17i</i>	GCGATGACTTCGGACAGG	AAGAGCACCGTCTTGGTCTG	BE495462	(GCG)6	55	560	3BS
<i>Xcwem17j</i>	GCGATGACTTCGGACAGG	AAGAGCACCGTCTTGGTCTG	BE495462	(GCG)6	55	650	4AL
<i>Xcwem17k</i>	GCGATGACTTCGGACAGG	AAGAGCACCGTCTTGGTCTG	BE495462	(GCG)6	55	1000	2BL
<i>Xcwem18a</i>	TTCGCGAAGCGACTACCG	GCATCCTTCGTCTCGCTAAC	BF484100	(CGC)6	50	350	7AL
<i>Xcwem18b</i>	TTCGCGAAGCGACTACCG	GCATCCTTCGTCTCGCTAAC	BF484100	(CGC)6	50	400	4DL
<i>Xcwem18c</i>	TTCGCGAAGCGACTACCG	GCATCCTTCGTCTCGCTAAC	BF484100	(CGC)6	50	900	2AS
<i>Xcwem18d</i>	TTCGCGAAGCGACTACCG	GCATCCTTCGTCTCGCTAAC	BF484100	(CGC)6	50	1050	1BL
<i>Xcwem19a</i>	ACAAATACAAGCCCCCAAAG	GCGGTGGGAAGGTTTCTTAT	BE585734	(GCA)5- (CAG)6	50	140	3BL

<i>Xcwem19b</i>	ACAAATACAAGCCCCCAAAG	GCGGTGGGAAGGTTTCTTAT	BE585734	(GCA)5- (CAG)6	50	145	3DL
<i>Xcwem19c</i>	ACAAATACAAGCCCCCAAAG	GCGGTGGGAAGGTTTCTTAT	BE585734	(GCA)5- (CAG)6	50	150	3AL
<i>Xcwem20a</i>	GACACCTTCTCTTGCTCCAAA	GAAGACGTGATCAGCATGGA	BE442801	(TTG)5	50	94	3DS
<i>Xcwem20b</i>	GACACCTTCTCTTGCTCCAAA	GAAGACGTGATCAGCATGGA	BE442801	(TTG)5	50	124	3BS
<i>Xcwem20c</i>	GACACCTTCTCTTGCTCCAAA	GAAGACGTGATCAGCATGGA	BE442801	(TTG)5	50	228	6DL
<i>Xcwem20d</i>	GACACCTTCTCTTGCTCCAAA	GAAGACGTGATCAGCATGGA	BE442801	(TTG)5	50	230	1AS
<i>Xcwem20e</i>	GACACCTTCTCTTGCTCCAAA	GAAGACGTGATCAGCATGGA	BE442801	(TTG)5	50	232	5AL
<i>Xcwem20f</i>	GACACCTTCTCTTGCTCCAAA	GAAGACGTGATCAGCATGGA	BE442801	(TTG)5	50	580	1AS
<i>Xcwem22a</i>	TCTGGATCCCTTGTCGAATC	GAGGCGAGGATCTCATGGTA	BF484536	(AGC)6	55	100	3AL
<i>Xcwem22b</i>	TCTGGATCCCTTGTCGAATC	GAGGCGAGGATCTCATGGTA	BF484536	(AGC)6	55	130	3BL
<i>Xcwem22c</i>	TCTGGATCCCTTGTCGAATC	GAGGCGAGGATCTCATGGTA	BF484536	(AGC)6	55	140	3DL
<i>Xcwem25a</i>	CGCCTCAGAGCTCTTCACC	AAGATACGGTCCGTGTAGGAG	BG607143	(CCG)5	55	110	1BS
<i>Xcwem25b</i>	CGCCTCAGAGCTCTTCACC	AAGATACGGTCCGTGTAGGAG	BG607143	(CCG)5	55	265	3AL
<i>Xcwem25c</i>	CGCCTCAGAGCTCTTCACC	AAGATACGGTCCGTGTAGGAG	BG607143	(CCG)5	55	350	3AL
<i>Xcwem25d</i>	CGCCTCAGAGCTCTTCACC	AAGATACGGTCCGTGTAGGAG	BG607143	(CCG)5	55	400	3BL
<i>Xcwem29</i>	TTGCCAGGGAATGAAGTAG	TCGTAAACGACTTGAACATTGC	BG263754	(GAT)5- (GAC)5	50	84	3AS
<i>Xcwem32a</i>	ATGCTCAAGCCGAGGAAGTA	TAGACGCCAACAAAGCCACT	BE606965	(TGC)8	55	90	1DL
<i>Xcwem32b</i>	ATGCTCAAGCCGAGGAAGTA	TAGACGCCAACAAAGCCACT	BE606965	(TGC)8	55	100	1AL
<i>Xcwem32c</i>	ATGCTCAAGCCGAGGAAGTA	TAGACGCCAACAAAGCCACT	BE606965	(TGC)8	55	104	1BL
<i>Xcwem32d</i>	ATGCTCAAGCCGAGGAAGTA	TAGACGCCAACAAAGCCACT	BE606965	(TGC)8	55	132	1DL
