	********	********	*** *******	** *******	* * **** * **	*********	******
1Ax2*	TTTGGGGGAAT	ACCTGCACTAC	TAAGAAGGTATTA	CCTAAGTGTAACT	ICTCCGCAACAGG	TTTCATACTATCCA	GGCCAAGCTT
1Anull				CCT AAGTGT AACT	ICTCCGCAACGGG		GGCCAAGCTT
1Ax1	TTTGGGGGAAT			CCTAAGTGTAACT	ICTCCGCAACAGG	ITTCATACTATCCA	GGCCAAGCTT
1Bx13				CCCAAGTGTAACT			GGCCAAGCTT
1Bx23	TTTGGGGAAT			CCCAAGTGTAACT		GGTCATACTATCCA	GGCCAAGCTT
1Bx7				CCCAAGTGTAACT	ICTTCGCAGCAGG		GGCCAAGCTT
1Bx17				CCCAAGTGTAACT		GGTCATACTATCCA	
1Bx14				CCCAAGTGTAACT	ICTTCGCAGCAGG		GGCCAAGCTT
1Bx20				CCCAAGTGTAACT			
asX	TTTGGGGAAT			CCCAAGTGTAACT			GGCCAAGCTT
1Dx2				CCCAAGTGTAACT			
1Dx2.2	TTTGGGGGAAT	ACCTGCACTAC		CCCAAGTGTAACT			GGCCAAGCTT
1Dx5	TTTGGGGGAAT	ACCTGCACTAC	TAAAAAGGTATTA	CCCAAGTGTAACT	ICTCCCCACCACC	TTTCATACTATCCA	GGCCAAGCTT
	********	**** ******	***** *******	************	*****	******	* ** ******
1By8		CTATCCAACTTCI		ACAAGGGCAACAACCAC			AGGGTACTACCC
1By18	GCAACAAGGGTA			CAAGGGCAACAACCAC			
1By9 1By22	GCAACAAGGGTA GCAACAAGGGTA	CTATCCAACTTCT	CCACAGCAGCIAGGI	CAAGGGCAACAACCAG			AGGGTACTACCC
1Bv15			CCACAGCAGCTAGGA			CAGGACAAGGGCAACA	AAGGTACTACCC
1By16				CAAGGGCAACAACCAG	GACAATGGCAACAAT	CAGGACAAGGGCAACA	AGGGTACTACCC
asY	GCAACAAGGGTA	CTATCCAACTTCI	CCACAGCAGCTAGGA	ACAAGGGCAACAACCAG		CAGGACAAGGGCAACA	AGGGTACTACCC
1Dy10		CTATCCAACTTC1	CCACAACAGCTAGGA	ICAAGGGCAACAACCAA		CAGGACAAGGGCAACA	AGGGCACTACCC
	GCAACAAGGGTA	CTATCCAACTTCI		CAAGGGCAACAACCAC	GACAATGGCAACAAT GGACAATGGCAACAAT	CAGGACAAGGGCAACA CAGGACAAGGGCAACA	AGGGCACTACCC
1Dy12	GUAACAAGGGTA	CIAICCAACTICI	CCACAGCAGCTAGGA	ICAAGGGGGAAGAACCAC	GACAAIGGCAACAAI	CAGGACAAGGGGCAAGA	AGGGCACIACC

Additional file 2:Nucleotide sequence alignment of the *asX* or the *asY* with their corresponding elements in other x-type (upper region) or y-type (lower region) *HMW-GS* genes expressed in the wheat variety, respectively; *asX* and *asY* represent sequences highly homologous to most of all x-type or y-type *HMW-GS* genes, respectively. Nucleotides conserved in all sequences are represented by '*'. The alignment was conducted using the Clustal W program.