<i>Xcwem32e*</i>	ATGCTCAAGCCGAGGAAGTA	TAGACGCCAACAAAGCCACT	BE606965	(TGC)8	55	138	1AL
<i>Xcwem32f*</i>	ATGCTCAAGCCGAGGAAGTA	TAGACGCCAACAAAGCCACT	BE606965	(TGC)8	55	159	1BL
<i>Xcwem34a*</i>	TTGCACCTTTTGATCCAACC	TTGCCTCACCAGACTCAGTG	BE495116	(AAG)5	50	115	4BS
<i>Xcwem34b</i>	TTGCACCTTTTGATCCAACC	TTGCCTCACCAGACTCAGTG	BE495116	(AAG)5	50	182	3DL
<i>Xcwem34c</i>	TTGCACCTTTTGATCCAACC	TTGCCTCACCAGACTCAGTG	BE495116	(AAG)5	50	201	4BL
<i>Xcwem34d</i>	TTGCACCTTTTGATCCAACC	TTGCCTCACCAGACTCAGTG	BE495116	(AAG)5	50	204	4DL
<i>Xcwem34e</i>	TTGCACCTTTTGATCCAACC	TTGCCTCACCAGACTCAGTG	BE495116	(AAG)5	50	219	4BL
<i>Xcwem34f</i>	TTGCACCTTTTGATCCAACC	TTGCCTCACCAGACTCAGTG	BE495116	(AAG)5	50	222	4DL
<i>Xcwem34g</i>	TTGCACCTTTTGATCCAACC	TTGCCTCACCAGACTCAGTG	BE495116	(AAG)5	50	260	4AS
<i>Xcwem34h</i>	TTGCACCTTTTGATCCAACC	TTGCCTCACCAGACTCAGTG	BE495116	(AAG)5	50	278	6DL
<i>Xcwem34i</i>	TTGCACCTTTTGATCCAACC	TTGCCTCACCAGACTCAGTG	BE495116	(AAG)5	50	380	3DL

<i>Xcwem34j</i>	TTGCACCTTTTGATCCAACC	TTGCCTCACCAGACTCAGTG	BE495116	(AAG)5	50	475	6BL
<i>Xcwem34K</i>	TTGCACCTTTTGATCCAACC	TTGCCTCACCAGACTCAGTG	BE495116	(AAG)5	50	800	4AL
<i>Xcwem35a</i>	CAACATACAGCACCGAGAAAG	CAGCTGGAACCTCGCTGAAGT	BE497184	(TCC)5	55	166	4BS
<i>Xcwem35b</i>	CAACATACAGCACCGAGAAAG	CAGCTGGAACCTCGCTGAAGT	BE497184	(TCC)5	55	168	4AL
<i>Xcwem35c</i>	CAACATACAGCACCGAGAAAG	CAGCTGGAACCTCGCTGAAGT	BE497184	(TCC)5	55	169	4DS
<i>Xcwem35d*</i>	CAACATACAGCACCGAGAAAG	CAGCTGGAACCTCGCTGAAGT	BE497184	(TCC)5	55	197	4DS, 4AL
<i>Xcwem35e</i>	CAACATACAGCACCGAGAAAG	CAGCTGGAACCTCGCTGAAGT	BE497184	(TCC)5	55	247	4AL
<i>Xcwem35f*</i>	CAACATACAGCACCGAGAAAG	CAGCTGGAACCTCGCTGAAGT	BE497184	(TCC)5	55	249	4DS
<i>Xcwem35g</i>	CAACATACAGCACCGAGAAAG	CAGCTGGAACCTCGCTGAAGT	BE497184	(TCC)5	55	255	4AL
<i>Xcwem35h</i>	CAACATACAGCACCGAGAAAG	CAGCTGGAACCTCGCTGAAGT	BE497184	(TCC)5	55	276	4BS
<i>Xcwem35i</i>	CAACATACAGCACCGAGAAAG	CAGCTGGAACCTCGCTGAAGT	BE497184	(TCC)5	55	282	4AL
<i>Xcwem35j</i>	CAACATACAGCACCGAGAAAG	CAGCTGGAACCTCGCTGAAGT	BE497184	(TCC)5	55	283	4DS
<i>Xcwem36a</i>	TCACCGGAATAGGAATAGGG	GGTATGGGGATAAAGCAGCA	BE495848	(CGC)9	50	210	4AL
<i>Xcwem36b</i>	TCACCGGAATAGGAATAGGG	GGTATGGGGATAAAGCAGCA	BE495848	(CGC)9	50	750	4BS
<i>Xcwem37a</i>	GGCAGAAGAGTTGTGGTTGAG	TCCTGCTTTGCTTTGATGTG	BE446061	(GAT)5	55	225	5DS
<i>Xcwem37b</i>	GGCAGAAGAGTTGTGGTTGAG	TCCTGCTTTGCTTTGATGTG	BE446061	(GAT)5	55	420	7DL
<i>Xcwem37c</i>	GGCAGAAGAGTTGTGGTTGAG	TCCTGCTTTGCTTTGATGTG	BE446061	(GAT)5	55	630	2AL
<i>Xcwem38a</i>	AAGCCAAGCGTTAGCTGTCT	AGCTCGTTGATCTCCTCGTC	BF485412	(AG)6	60	100	4DL
<i>Xcwem38b</i>	AAGCCAAGCGTTAGCTGTCT	AGCTCGTTGATCTCCTCGTC	BF485412	(AG)6	60	125	4AS
<i>Xcwem38c</i>	AAGCCAAGCGTTAGCTGTCT	AGCTCGTTGATCTCCTCGTC	BF485412	(AG)6	60	130	4BL
<i>Xcwem38d</i>	AAGCCAAGCGTTAGCTGTCT	AGCTCGTTGATCTCCTCGTC	BF485412	(AG)6	60	325	7BL
<i>Xcwem39a</i>	TATTCTTGCGCACCGAGAC	AGAAGACGAACCGGACCTG	BF478437	(AGG)5	55	70	5AS
<i>Xcwem39b</i>	TATTCTTGCGCACCGAGAC	AGAAGACGAACCGGACCTG	BF478437	(AGG)5	55	92	4BS
<i>Xcwem39c*</i>	TATTCTTGCGCACCGAGAC	AGAAGACGAACCGGACCTG	BF478437	(AGG)5	55	95	1DL
<i>Xcwem39d</i>	TATTCTTGCGCACCGAGAC	AGAAGACGAACCGGACCTG	BF478437	(AGG)5	55	106	2BL
<i>Xcwem39e</i>	TATTCTTGCGCACCGAGAC	AGAAGACGAACCGGACCTG	BF478437	(AGG)5	55	107	4DS
<i>Xcwem39f</i>	TATTCTTGCGCACCGAGAC	AGAAGACGAACCGGACCTG	BF478437	(AGG)5	55	127	4BS
<i>Xcwem39g</i>	TATTCTTGCGCACCGAGAC	AGAAGACGAACCGGACCTG	BF478437	(AGG)5	55	142	4AL, 4DS
<i>Xcwem39h</i>	TATTCTTGCGCACCGAGAC	AGAAGACGAACCGGACCTG	BF478437	(AGG)5	55	154	4AL
<i>Xcwem39i</i>	TATTCTTGCGCACCGAGAC	AGAAGACGAACCGGACCTG	BF478437	(AGG)5	55	155	4DS
<i>Xcwem39j</i>	TATTCTTGCGCACCGAGAC	AGAAGACGAACCGGACCTG	BF478437	(AGG)5	55	156	4BS
<i>Xcwem39k</i>	TATTCTTGCGCACCGAGAC	AGAAGACGAACCGGACCTG	BF478437	(AGG)5	55	167	3BL
<i>Xcwem39l</i>	TATTCTTGCGCACCGAGAC	AGAAGACGAACCGGACCTG	BF478437	(AGG)5	55	181	4AL, 4DS
<i>Xcwem39m</i>	TATTCTTGCGCACCGAGAC	AGAAGACGAACCGGACCTG	BF478437	(AGG)5	55	217	3BL

<i>Xcwem39n</i>	TATTCTTGCGCACCGAGAC	AGAAGACGAACCGGACCTG	BF478437	(AGG)5	55	224	2AL
<i>Xcwem39o</i>	TATTCTTGCGCACCGAGAC	AGAAGACGAACCGGACCTG	BF478437	(AGG)5	55	258	3BL
<i>Xcwem39p</i>	TATTCTTGCGCACCGAGAC	AGAAGACGAACCGGACCTG	BF478437	(AGG)5	55	300	3DL
<i>Xcwem39q*</i>	TATTCTTGCGCACCGAGAC	AGAAGACGAACCGGACCTG	BF478437	(AGG)5	55	320	3BL
<i>Xcwem39r</i>	TATTCTTGCGCACCGAGAC	AGAAGACGAACCGGACCTG	BF478437	(AGG)5	55	395	1DL
<i>Xcwem39s</i>	TATTCTTGCGCACCGAGAC	AGAAGACGAACCGGACCTG	BF478437	(AGG)5	55	405	1BL
<i>Xcwem39t</i>	TATTCTTGCGCACCGAGAC	AGAAGACGAACCGGACCTG	BF478437	(AGG)5	55	415	4AS
<i>Xcwem40a</i>	TAGCACCAGGCTTGACCAGT	GGACCAAAGCCAAAAACAAA	BE403549	(TCT)6	55	105	5BS
<i>Xcwem40b</i>	TAGCACCAGGCTTGACCAGT	GGACCAAAGCCAAAAACAAA	BE403549	(TCT)6	55	110	5DS
<i>Xcwem40c</i>	TAGCACCAGGCTTGACCAGT	GGACCAAAGCCAAAAACAAA	BE403549	(TCT)6	55	135	5AS
<i>Xcwem41a</i>	GGATGGAGAGGGACTTCTG	ACTCCTCCTCCCCAAAGTA	BG263501	(GCA)8	50	70	6BL
<i>Xcwem41b</i>	GGATGGAGAGGGACTTCTG	ACTCCTCCTCCCCAAAGTA	BG263501	(GCA)8	50	283	5DL
<i>Xcwem41c</i>	GGATGGAGAGGGACTTCTG	ACTCCTCCTCCCCAAAGTA	BG263501	(GCA)8	50	480	4BL
<i>Xcwem42a</i>	ACATCCTGGCGGAGAAGTC	TGGAGAGGTCCTGGTAGGTC	BE444720	(CGG)5	55	91	5DS
<i>Xcwem42b</i>	ACATCCTGGCGGAGAAGTC	TGGAGAGGTCCTGGTAGGTC	BE444720	(CGG)5	55	93	5AS
<i>Xcwem42c</i>	ACATCCTGGCGGAGAAGTC	TGGAGAGGTCCTGGTAGGTC	BE444720	(CGG)5	55	95	5BS, 5AS
<i>Xcwem42d</i>	ACATCCTGGCGGAGAAGTC	TGGAGAGGTCCTGGTAGGTC	BE444720	(CGG)5	55	125	5BS
<i>Xcwem42e*</i>	ACATCCTGGCGGAGAAGTC	TGGAGAGGTCCTGGTAGGTC	BE444720	(CGG)5	55	126	5DS
<i>Xcwem42f</i>	ACATCCTGGCGGAGAAGTC	TGGAGAGGTCCTGGTAGGTC	BE444720	(CGG)5	55	129	5BS
<i>Xcwem43a*</i>	CGTGAAGGGGGACTGTATTT	AGCAAGCGGTTGAATATTGG	BE443021	(CATG)5	55	90	5BL
<i>Xcwem43b*</i>	CGTGAAGGGGGACTGTATTT	AGCAAGCGGTTGAATATTGG	BE443021	(CATG)5	55	130	5DL
<i>Xcwem44a</i>	AGTGCACTGCAAACACAGAG	AGCCGTACACCTTCATAGGC	BE404135	(GAA)9	60	65	5DS
<i>Xcwem44b</i>	AGTGCACTGCAAACACAGAG	AGCCGTACACCTTCATAGGC	BE404135	(GAA)9	60	70	5BS
<i>Xcwem44c</i>	AGTGCACTGCAAACACAGAG	AGCCGTACACCTTCATAGGC	BE404135	(GAA)9	60	75	5AS
<i>Xcwem45</i>	TGCAAGACATGCACACTGAA	ATTCCCAACAGTGCTGATCC	BE517676	(TGC)6	55	219	5BL
<i>Xcwem46a</i>	ACGTTGTCTCCGTGTCATTG	GGTCATGGCCTCAGTCTCA	BE500430	(TCC)5	50	105	1DS
<i>Xcwem46b</i>	ACGTTGTCTCCGTGTCATTG	GGTCATGGCCTCAGTCTCA	BE500430	(TCC)5	50	150	6DS
<i>Xcwem46c</i>	ACGTTGTCTCCGTGTCATTG	GGTCATGGCCTCAGTCTCA	BE500430	(TCC)5	50	160	7AS
<i>Xcwem46d</i>	ACGTTGTCTCCGTGTCATTG	GGTCATGGCCTCAGTCTCA	BE500430	(TCC)5	50	770	6AS
<i>Xcwem47a</i>	CCTTCTCGACTCCCTCTTCG	CCATTGCTCGTGGACCTGT	BE426787	(AGG)5	55	150	6DS
<i>Xcwem47b</i>	CCTTCTCGACTCCCTCTTCG	CCATTGCTCGTGGACCTGT	BE426787	(AGG)5	55	320	4AL
<i>Xcwem47c</i>	CCTTCTCGACTCCCTCTTCG	CCATTGCTCGTGGACCTGT	BE426787	(AGG)5	55	600	1BS
<i>Xcwem47d</i>	CCTTCTCGACTCCCTCTTCG	CCATTGCTCGTGGACCTGT	BE426787	(AGG)5	55	750	3AL
<i>Xcwem48</i>	TCTGTTGTCGGCATTTCAGT	TGGCGTTACATTCATTTGGA	BQ294805	(TGT)5	55	160	6DL

<i>Xcwem49a</i>	GAGGAGGACTCCATCGTCTT	GCTTCCCGAACGAAGAACT	BE445201	(GCC)6	55	87	6BS
<i>Xcwem49b</i>	GAGGAGGACTCCATCGTCTT	GCTTCCCGAACGAAGAACT	BE445201	(GCC)6	55	89	6DS
<i>Xcwem49c</i>	GAGGAGGACTCCATCGTCTT	GCTTCCCGAACGAAGAACT	BE445201	(GCC)6	55	90	6BS, 6DS
<i>Xcwem49d*</i>	GAGGAGGACTCCATCGTCTT	GCTTCCCGAACGAAGAACT	BE445201	(GCC)6	55	97	6AS, 6DS
<i>Xcwem49e</i>	GAGGAGGACTCCATCGTCTT	GCTTCCCGAACGAAGAACT	BE445201	(GCC)6	55	101	6AS, 6BS
<i>Xcwem49f</i>	GAGGAGGACTCCATCGTCTT	GCTTCCCGAACGAAGAACT	BE445201	(GCC)6	55	121	6AS
<i>Xcwem50a</i>	AGTACTACGGAGCCGAGCAA	ATCGAATCGCCGAACATAAA	BF483695	(CTG)5	50	140	6AS
<i>Xcwem50b</i>	AGTACTACGGAGCCGAGCAA	ATCGAATCGCCGAACATAAA	BF483695	(CTG)5	50	150	6BS
<i>Xcwem50c</i>	AGTACTACGGAGCCGAGCAA	ATCGAATCGCCGAACATAAA	BF483695	(CTG)5	50	200	7DL
<i>Xcwem51</i>	CGACAAGAACAAGCCTGAG	CCTCTATCGCGCTGTTGATT	BE405680	(CCAT)6	55	89	6DL
<i>Xcwem52</i>	CCTACCTACGACGCAAGTCC	AGCGAGCAGAAAGCATCAAG	BE399084	(GCAAAC)5	55	165	7BL
<i>Xcwem53a</i>	ACGCACGCTCGCTTCAAT	GCAGTATCGTCTCCCTCTGC	BF484868	(CCG)5	55	135	7BS
<i>Xcwem53b</i>	ACGCACGCTCGCTTCAAT	GCAGTATCGTCTCCCTCTGC	BF484868	(CCG)5	55	153	7AS
<i>Xcwem53c</i>	ACGCACGCTCGCTTCAAT	GCAGTATCGTCTCCCTCTGC	BF484868	(CCG)5	55	196	7BS
<i>Xcwem53d</i>	ACGCACGCTCGCTTCAAT	GCAGTATCGTCTCCCTCTGC	BF484868	(CCG)5	55	420	6BL
<i>Xcwem53e</i>	ACGCACGCTCGCTTCAAT	GCAGTATCGTCTCCCTCTGC	BF484868	(CCG)5	55	430	4BS
<i>Xcwem54a</i>	AGCCAAAGGAGCTGGAGGAC	GGCTCCGTGCTCCTCGAC	BE517937	(CCG)5	55	180	7AS
<i>Xcwem54b</i>	AGCCAAAGGAGCTGGAGGAC	GGCTCCGTGCTCCTCGAC	BE517937	(CCG)5	55	300	5AL
<i>Xcwem54c</i>	AGCCAAAGGAGCTGGAGGAC	GGCTCCGTGCTCCTCGAC	BE517937	(CCG)5	55	370	1BS
<i>Xcwem54d</i>	AGCCAAAGGAGCTGGAGGAC	GGCTCCGTGCTCCTCGAC	BE517937	(CCG)5	55	700	2BS
<i>Xcwem54e</i>	AGCCAAAGGAGCTGGAGGAC	GGCTCCGTGCTCCTCGAC	BE517937	(CCG)5	55	800	7DL
<i>Xcwem54f</i>	AGCCAAAGGAGCTGGAGGAC	GGCTCCGTGCTCCTCGAC	BE517937	(CCG)5	55	900	6DS
<i>Xcwem55a</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868	(CCG)6	50	61	7DS
<i>Xcwem55b</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868	(CCG)6	50	86	6BS
<i>Xcwem55c</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868	(CCG)6	50	88	2AL
<i>Xcwem55d*</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868	(CCG)6	50	102	6BS
<i>Xcwem55e*</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868	(CCG)6	50	120	6BS
<i>Xcwem55f</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868	(CCG)6	50	130	6AS
<i>Xcwem55g</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868	(CCG)6	50	143	4AL
<i>Xcwem55h</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868	(CCG)6	50	148	7BL
<i>Xcwem55i</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868	(CCG)6	50	149	5BS
<i>Xcwem55j</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868	(CCG)6	50	167	4AL
<i>Xcwem55k*</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868	(CCG)6	50	190	5A
<i>Xcwem55l</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868	(CCG)6	50	221	6AS



<i>Xcwem55m</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868 (CCG)6	50	239	3BS
<i>Xcwem55n</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868 (CCG)6	50	248	5B
<i>Xcwem55o</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868 (CCG)6	50	249	6BL
<i>Xcwem55p</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868 (CCG)6	50	258	4AL
<i>Xcwem55q</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868 (CCG)6	50	297	4AS
<i>Xcwem55r*</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868 (CCG)6	50	313	2AL
<i>Xcwem55s</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868 (CCG)6	50	345	2DL
<i>Xcwem55t</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868 (CCG)6	50	350	3DS
<i>Xcwem55u</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868 (CCG)6	50	360	2BL
<i>Xcwem55v</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868 (CCG)6	50	365	3DS
<i>Xcwem55w</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868 (CCG)6	50	380	7AS
<i>Xcwem55x</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868 (CCG)6	50	450	2AL
<i>Xcwem55y</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868 (CCG)6	50	460	3AL
<i>Xcwem55z</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868 (CCG)6	50	500	5AS
<i>Xcwem55aa</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868 (CCG)6	50	660	1AL
<i>Xcwem55ab</i>	CCAAAACCCTGACCTGACC	GGAACGTCCTTGAAGACGAG	BG262868 (CCG)6	50	850	5BS
<i>Xcwem56a</i>	CCAAGTGTCAGCAACAAGCA	TAGACGAACACGCTGTGGTG	BE425936 (CCG)6	55	115	7BL
<i>Xcwem56b</i>	CCAAGTGTCAGCAACAAGCA	TAGACGAACACGCTGTGGTG	BE425936 (CCG)6	55	200	7BL
<i>Xcwem56c</i>	CCAAGTGTCAGCAACAAGCA	TAGACGAACACGCTGTGGTG	BE425936 (CCG)6	55	400	2AL
<i>Xcwem57a</i>	CCGTACGCCACCAATTTTAC	CTGATCCAGAACTCCATCTGC	BE590752 (TC)8	55	120	7BS
<i>Xcwem57b</i>	CCGTACGCCACCAATTTTAC	CTGATCCAGAACTCCATCTGC	BE590752 (TC)8	55	150	7AS

<sup>a</sup> *cwem* = Colorado Wheat EST-derived Microsatellite; \* indicates that the locus includes 2 or more adjacent bands mapped to the same chromosome arm and size of the lowest band is presented in the table

<sup>b</sup> A. tem. = annealing temperature (°C)

<sup>c</sup> Fragment sizes were estimated in reference to 10 bp and 50 bp DNA ladders (Invitrogen™ Life Technologies, Cat. No.: 10821-015 and 10416-014)